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Submitted by Jennifer M. Hayes

**Environmental Law 2022 CHEVRON CLIMATE CHANGE AND ESG REPORTS**

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" The Board oversees Chevron's performance and management of various environmental, social, and governance matters with a commitment to understanding and responding to the feedback of our investors and stakeholders. When we meet with investors and other stakeholders, Chevron's approach to climate change and the energy transition is an important part of the dialogue.

At this year's Annual Meeting of Stockholders, the level of support for climate-related proposals indicated investors' expectations for additional information and action. To be responsive, we have updated this year's *Climate Change Resilience* report with new details about our approach to Scope 3 emission targets and our aspiration to be net zero in Upstream Scope 1 and 2 emissions.

We believe the future of energy will be lower carbon, and we intend to be a leader in that future."

**-- Dr. Ronald D. Sugar**

Lead Director

**chairman's letter**

In the four years since publishing our first climate risk disclosure, conversations about climate have intensified, innovation and technology advancement has accelerated, and the energy system that underpins our global economy has continued to evolve. So have we.

Investors, partners, and employees frequently ask what the future of energy holds, what it means for our Company, and how we can work to help address climate change. Solutions start with problem solving, which is exactly what the people of Chevron do--and what we have excelled at for over 140 years.

Achieving change at scale requires partnership and collaboration throughout the energy system. It calls for advancements in science, engineering, and infrastructure; leaps in technology; and smart evolution of policy. Succeeding in this future means continuing to make energy ever cleaner and--to bring all of society forward--affordable and reliable on a global scale.

Transitioning to a lower carbon future provides opportunity for our Company and our customers. Essential industries that have helped build modern society, like transportation, agriculture, and manufacturing, desire to find viable ways to lower the carbon intensity of their operations. Our work to create fuels of the future--like hydrogen, renewable diesel, and sustainable aviation fuel--seeks to lower the carbon intensity of these products and support our customers' efforts to reduce their greenhouse gas emissions. Opportunity also exists for surface and subsurface storage of carbon, a critical enabler of global net zero ambitions. Our strategy is straightforward: Be a leader in efficient and lower carbon production of traditional energy, in high demand today and for years to come, while growing low-carbon businesses that will be a bigger part of the future.

When the Paris Agreement went into effect in 2016, the carbon intensity of our ***oil*** production was near the global industry average. Since that time, we've taken steps to reduce our Upstream Scope 1 and 2 carbon intensity, and in 2020, we achieved first-quartile performance for both ***oil*** and gas. Earlier this year, we established 2028 carbon-intensity targets, aligned with the second Paris Agreement stocktake. To communicate our progress in lowering the overall carbon intensity of our traditional operations and growing lower carbon business lines to help address Scope 3 emissions, we are introducing a portfolio carbon-intensity metric. This approach will measure the full value chain carbon intensity of our entire business. We are also introducing a net zero aspiration for Upstream Scope 1 and 2 emissions. We believe we have a competitive advantage to deliver carbon solutions that are good for our stockholders and all stakeholders.

As a company of problem solvers, we look to the future of energy with optimism, believing it to be essential to human progress. This report offers further information and insights about our strategy, the steps we're taking to advance a lower carbon future, and the reasons we believe this is an exciting time to be in the business of energy.

Thank you,

**Michael K. Wirth**

Chairman of the Board and

Chief Executive Officer

October 2021

[SEE FIGURE IN ORIGINAL]

**executive summary**

At Chevron, we believe the future of energy is lower carbon, and we support the global net zero ambitions of the Paris Agreement. This report builds on our previous four reports and has updates throughout, including key updates to pages 32-44 to reflect our response to stockholders on net zero and our contributions to support our customers in addressing their emissions (Scope 3).

**reliable and disciplined oversight**

Our governance structure calls for Chevron's full Board of Directors and executive leadership to exercise their oversight responsibilities with respect to potential climate change-related risks and energy-transition opportunities. This oversight is executed through regular engagement by the full Board of Directors and also through deeper, focused engagement by all Board committees. This occurs primarily through the Board's Public Policy and Sustainability Committee, as well as the Board's Management Compensation, Audit, and Nominating and Governance Committees. At the executive level, we manage potential climate change-related risks and energy-transition opportunities through the Enterprise Leadership Team and the Global Issues Committee, each of which meets regularly throughout the year. We periodically reassess our governance structure to enable Chevron to maintain a Board composition and governance framework that is effective for managing the Company's performance and risks as we deliver value to our investors.

**risk assessment and management**

We face a broad array of risks, including physical, legal, policy, technology, market, and reputational risks. We utilize an enterprisewide process to assess major risks to the Company and seek to apply appropriate mitigations and safeguards. As part of this process, we conduct an annual risk review with executive leadership and the Board of Directors and assess our risks, safeguards, and mitigations.

**higher returns, lower carbon**

Our primary objective is to deliver higher returns, lower carbon, and superior shareholder value in any business environment. Chevron's strategic and business planning processes bring together the Company's views on long-term energy market fundamentals to guide decision making by executives and to facilitate oversight by the Board of Directors. The world's energy demands are greater now than at any time in human history. Chevron has a long and celebrated history of producing ***oil***, gas, and other products that enable human progress, which it proudly continues today, as it pursues the energy future. Most published outlooks conclude that fossil fuels will remain an important part of the energy system for years to come, and that the energy mix will include increasingly lower carbon sources. As part of our strategic planning process, we use models and internal analysis to forecast demand, energy mix, supply, commodity pricing, and carbon prices--all of which include assumptions about future policy, such as those that may be implemented in support of the Paris Agreement's goal of "holding the increase in the global average temperature to well below 2° C above pre-industrial levels and pursuing efforts to limit the temperature increase to 1.5° C above pre-industrial levels."

In 2020, more than 60 percent of our total Scope 1 and 2 equity greenhouse gas (GHG) emissions (i.e., participating share of emissions both from facilities that Chevron operates and from our nonoperated joint ventures) were in regions with existing or developing carbon-pricing policies.\* In this environment, and into a future likely to include additional lower carbon policies, we seek to find solutions that are good for society and good for investors.

We use carbon prices and derived carbon costs in business planning, investment decisions, impairment reviews, reserves calculations, and assessment of carbon-reduction and new energy opportunities. We believe that our asset mix and actions in new energies enable us to be flexible in response to potential changes in supply and demand, even in lower carbon scenarios like the International Energy Agency's (IEA) *Net Zero by 2050* (NZE 2050) scenario or under higher-emissions scenarios like the Intergovernmental Panel on Climate Change AR5 Representative Concentration Pathway 8.5 that models a hypothetical upper bound of physical risks. We believe the likelihood of either scenario is remote and do not rely on either scenario in our current business planning.

**success in a lower carbon future**

Affordable, reliable, ever-cleaner energy is essential to achieving a more prosperous world. We have a strategy that combines a high-return, low-growth, lower carbon-intensity+ traditional business together with faster-growing, profitable, lower carbon new energy businesses that leverage our strengths.

**in summary**

Chevron has world-class capabilities and people--and we intend to apply them to advance Chevron's growth to a lower carbon future. Higher returns, lower carbon: We believe we must deliver both to earn a higher valuation for our stockholders and benefit all stakeholders.

\* Scope 1 includes direct emissions. Scope 2 includes indirect emissions from imported electricity and steam. Scope 3 includes all other indirect emissions, such as the use of products by customers.

+ Carbon intensity refers to a measure of CO2e per unit of production. For more information, see page 61.

**Q&A with the honorable jon m. huntsman jr., former ambassador and member of the PPSC**

**As you return to the Chevron Board, including serving on the Public Policy and Sustainability Committee, what do you see as the greatest policy issue facing the Company today**?

**Huntsman**: Chevron is a world-class company with a significant global reach. Of all the policy issues facing the Company, the one that transcends all others is climate change. We must lead and be solution oriented, which gladly is recognized by Chevron leadership, starting with the Board. We are well-positioned to confront the post-COVID environment, which will carry both social and economic challenges. But at the same time, we will expect that Chevron helps advance a lower carbon economy. With 140 years of navigating difficult circumstances and policy issues, Chevron is better prepared than ever to lead as a responsible and respected global energy company.

**Some are calling for Chevron to establish an ambition for net zero by 2050. What is your view on the issue**?

**Huntsman**: If Chevron is to lead responsibly on climate, then ambitions are required. We support the Paris Agreement, which calls for achieving net zero GHG emissions in the second half of this century. Chevron is already a leader in producing energy at a carbon intensity well below the average of the global system and is in the best-performing quartile of all ***oil*** and gas producers. Addressing the world's need for affordable, reliable, and lower carbon energy is a priority that must be tailored to our broader goals around sustainability while generating a competitive return for investors. Our Board is deeply engaged on this issue and has aligned the Company's ambitions to advance these opportunities.

**With your background as a diplomat, policymaker, and businessperson, how do you think Chevron can best support the global effort to reach the goals of the Paris Agreement**?

**Huntsman**: The best way a company can support this effort is to report on the carbon efficiency of the products they sell, along with making continuous carbon efficiency improvements and advancing new technologies that expedite all of the above. Companies like Chevron that are global leaders must play a role in informing good policy, driving innovative solutions, and working with others to lower the carbon intensity of the global economy. None of this will happen without strong and unprecedented global collaboration around Paris Agreement goals while maintaining economic growth and enhancing the standard of living for all. As I return to the Board, I've never been more optimistic or impressed about what Chevron is doing to support the global energy transition.

**section 1**

**governance framework**

Our climate-related governance is designed to manage potential climate change-related risks and energy-transition opportunities. Board oversight, executive management, and organizational capability are foundational elements to our reliable and disciplined approach.

**1.1 board oversight**

Chevron's Board oversees the Company's strategic planning and risk management, both of which include climate change issues. Chevron's governance structure includes multiple avenues for the Board to exercise its oversight responsibilities with respect to risks and opportunities, including those related to climate change.

The full Board, on an annual basis, reviews the Company's strategy, including long-term energy outlooks and leading indicators that could signify change. The Board has access to education and training on climate-related materials and to Chevron's internal subject matter experts. The Board also regularly receives briefings on climate-related issues, including policies and regulations, technology, and adaptation. The full Board has met with external experts who have shared their perspectives on climate change and the energy transition. Accessing external experts--who have differing viewpoints about the speed and scale of the energy transition--in addition to internal experts, enables the Board to consider the risks and energy opportunities arising from climate change.

The Board and its committees annually review Chevron's Enterprise Risk Management (ERM) process, which assists the Board of Directors and executive leadership in overseeing key strategic risks for the Company. Climate change is addressed in a comprehensive manner in the ERM process (see page 9).

Given the nature of climate change and its relevance to our business, the entire Board addresses climate change-related issues, with each of the Board's committees focused on certain aspects. The Board has four standing committees: Public Policy and Sustainability; Audit; Nominating and Governance; and Management Compensation. Each Board committee includes only independent Directors, and each is chaired by an independent Director, who determines the frequency, length, and agenda of the meetings. Each Committee Chair has access to management, Company information, and independent advisors, as needed. Issues considered by the committees are regularly reported to the Board. In 2020 and 2021, the full Board reviewed its governance of potential climate change-related risks and energytransition opportunities with the aim of attaining complete coverage and assignment of responsibilities. Each committee undertook a revision of its charter in order to clearly and proactively articulate its oversight related to climate issues and coverage of related Board responsibilities. The Public Policy and

Sustainability Committee's charter was enhanced to underscore its leadership role among the Board committees in providing oversight of potential climate change-related risks and energytransition opportunities.

**1.1.1 Public Policy and Sustainability Committee (PPSC**)

The PPSC assists the Board in monitoring, identifying, and evaluating potential climate risks, policies, and trends that affect Chevron's activities and performance. The PPSC discusses Chevron's progress in addressing the energy transition, establishment of climate-related goals, and voluntary reporting of environmental matters, including those related to sustainability and climate change. The PPSC reviews Chevron's political activities, including how its direct and indirect lobbying on climate issues supports Chevron's climate strategy and reflects on the Company's reputation. In conjunction with the Board Nominating and Governance Committee, the PPSC reviews climate-related proxy proposals and makes recommendations on the Company's responses. The PPSC is also responsible for overall coordination within the Board on climate-related issues.

**1.1.2 Audit Committee (AC**)

The AC is responsible for oversight of the integrity and compliance of the Company's financial statements and for seeing that financial reports and associated disclosures adequately reflect all financial risks that are material to the business. The AC analyzes potential financial risk exposures as part of Chevron's ERM process, including potential financial risks associated with climate change.

**the role of an auditor**

Registered public accounting firms must follow auditing and related professional practice standards established by the Public Company Accounting Oversight Board (PCAOB).

- The objective of the audit of financial statements by an independent auditor is the expression of an opinion on the fairness with which the statements present, in all material respects, a company's financial position, results of operations, and cash flow in conformity with generally accepted accounting principles.

- Auditors must maintain independence as required by the American Institute of Certified Public Accountants' Code of Professional Conduct and by Securities and Exchange Commission requirements.

Chevron monitors developments in PCAOB standards, including Auditing Standard 3101 regarding critical audit matters, and incorporates them into our internal processes. More information on auditing standards is available on the PCAOB website.

**chevron's governance structure relevant to potential climate change-related risk and energy-transition opportunity oversight**

[SEE FIGURE IN ORIGINAL]

These risks are discussed in the Risk Factors section of the Company's Annual Report on Form 10-K.<1> The AC selects and engages the Company's independent auditor and oversees the Board's responsibility with respect to the independent audit of the Company's financial statements.

**1.1.3 Management Compensation Committee (MCC**)

The MCC considers the relative alignment of the Company's compensation policies and practices with investors' interests, including those related to sustainability, climate change risks, and energy-transition opportunities. The MCC assesses and approves the incorporation of GHG-related performance measures into the scorecard that affects the compensation of management and most other employees.

**1.1.4 Board Nominating and Governance Committee (BNGC**)

The BNGC identifies and recommends prospective Directors with the goal of maintaining a Board composition appropriate to overseeing the wide-ranging risks that affect Chevron. The BNGC regularly reviews the appropriate skills and qualifications of Directors in the context of the current composition of the Board, the operating requirements of the Company, and the long-term interests of investors. Among the skills and qualifications desired on our Board are experience in environmental affairs and extensive knowledge of governmental, regulatory, legal, or public policy issues. Under our Corporate Governance Guidelines, the BNGC considers expertise and experience with respect to climate issues when assessing Board membership.

Chevron's Directors have a diverse set of skills, experience, and expertise to enable the Board to effectively provide oversight of potential climate change-related risks and energy-transition opportunities. Several independent Directors bring specific environmental and policy skills and qualifications to the Board.

Their experience comes from academic, government, and business sectors. These diverse perspectives help enable the Board to challenge itself and management on climate change-related risks and energy-transition opportunities.

The Board periodically reassesses Chevron's governance structure and the skills, experience, and expertise of the Board of Directors in an effort to enable Chevron to maintain an effective frame work for managing the Company's performance and the risks to our business.

**our nomination process**

To maintain a balance of knowledge, experience, background, and capability, when conducting its review of the appropriate skills and qualifications desired of Directors, the BNGC considers:

- Leadership experience in business as a chief executive officer, senior executive, or leader of significant business operations

- Expertise in science, technology, engineering, research, or academia

- Extensive knowledge of governmental, regulatory, legal, or public policy issues

- Expertise in finance, financial disclosure, or financial accounting

- Experience in global business or international affairs

- Experience in environmental issues (including climate change)

- Service as a public company director

- Diversity of age, gender, and ethnicity

- Such other factors as the committee deems appropriate, given the current needs of the Board and the Company

**board of directors**

**highly engaged, diverse board with relevant skills and qualifications**

[SEE FIGURE IN ORIGINAL]

**1.2 executive management of climate risks**

Under the direction of the Board, Chevron's Executive Committee is composed of executive officers of Chevron and carries out Board policy in managing the business affairs of the Company. The Enterprise Leadership Team (ELT) and Global Issues Committee (GIC), described below, are subcommittees of the Executive Committee.

**1.2.1 Enterprise Leadership Team**

The ELT is responsible for managing the composition, resource allocation, and strategic direction of Chevron's portfolio to achieve Chevron's objectives. The ELT focuses on performance improvement by understanding current performance and business drivers and assessing the progress and status of key corporate initiatives, like the development of our New Energies business lines (see pages 50-53) to take advantage of energy-transition opportunities. The ELT also oversees the ERM process (see page 9), which addresses climate change-related risks. At its monthly meetings, the ELT receives briefings from Chevron's subject matter experts on topics such as energy transition and climate change, geopolitical risk, innovation and technology, the policy landscape, and market conditions. For example, the ELT receives briefings and provided guidance on energy-transition strategies; peer activities; enterprisewide optimization and funding of carbon-reduction projects; performance on and updates to metrics; technology and innovation; policy; and future energy opportunities. The ELT also consults outside experts to discuss energy transition and climate change issues. In addition to these topical discussions, the ELT reviews carbon-price forecasts, which are incorporated into all business units' business plans and, as appropriate, into their carbon management plans (see page 30).

**1.2.2 Global Issues Committee**

The GIC oversees the development of Chevron's policies and positions related to global issues that may have a significant impact on Chevron's business interests and reputation.

**The vice president of Chevron** **Strategy & Sustainability** **chairs the GIC and serves as the** **secretary to the PPSC** **of the Board, helping connect** **the GIC's work to the PPSC**.

The GIC receives updates from subject matter experts on an array of climate change-related issues, such as carbon policy development around the world; Company positions on carbon policy; political developments; lobbying and trade association activity; and environmental, social, and governance (ESG) reporting practices. The GIC reviews the public climate change-related actions of other companies to understand how our peers are responding to climate change-related risks and energy-transition opportunities. It also oversees our stockholder engagement plan and reviews feedback from our stockholder engagements. The GIC is focused on ensuring that our strategy is clearly communicated and that stakeholder feedback and concerns are carefully considered.

**1.3 organizational capability on** **energy transition**

We seek to further enhance organizational capability, to identify energy transition opportunities, and to advance our lower carbon future. Chevron Technology Ventures (CTV) targets external innovation and transformational technology in areas like carbon capture, utilization, and storage (CCUS), hydrogen, and emerging power technologies. The Chevron Technical Center (CTC) develops and deploys technology across the entire business, including integrating lower carbon technology into our operations. In 2021, we formed Chevron New Energies, a business focused on the scaling of hydrogen, CCUS, and offsets. Chevron Strategy & Sustainability continues to steward the company's long-term strategy by integrating climate change, energy transition, and other sustainability themes into macroeconomic forecasting, supply-and-demand forecasting, price forecasting, portfolio modeling, and competitor intelligence.

**section 2**

**risk management**

**chevron employs long-standing** **risk management processes** **for identifying, assessing, and** **managing the risks to our** **business, including potential risks** **related to climate change**

Our Enterprise Risk Management process provides corporate oversight for assessing major risks to the Company and overseeing the safeguards and mitigations that are put in place. As part of the annual ERM process, the Enterprise Leadership Team evaluates categories of risks and their potential consequences, financial and otherwise. It also identifies and assesses the effectiveness of safeguards and mitigations in place to manage each risk category. When necessary, the ELT develops and implements improvements to strengthen the Company's safeguards. Following endorsement by the ELT, the annual ERM assessment is reviewed by the Board of Directors. Potential climate change-related risks are integrated into multiple ERM categories. Our management of risk is further aided by other systems and processes. For example, operational risks vary by geography and segment, but we seek to approach risk management in a consistent manner through our Operational Excellence Management System (OEMS).

Climate disclosure frameworks generally identify two main areas of corporate climate risk: physical risks\* and transition risks. Physical risks include potential physical impacts driven by both acute events and long-term shifts in climate patterns. Transition risks include the potential risks to a company arising from the transition to a lower carbon energy system, such as policy changes, litigation, technology advancements, shifts in supply and demand, and changing stakeholder perceptions.

\* Two such frameworks are CalPERS/Wellington Management, *Physical Risks of Climate Change* *(P-ROCC)*, which can be accessed at wellington.com/uploads/2019/10/21eb89c87e979daca0b3fe271c7408e1/physical-risks-of-climate-change\_procc\_framework.pdf, and the Task Force on Climate-related Financial Disclosures (TCFD), *Recommendations of the Task Force* *on Climate-related Financial Disclosures*, which can be accessed at assets.bbhub.io/company/sites/60/2020/10/FINAL-2017-TCFD-Report-11052018.pdf.

**2.1 physical risk**

According to the UN Intergovernmental Panel on Climate Change (IPCC AR5), the physical risks of climate change are varied and widespread. As disclosed on page 20 of the Company's 2020 Annual Report on Form 10-K, the Company's operations are subject to disruption from natural or human causes beyond its control, including physical risks from hurricanes, severe storms, floods, heat waves, other forms of severe weather, wildfires, ambient temperature increases, and sea level rise.

We have in place practices to manage risks to our operations associated with the impacts of ambient conditions and extreme weather events, regardless of any connection to anthropogenic climate change. These long-standing practices are currently applied to also address possible effects of climate change and to maintain the ongoing resilience of our infrastructure. For example, Chevron's Metocean Design and Operating Conditions Standard provides guidance for the physical parameters to be used in the design, construction, and operation of offshore and coastal facilities, including those on land that may be threatened by coastal inundation due to storm surges. The 2021 review of our corporate environmental process incorporated the potential physical risks to Chevron facilities and operations that may be associated with future climate changes via the Climate Assess procedure, giving it parity with other environmental risk. The procedure is captured within the corporate OEMS, as part of Environmental Risk Assessment and Management, and identifies and addresses the potential physical impacts of climate change to capital projects, facilities, and operations under our control (see page 37).

With worldwide operations subject to diverse microclimates and weather phenomena, we stay prepared for the possibility of natural disasters. Based on risk evaluations and business impact analysis, business units develop and implement a Business Continuity Plan to provide continuous availability--or prompt recovery--of critical business processes, resources, and facility operations. Our business units work with local communities and emergency response teams to develop site-specific plans in the event of any disruption. The plans and processes are regularly reviewed and tested to promote business continuity.

**2.2 transition risks**

Our ERM process encompasses risks typically identified as climate-related transition risks, including legal, policy, technology, market, and reputational risks. Risks that could materially impact our operations and financial condition are discussed in the Risk Factors section of our Annual Report on Form 10-K.

**2.2.1 Policy risks**

Policies addressing climate-related issues are evolving (see pages 14-20). The direct effects, as well as second- and third-order effects, of potential policy changes will depend on the type and timing of such changes. As disclosed on pages 21-23 of the Company's 2020 Annual Report on Form 10-K, significant changes in the regulatory environment, including those driven by climate-related issues, could affect our operations.

For example, legislation, regulation, and other government actions related to GHG emissions and climate change could continue to increase Chevron's operational costs and reduce demand for Chevron's hydrocarbon and other products.

**working together**

Trade associations work to identify issues that range across a broad spectrum of topics and to develop and promote sound policy.

1. We are committed to compliance, transparency, and accountability in our lobbying activities.

2. We have executive management and Board oversight of direct and indirect lobbying activities.

3. We are committed to having an honest conversation. This means sharing our perspective, listening to others, respecting differences, and working to find solutions.

4. Our climate lobbying activities seek to encourage appropriate measures supporting our ambition to deliver affordable, reliable, and ever-cleaner energy, including on issues of public policy like the global energy transition.

5. We rarely agree 100 percent with any trade association, but we believe participation is important to the informed exchange of views on issues like the energy transition.

See our climate lobbying report at chevron.com/-/media/chevron/sustainability/documents/chevron-climate-lobbying-report.pdf for more information on our engagement with trade associations and page 56 for our climate policy positions.

Climate-related issues are integrated into the Company's strategy and planning, capital investment reviews, and risk management tools and processes, where applicable (see pages 30-31). They are also factored into the Company's long-range supply, demand, and energy price forecasts (see page 29).

**2.2.2 Technology risks**

Development and deployment of innovations and emerging technologies in pursuit of a lower carbon economy may disrupt or displace portions of the current economic system. As disclosed on pages 19-20 of the Company's 2020 Annual Report on Form 10-K, technology advancements could affect the price of crude ***oil***.

The Chevron Technical Center (CTC) supports Chevron's businesses through research, technology, and capability development. The CTC also helps bridge the gap between business unit needs and emerging technology solutions developed externally in areas affecting our business (see pages 21-22, 54). In 2018, Chevron established the Chevron Future Energy Fund with a commitment of $ 100 million, and a follow-up Future Energy Fund II in 2021 with a commitment of $ 300 million, to invest in breakthrough technologies that could enable the energy transition.

**Our investments and partnerships** **have focused on areas** **such as alternative energy**, **transportation and infrastructure**, **capturing and reducing** **emissions, and energy storage**.

**2.2.3 Market risks**

The potential impacts of climate change on markets are both complex and uncertain. As disclosed on page 19 of the Company's 2020 Annual Report on Form 10-K, Chevron is primarily in a commodities business that has a history of price volatility. Potential consumer use of substitutes to Chevron's products that may be developed in the future may impact our business.

We are focused on maintaining a strong balance sheet as well as maintaining prudent liquidity levels. Our policies and controls provide centralized governance over key enterprise processes, including banking, liquidity management, foreign exchange, credit risk, financing, and climate change-related risks and energy-transition opportunities (see pages 30-31).

**litigation**

In recent years, Chevron, along with many other investor-owned energy companies (comprising a small, select subset of the broader ***oil*** and gas industry), has been named in more than 20 lawsuits brought by various U.S. cities, counties, states, and trade associations, all of which seek to hold these investor-owned companies financially responsible for changes in climate and the effects of those changes. In the only decision to date finally resolving one of these cases on the merits, the Second Circuit affirmed dismissal of all claims. See *City of New York v. Chevron* *Corp.*, 993 F.3d 81 (2d Cir. 2021). We will continue vigorously defending ourselves against claims that we believe are factually and legally without merit.

Suggesting that investor-owned energy companies, which are responsible for only a small amount of the overall global ***oil*** and gas production, and an even smaller portion of the overall global GHG inventory, should be held retroactively liable for the effects of the cumulative phenomena of climate change is illogical. First, the extraction, production, and sale of ***oil*** and gas have brought immense economic benefits to billions of people around the world and have long been actively promoted by governments--by law and by express policy. Second, retroactive liability against a small subset of ***oil*** and gas companies ignores issues of legal causation, the history of how our complex energy system has developed, as well as national security and international geopolitical imperatives. Moreover, any putative relief will neither have an effect on global demand for ***oil*** and gas nor efficiently address global impacts of climate change. Focusing on investor-owned companies is arbitrary and opportunistic; it punishes successful companies who are often the most responsive, transparent, innovative, and responsible producers.

Claims that we have concealed superior knowledge of climate change from the public are false. The potential effects of greenhouse gases--including those produced by certain end uses of fossil fuels--on the climate have been the subject of study and public discussion by prominent scientists and government officials for more than half a century.

Climate change is a global issue that requires a global solution by policymakers. We welcome meaningful efforts to address the issue of climate change and look forward to continuing to engage with governments and stakeholders to develop constructive solutions to help deliver a lower carbon future. But litigation is neither an appropriate nor an effective tool for accomplishing that objective.

**2.2.4 Legal risks**

In recent years, a variety of plaintiffs have brought legal claims against various defendants alleging climate-related losses and damages. As disclosed on page 23 of the Company's 2020 Annual Report on Form 10-K, increasing attention to climate change may result in additional government investigations and private litigation against Chevron.

We have highly capable legal staff and associated safeguards through all levels of the enterprise to identify, evaluate, and actively address legal risks. Our legal experts review and report on emerging issues and trends that could impact the Company. They aim to provide systematic reviews of climate-related matters and timely analysis and advice for the management of identified risks.

**2.2.5 Reputational risks**

As disclosed on page 23 of the Company's 2020 Annual Report on Form 10-K, increasing attention to climate change matters may impact our business. Organizations that provide information to investors on corporate governance and related matters have developed ratings processes for evaluating companies on their approach to environmental, social, and governance matters. Such ratings are used by some investors to inform their investment and voting decisions. Also, some stakeholders, including but not limited to sovereign wealth, pension, and endowment funds, have been promoting divestment of fossil fuel equities and urging lenders to limit funding to companies engaged in the extraction of fossil fuel reserves. Unfavorable ESG ratings and investment community divestment initiatives may lead to increased negative investor sentiment toward Chevron and our industry and to the diversion of investment to other industries. Refer to Section 1, Governance Framework (see pages 5-8).

**Our Global Issues Committee** **actively stewards our reputation by** **working toward alignment of** **key corporate policies, practices**, **and public positions related** **to climate change**.

Our OEMS includes a Stakeholder Engagement and Issues Management process that facilitates engagement with local communities and stakeholders to identify and assess the unique risks for each business unit's operations. Potential social, political, and reputational risks are identified, leading to risk management strategies. We regularly engage with investors and other stakeholders to receive feedback on climate-related issues.

**section 3**

**strategy**

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**higher returns, lower carbon**

As a global company, we operate in many jurisdictions that have enacted lower carbon policies. In 2020, more than 60 percent of our total Scope 1 and 2 equity GHG emissions were in regions with existing or developing carbon-pricing policies, in addition to other lower carbon policies like mandates for biofuels and renewables, methane regulation, and emerging support for technologies like carbon capture, utilization, and storage (CCUS), hydrogen, and mandatory reporting. Under current and potential future market conditions, we seek to understand the impacts of climate-related actions and strategies and to advance opportunities to increase returns to investors in both our traditional business and lower carbon business.

Chevron has world-class capabilities and people--and we intend to apply them to accelerate a lower carbon future. Our strategy combines a high-return, low-growth, lower carbon-intensity traditional business together with faster-growing, profitable, lower carbon New Energies businesses that leverage our strengths.

Our strategic and business planning processes guide our actions to deliver higher returns and lower carbon. We discuss our approach to each energy-transition opportunity in Section 4, Our Portfolio (see pages 38-54).

**Our strategic and business planning process**: **Analyzing the fundamentals to drive strategic focus and action**

Chevron's strategic and business planning processes bring together the Company's views on long-term energy market fundamentals to guide decision making by executives and facilitate oversight by the Board of Directors. We use models and internal analysis to forecast demand, energy mix, supply, commodity prices, and carbon prices--all of which include assumptions about future policy and technology developments.

The chart below details fundamental areas analyzed in our strategic planning process. These fundamentals help guide our decisions on strategy, portfolio management, business planning, and capital allocation.

The world's energy demands in recent years are greater than at any time in human history, and most published outlooks conclude that fossil fuels will remain a significant part of an energy system that increasingly incorporates lower carbon sources of supply. Within this context, we align our strategy with areas in which we have a competitive advantage and in which we see potential to generate increased value for our investors.

Our strategic process supports our ability to operate in a lower carbon policy environment. For example, we use carbon prices and derived carbon costs in business planning, investment decisions, impairment reviews, reserves calculations, and evaluation of opportunities for carbon reduction and new energies. We believe that lower carbon-intensity ***oil*** and gas assets will remain economically competitive under a wide range of future scenarios. We believe that our asset mix enables us to be flexible in response to potential changes in supply and demand, even in lower carbon scenarios like the hypothesized NZE 2050 scenario (see pages 32-36 and Section 4). In addition, our recently launched Chevron New Energies organization will assist us to succeed if the projections for various accelerated energy-transition pathways begin to materialize.

[SEE Exhibit 1. A disciplined approach to strategy development IN ORIGINAL]

**3.1 how we approach long-term fundamentals**

We have a dedicated cross-functional team that tracks and forecasts long-term fundamentals to inform us of potential changes in market dynamics that could indicate the need for changes to strategy.

**3.1.1 Macroeconomic and demographic drivers: Population** **growth, increasing standards of living, and consumer behaviors**

Affordable, reliable energy enables economic development by facilitating modern production techniques, which ultimately leads to increased lifespans and a higher quality of life.<2> Individuals and society benefit from access to affordable, reliable, and ever-cleaner energy. As populations and incomes grow and billions of people in less-developed countries seek a higher standard of living, many experts forecast global energy demand to increase, even as the energy intensity of the world's economic output is declining.<3> As incomes improve, more economic growth comes from the service sector, which is often more energy and carbon efficient than manufacturing. In addition, technological advancements and ongoing improvements in energy efficiency will likely further reduce energy intensity. These effects may be less prevalent in nations that are in the process of industrialization and infrastructure development, as these activities require immense energy resources.<4>

Changes in consumer behavior can also influence energy demand. Some behaviors, like remote working and videoconferencing, can lead to a decrease in energy demand. Other behaviors, like more home deliveries, can lead to an increase in energy demand. The impact of behavioral changes may be modulated by other demand drivers, such as government policies or the long life of existing infrastructure. For example, although some municipalities have passed ordinances prohibiting the inclusion of gas infrastructure in new buildings, natural gas still accounts for about 23 percent of household energy use in the United States.<5> Demand for natural gas is primarily driven by existing homes and buildings, which typically have very long service lives. Accordingly, the IEA's 2020 *World Energy Outlook* (WEO) expects behavioral changes to be "influential" but "not game-changers" in its Stated Energy Policies Scenario.<6>

[SEE Exhibit 2. A growing middle class drives demand for access to energy IN ORIGINAL]

Source: IEA, *World Energy Outlook 2020*, iea.org/reports/world-energy-outlook-2020.

[SEE Exhibit 3. Billions of people would benefit from affordable, reliable, and ever-cleaner energy IN ORIGINAL]

Source: World Bank, World Development Indicators, databank.worldbank.org/source/world-development-indicators.

**3.1.2 Policy: Trends, framework, and impact analysis**

Policies, like those that support the Paris Agreement, can change the amount of energy consumed, the rate of energy-demand growth, the energy mix, and the relative economics of one fuel versus another. Tracking and anticipating policy trends helps us identify potential changes in energy mix and supply/demand scenarios and adjust our outlooks accordingly.

**Policy trends**: The Paris Agreement, which went into effect in 2016, aims to hold "the increase in the global average temperature to well below 2° C above pre-industrial levels and [to pursue] efforts to limit the temperature increase to 1.5° C above pre-industrial levels."\* Under the agreement, each country may pursue its own strategies for achieving its Nationally Determined Contributions (NDCs). According to the IEA, the current NDCs do not appear to enable achieving the goals of the Agreement,<7> although new, updated, or reconfirmed NDCs are intended to be submitted.

According to the IPCC, achieving the Paris Agreement's goals will require peaking emissions as soon as possible and global net zero emissions by "around 2070" (2065-2080). The IPCC finds that achieving a 1.5° C scenario with high confidence and without any temporary overshoot would require net zero by "around 2050" (2045-2055). Other IPCC scenarios reach net zero later this century, but they achieve 1.5° C outcomes through greater adoption of carbon dioxide removal opportunities. Achieving a 1.5° C goal will require nations to reduce emissions across all sectors of the economy. It will also require increasing removals by sinks, such as nature-based solutions (e.g., forestry), and through technology solutions (e.g., CCUS).

The IPCC finds there are numerous potential pathways to achieving the goals of the Paris Agreement. All pathways include the continued use of ***oil*** and gas, even in rapid decarbonization scenarios. To achieve net zero emissions by 2050, direct air carbon dioxide capture and storage and carbon capture and storage (CCS) are required to be scaled up and globally deployed. Without this technology, the IPCC climate models cannot achieve theoretical solutions to reach net zero in the desired time frame.

\* UN Intergovernmental Panel on Climate Change (IPCC), *Special Report: Global Warming of 1.5 °C*, 2018, ipcc.ch/sr15/.

[SEE Exhibit 4. Nearly all countries have endorsed the Paris Agreement and some are supporting net zero ambitions IN ORIGINAL]

As of October 2021.

Sources: United Nations Treaty Collection, treaties.un.org/Pages/ViewDetails.aspx?src=TREATY&mtdsg\_no=XXVII-7-d&chapter=27&clang=\_en; United Nations Framework Convention on Climate Change, unfccc.int.

**to achieve global net zero, markets** **should be empowered to incentivize the** **most carbon-efficient producers**

We support the Paris Agreement and its goal of "holding the increase in the global average temperature to well below 2° C above pre-industrial levels and pursuing efforts to limit the temperature increase to 1.5° C above pre-industrial levels," which per the IPCC implies reaching global net zero in the second half of this century. We believe that the optimal approach is to drive the most efficient and cost-effective reductions economywide, paired with natural and technological emissions removals. Narrow sectoral or geographic metrics are less efficient than broad economywide solutions, which are uniquely able to incentivize the most efficient and cost-effective reductions. Chevron supports a price on carbon, applied as widely and broadly as possible, as the best approach to reduce emissions. We work to encourage national policies to support international linkages (for example, through Article 6 of the Paris Agreement), with the goal of ultimately building up to a liquid and integrated global carbon market.

Individual companies contribute to achieving the goals of the Paris Agreement through their participation in policies that may be included in the NDCs of the countries in which the companies operate. We work with governments to encourage well-designed policies that can strengthen the NDCs, such as carbon pricing and rewarding the most efficient and least carbon-intensive producers. Most energy forecasts agree that ***oil*** and gas will continue to be a significant source of energy--even in a net zero scenario for years to come. We believe the transparent reporting of performance will enable the market to reward the most carbon-efficient producers.

**policy: in-depth discussion**

**Policy organizational framework**: Given the sheer scale of the global challenge to address climate change, allocation of limited resources as efficiently and effectively as possible is critical to creating the greatest opportunity for success. Prioritizing efforts that curtail emissions at the lowest cost per tonne, irrespective of where or in which sectors those abatements occur, is the most economically efficient approach. These efforts, grouped by category, can be ordered by cost of the reduction on a per-tonne basis in a graphical representation (Exhibit 5), often called a marginal abatement cost curve (MACC).\*

Each bar represents one type of mitigation opportunity. The height of each bar represents the cost of abatement, generally expressed in a breakeven cost per tonne of carbon dioxide-equivalent (CO[2]e), and the width of each bar represents the volume of abatement, usually in tonnes of CO2e. Generally, efficiency and some renewable-power applications are less costly than nature- and land-based reductions, which are generally less costly than CCUS and other technologies still in early development. Potential carbon-reduction costs and volumes can also vary by geography or application.<8>

Because it is impossible to know the exact abatement cost and reduction available in order to design specific policies for targeted reduction opportunities, many economists believe the most efficient way to achieve economywide emissions reduction is through a price on carbon.<9> Carbon pricing incentivizes reductions across the economy and investment in reduction technologies for the future. A price in the form of either a tax--which sets the cost of reduction--or a cap-and-trade system--which sets the volume of reduction--can flexibly integrate additional information and solutions within a market-based framework, strengthening and compounding its comparative advantages over time (Exhibit 6). In addition, carbon prices could raise revenue that can either be invested in reduction technologies whose commercial application might otherwise be too distant to incentivize investment or returned to impacted communities and consumers.

The wider the coverage of a price, the more opportunities there are to find carbon reductions. For example, in non-OECD economies, it is often less expensive to reduce emissions because investment may not have been made in the most efficient technology. By linking OECD and non-OECD economies, financing can be mobilized to incentivize reductions from the lowest-cost area. It is estimated that with global cooperation (for example through the Paris Agreement), reductions can be made at half the cost of an inefficient and unlinked system.<10>

Policies narrowly targeted at specific geographic regions, sectors, or technologies can miss the efficiencies of a comprehensive market-based system. The impact of a targeted approach may be a reordering of the MACC-abatement opportunities--by shifting a higher-cost activity to the left on the graph (Exhibit 7).

\* Construction of a MACC requires detailed understanding of a wide range of technologies and mitigation options across the various sectors of the economy. Numerous decisions are also necessary, such as the grouping of technologies and the choice of discount rate, which can affect both the volume and the cost calculations. MACCs should be taken as qualitative, rather than quantitative, representations of the costs and potential magnitudes of mitigation options unless done with facility- and project-specific information.

[SEE Exhibit 5. A MACC can be a helpful organizational framework for policy analysis and abatement-potential analysis IN ORIGINAL]

Note: Example of a marginal abatement cost curve; project ranking represents average prices, but specific projects within categories vary.

[SEE Exhibit 6. In markets with carbon pricing, the carbon cost often follows the cost of abatement in the market + IN ORIGINAL]

[SEE Exhibit 7. In markets with narrowly targeted policies, abatement opportunities may be reordered + IN ORIGINAL]

+ For illustration only. Not drawn to scale.

This typically achieves emissions reductions at greater overall costs to society and may distort price signals (e.g., lower the carbon price) by adding reductions, or supply, to the market.

Although carbon pricing is generally regarded as the most efficient way to widely reduce emissions, governments may want to support innovation by investing in technologies whose commercialization could unlock greater reduction opportunities even though they are currently more expensive and have a "green premium," which is the "additional cost of choosing a clean technology over one that emits a greater amount of greenhouse gases."<11> Similarly, targeted policies are sometimes helpful for addressing instances in which a desirable reduction activity would not otherwise occur because of a barrier. For example, although efficiency projects often are economic, the entity that needs to invest in the reduction activity may not be the same entity that receives the benefit from the investment (e.g., in situations that involve leased equipment).

**Policy impacts**: The timing, scope, scale, and design of policies to support the goals of the Paris Agreement will vary and could have direct and indirect impacts on the Company. Policies can change the amount of energy consumed, the rate of energy-demand growth, and the relative economics of one fuel versus another.

- Efficiency improvements are expected to have the largest impact on moderating energy-demand growth (e.g., consumers purchase more-efficient vehicles or more-efficient appliances). Efficiency policies, up to a point, are often some of the most cost-efficient on a per-tonne basis. You can read more about our actions on efficiency on page 41.

- Technology mandates, like renewable fuel and portfolio standards, and electric vehicle mandates, can change the economics of different energy sources and may change the energy mix. You can read more about our actions on renewables on pages 41 and 49.

- Carbon pricing and fuel taxes increase the cost of fossil fuels and can affect the relative economics of the fuel mix. In addition, carbon pricing can incentivize the most efficient producer of a particular product. You can read more about Chevron's approach to carbon pricing on page 29. You can read more about our approach to carbon-efficient production on page 40.

- Policy design in major demand centers and markets is increasingly important because of impacts on the relative economics of fuel choices, particularly for those that trade in global markets. ***Oil***, gas, and associated products are globally traded commodities (Exhibits 8 and 9). Border carbon adjustment mechanisms, which are applied in carbon-pricing programs and import requirements under renewable fuels mandates to prevent offshoring of emissions to other jurisdictions (also known as leakage), can raise the cost of an imported product. Impact is often tied to the benchmarked carbon intensity of the product's production.

[SEE Exhibit 8. About 50 percent of global daily ***oil*** production crosses borders IN ORIGINAL]

Source: IHS Markit, ihsmarkit.com.

mmbd = millions of barrels per day

[SEE Exhibit 9. Virtually all LNG produced crosses borders IN ORIGINAL]

Source: IHS Markit October 2020 LNG flows.

LNG = liquefied natural gas

mmt = million metric tonnes

**Direct policy cost impact analysis: The extent to which a policy can affect** **commodity prices and margins depends on the ability to recover** **the costs in the marketplace. Many jurisdictions take this into consideration** **in the context of local production and refining trade competitiveness**.

[SEE Exhibit 10. Policy applied to producer below the marginal producer leads to the least ability to recover costs\* IN ORIGINAL]

If a policy is applied to a single producer or jurisdiction, the cost can erode margins and may make the supply/refining/ sale uncompetitive.

[SEE Exhibit 11. Policy applied to the marginal producer leads to some ability to recover costs\* IN ORIGINAL] If a policy is applied to the marginal producer, the commodity price can rise to recover a portion of the cost or to the level at which the next producer becomes the marginal producer, whichever is less.

[SEE Exhibit 12. Policy applied to all producers leads to the greatest ability to recover costs\* IN ORIGINAL]

If a policy is applied to all producers by the same amount per unit of production, the cost of supply rises, thus enabling the greatest cost-recovery potential; however, less total supply is needed.

[SEE Exhibit 13. Policy applied to all producers; production efficiency incentivized and leads to the ability to recover more than costs\* IN ORIGINAL]

If a policy cost is applied to all producers by the same amount per tonne of emissions, such as via a performance benchmark, those producers with more-efficient production have a greater ability to recover costs, which may increase margins even though less total supply is needed. Conversely, less-efficient producers may incur higher costs and be priced out of the market.

**carbon pricing** \*

**Exhibit 14. Carbon-pricing mechanisms are in place or under development in 45 national and 35 subnational jurisdictions around the world**

[SEE FIGURE IN ORIGINAL]

Sources, as modified by Chevron Corporation: World Bank, *Carbon-pricing Dashboard*, carbonpricingdashboard.worldbank.org; Energy Intelligence Group, *EI New Energy Global Carbon Prices*, October 2021; Government of Canada, canada.ca/en/services/environment/weather/climatechange/climate-action/pricing-carbon-pollution.

**In 2020, more than 60 percent of our Scope 1 and 2 GHG emissions were in regions with existing or developing carbon-pricing policies**.

**Australia** Our Upstream facilities are regulated by the federal Safeguard Mechanism that took effect in 2016, which caps facility-level emissions and requires emissions above this cap to be offset, creating an indirect carbon-pricing policy. As of August 2021, the price for an Australian offset was $ 16/tonne (AUD22).

**California** Our Upstream ***oil*** assets, refineries, and refined gasoline and diesel sales are regulated under a cap-and-trade policy that took effect in 2013. In Upstream and refining, allowance allocations are aligned with a performance benchmark to consider competitiveness of trade-exposed industries. All fuel suppliers are covered by the regulation for refined-product sales. As of November 2020, the price for an allowance in California was $ 17/tonne.

**Canada Federal** The government implemented a carbon tax of $ 15/tonne (CAD20) in 2019 that increases to $ 37/tonne (CAD50) in 2022, which may be met with an equivalent program at the provincial level. Provinces may use the revenue generated as they see fit, including to protect trade-exposed industries. The federal price acts as a backstop and is applied in provinces not deemed equivalent to provincial pricing programs.

**Alberta** Our joint-venture Upstream assets are subject to the economywide carbon price of $ 32/tonne (CAD40) in 2021. A performance benchmark for large emitters was established under the Technology Innovation and Emissions Reduction Regulation program in 2020 and designed to protect the competitiveness of trade-exposed industries.

**Atlantic Canada** Atlantic Canada has a broad-based carbon-pricing program that tracks the federal program. Our joint-venture assets in Atlantic Canada are under this performance-based large-emitter program.

**British Columbia** Our Upstream interests are subject to the economywide carbon tax, in effect since 2008, of $ 36/tonne (CAD45) for combustion emissions.

**Colombia** Our fuel supplies, along with others sold in the country, are subject to a $ 5/tonne (COP19,500) carbon tax in effect since 2017. Alternatively, we can sell carbon-neutral fuel via the use of offsets.

**European Union** Our Oronite plant in France is regulated under the European Union cap-and-trade system in effect since 2005. Allowance allocations are aligned with a performance benchmark to consider the competitiveness of trade-exposed industries. As of August 2021, the price for an EU allowance was $ 68/tonne (EUR58).

**Kazakhstan** Our joint-venture Upstream assets are regulated under a cap-andtrade policy that started in 2013. Allowance allocations are aligned with a performance benchmark to consider the competitiveness of trade-exposed industries.

**Singapore** A carbon tax of $ 4/tonne (SGD5), in effect since 2019, is being applied to our joint-venture refinery and Oronite additive facility.

**South Korea** Our joint-venture refinery is regulated under a cap-and-trade system in effect since 2015. Allowance allocations are aligned with a performance benchmark to consider the competitiveness of trade-exposed industries. As of August 2021, the price of a Korean allowance was $ 19/tonne (KRW21,750).

**Others** *Jurisdictions such as Israel, Thailand, Brazil, and the states of Washington, New Mexico, and Oregon are in the process of analyzing or developing carbon-pricing programs. Coverage and other details regarding these programs are still under consideration. China's national emissions trading scheme started in 2021, but currently only covers the power sector*.

**We believe it is a competitive advantage to already operate in a lower carbon policy environment. We have direct exposure to carbon pricing via our operations in some of these jurisdictions. In addition to carbon-pricing regulations, we operate in areas that incentivize low-carbon intensity via GHG regulations such as low-carbon fuel standards and methane regulations**.

**methane** \*

**Canada Federal** The government published federal methane regulations in 2018 and works with provinces and territories to establish regulations equivalent to federal guidelines.

**Alberta and British Columbia** In 2019, both provinces finalized equivalency agreements with the federal government that allow the provinces to regulate province-level programs that will ultimately achieve the same objectives.

**Newfoundland** *The province has agreed to work with the federal government to develop regulations, including limiting use of pneumatic devices, to reduce methane emissions by 45 percent by 2025. Proposals include leak detection and equipment controls, most of which would come into effect between 2020 and 2023*.

**U.S. Federal** In 2021, the Congressional Review Act was used to reinstate methane as a regulated pollutant in the EPA's regulation of new and modified sources in the ***oil*** and gas sector (NSPS OOOOa).

**California** Our Upstream operations are subject to a methane rule that requires leak detection and repair and storage tank and other equipment controls. Most requirements have been in effect since 2018 and apply to both new and existing facilities.

**Colorado** Our Upstream operations are subject to methane rules that require leak detection and repair and storage tank and other equipment controls. The rules apply to new and existing facilities and have been in effect since 2014, with recent updates in 2020 that added emissions-monitoring requirements on new flowback operations.

**New Mexico** In 2021, New Mexico adopted natural-gas waste reduction rules that established a statewide enforceable regulatory framework to secure reduction in ***oil*** and gas emissions and prevent the waste of natural gas from new and existing sources. *Another rule targeting volatile organic compounds and methane reductions as a co-benefit is under development*.

**Nigeria** *Nigeria's "Guidelines for Reducing Methane Emissions from the* ***Oil*** *and Gas Operations in Nigeria" is in development*.

**biofuels** \*

**Australia** Renewable-fuel-blending mandates in the state of New South Wales, in effect since 2007, and in the state of Queensland, in effect since 2017, apply to all fuel suppliers and require that volumes of biofuel be blended into diesel and gasoline fuels.

**Colombia** A renewable-fuel-blending mandate, in effect since 2001, applies to all fuel suppliers and requires that volumes of biofuels, if available domestically, be blended into motor fuels.

**Malaysia** A renewable-fuel-blending mandate, in effect since 2014, applies to all fuel suppliers and requires that volumes of biofuel be blended into diesel fuel.

**Philippines** A renewable-fuel-blending mandate, in effect since 2007, applies to all fuel suppliers and requires that volumes of biofuels be blended into gasoline and diesel fuels.

**South Korea** A renewable-fuel-blending mandate, in effect since 2012, applies to all fuel suppliers and requires that volumes of biodiesel be blended into diesel fuel.

**Thailand** A renewable-fuel-blending mandate, in effect since 2002, applies to all fuel suppliers and requires that volumes of biofuels, if available, be blended into gasoline and diesel fuel.

**U.S. Federal** A renewable-fuel-blending mandate, in effect since 2006, requires the introduction of increasing volumes of biofuels into the U.S. fuel supply. This obligation applies to all refiners/importers of gasoline and diesel fuels.

**California** A low-carbon-fuel mandate, in effect since 2011, applies to all fuel suppliers in California and sets carbon-intensity standards for gasoline, diesel, and the fuels that replace them.

**Oregon** A renewable-fuel-blending mandate, in effect since 2009, did apply to all fuel suppliers and required that volumes of biofuels be blended into gasoline and diesel fuels. In 2016, a low-carbon-fuel mandate replaced the renewable-fuel-blending mandate.

**Washington** A renewable-fuel-blending mandate, in effect since 2008, applies to all fuel suppliers and requires that volumes of biofuels be blended into gasoline and diesel fuels. *A low-carbon-fuel mandate is currently being discussed*.

**other select policies that incentivize energy-transition opportunities** \*

**Exhibit 15. From mandatory reporting requirements to renewable portfolio standards to carbon capture regulations, policy-enabled markets are advancing around the world**

**United States**

**renewable power**

- State-level renewable power targets of 8.5%-60%

**biofuels**

- The Renewable Fuel Standard 2 requires increasing volumes of biofuels; approximately 20 billion gallons were required in 2020

**carbon capture**

- 45Q tax credit of US$ 50/tonne for permanent CO[2] storage

**mandatory reporting**

- The Securities and Exchange Committee is considering a rule for climate change disclosure

- EPA Greenhouse Gas Reporting Program requires facility-level emissions reporting for emissions > 2k tCO[2]e

**European Union**

**renewable power**

- 32% of energy derived from renewables by 2030; "Fit for 55" package proposed, increasing target to 40% by 2030

**biofuels**

- 14% renewable fuels target by 2030; 3.5% from advanced biofuels

**carbon capture & hydrogen**

- US$ 13 billion between 2021 and 2030 to support technology scale-up

**mandatory reporting**

- The EU Taxonomy defines which investments are "environmentally sustainable"

- Proposed expansion to mandatory ESG reporting covering all large companies and requiring more-detailed information via new EU sustainability reporting standards and mandatory assurance

**United Kingdom**

**renewable power**

- 15% of energy consumption from renewable sources

**biofuels**

- 12.4% Renewable Transport Fuel Obligation by 2032

- Renewable aviation fuels and renewable fuels of non-biological origin are added into the program

**carbon capture & hydrogen**

- US$ 1.3 billion to support four CCUS hubs and clusters

- US$ 1.25 billion to support hydrogen strategy

**mandatory reporting**

- UK emissions trading scheme for facilities with installed combustion equipment at a total rated input greater than 20MW

- UK announced it will begin work on its own Taxonomy and will use the metrics and thresholds set by the EU Taxonomy as a starting point

- Streamlined Energy and Carbon Reporting requires companies that have consumed (in the UK) more than 40,000 kWh of energy in the reporting period to disclose energy and carbon information

**Norway**

**biofuels**

- 30% increase in aviation biofuels by 2030, from 2018 baseline

**carbon capture**

- $ 1.8 billion to support Longship CCS project

**Kazakhstan**

**mandatory reporting**

- Emissions trading scheme for facilities with emissions > 20k tonnes CO[2]

**China**

**renewable power**

- Increase wind and solar generation capacity to 1,200 gigawatts by 2030

**hydrogen**

- Up to US$ 2.5 billion for cities to build out hydrogen infrastructure and promote fuel cell vehicle adoption

**South Korea**

**renewable power**

- 25% renewable-power targets by 2030

**biofuels**

- 3% renewable-fuel-blending ratio

**hydrogen**

- Roadmap to develop hydrogen and fuel cell economy

**mandatory reporting**

- Emissions trading scheme for facilities with emissions > 25k tonnes of CO[2]e

**California**

**renewable power**

- 60% of energy from renewables by 2030

**biofuels**

- 20% reduction in the carbon intensity of transportation fuels by 2030 from 2011

**carbon capture**

- CCS projects qualify for Low Carbon Fuel Standard credit generation

**hydrogen**

- US$ 115 million for hydrogen infrastructure

**mandatory reporting**

- CARB Mandatory Reporting of Greenhouse Gas Emissions covers facilities with emissions > 10k tCO[2]e

**Brazil**

**biofuels**

- 27% ethanol

- 10% biodiesel

**Singapore**

**carbon capture & hydrogen**

- Government support for R&D to scale up technologies

**mandatory reporting**

- National Environment Agency Carbon Pricing Act covers facilities with emissions > 2k tonnes CO[2]e

**Australia**

**renewable power**

- Some state- and territory-level renewable-power targets: 50%-100%

**biofuels**

- Some state-level biofuel standards (0.5%-2% biodiesel)

**carbon capture & hydrogen**

- US$ 38 billion in support for CCUS and hydrogen

- Proposal to issue Australia domestic carbon credits to CCS operators mandatory reporting

- National Greenhouse and Energy Reporting Act 2007 covers facilities with emissions > 25k tonnes CO[2]e

Sources: European Commission, *CO[2] Emission Performance Standards for Cars and Vans (2020 onwards)*, ec.europa.eu/clima/policies/transport/vehicles/regulation\_en; IEA, *Global EV Outlook 2020*, webstore.iea.org/login?ReturnUrl=%2fdownload%2fdirect%2f3007; EU Energy Directive, *Renewable Energy Directive*, ec.europa.eu/energy/topics/renewable-energy/renewable-energy-directive\_en; Lawrence Berkeley National Laboratory, *U.S. Renewables Portfolio Standards*, eta-publications.lbl.gov/sites/default/files/2017-annual-rps-summary-report.pdf; Singapore Ministry of Sustainability and the Environment, a-star.edu.sg/Research/funding-opportunities/lcer-fi-grant; Kevin Morrison, "Australia to Involve Carbon Capture, Storage for Credit," argusmedia.com/en/news/2229216-australia-to-involve-carbon-capture-storage-for-credit.

**Australia** Hydrogen: In 2020, the government directed the Clean Energy Finance Corporation to make approximately US$ 220 million available to support growth in the hydrogen industry. Hydrogen and CCUS: In 2020, Australia released its *First Low Emissions Technology Statement--2020*, which aims to leverage co-investment from the private sector and other levels of government to drive at least US$ 38 billion of new investment over the decade. Priority areas include CCUS and hydrogen.

**Europe** *Hydrogen and CCUS: The EU Innovation Fund under the EU Emissions Trading System is expected to raise up to $ 13 billion (EUR11.5 billion) between 2021 and 2030, which will support scaling up hydrogen and CCUS projects. The United Kingdom announced more than $ 1 billion (GBP800 million) to support four CCUS hubs and clusters and unveiled its hydrogen strategy in August 2021, which proposed $ 1.25 billion (GBP900 million) to support hydrogen development. Mandatory reporting: The EU Taxonomy is a framework that purports to define which investments are "environmentally sustainable." Companies will be required to report the share of Capex, Opex, and revenue that satisfies overarching principles, as well as a series of technical screening criteria. Reporting requirements begin in January 2022. In November 2020, the United Kingdom announced it will begin work on its own taxonomy, which will use the metrics and thresholds set by the EU Taxonomy as a starting point*.

**South Korea** Hydrogen: In 2019, South Korea announced its national Hydrogen Economy Roadmap to support hydrogen and fuel cell development. In 2020, South Korea's National Assembly passed the Hydrogen Economy Promotion and Hydrogen Safety Management Act, which provides a legal framework for government efforts, including providing subsidies to industry.

**United States** CCUS: Starting from 2018, the United States expanded its federal 45Q tax credit, which provides $ 50/tonne for CO[2] stored permanently and $ 35/tonne if the CO[2] is put to use in support of CCUS applications. This can be combined with state-level programs, such as California's Low Carbon Fuel Standard, to incentivize CCUS deployment to produce lower carbon-intensity fuels.

**3.1.3 Technology trends: We believe removals and hydrogen are key to a lower carbon future**

Improvements in technology can reduce energy costs, lower emissions, and influence the energy mix by changing the relative competitiveness of different energy types. Three of the most prominent areas of investment include natural and technological CO[2] removals; hydrogen; and battery storage. Removals and hydrogen in particular are important technologies to assist in the decarbonization of hard-to-abate sectors.

**Removals**: The IPCC 1.5° C report pointed out that many pathways to achieving the < 2° C goal will require "negative emissions" approaches. Negative emissions, or CO[2] removals, are often classified as natural climate solutions and technology removals, like carbon capture. Both can be essential tools in mitigating GHG emissions and meeting the goals of the Paris Agreement (Exhibit 16). n12 According to the IEA's *Energy Technology Perspectives 2020* report, CCUS is expected to play a central role as one of four key pillars of global energy transitions, alongside renewables-based electrification, bioenergy, and hydrogen. CCUS may also unlock faster decarbonization of carbon-intensive production processes, such as cement manufacturing.

**Hydrogen**: Hydrogen is a versatile energy carrier, with potential as a lower carbon fuel, particularly in sectors that are hard to decarbonize. Under some scenarios, demand for blue and green hydrogen could more than triple by 2050 n13 if costs come down and infrastructure is built out (Exhibit 17). Targeted government policies can encourage research and development to drive down costs and improve performance so hydrogen can become commercially viable. Policy can also help lower the risk of investment for first movers by enabling development of supply chains and infrastructure that drive down costs and enable economies of scale.

**Battery storage**: Over the past decade, there has been notable cost reduction and performance improvement in lithium-ion (Li-ion) batteries and other storage technologies. Such progress, combined with a drop in the cost of producing renewable energy and advancements in other technologies, such as smart-grid and demand-management innovations, has the potential to increase electrification in sectors like light-duty passenger transportation. These advances facilitate increased use of renewable energy in electricity generation and help mitigate the problem of intermittency.

However, even with these improvements in energy storage, many leading energy experts agree that additional technology breakthroughs are needed to enable wider scaling of renewables and decarbonization in other hard-to-abate sectors. CCUS and hydrogen are the among the most promising of these other technologies.

**Exhibit 16. CCUS and natural climate solutions could make a long-term contribution toward reducing GHG emissions**

[SEE FIGURE IN ORIGINAL]

Source: IEA, *Energy Technology Perspectives 2020*, iea.org/reports/energy-technology-perspectives-2020. Bronson Griscom et al., "Natural Climate Solutions," Proceedings of the National Academy of Sciences of the United States of America, October 2017, pnas.org/content/114/44/11645. University College London, *Future Demand, Supply and Prices for Voluntary Carbon Credits--Keeping the Balance*, June 2021, trove-research.com/wp-content/uploads/2021/06/Trove-Research-Carbon-Credit-Demand-Supply-and-Prices-1-June-2021.pdf.

**Exhibit 17. Under the IEA's SDS, hydrogen demand could more than triple by mid-century**

[SEE FIGURE IN ORIGINAL]

Source: IEA, *Energy Technology Perspectives 2020*, iea.org/reports/energy-technology-perspectives-2020.

**Exhibit 18. Energy density of different fuel sources (shown with tank) can drive the attractiveness of fuel types**

[SEE FIGURE IN ORIGINAL]

Sources: Argonne National Laboratory, GREET model fuel specifications; AABC (Advanced Automotive Battery Conference) for Li-ion battery performance; with Chevron internal compilations.

**Energy density of different fuels**: The energy density and portability of a fuel are among the most important characteristics when considering viability for use in transportation. Two important aspects are as follows:

- **Gravimetric density**, the energy contained in a unit mass of fuel, determines how far one can travel with a given amount of fuel. Higher gravimetric density means less weight is required to be carried as fuel, meaning more weight capacity is available for carrying people and freight.

- **Volumetric density**, the energy stored in a unit volume of fuel, determines how much space the fuel takes up. Higher volumetric energy density means less space is required to store the fuel, and thus more space is available for carrying people and freight.

Fundamental differences in energy densities are a major obstacle to using alternative fuels for some modes of transport, such as long-distance shipping and air travel. To date, few alternative fuels or energy storage systems can surpass the energy densities of liquid fuels.

Gaseous fuels like compressed natural gas and hydrogen currently require large and heavy tanks for on-board vehicle storage. Further research and development are needed to reduce the weight and size of such storage tanks. Li-ion battery systems have achieved considerable progress in light-duty vehicle applications in the past decade, but some trade-offs in range, which is dictated by energy density, still exist. n14

**3.2 how we approach the future energy mix**

We have a dedicated cross-functional team that forecasts the energy system decades into the future. We track and analyze energy demand and mix drivers to work to understand which sources of energy supply are likely to meet expected demand. We believe the energy mix will continue to be primarily determined by the economics of each energy supply source, which are influenced by the intersection of macroeconomic and consumer, policy, and technology trends. The relative importance of these factors can vary by region and over time.

***Oil*** and gas currently account for a majority of global energy supply, at approximately 310 exajoules per year and have a diverse set of end uses. In some uses, like aviation, marine, freight, and petrochemicals, there are few, if any, cost-effective and scalable alternatives to ***oil***. We utilize signposts to help us track key demand indicators to test our views and to help determine whether alternatives are emerging faster, or slower, than our primary scenario.

Although the future is uncertain, and ***oil*** and gas may fall below today's share of the energy supply, most energy experts agree that these commodities will be required to satisfy global energy demand under almost any future market scenario--even one in which policies increasingly aim to limit fossil fuel use and reduce GHG emissions. n15

**Exhibit 19. Most scenarios show a range of energy sources will make up the future energy mix**

[SEE FIGURE IN ORIGINAL]

Sources: IEA, *World Energy Outlook 2020*, iea.org/reports/world-energy-outlook-2020; IHS Markit 2020 Scenarios; Wood Mackenzie, *Energy Transition Outlook 2020: Highlights*; IEA, *Net Zero by 2050*, iea.org/reports/net-zero-by-2050.

mmboed = millions of barrels of ***oil***-equivalent per day

**Exhibit 20. *Oil* and gas have many important and diverse uses, as shown in world energy flows**

**The IEA estimates that primary energy demand in 2020 declined by approximately 4 percent**.

[SEE FIGURE IN ORIGINAL]

\* **Power loss** = Loss in gas distribution, electricity transmission, and coal transport. **Non-energy use** = Those fuels that are used as raw materials in the different sectors and are not consumed as a fuel or transformed into another fuel. Non-energy use is shown separately in final consumption under the heading *non-energy use*. **Non-specified use** = All fuel use not elsewhere specified, as well as consumption in the above-designated categories for which separate figures have not been provided. Military fuel use for all mobile and stationary use is included here (e.g., ships, aircraft, roads, and energy used in living quarters), regardless of whether the fuel delivered is for the military of that country or for the military of another country.

Based on data from: IEA, *2018 World Balances*, excluding "Other Energy Sector" balances, iea.org/sankey/, modified by Chevron Corporation.

**Exhibit 21. Turnover of energy infrastructure will influence the pace of change**

[SEE FIGURE IN ORIGINAL]

Sources: EIA, Today in Energy page, *Natural Gas Generators Make Up the Largest Share of Overall U.S. Generation Capacity*, rb.gy/mkqtf2; Bureau of Transportation Statistics (BTS), *Average Age of Automobiles and Trucks in Operation in the United States*, bts.gov/content/average-age-automobiles-and-trucks-operation-united-states; BTS, *Average Age of Aircraft 2019*, bts.gov/average-age-aircraft-2019; National Renewable Energy Laboratory (NREL), *Useful Life | Energy Analysis*, nrel.gov/analysis/tech-footprint.html; *Assumptions to the Annual Energy Outlook 2021: Commercial Demand Module*, eia.gov/outlooks/aeo/assumptions/pdf/commercial.pdf; Massachusetts Institute of Technology, *Buildings Life Cycle Assessment (LCA) | Concrete Sustainability Hub*, cshub.mit.edu/buildings/lca.

**3.3 our approach to demand and supply**

**How we approach demand**: Our views on short- and long-term demand are based on analysis of macroeconomic and demographic trends, technological pathways, consumers' behavioral patterns, and policy impacts, among other factors. Growing populations, rising incomes, and urbanization are the principal forces behind energy-demand growth, as they typically lead to greater use of transportation, heating, cooling, lighting, and refrigeration. Policies will continue to play a large role in aggregate energy demand and fuel mix. Given the range of uncertainty across key demand drivers, we analyze multiple demand scenarios as part of our annual planning cycle.

As the world recovers from the COVID-19 pandemic, we expect energy demand to return to pre-crisis levels, although the timing of recovery may vary by region and type of demand.

**How we approach supply**: Every year we develop a range of long-term ***oil***, gas, and refined-product supply scenarios to inform our views on prices, test our strategies, and assess business risks. The process involves our proprietary view of the principal drivers of supply growth, including resource supply curves, production constraints, capacities at secondary processing facilities, fiscal and financial requirements, and geopolitical trends and shifts. Given the complex set of variables and uncertainties associated with forecasting long-term supply, we routinely examine multiple scenarios and assess our forecasts against third-party perspectives.

**3.3.1 View on *oil* demand**

In 2019, global liquid fuel demand was approximately 100 million barrels per day (mmbd). In 2020, the COVID-19 pandemic reduced demand by approximately 8 mmbd, to about 92 mmbd. n16 The IEA's STEPS predicts ***oil*** demand to recover to pre-crisis levels by 2023. n17 Although global ***oil*** demand has grown at a rate of about 1 mmbd, or 1 percent per year, over the past several decades, the STEPS shows global ***oil*** demand growth slowing to about 750,000 barrels per day through 2030, due to economic impacts from COVID-19; slower long-term structural economic growth; aging populations in traditional ***oil***-consuming centers like Europe, Japan, and the United States; and policy-driven efforts to increase vehicle efficiency and alternative-fuel penetration. The STEPS forecasts that growth in demand will then plateau, with a growth rate of less than 100,000 barrels per day through 2040. n18

**Exhibit 22. Realized decline rates determine the size of the supply gap and opportunities for new investment**

[SEE FIGURE IN ORIGINAL]

Sources: IEA, *World Energy Outlook 2020*, iea.org/reports/world-energy-outlook-2020; IEA, *Net Zero by 2050*, iea.org/reports/net-zero-by-2050; production decline rates based on data from Rystad Energy UCube, December 2020.

mmboed = millions of barrels of ***oil***-equivalent per day

**Exhibit 23. Global liquids long-term supply curve and average point forward breakeven prices in 2029 show the supply curve is relatively flat, implying increased competition among producers**

[SEE FIGURE IN ORIGINAL]

Liquids supply shown above includes crude ***oil***, natural-gas liquids, coal-to-liquids (CTLs) and gas-to-liquids (GTLs). Point forward breakeven is the amount of capital needed to produce the resource from today forward. This differs from full-cycle breakeven, which includes all costs for developing a new field. For a further discussion of breakeven calculations, see Energy Economics, *Tight* ***oil*** *market dynamics: Benchmarks, breakeven points, and inelasticities*, February 2018, sciencedirect.com/science/article/pii/S0140988317304103. Source, as modified by Chevron Corporation: Wood Mackenzie, ***Oil*** *Supply Tool*, August 2021.

mmbd = millions of barrels per day

bbl = barrel

**3.3.2 View on *oil* supply**

At a macro-level, ***oil*** supply is significantly impacted by producers' strategies to manage near- and long-term uncertainties. For example, producers respond to demand expectations by adjusting investment levels. The IEA estimates that upstream ***oil*** and gas investments will have fallen by a third globally in 2020 due to COVID-related demand shocks. Further, geopolitical factors can drive production levels, evidenced by the breakdown of cooperation among OPEC+ (OPEC plus 11 non-OPEC members) in spring 2020, which severely disrupted global ***oil*** markets.

Capital spending on ***oil*** and gas is also impacted by the continued need for maintenance and investment in existing assets to manage decline rates. The production profile for a well, a field, or a geography depends on geological circumstances, engineering practices, and government policies, among other factors.

Although non-OPEC decline rates have been estimated to be about 3 percent n19 over the past decade, recent cost-cutting efforts and the shift in project base to higher portions of shale and tight ***oil*** have led to higher decline rates. Price declines stemming from COVID-19 demand shocks and OPEC+ tensions, uncertainty about the nature of demand recovery from the pandemic, limited price recovery, and a more constrained capital market could lead to inadequate investment, future supply shortages, and price volatility.

Although ***oil*** markets are well supplied in the short term, in the medium term, more investment would be required to meet increased demand--often referred to as the supply gap. We analyze this gap in order to forecast which types of resources will be needed in the future. Typically, the most economical barrels are produced from reinvesting in existing production to minimize natural decline.

A common way to visualize ***oil*** supply is via a supply curve by resource type, in which the width of the bar represents the amount of total production for a given year and the height of the bar indicates a representative price range over which that resource is economical to produce (Exhibit 23). Similar types of resources, or resources from certain regions, are grouped together and thus show a range of prices instead of a single price. In a more detailed and expanded version, every field would be its own line on the supply stack. Assets can move relative to one another when their breakeven values change due to technology, geopolitical or policy changes, fiscal terms, or other reasons. The supply stack is a useful way to gauge trends in the overall cost of supply and whether there have been shifts through time. However, care should be taken when drawing detailed conclusions from a supply stack, as the exact annual values depend on forecasts, such as project timing and performance.

**3.3.3 View on natural-gas demand**

In 2019, global demand for natural gas was approximately 4,000 billion cubic meters, of which approximately 354 billion cubic meters was liquefied natural gas (LNG). LNG accounted for approximately 38 percent of natural-gas exchanges. n20 North America makes up more than 27 percent of demand, followed by Asia-Pacific at 21 percent, and Europe at 15 percent. Gas markets are priced regionally, and Asia continues to be the market with the largest forecasted growth. Growth in natural-gas demand is driven by its status as a relatively cost-competitive resource, a desire among key industrial or large energy consumers to diversify fuel sources, and efforts in some jurisdictions to reduce air pollution (e.g., China's Blue Sky Action Plan, which includes coal-to-gas objectives). Demand in Asia is expected to grow by 40 to 50 percent from 2019 to 2030. n21 There is not enough pipeline gas to satisfy the projected demand; thus, it is expected that Asia will continue to be a major importer of LNG. There are potential risks to the growth of gas in the power sector, including lower-cost coal and renewables penetration. Nevertheless, sustained growth for gas appears likely, particularly in the industrial sector, where gas is better positioned to provide high-temperature heat, compared with renewables. Gas has the advantage over refined products on price and over coal on emissions. Early indications of interest are emerging for lower carbon-intensity gas.

**3.3.4 View on natural-gas supply**

As with ***oil***, we analyze future gas-supply needs against demand growth in the context of a supply curve to forecast future economically competitive sources of supply. For global natural-gas markets, the IEA projects there will be enough capacity from producing assets and projects under construction to satisfy global demand through 2025 (Exhibit 24). n22 In the medium- to long-term, a supply gap could open up as soon as the mid-2020s or beyond 2030, depending on the shape of the pandemic recovery, the adoption of gas in emerging economies, and the pace of renewable penetration. Asia is expected to experience the greatest demand growth, and with limited pipeline capacity, the region is forecasted to import more LNG. This is one reason LNG is predicted to be the fastest-growing source of supply within the gas sector.

**Exhibit 24. LNG supply and demand: NZE 2050, SDS, STEPS**

[SEE FIGURE IN ORIGINAL]

Sources: IEA, *World Energy Outlook 2020*, iea.org/reports/world-energy-outlook-2020; IEA, *Net Zero by 2050*, iea.org/reports/net-zero-by-2050.

**Carbon intensity of upstream production**: Carbon intensity, or CO[2] e per unit of production, of each resource type is loosely correlated to the resource's position, or cost of production, on the supply curve. Like the wide distribution of supply cost for each resource type, carbon intensity for each resource type is widely distributed and can be influenced by the producer. The charts from the IEA's *World Energy Outlook 2018* presented in Exhibits 25 and 26 represent the IEA's estimates for global carbon intensity supply stacks for ***oil*** and gas with the methane global warming potential converted to the IPCC AR4 values. The IPCC AR4 is currently used in part by the U.S. EPA, the European Commission, and common ***oil*** and gas industry calculations. n23, n24 \*

**Exhibit 25. The global average *oil* production carbon intensity is 46 kg CO[2] e/boe**

[SEE FIGURE IN ORIGINAL]

Note: Based on field-level data.

Source: IEA, *World Energy Outlook 2018*, iea.org/reports/world-energy-outlook-2018.

boe = barrels of ***oil***-equivalent

mmboed = millions of barrels of ***oil***-equivalent per day

**Exhibit 26. The global average gas production carbon intensity is 71 kg CO[2] e/boe**

[SEE FIGURE IN ORIGINAL]

Note: Based on field-level data.

Source: IEA, *World Energy Outlook 2018*, iea.org/reports/world-energy-outlook-2018.

boe = barrels of ***oil***-equivalent

bcm/y = billion cubic meters per year

Higher-cost production is often correlated with more energy-and emissions-intensive production. For example, some heavy ***oil*** may require steam for production, which can impact both cost and emissions.

LNG is generally more carbon intensive than gas supplied via pipeline. Decisions about electrification, recovering waste heat, avoiding fugitive and vented emissions and flaring, and deploying CCUS technology can all impact the carbon intensity of gas.

**3.3.5 View on refined-products demand**

Transportation fuels and petrochemicals have accounted for all of the growth in global ***oil*** demand since 2000 and are expected to underpin sustained growth in demand over the next decade. According to the IEA's outlook, product-demand growth continues as increases in demand for transportation services and petrochemicals offset lower demand due to improved vehicle efficiency, greater use of biofuels, and electrification. Demand for high-value petrochemicals, used to produce plastics, resins, and fibers (among other products), is projected to rise by 25 percent between 2019 and 2030 in the STEPS. Policies and technologies aimed at reducing plastic waste and increased chemical recycling could reduce demand for ***oil*** and gas feedstocks. A delayed pandemic recovery could lead to a delay or weakening of these policies, although it could also lead to a dampening of demand growth for transport fuels.

**3.3.6 View on refined-products supply**

Global refining capacity stood at a little over 102 mmbd as of 2019. However, utilization was less than 75 percent during the second half of 2020, with about 1.2 mmbd of capacity closures since the start of 2020 due to impacts from the pandemic. n25 With a little less than 5 mmbd of additional capacity scheduled to come online over the next few years, it is expected that further closures are likely, with the bulk of them happening in Europe. n26 Most capacity additions are expected in Asia, where the majority of demand growth is expected to occur. Additional capacity growth is expected in the Middle East. Some refiners in the United States and Europe may convert to biofuels production to take advantage of existing and emerging policies. Biofuels production is expected to increase by 25 percent from 2019 to 2024. n27

**Carbon intensity of refining**: Generally, more-complex refineries are more carbon intensive per unit of throughput than simpler refineries. More-complex refineries also have the ability to produce higher-value products like gasoline, diesel, and jet fuel. The chart presented in Exhibit 28 represents the IEA's estimates for global carbon intensity supply stacks for refining on a throughput basis.

**Exhibit 27. The gap between refinery runs and total capacity is expected to narrow in the next decade**

[SEE FIGURE IN ORIGINAL]

Source: IEA, *World Energy Outlook 2020*, iea.org/reports/world-energy-outlook-2020.

mmbd = millions of barrels per day

**Exhibit 28. The global average refining carbon intensity is 33 kg CO[2] e/boe**

[SEE FIGURE IN ORIGINAL]

Source: IEA, *World Energy Outlook 2018*, iea.org/reports/world-energy-outlook-2018.

boe = barrels of ***oil***-equivalent

mmboed = millions of barrels of ***oil***-equivalent per day

**3.4 how we approach prices: near term and long term**

We analyze near- and long-term commodity prices with climate change policies and other regulatory and policy impacts. We utilize various quantitative methods to combine our supply-and-demand views and solve for equilibrium commodity prices at which the marginal producer can enter the market and still earn a reasonable rate of return.

**Exhibit 29. Price is set where supply crosses demand**

[SEE FIGURE IN ORIGINAL]

Note: For illustration only. Not drawn to scale.

Producers with costs lower than the marginal producer--lower and to the left on the blue stack--produce more and have larger margins than the marginal producer, in yellow. Producers with costs higher than the marginal producer--higher and to the right on the gray supply stack--typically would not develop assets.

\* Margin is shared between all parties involved in production.

**Near term**: Markets are primarily characterized by the existing fixed capital stock, which was determined by past capital investment decisions. For conventional ***oil*** and gas assets, a new investment cannot immediately bring new supply to the market to affect price. For a new conventional ***oil*** field, "first ***oil***" may take three to 10 years, depending on multiple factors, including the asset type and regulation. Tight ***oil*** has shorter development times; however, as discussed on page 25, uncertainties about shale operators' access to capital could limit tight ***oil***'s impact on near-term prices.

**Long term**: Competitive markets are characterized by mobility of capital investment. Over the long term, prices are determined where long-term supply and long-term demand curves intersect at a point that reflects the marginal operating costs, the investment costs on both the supply side and the demand side, and a minimum rate of return.

**commodity-price forecasts**

Our comprehensive, proprietary forecasts of commodity prices significantly influence our strategic and business planning. Because price is determined in a competitive marketplace, scenarios are used to reflect market uncertainties, generating multiple price trajectories. Our price outlooks include carbon-price forecasts and cover a wide range of ***oil*** prices, natural-gas prices, and costs of goods and services, among other considerations. These forecasts reflect long-range effects from population and economic growth, renewable fuel penetration, energy efficiency standards, climate-related policy actions, and demand response to ***oil*** and natural-gas prices.

**difference between carbon price and carbon cost**

Although the terms are sometimes used interchangeably, a carbon price, a carbon cost, and a shadow or proxy carbon price are different. For example, the term *carbon cost* is sometimes used to refer to carbon pricing and sometimes used to refer to the societal impacts from carbon emissions. A *shadow* or *proxy* carbon price is a hypothetical, aggregated price of carbon, which may include estimates for non-pricing regulations, published for investment analysis purposes.

For us, the term *carbon price* refers to an external price resulting from a policy like a carbon tax or cap-and-trade system, and for us, a *carbon cost* is generally a function of a jurisdiction-specific carbon-price forecast and asset-specific characteristics that represent the cost for compliance the asset would face. Like ***oil*** price forecasts, the proprietary information and the analysis that go into carbon-price forecasts and carbon-cost calculations are important to our strategy. Disclosure of our carbon-price forecasts or carbon-cost calculations could compromise commercially and competitively sensitive information. Consistent with our proprietary ***oil***- and gas-price forecasts, we do not disclose our carbon-price forecasts or carbon costs.

**We support a carbon price**.

**In this section, we outline how climate change risks are strategically managed, and we provide examples of how we have aligned specific segments of our portfolio in response to current market conditions**.

**3.5 strategic processes and action areas**

We aim to deliver industry-leading results and superior shareholder value in any business environment. As discussed, ***oil*** and gas are declining resources and investment is needed to maintain them in order to fulfill projected demand, even in lower carbon scenarios. Given this, we will continue to develop resources to fulfill the world's demand for energy. At the same time, we will continue to maintain flexibility in our portfolio and will examine ways to adapt investment patterns in response to changing policy, demand, and energy-transition opportunities. Our experience indicates that superior financial performance is more achievable through active portfolio management--including allocating capital where highest returns are forecasted--than through presetting targets for certain types of assets.

**chevron strategy & sustainability**

For more than 140 years, we have striven to build a track record of operating with integrity and holding our-selves accountable to the high expectations of our stakeholders. We take this responsibility seriously and are proud of our role in delivering the affordable, reliable, ever-cleaner energy that is vital to human progress. Refer to Section 1, Governance, on pages 5-8, to learn more about organizational changes we have made to reflect the importance we place on sustainability.

**3.5.1 Our strategic processes: Decision Analysis, business planning, capital-project approvals, business-development screening, and the marginal abatement cost curve process**

**Our Decision Analysis process**: The scale of investment and time involved in finding, extracting, and processing ***oil*** and gas requires long-term planning and decision making to effectively manage the uncertainties inherent in these opportunities. Our Decision Analysis (DA) process is underpinned by a systematic, analytical approach that leads to clarity of action in support of a decision. The DA process is structured for developing, evaluating, and comparing alternatives, including future options, in the face of risk and uncertainty. It uses deterministic and probabilistic analyses and economic and financial-analysis tools, along with debiasing techniques, to improve the quality of all decisions. Our DA function is engaged throughout the organization to achieve high decision quality and decision clarity. DA concepts and tools are used in many of the processes described below.

**Business planning**: Business units incorporate carbon costs and anticipated capital and operating expenditures related to carbon issues in multiple ways.

- Business plans: In jurisdictions with regulations that impose a carbon price, carbon costs are included in business plans; in jurisdictions that do not yet have such regulations, but that are projected to implement them in the future, carbon costs are included in the business plan the year the prices are forecasted to start.

- Carbon management plans: Business units in jurisdictions with regulations that impose a carbon price go through an annual compliance-planning process with the goal of achieving the most efficient manner of compliance. Where we have multiple assets in a single jurisdiction, integrated plans are developed to optimize total compliance costs across the business. We develop MACCs for our facilities and compare the cost of internal reduction options with the carbon price or fees and purchasing offsets or allowances. The anticipated compliance costs, including investments to generate internal emissions reductions, are included in business plans.

- Impairment reviews: Impairment reviews are triggered when events test market assumptions upon which our business plans and long-term investment decisions are made and are based on management's best estimate of future expected cash flows. Impairments could occur, for example, due to changes in national, state, or local environmental laws, including those designed to stop or slow the production of ***oil*** and gas. When triggering events arise, we perform impairment reviews to determine whether any write-down in the carrying value of an asset is required. Carbon costs are included in impairment reviews.

- Reserves: When calculating reserves, we incorporate a carbon cost in jurisdictions with enacted carbon-pricing regulations. For reserves accounting, per guidance in Accounting Standards Codification 932, our carbon-cost estimates are based on enacted regulations, not carbon-price forecasts, and follow reserve-accounting principles.

**Capital-project approvals**: Individual investments are developed, approved, and implemented in the context of the strategic plan, segment-specific business plans, and commodity price forecasts. Investment proposals are evaluated by management and, as appropriate, reported to the Executive Committee and the Board of Directors. Our final investment decisions are guided by a strategic assessment of the business landscape. Our internal carbon-price forecast and derived carbon costs are considered in the economic evaluations supporting major capital-project appropriations. In addition, a number of GHG-related factors are considered in project-appropriation assessments, such as:

- The annual profile of anticipated project GHG emissions and emissions intensity (both Scope 1 and 2)

- The identification and assessment of the options for reducing GHG emissions and optimizing carbon intensity

**Business-development screening**: We continue to enhance our screening processes to assess opportunities for portfolio fit, including assessing energy-transition opportunities and current and future opportunities' impact on the carbon intensity of our portfolio.

**Marginal abatement cost curve process**: Our MACC process is a disciplined and value-driven approach to reduce the carbon intensity of our operations and assets by optimizing carbon-reduction opportunities and integrating GHG-mitigation technologies across the enterprise (see page 40).

**stranded assets**

High-profile publications have stated that the portfolios of many ***oil*** and gas companies are not competitive in a "well below 2° C world," implying that companies and their investors have significant exposure to "stranded" assets because a company's value is tied to these undeveloped assets. However, an ***oil*** and gas company's primary valuation comes from the ***oil*** and gas reserves it holds. Per the U.S. Securities and Exchange Commission, the definition of "reserves" requires that those assets be economically producible as of a given date. The commodity price used in these calculations is the average of the first-of-the-month pricing of the preceding 12-month period prior to the end of the reporting period, projected forward as a flat--or unescalated--price for the life of the field. For example, the Brent ***oil*** price used in reserve calculations for 2020 year-end reporting was approximately $ 41.

A common way to evaluate the depth of a company's reserves is to divide the quantity of proved reserves ( *R*) by the annual production ( *P*), creating a ratio ( *R/P*) that indicates the number of years remaining before all proved reserves will be produced. At the end of 2020, Chevron's *R/P* ratio was 9.9 years.

**Proved reserves**: ***Oil*** and gas judged to be economically producible in future years from known reservoirs under existing economic and operating conditions and assuming continuation of current regulatory practices using conventional production methods and equipment.

**Probable reserves**: Additional reserves that analysis of geoscience and engineering data indicates are less likely to be recovered than proved reserves, but are more certain to be recovered than possible reserves. When probabilistic methods are used, there should be at least a 50 percent probability that the actual quantities recovered will equal or exceed estimated values.

**Possible reserves**: Additional reserves that analysis of geoscience and engineering data suggests are less likely to be recoverable than probable reserves. When probabilistic methods are used, there should be at least a 10 percent probability that the actual quantities recovered will equal or exceed estimated values.

***Oil*** and gas assets that do not meet one of these requirements fall into the category known as "resources" and are not generally used when calculating a company's value. Further, these assets represent a static snapshot of a company's current portfolio mix and do not necessarily represent the long-term strategy for a company. As discussed in this report, we continually evaluate potential climate-related risks and energy-transition opportunities as part of our decision making around future investments and portfolio composition.

**3.6 scenario test**

**stress-testing our portfolio under the IEA's NZE 2050 and the IPCC's AR5 representative concentration pathway (RCP) 8.5**

We use long-term energy-demand scenarios and a range of commodity prices to test our portfolio, assess investment strategies, and evaluate business risk to strive to deliver results under a range of potential futures. We analyze alternative scenarios to stress-test our portfolio and integrate learnings into our decision making to remain competitive and resilient in any environment.

For longer-term scenarios, we routinely use external views to both inform and challenge our internal views. This includes scenarios that assume a range of longer-term global warming outcomes, which may include scenarios for which the possibility of occurrence is remote. Some observers suggest the abrupt reduction in demand from the COVID-19 pandemic has presented a real-world stress test for our portfolio and the industry. The pandemic's impact on energy markets arguably illustrates the scale of changes and disruption that would accompany a reordering of the economy and behavior in order to meet the goals of the Paris Agreement. n28

The statements included in this section represent projections and assumptions under the NZE 2050 scenario testing, not Chevron's own predictions or actual conditions or results at the present time.

**3.6.1 The IEA's NZE 2050: Energy demand, *oil*, natural gas, refined product, new energies, and portfolio analysis**

One example of a lower carbon scenario is the IEA's *Net Zero by 2050* scenario. NZE 2050 is limited to the energy sector and thus does not address natural climate solutions and impacts to land-use change that occur in non-energy sectors. The IEA states that the " *pathway remains narrow and extremely challenging, requiring all stakeholders--governments, businesses, investors, and citizens--to take action this year and every year after so that the goal does not slip out of reach*."

NZE 2050 is a hypothetical scenario that assumes what we believe to be a highly unlikely transformation of the global energy system from one currently supplied primarily by fossil fuels to a smaller one dominated by renewable energy, with renewables and bioenergy increasing from 16 percent to 67 percent of the global energy mix by 2050. It requires immediate and unprecedented action: globally coordinated policy design, strong international cooperation, vast capital redeployment, new infrastructure build-out, accelerated technology deployment, and a threefold improvement in energy efficiency that to date has not been forthcoming. NZE 2050 also assumes carbon prices reaching as much as $ 250 per tonne in advanced economies by 2050.

**Exhibit 30. Potential impacts to *oil* and gas from lower carbon scenarios**

[SEE FIGURE IN ORIGINAL]

Under NZE 2050, the global economy moves away from one largely powered by fossil fuels to one powered predominantly by renewable energy. In this scenario, steep declines in medium- and long-term ***oil*** and gas demand put downward pressure on prices.

We believe the likelihood of the IEA's NZE 2050 scenario is remote. n29 It is not reflective of any realistic current projections, especially in terms of global cooperation with regard to the adoption of effective global policies that would transform the global energy mix so dramatically by 2050. For example, in its *International Energy Outlook 2021* (IEO2021), the U.S. Energy Information Administration projects in its reference case that by 2050 global energy consumption will increase substantially as a result of population and economic growth and that ***oil*** and natural-gas production will also continue to grow. n30 Moreover, the wide range of unpredictable variables and externalities affecting long-term outcomes during this period of uncertainty and energy transition makes long-term modeling of this scenario inherently speculative. Therefore, we do not rely on the NZE 2050 scenario for our business planning. Nonetheless, we have conducted a scenario test of the IEA's NZE 2050 demand projections, as well as its ***oil***, gas, and carbon price projections, to test against our portfolio. The NZE 2050 scenario outlined is not a prediction.

The IEA does not directly provide all market detail required to run a scenario analysis (e.g., regional product consumption). Regional demand information from the IEA's Sustainable Development Scenario was used as a guide to interpolate from the available NZE 2050 information to create the regional input estimates necessary to run the scenario. Other assumptions employed in our analysis included the following:

- Chevron would have extremely aggressive growth of CCUS, offsets, hydrogen, renewable fuels, and renewable natural gas.

- Refining and petrochemicals margins were decreased by the percentage change in Brent prices relative to our 2021 Business Plan price forecast.

- Marketing volumes were based on regional gasoline and diesel demand.

Our Corporate Audit department, which performs the internal audit function at Chevron, conducted a non-rated assurance review of the IEA's *Net Zero by 2050* scenario analysis. The Corporate Audit department found that the analysis was conducted in accordance with established internal process and emerging external guidance.

**Energy demand and energy mix**: The NZE 2050 scenario results in global energy demand that is approximately 7 percent lower than 2020 levels while supporting a global economy more than double the size. The NZE 2050 scenario's assumptions relevant to the ***oil*** and gas sector are as follows:

- Electricity use increases from approximately 20 percent of final energy consumption today to nearly 50 percent by 2050.

- Renewables and bioenergy account for approximately two-thirds of the global energy mix by 2050.

- The ***oil*** and gas sector's share of total primary energy demand declines from 50 percent today to approximately 20 percent by 2050.

- By 2050, CCUS accounts for 7.6 gigatonnes (Gt) of CO[2] removals.

- By 2050, crude ***oil*** prices drop to less than $ 25 per barrel, in real terms, and international gas prices drop to $ 2-$ 5 per mmbtu, in real terms.

- By 2050, carbon prices rise to $ 250 per tonne CO[2] e in advanced economies, $ 200 in China, Russia, Brazil, and South Africa, and $ 55 in other emerging-market and developing economies.

- Consumer behavior drives much of the emissions reduction:

- 55 percent of emissions reductions in the scenario result from consumers adopting low-carbon technologies, such as electric vehicles or solar water heaters.

- 8 percent of the emissions reductions result from shifts in consumer behavior, including the phase-out of internal combustion engine vehicles in all cities by 2030, the capping of long-haul airline travel at 2019 levels, use of high-speed rail as a substitute for air travel, lower temperatures for heating, higher temperatures for space cooling, and higher levels of plastics recycling.

- Universal energy access is achieved globally by 2030. Global energy investment increases from an average of $ 2 trillion per year today to over $ 4.5 trillion per year by 2030 and beyond.

mmbtu = millions of British thermal units

**Exhibit 31. Total primary energy demand in the IEA's NZE 2050**

[SEE FIGURE IN ORIGINAL]

Source: IEA, *Net Zero by 2050*, iea.org/reports/net-zero-by-2050.

**Exhibit 32. IEA 2020 world total primary energy mix vs. NZE 2050**

[SEE FIGURE IN ORIGINAL]

Source: IEA, *Net Zero by 2050*, iea.org/reports/net-zero-by-2050.

EJ = exajoules

**Exhibit 33. Global CO[2] emissions from energy reductions in the IEA's APC and NZE 2050**

[SEE FIGURE IN ORIGINAL]

Source: IEA, *Net Zero by 2050*, iea.org/reports/net-zero-by-2050.

APC = Announced Pledges Case

***oil***

- ***Oil* demand**: In the NZE 2050 scenario, ***oil*** demand drops to about 24 mmbd by 2050, a drop of over 75 percent from today's levels. The majority of ***oil*** demand in 2050 is from uses for which ***oil*** is not combusted, such as chemical feedstocks, lubricants, paraffin waxes, and asphalt. ***Oil*** demand for transportation drops by approximately 90 percent from 2020, although sectors such as aviation continue to account for approximately 4 mmbd of demand.

- ***Oil* supply**: Lower demand implies that less supply is required. However, because of the natural decline inherent in ***oil*** production, even under NZE 2050, ongoing investment in existing fields is still needed. n\*

- ***Oil* price**: NZE 2050 projects the price of ***oil*** to drop to approximately $ 35 per barrel by 2030 and to less than $ 25 per barrel by 2050 in real terms. Although lower prices will lead to lower operating costs, lower prices will intensify cost competition in a smaller marketplace. However, this price track can still provide profitability to producers that remain in the market.

**natural gas**

- **Natural-gas demand**: Under the NZE 2050 scenario, gas demand peaks in the mid-2020s at about 4,300 billion cubic meters (bcm), but begins dropping thereafter, reaching a level of 1,750 bcm in 2050, approximately 55 percent lower than in 2020. The decline in natural-gas demand begins to slow after 2040 as hydrogen use increases. By 2050, more than half of global natural-gas demand goes to blue hydrogen production.

- **Natural-gas supply**: As with ***oil***, there continues to be a need for natural-gas investment in existing fields in NZE 2050. Under the NZE 2050 scenario, traded volumes of LNG fall by 60 percent and traded volumes of pipeline gas fall by 65 percent between 2020 and 2050.

- **Natural-gas price**: Although NZE 2050 provides high-level views on gas prices, the lack of granular regional information or projections in the dataset makes it difficult to draw more than a broad conclusion that benchmark gas prices decline in each region in the scenario.

**refined products**

In the NZE 2050 projected scenario, rapid electrification of the vehicle fleet leads to a sharp decline in demand for refined products, such as gasoline and diesel, and decreased refinery throughput. Between 2020 and 2050, refinery runs fall by 85 percent. At the same time, demand for non-combusted refined products, such as petrochemicals, increases. Refineries able to shift production to chemical feedstocks and biofuels may gain competitive advantage, as both of these products see increased demand. Nevertheless, the scale of changes in NZE 2050 would inevitably lead to rationalization. However, refineries able to shift to other areas, such as chemical recycling, renewable fuels, or hydrogen production, may be reconfigurable to avoid full closure.

**CCUS, hydrogen, and renewable fuels**

- **CCUS**: NZE 2050 assumes implementation of policies to support a range of measures that establish markets for CCUS investment. By 2050, approximately 7.6 Gt of carbon are captured, with almost 50 percent coming from fossil fuel combustion. While efforts are pursued to increase the efficiency of industrial processes such as cement manufacturing in NZE 2050, CCUS plays an important role in limiting these emissions from harder-to-abate energy-consuming sectors. In addition, many developing nations have recently built or are building large numbers of coal power plants. Given the service life of these facilities, retrofitting them with CCUS will play a central role in reducing emissions in these economies.

- **Hydrogen**: Low-carbon hydrogen demand sees an almost sixfold increase in NZE 2050 projections, from approximately 90 million tonnes in 2020 to 520 million tonnes in 2050. Approximately 50 percent is used in heavy industries, such as steel and chemical production, and 30 percent is converted to other fuels for areas such as shipping and aviation. By 2050, almost 60 percent of hydrogen production is from electrolysis, and approximately 40 percent is from natural gas in combination with CCUS.

- **Renewable fuels**: Renewable fuels supplies accelerate in NZE 2050, with liquid biofuels expanding by a factor of 4 and biogases by a factor of 6 by 2050. Transport demand is driven by heavy road freight, shipping, and aviation. Advanced liquid biofuels increase their share of the global aviation fuel market from 15 percent in 2030 to 45 percent in 2050. In addition, biogas and biomethane are also used as clean cooking fuels and in electricity generation in NZE 2050.

**portfolio analysis**

We tested our portfolio against projected demand and prices under NZE 2050. The NZE 2050 hypothetical scenario relies on assumptions that would entail unprecedented policy and other action by a large number of stakeholders and governments worldwide to achieve emissions-reduction targets. Under the assumptions underlying the scenario analysis, we believe Chevron could transition to meet the market changes projected by the scenario by taking a number of actions, including: further focusing our Upstream portfolio on assets that are the most competitive from a cost and carbon-intensity perspective; aligning Downstream & Chemicals around scaled, efficient, flexible, integrated, and high-margin value chains; and concentrating our New Energies investments in areas where we have competitive advantage, such as CCUS, hydrogen, and renewable fuels. Our business model can evolve to accommodate the growth of our New Energies business if the policies, such as significant economy-wide carbon prices envisioned in NZE 2050, enable lower carbon solutions to scale. Under this hypothetical scenario, we would expect to experience substantial reductions in projected cash flow as we evolve from a company focused primarily on hydrocarbon extraction and refining to one also focused on new energies, CCUS, and petrochemicals. In the long term, under the carbon prices assumed in this scenario, New Energies, including renewable fuels, would generate a larger share of Chevron's cash flow and earnings. As such, New Energies would go from being a very small part of the portfolio to becoming the largest driver of cash flow and could deliver a profitable transition for shareholders.

- **Short- and mid-term impacts (0-10 years), Upstream**: In the NZE 2050 scenario, Chevron's diverse and flexible portfolio would help to mitigate modeled risk and would enable us to adjust capital in response to changing industry economics. In addition, our MACC investments would enable us to further reduce the carbon intensity of our assets and supply the market with lower carbon-intensity crude, which is still needed in NZE 2050. Although Upstream capital and exploratory spending, production, and cash flow would decline over the first decade in the NZE 2050 scenario, free cash flow is projected to remain positive.

- Today, much of our Upstream investment is focused on unconventional assets in the Permian Basin, Argentina, Canada, and the DJ Basin. These short-cycle assets give us the flexibility to respond to commodity price volatility, cash flow, and earnings, even in a hypothetical low-price environment like the IEA's NZE 2050 scenario.

- In addition to these unconventional assets, our strong Upstream base businesses in Kazakhstan, the Deepwater Gulf of Mexico, and Nigeria would continue to generate cash flow in the short term at lower crude prices based on investments largely made in the past. These assets would provide opportunities for investment in brownfield projects that are typically higher return and lower risk because they leverage existing assets and infrastructure. The startup of the Future Growth Project in Kazakhstan would increase the cash-generation ability of our base business there.

- Our LNG assets in Australia would generate cash flow in an environment that lacks substantial price growth with just our existing asset base and select brownfield investments. Our gas assets in the Eastern Mediterranean region would represent an additional and sizable source of cash flow during this period with only limited investment.

- In a declining demand and low-price environment like NZE 2050, operating costs would likely decline across the portfolio, driven by efficiency initiatives and portfolio rationalization, and there would be a general reduction in industry cost structure due to reduced demand for goods and services.

- **Short- and mid-term impacts (0-10 years), Downstream & Chemicals**: Although NZE 2050 shows a sharp decline in demand for transport fuels in the United States and Asia, we believe that the Downstream portion of our portfolio would remain resilient through 2030 due to actions we have taken to enhance refinery competitiveness. In addition, our investments in renewable fuels would provide opportunities for more rapid growth as demand for these commodities would increase in NZE 2050. Petrochemical demand is shown to increase in NZE 2050, which could help maintain cash flow from the chemical business.

- **Short- and mid-term impacts (0-10 years), New Energies**: In the near term, our focus on scaling renewable fuels would enable us to meet the growing demand for these commodities seen in NZE 2050. In addition, our focus on scaling hydrogen and CCUS would enable us to meet the demand growth that begins to occur in the latter half of this decade in NZE 2050. Although we expect that New Energies' cash flow will be negative during the next decade, we believe it could become positive by 2030 in the NZE 2050 scenario.

- **Long-term impacts (10-plus years), Upstream**: In this scenario, post-2030, there would be no new investment in Upstream. Free cash flow would decline substantially in the 2030s. By 2050, cash flow and production would be modest. Although competition among producers intensifies in this market, declining prices would also push other industry costs lower. Our legacy gas assets such as Gorgon, Wheatstone, and the Eastern Mediterranean would continue to be competitive in meeting demand for natural gas. In addition, the increased demand for hydrogen would create opportunities to supply gas for blue hydrogen. Lower prices may challenge assets in disadvantaged parts of the supply stack, which may lead to changes in our Upstream portfolio. We would continue to exhibit capital discipline, and we would lower our cost base to maximize the value of our portfolio. Our continued focus on reducing the emissions intensity of our operations would enable us to supply the market with lower carbon-intensity crude and natural gas.

- **Long-term impacts (10-plus years), Downstream & Chemicals**: The continued decline in demand for gasoline and diesel would result in reduced margins globally. Lighter crudes and lower runs would lead to less feed for conversion units in more complex refineries, which in the absence of flexibility, efficiency, and reconfiguration could disadvantage high-conversion refineries (e.g., coking), relative to simpler refineries. Our investments in biofuels could allow for full refinery conversion to meet the continued demand for these commodities. In addition, tightly integrated value chains in areas, such as the U.S. West Coast, the U.S. Gulf Coast, and Asia, could enable us to pivot these operations to blue and green hydrogen. Finally, the continued demand for chemicals could enable continued select investments in petrochemical facilities.

- **Long-term impacts (10-plus years), New Energies**: New Energies would generate a larger share of Chevron cash flow and earnings, as the demand for hydrogen and CCUS continues to increase in NZE 2050. Under the rapidly increasing carbon prices, demand for hydrogen, and unprecedented growth in CCUS capabilities assumed in this scenario, our investments in these areas would continue to grow, potentially enabling us to meaningfully pivot and scale into these new areas of opportunity.

**3.6.2 The IPCC's AR5 RCP8.5: Physical risk and adaptation analysis**

We have existing practices that identify and manage risks associated with the impacts of ambient conditions and extreme weather events on our operations. Recognizing that climate models continue to evolve, in 2020, we undertook a stress-test exercise for our operated assets with regard to the hypothetical upper bound of physical risks that third parties model as potentially related to climate change using a time horizon of 30 years. Our assessment used third-party tools and methodologies 31 and evaluated IPCC RCPs.

RCPs are GHG concentration scenarios "that include time series of emissions and concentrations of the full suite of greenhouse gases and aerosols and chemically active gases, as well as land use/land cover" that were used for climate modeling and research as part of the IPCC's AR5.<32> RCP scenarios are not predictions. Among the full set of RCPs, AR5 RCP8.5 is the pathway with the highest greenhouse gas emissions. AR5 RCP8.5 assumes continued accumulation of GHG concentrations with an increase in radiative forcing greater than 8.5 W/m<2> and a projected temperature increase by 2100 of 2.6° C to 4.8° C relative to the beginning of this century. We used AR5 RCP8.5 to enable assessment of the upper bound of theoretical risk in the absence of further expected decarbonization, although we believe the likelihood of this scenario is remote.

We assessed acute hazards (lethal heat waves, wildfires, droughts, coastal flooding, riverine flooding, and severe storms) as well as chronic hazards (mean ambient temperature and outdoor workability conditions) to 2050. The analysis drew on emerging methods <33> in climate science to create modeled outcomes from public data.<34> Limitations include the desktop nature of analysis, uncertainties around emissions pathways and the pace of warming, climate model accuracy and natural variability, and uncertainties inherent in predicting outcomes that could be related to climate change and relating those outcomes to potential impacts on us.

**Portfolio analysis**: Because of the global nature of our business, our assets do not all share the same physical attributes and would not all be impacted in the same way. We observed that under the modeled outcomes and assumptions, our asset portfolio is generally resilient to acute and chronic hazards under AR5 RCP8.5 through 2030. Assuming modeled outcomes are realized, maintaining a high level of resilience to acute hazards beyond 2030 may require additional hardening for specific assets. We would expect this hardening to be managed in the ordinary course of our business through facilities management and business planning processes. Based on modeled outcomes, chronic hazards could increase impacts on some assets beyond 2030. We would expect that financial impacts could be mitigated if we were to undertake appropriate adaptation measures in the future. Under modeled outcomes, we would expect our operated facilities to be generally resilient to modeled physical risk. There may, however, be dependencies on third-party-owned and third-party-operated assets, like local infrastructure, that could affect operations. Notably, these dependencies already exist and are managed in the ordinary course of our business.

**section 4**

**our portfolio**

**4.1 upstream** page 45

**4.2 downstream** page 47

**4.3 new energies** page 50

**the future of energy**

We believe the future of energy will be lower carbon, and we intend to be a leader today and in that future. Our strategy is straightforward: Be a leader in efficient and lower carbon production of traditional ***oil*** and gas energy, in high demand today and for years to come, while growing the lower carbon businesses that we believe will be a bigger part of the future.

**Portfolio carbon intensity**: We are introducing a portfolio carbon intensity (PCI) metric that represents the carbon intensity across the full value chain associated with bringing products to market, including from use of sold products, a type of Scope 3 emissions.

Scope 3 emissions are not generated by the activities of Chevron (Scope 1) or its suppliers of electricity and steam (Scope 2), but rather from activities not controlled by Chevron. In our case, Scope 3 emissions result principally from customers' use of the products we sell. Scope 3 is the largest category of emissions associated with Chevron's activities. Scope 3 emissions associated with energy providers such as Chevron are driven by global demand, which is in turn driven by economics, policy, regulation, and consumer behavior on a global scale.

Nonetheless, we believe the most effective approach to estimating the total emissions associated with the activities of companies like Chevron and their customers would cover the full value chain inclusive of all emission types (Scope 1, 2, and 3). The PCI methodology facilitates transparency and replicability in calculations and data with information from financial statements and emissions disclosures.

This approach enables validation of reporting and comparison of carbon intensities of companies that may participate in different parts of the value chain. This metric encompasses Upstream and Downstream business, as well as growing lower carbon business lines in renewables, hydrogen, and carbon capture and offsets. The PCI metric will also capture our aspiration of net zero for Upstream Scope 1 and 2 emissions. Our PCI target for 2028 is 71 g CO[2]e/MJ, a > 5 percent decrease from 2016.

We aspire to achieve net zero Upstream emissions (Scope 1 and 2) by 2050. Accomplishing this aspiration depends on continuing progress on commercially viable technology, government policy, successful negotiations for CCS and nature-based projects, availability of cost-effective, verifiable offsets in the global market, and granting of necessary permits by governing authorities, as explained in Section 3.

[SEE Exhibit 34. Working to track the carbon intensity through the value chain IN ORIGINAL]

**carbon accounting** \*

We support well-designed climate policies and believe a price on carbon is the most efficient mechanism to harness market forces to reduce emissions.

In addition, verifiable, full value chain carbon-intensity data can enable price discovery, a comparison of the "green premium," and a supply chain of affordable, reliable, and ever-cleaner products. Digital technology forms a critical foundation for enabling our lower carbon strategy. We have made important strides in modernizing our information technology and digital systems, and we continue to invest, directly and through partnerships, in developing critical digital products, such as for carbon tracking and tracing to create carbon ledgers. This enables a private carbon market to pair emissions-removal credits with emissions to advance net zero ambitions.

[SEE FIGURE IN ORIGINAL]

**World Business Council for Sustainable Development--Carbon Transparency Pathfinder**: End-to-end value-chain transparency on primary GHG emissions at a product level provides important data to help organizations make informed decisions as they work toward a lower carbon future to achieve the goals of the Paris Agreement. Within the Pathfinder, Chevron is working together with other committed stakeholders from across the value chain, independent industry bodies such as GHG Protocol, and technology companies to develop the methodological and technical infrastructure required to create such transparency.

**LNG GHG value-chain emissions reporting**: Pavilion Energy Trading and Chevron have signed a five-year LNG sale and purchase agreement under which each LNG cargo delivered will be accompanied by a statement of its GHG emissions.

**Tracking Sustainable Aviation Fuel (SAF)**: Chevron, Delta Air Lines, and Google announced a memorandum of understanding to work together to track SAF test-batch emissions data using cloud-based technology. The companies hope to create a common, more transparent model for analyzing potential GHG reductions that could then be adopted by others.

[SEE Exhibit 35. Upstream Net Zero 2050 Aspiration IN ORIGINAL]

**Potential reduction opportunities 2029-2050**

| **Source type** | **Reduction strategies** | **Supporting policy** |
| --- | --- | --- |
| Direct | Energy management, e.g., | Carbon pricing, carbon-related |
| energy use: | efficiency improvements, | reporting,\* innovation |
| combustion | fuel switching to lower carbon | support for technologies |
|  | sources, CCUS, offsets | like CCUS, offsets |
|  |  |  |
| Flaring | Gas market development, | Infrastructure support for |
|  | operational best practices, | gas market development |
|  | e.g. flow assurance |  |
|  |  |  |
| Fugitives | Methane management, e.g., | Equipment performance |
| and venting | leak detection and repair, | standards |
|  | pressure-management |  |
|  | systems |  |
|  |  |  |
| Indirect energy | Energy management, e.g., | Carbon pricing, carbon-related |
| use: imported | efficiency improvements, | reporting,\* innovation |
| electricity and | fuel switching to lower carbon | support for technologies |
| steam | sources, CCUS, offsets | like CCUS, offsets |

\* See page 43.

We aspire to achieve net zero Upstream emissions (Scope 1 and 2) by 2050. Accomplishing this aspiration depends on continuing progress on commercially viable technology; government policy; successful negotiations for CCS and nature-based projects; availability of cost-effective, verifiable offsets in the global market; and granting of necessary permits by governing authorities.

We're taking actions to reduce the carbon intensity of our portfolio. The approach we use to drive emissions reductions in our portfolio is the marginal abatement cost curve (MACC) process. Like supply stacks, MACCs can enable a visualization of abatement opportunities, showing their relative cost and abatement potential on a similar basis. In our enterprisewide effort to aggregate opportunities, we source reduction opportunities from operated and nonoperated assets across the business. We apply both deterministic and probabilistic analysis to assess emissions-reduction opportunities, consistent with our Decision Analysis practices discussed on page 30. We use portfolio theory and efficient frontier analysis to identify a portfolio of opportunities to progress across the technology spectrum, segments, business units, and geographies.

We group reduction opportunities into the key areas of energy management; methane management, consisting of venting, fugitives, and flaring reductions; CCUS; and offsets. Any source of emissions can be offset with natural or technological removals, like nature-based solutions and CCUS. These GHG-reduction approaches can be supported by policy on carbon pricing, carbon-related reporting, support for technologies like CCUS, and offsets.

Most of our Scope 1 and 2 emissions are related to energy use, which can be reduced by energy management, for example, efficiency improvements or fuel switching to lower carbon sources (e.g., from diesel to gas). The next-largest source category of our Scope 1 emissions is from activities related to methane, including flaring, fugitive emissions, and venting. Flaring can be reduced by development of gas markets to enable gas takeaway capacity. We believe fugitive emissions can be addressed with reduction strategies like leak detection and repair programs, and can be supported by policies for equipment performance standards. Venting can be reduced by pressure-management systems.

We have identified nearly 100 GHG-abatement projects to advance to execution and plan to spend more than $ 300 million in 2022. We expect to spend approximately $ 2 billion on similar projects through 2028. When completed, the opportunities are expected to deliver approximately 4 million tonnes of emissions reductions per year.

**MACC champions**

Our employees are talented problem solvers, and through our MACC Champions network, we work to inspire employees across the Company to contribute ideas for carbon reduction. Working within each business unit, MACC Champions engage in partnerships with technical experts; operations teams; facilities engineers; health, environment, and safety professionals; and policy experts to source ideas for reduction opportunities and implement our lower carbon strategy.

[SEE Exhibit 36. A MACC approach to emissions reduction presents opportunities that we believe are good for investors and society IN ORIGINAL]

**energy management**

Emissions associated with our own energy use make up about 70 percent of our Scope 1 and 2 emissions,\* which is why energy management is a key focus area. We are progressing approximately 35 projects forecasted to reduce emissions by more than 1 million tonnes of CO[2]e per year once fully implemented. In addition to our internal efforts, we also support external efforts to contribute to the advancement of energy management. For example, we have a long-standing collaboration with the University of California at Davis Energy and Efficiency Institute.

Our strategy to deploy mature, renewable power-generation solutions is focused and selective. We invest in wind and solar projects that have the greatest ability to cost-efficiently lower carbon emissions. We are increasing the use of renewables in a number of our products with the aim of reducing lifecycle emissions, as well as working to provide verified, low-cost, high-quality offsets to our customers around the world in an effort to help them achieve their own lower carbon goals.

**Renewable power**: By sourcing more electricity from renewable sources, such as our 65 megawatt wind-power purchase agreement in the Permian Basin, we are switching to a lower carbon fuel source and working toward optimizing between purchased and self-generated power. These types of efforts can reduce the direct and indirect emissions associated with our operations and lower the overall lifecycle carbon intensity of our products.

**Energy storage**: Energy storage is an important component to help address intermittency with renewable generation. By combining energy storage solutions with lower carbon fuel sources, we can lower the overall carbon intensity of our products.

[SEE FIGURE IN ORIGINAL]

**Algonquin**: Chevron is partnering with Algonquin Power & Utilities Corporation to co-develop renewable-power projects that provide electricity to strategic assets across our global portfolio. This builds upon our prior use of renewable power in operations in Texas and California. Under the four-year agreement, we will source 500 megawatts of existing and future electricity demand from renewables, and expect to make up to $ 250 million in investments by 2025. We are prioritizing opportunities in the U.S. Permian Basin (Texas and New Mexico), Argentina, Kazakhstan, and Western Australia. Projects will be jointly owned and co-developed by both parties. Algonquin will lead the design, development, and construction of the renewable-power assets. We will purchase electricity through power purchase agreements. This represents the latest, and largest, advance in our efforts to integrate renewable power in support of our operations.

**RayGen**: Chevron is invested in RayGen, a startup developing technology that has the potential to impact long-duration energy storage and grid stability.

**Spear Power Systems**: Chevron has invested in Spear Power Systems, who designs and manufactures energy storage system solutions for marine, aircraft, and industrial applications.

**SunPower**: Chevron and our partner SunPower completed construction in 2020 on a solar power project that supplies our Lost Hills production facilities in California with solar energy. We expect that the project will provide more than 1.4 billion kilowatt-hours of solar energy over the potential 20-year term of the agreement.

**Natron Energy**: Chevron's investments in battery technology include Natron Energy, which is developing a new generation of sodium-ion battery products that offer potential performance advantages over current technologies.

**methane management**

Methane management is critical in the journey to a lower carbon future. We've set a 2028 methane target of 2 kilograms CO?-equivalent per barrel, which is a 50 percent reduction from our 2016 baseline.

We're also expanding our methane-detection capabilities to help us focus on the best opportunities to further lower emissions. In addition to traditional ground sensors, we're deploying airborne sensors using satellites, aircraft, and drones to achieve broader coverage. Better methane-detection capability is critical to the world's effort to reduce carbon emissions, and our work with industry and academic partners is an important contribution to the accuracy and credibility of global methane reporting.

Examples include Tengizchevroil (TCO), where we're using satellite technology to survey the production facilities. In the Permian Basin, we're collaborating in aerial flyovers that cover thousands of sites. In the DJ Basin, we're partnering in a university study that includes modeling, aerial flyovers, and site visits to validate and improve methane detection. We're also developing aerial campaigns for the Gulf of Mexico and Argentina.

Reducing flaring is also a focus area. We're working to reduce overall flaring by more than 60 percent. We're also proud to be a signatory to the World Bank's Zero Routine Flaring by 2030 initiative.

We flare natural gas only when necessary for safety and operational purposes and in areas where pipelines and other alternatives for transporting gas do not exist. Since 2016, we have reduced flaring across Chevron by more than 40 percent. In the Permian Basin, we are an industry leader in reducing flaring. We consider gas-takeaway availability in development planning, just as we would a permitting condition. This integrated approach to operations promotes gathering and takeaway systems that operate reliably, efficiently, and in coordination with production teams, resulting in some of the lowest methane intensities among those operating in the Permian Basin.

Internationally, we also look at ways to reduce flaring. For example, our Angola LNG joint venture was built to provide a use for associated gas. We have reduced flaring GHG emissions from our operated assets in Angola by more than 80 percent since 2016, contributing to the elimination of routine gas flaring in the country.

[SEE FIGURE IN ORIGINAL]

**The Environmental Partnership**: Chevron is a founding partner of The Environmental Partnership, an industry initiative aimed at accelerating the adoption of practices that reduce methane emissions. To date, companies in this initiative have conducted more than 184,000 leak-detection surveys and replaced more than 13,000 pneumatic controllers with lower- or non-emitting technologies. In December 2020, The Environmental Partnership adopted a program to advance best practices that reduce flare volumes, promote beneficial use of associated gas, improve flare reliability and efficiency when flaring does occur, and collect data to calculate flare intensity as the key metric to gauge progress from year to year.

**Project ASTRA: Advancing Next Generation Methane Innovation**: Chevron is a participant in Project ASTRA, a partnership led by the University of Texas at Austin that aims to demonstrate a novel approach to measuring methane emissions from ***oil*** and gas production sites, using advanced technologies to help minimize releases into the atmosphere. Project ASTRA will establish a sensor network that will leverage advances in methane-sensing technologies, data sharing, and data analytics to provide near-continuous monitoring.

**World Bank's Zero Routine Flaring Initiative**: Chevron endorsed the World Bank's Zero Routine Flaring Initiative, which brings together governments, ***oil*** companies, and development institutions that agree to cooperate to eliminate routine flaring by no later than 2030.

**Collaboratory to Advance Methane Science (CAMS) and Methane Emissions Technology Evaluation Center (METEC)**: Chevron is a founding member of CAMS, a joint industry project to conduct peer-reviewed research around methane emissions. Chevron also serves on the Industrial Advisory Board of the METEC, a facility that provides realistic ***oil***-field settings to test new methane detection and abatement technologies and supports the Methane Guiding Principles.

**World Bank's Global Gas Flaring Reduction Public-Private Partnership (GGFR)**: Chevron is an active participant in the World Bank's GGFR voluntary standard. The GGFR recently partnered with the Payne Institute for Public Policy at the Colorado School of Mines to develop a transparent web platform to support real-time mapping and tracking of global gas flaring data. Chevron supported a $ 1 million commitment to this partnership through our membership in the ***Oil*** and Gas Climate Initiative (OGCI).

***Oil* and Gas Climate Initiative (OGCI)**: OGCI member companies, including Chevron, have a methane-intensity target to reduce collective average upstream methane intensity to 0.20 percent as a share of marketed gas, by 2025. As of October 2020, member companies' collective methane intensity was 0.23 percent.

**chevron supports**

**well-designed mandatory**

**climate-related reporting**

We support efforts to enhance the comparability and consistency of climate information in public disclosures. We have voluntarily reported our greenhouse gas emissions, including Scope 3 emissions from the use of our products, for nearly two decades. In addition, we have experience with a number of mandatory reporting schemes focused on GHG emissions across multiple jurisdictions, including in the United States, Canada, United Kingdom, France, Australia, Singapore, and Kazakhstan. We are working within and beyond our sector to help develop standards for emissions reporting.

**Our approach is designed to facilitate carbon accounting that allows informed decision making throughout the value chain. We are partnering to support a systematic and global approach to achieve the goals of the Paris Agreement as efficiently and cost-effectively as possible**.

**as this area evolves, we are guided by the following considerations**:

[SEE FIGURE IN ORIGINAL]

**We have a long history of reporting on sustainability topics, including climate-related information, and we aim to provide transparency in our reporting on ESG topics so that we can share our progress with various stakeholders. We continuously work to enhance our reporting in line with increasing market expectations**.

**To find our recent climate-related ESG disclosures, visit: *Climate Change Resilience report*, Corporate Sustainability Report, and the *IHS markit ESG reporting repository***.

**chevron's approach to**

**portfolio carbon intensity**

The portfolio carbon intensity methodology is designed to facilitate carbon-intensity accounting of a company's portfolio. It uses a representative value chain that includes emissions associated with bringing products to market, including Scope 3 emissions from the use of our products. For Chevron, the volume of emissions produced by users of its products is larger than our volume of emissions associated with either Upstream production or Downstream refining. The PCI methodology facilitates transparency and replicability in calculations and data with information taken from financial statements and emissions disclosures. This approach enables comparison of companies that may participate in different parts of the value chain and the use of real data when possible. Adopting a portfolio carbon intensity methodology provides Chevron the flexibility to grow its Upstream and Downstream businesses provided it remains an increasingly carbon-efficient operator.

**chevron PCI (scope 1, 2, and 3) reduction target for 2028**: **71** g CO[2]e/MJ **> 5%** reduction from 2016

**chevron's PCI represents the full value chain carbon intensity of the products we sell, including our own emissions, emissions from third parties, and emissions from customer use of our products**

[SEE FIGURE IN ORIGINAL]

**We have reported emissions, including from the use of our products, for nearly two decades and we support mandatory emissions reporting. For further details, see Section 5 of Chevron's *Climate Change Resilience report***.

**4.1 upstream**

We strive to ensure our Upstream business provides competitive returns, regardless of commodity prices. We are focused on expanding cash and earnings margins by reducing operating costs, building efficiency into day-to-day operations, increasing reliability, lowering carbon intensity, and completing major capital projects under construction.

Our Upstream portfolio is anchored by key assets, including ***oil*** and gas in Kazakhstan, LNG in Australia, shale and tight ***oil*** in the U.S. onshore, deepwater assets in the U.S. Gulf of Mexico, and natural gas in the Eastern Mediterranean. These assets are supplemented by other competitive assets globally.

We believe that the most appropriate approach for measuring the emissions performance of an Upstream asset is GHG intensity by commodity on an equity basis--the same method we use to report production--which covers all emissions from both company-operated and nonoperated joint ventures. This is aligned with the intent to provide useful GHG information to help stakeholders make decisions. Based on a comparison of the IEA's *World Energy Outlook 2018* data, we estimate that more than 75 percent of our production of both ***oil*** and gas is below the global average carbon intensity for each commodity. Having made progress on our initial objectives, we set new, more ambitious Upstream carbon intensity--reduction targets, timed with the Paris Agreement's second stocktake in 2028, that are expected to deliver a 35 percent reduction from our 2016 baseline.

Over the next four years, we expect to allocate more than two-thirds of our Upstream capital to the six assets highlighted on the map (see Exhibit 37) to help lower our overall Upstream carbon intensity. In areas where we have ongoing production development, such as in the Permian Basin, we are working to systematically develop production with lower carbon intensity.

In the Permian Basin, we are also changing the way we consume energy and detect methane emissions. All of our operated drilling rigs and completion spreads have been converted to direct electric, natural gas, or dual-fuel power, displacing diesel use and further reducing expected emissions. We also began procuring renewable power for our operations in the Permian Basin. Initially, we started by buying 65 megawatts of wind-generated power. More recently, we have partnered with Algonquin to build an additional 120 megawatts of solar-sourced energy. As this effort continues, we believe that 70 percent of our Permian Basin power demand can be met with renewable power. As part of our global methane-detection plan, we're collaborating in aerial flyovers that cover thousands of sites. The learnings from these activities are being deployed across the Upstream portfolio to reduce carbon intensity.

**$ 239.8 billion** total Chevron assets\*

**$ 94.5 billion** Chevron sales and other operating revenues

**3.08 million barrels** net ***oil***-equivalent daily production

**11.1 billion barrels** net ***oil***-equivalent proved reserves\*

\* At December 31, 2020. Year ended December 31, 2020.

[SEE Exhibit 37. The six assets below represent two-thirds of our spend over the next four years\* IN ORIGINAL]

\* Production and intensity values shown are for 2020. mboed = thousands of barrels of ***oil***-equivalent per day

**chevron's approach to**

**upstream carbon intensity**

Upstream carbon intensity (UCI) includes emission-intensity metrics for ***oil*** production, gas production, flaring, and methane. These UCI metrics are equity-based, which means that they include our pro rata share of emissions both from the assets that Chevron operates and from our nonoperated joint ventures, as well as emissions up to point of sale.

**our approach is designed to facilitate carbon accounting that reduces**

**our own emissions and also sets a framework that facilitates**

**achieving global reductions as efficiently and cost-effectively as possible**

**chevron UCI (scope 1 and 2) reduction targets for 2028**:

|  |  |
| --- | --- |
| 24 kg CO[2]e/boe for ***oil*** (global industry averages 46) | 40% reduction from 2016 |
| 24 kg CO[2]e/boe for gas (global industry averages 71) | 26% reduction from 2016 |
| 2 kg CO[2]e/boe for methane and a global methane-detection campaign | 53% reduction from 2016 |
| 0 routine flaring by 2030 and 3 kg CO[2]e/boe for overall flaring | 66% reduction from 2016 |

[SEE FIGURE IN ORIGINAL]

**4.2 downstream**

We seek to grow earnings across the Downstream & Chemicals value chain by making targeted investments in higher-return segments while strengthening our refining and marketing value chains.

**The targeted investments are designed to strengthen our value chain, eliminate costs, and improve efficiencies. We continually examine ways to meet demand and policy changes**.

Chevron's Downstream portfolio is focused in areas of manufacturing strength on the U.S. West Coast, on the U.S. Gulf Coast, and in Asia. We have created tightly integrated value chains in the markets where we operate and are well positioned to supply growing markets. As our focus is on value, not volume, we will continue to improve our operations, lower carbon intensities, and grow margins across the value chain. In our petrochemicals business, our portfolio focus is on world-scale facilities, proprietary technology, and low-cost feedstocks.

Although complex refineries tend to have a higher carbon intensity when measured on a throughput basis, sometimes referred to as a "simple barrel" basis, they play an important role in transforming crude into high-value products. Based on data from the IEA's *World Energy Outlook 2018*, approximately 25 percent of our refinery capacity is below the global average of refinery throughput carbon intensity, which is expected when using a throughput basis and taking into account our portfolio of complex refineries. To communicate our performance transparently, for Scope 1 and 2 we have set a 1 to 2 percent emissions intensity--reduction target on a throughput basis (see page 61) from 2016 to 2023 and a 2 to 3 percent reduction target from 2016 to 2028.

**Renewable fuels**

Our renewable fuels business is linked to existing assets, infrastructure, and markets. We are building a business based on capital-efficient production, strong marketing, and feedstock partnerships. We are focused on the U.S. West Coast, where there's strong policy enablement, and expect to expand to the U.S. Gulf Coast and select markets in Asia, where we have a significant presence and expect policy support to increase over time. We participate in renewable diesel and SAF production and partnerships for renewable natural gas (RNG), compressed natural gas (CNG), and renewable base ***oil***.

[SEE Exhibit 38. Optimizing Downstream & Chemicals value chains to maximize value IN ORIGINAL]

**chevron's approach to refining carbon intensity**

Refining carbon intensity (RCI) focuses on refining emissions, as the majority of Chevron's Downstream emissions are from our refining business. RCI is throughput-based and captures Chevron's equity refining emissions and estimates of emissions associated with third-party processing of purchased feedstocks. Chevron's refining business has a long history of energy efficiency, and our 2028 target represents numerous projects to improve on our strong performance in addition to projects executed before the 2016 baseline year.

**our approach is designed to facilitate carbon accounting that reduces our own emissions, and also sets a framework that facilitates achieving reductions as efficiently and cost-effectively as possible**

**chevron RCI (scope 1 and 2)\* reduction target for 2028**:

**36** kg CO[2]e/BOE for global refineries    **2%--3%** reduction from 2016

[SEE FIGURE IN ORIGINAL]

**renewable fuels**

Renewable fuels are an important product that can help reduce the lifecycle carbon intensity of transportation fuels while meeting the world's growing energy needs.

We co-process biofeedstock in our own facilities, partner with others for RNG and CNG, and have an equity stake in producing renewable base ***oil***.

**Co-processing biofeedstock**: We are co-processing biofeedstock at our El Segundo, California, refinery and recently produced our first SAF there. Next year, we expect to increase capacity to 10 thousand barrels per day (mbd) of renewable diesel. Sixty percent of our U.S. terminals are now capable of renewable or biodiesel distribution.

Leveraging our existing refining system and other anticipated actions, we expect to have the capacity to produce roughly 100 mbd of renewable diesel and SAF by 2030. We expect all of our U.S. diesel sales to have renewable or biodiesel content by the end of the decade.

**RNG and CNG**: RNG and CNG projects capture methane that is currently emitted to the atmosphere and turn it into a valuable fuel, with negative carbon intensity on a lifecycle basis under the California Low Carbon Fuel Standard. Our primary focus is on lower lifecycle carbon intensity gas from dairy feedstocks with farms that have the scale and proximity to natural-gas pipelines to enable a commercial project. Chevron completes the value chain by getting the natural gas to customers. We expect to diversify our feed mix over time, likely to include wastewater and landfill gas.

In renewable natural gas, we're ahead of our plan to grow RNG production tenfold by 2025, and we intend to produce over 40 billion British thermal units (BTUs) per day by 2030.

**Renewable base *oil***: We continue to lead in the development of renewable base ***oil*** through our patented technology and majority ownership in Novvi, a California-based company that engages in the development, production, marketing, and distribution of high-performance base ***oils***. Together, Chevron and Novvi leverage the complementary technologies of Chevron's expertise in hydroprocessing and Novvi's innovative use of renewable feedstocks to enable us to integrate this renewable base ***oil*** into our lubricant product lines. We've developed the first commercially viable renewable automotive engine ***oil***--Havoline Pro-RSR--with lifecycle emissions that are 35 percent lower than conventional motor ***oil*** of equal viscosity. To date, we have a portfolio of patents, including some that target fuel economy, electric vehicle fluids, and equipment life extension, all using renewable base ***oil***.

We're aiming to have renewable content available in all of our key lubricant product lines near the end of the decade. Finally, we intend to license the technology to drive market scale and expect to produce and/or license 100,000 tonnes per year by 2030.

[SEE FIGURE IN ORIGINAL]

**Brightmark LLC**: Chevron and Brightmark LLC announced the formation of a joint venture, Brightmark RNG Holdings LLC, to develop projects across the United States to produce RNG. The joint venture will fund the construction of infrastructure and the commercial operation of dairy biomethane projects in multiple states, from which we will purchase RNG and market the volumes for use in vehicles operating on renewable compressed natural gas.

**Clean Energy Fuels Corporation**: Chevron has partnered with California natural-gas retailer Clean Energy Fuels Corporation on Adopt-a-Port, an initiative that provides truck operators serving the ports of Los Angeles and Long Beach with RNG. Truck operators participating in the program agree to fuel up at the Clean Energy stations supplied by Chevron. Truck operators and their import and export customers will help local communities by reducing smog-forming NO[x] emissions by 98 percent, compared with diesel trucks.

**Getting to Zero Coalition**: Chevron has joined more than 120 companies in the Getting to Zero Coalition, a partnership between the Global Maritime Forum, the Friends of Ocean Action, and the World Economic Forum. It brings together participants from across the shipping value chain to get commercially viable deep-sea zero-emissions vessels into operation by 2030 to support the International Maritime Organization's ambition to reduce GHG emissions from shipping by at least 50 percent by 2050.

**American Natural Gas LLC**: Chevron and Mercuria signed a definitive agreement to form a joint venture to own and operate a network of 60 compressed natural-gas stations across the United States.

**CalBio**: Chevron has partnered with CalBio and dairy farmers to form a joint-venture company, CalBioGas LLC, which produces and markets biomethane as a fuel for heavy-duty trucks and buses. These efforts mitigate dairy methane emissions and reduce waste. In 2020, we announced the first renewable natural-gas production from dairy farms in the California Central Valley.

**Gevo**: Chevron and Gevo announced a letter of intent to jointly invest in building and operating one or more new facilities that would process inedible corn to produce SAF, which can lower the lifecycle carbon intensity of fuels used in the aviation industry.

**Bunge**: We announced a memorandum of understanding with Bunge North America Inc. of a proposed 50/50 joint venture to help us meet the demand for lower lifecycle carbon intensity fuels and develop renewable feedstocks. Upon finalization of the joint venture, the partnership would establish a reliable supply chain from farmer to fueling station and double the current facility capacities from 7,000 tons per day by the end of 2024.

**4.3 new energies**

Our New Energies organization is focused on areas where we believe we can build competitive advantages and that target sectors of the economy that cannot be easily electrified. Hydrogen, CCUS, and offsets are at the core of this strategy and are an important part of addressing climate change. These businesses support Chevron's efforts to reduce its GHG emissions and are also expected to become high-growth opportunities with the potential to generate accretive returns.

We have the capabilities, assets, and customer relationships that we believe are a platform for rapid growth in the years to come. We bring a unique set of capabilities to each of these areas. Our existing assets span the value chain and are in areas where we can grow demand based on cost-competitive supply combined with appropriate policy support. We have strong relationships with key customers and partners, which will be critical in developing economic projects that can scale quickly across a complex value chain.

We believe innovation, technology, and policy will be key drivers of change. We begin with a portfolio of existing assets and decades of experience as a strong foundation for future growth. We've successfully managed complex joint ventures all over the world. We have deep technical expertise inside the Company and a long history of advancing and adopting external innovation. We have strong commercial capabilities and experience managing rapidly changing businesses. Chevron's credibility and reputation make us the partner of choice, bringing access to new opportunities. Managing diverse stakeholder and government interests is something we do every day.

We believe growth of our New Energies and renewable products may enable 30 million tonnes of CO[2]e reductions by 2028. These total emissions reductions include both avoided emissions from use of our lower carbon products (compared with conventional fuels on a lifecycle basis) and emissions removals.

Achievement of the ambitious goals set out in this section depends on making extensive progress with independent third parties, including development of policy and regulatory support, technological advancement, successful commercial negotiations, availability of cost-effective and verifiable offsets in a global market, and the granting of necessary permits by governing authorities.

**Exhibit 39. Accelerating growth in lower carbon energy**

**hydrogen**

Chevron's approach to hydrogen envisions the use of green, blue, and gray hydrogen. We believe the use of blue and green hydrogen as a fuel source can help reduce the amount of GHG emissions entering the atmosphere. While gray hydrogen is viewed as not directly supporting decarbonization of the energy sector, we believe that early-use cases of gray hydrogen can provide key opportunities to de-risk technology, enable development of supporting infrastructure, including fueling stations, and contribute to learnings.

Chevron has been investing in hydrogen research and development for decades and holds more than 75 patents from early commercial ventures that are applicable to our future development plans. Chevron currently produces around 1 million tonnes per year of hydrogen through our traditional business and has experience in retail hydrogen going back to 2005. At our refinery in Richmond, California, excess capacity in the new hydrogen unit, combined with existing and future strategic partnerships, will be the foundation to support hydrogen demand growth in the heavy-duty transportation, industrial, and power sectors.

We're fostering transportation and industrial demand growth through original equipment manufacturer alliances and though participation in organizations such as the California Fuel Cell Partnership, the California Energy Commission's Clean Transportation Program, and the Hydrogen Council. We're developing large green hydrogen projects in the western United States and assessing development of blue hydrogen production hubs in the United States and Asia linked to existing storage assets, equity natural-gas volumes, or both.

We see the potential to produce 150,000 tonnes per year of gray, blue and green hydrogen, our equity share, by the end of this decade, and we believe we're well positioned to participate across the value chain.

**Raven SR**: Chevron is invested in Raven SR Inc., a renewable fuels company that plans to build modular waste-to-green hydrogen production units and renewables synthetic fuel facilities initially in California and then worldwide. Raven SR's technology makes it one of the only combustion-free, waste-to-hydrogen producers in the world.

**Toyota**: Chevron and Toyota Motor North America Inc. (Toyota) announced a memorandum of understanding to explore a strategic alliance to catalyze and lead the development of commercially viable, large-scale businesses in hydrogen, with the goal of advancing a functional, thriving global hydrogen economy. Chevron and Toyota are seeking to work on three main strategic priorities: collaborating on hydrogen-related public policy measures that support the development of hydrogen infrastructure; understanding current and future market demand for light-duty and heavy-duty fuel cell electric vehicles and supply opportunities for that demand; and exploring opportunities to jointly pursue research and development in hydrogen-powered transportation and storage.

**Advanced Clean Energy Storage (ACES)**: We agreed on a framework to acquire an equity interest in ACES Delta, LLC (ACES Delta), which is a joint venture between Mitsubishi Power Americas Inc. (Mitsubishi Power) and Magnum Development, LLC (Magnum) that owns the Advanced Clean Energy Storage project. This project is expected to produce, store, and transport green hydrogen at utility scale for power generation, transportation, and industrial applications in the western United States.

**Hydrogenious LOHC Technologies**: In 2021, we announced an investment in Hydrogenious, whose technology has potential as a bulk hydrogen storage and transportation medium.

**Cummins**: Chevron and Cummins Inc. (Cummins) announced a memorandum of understanding to explore a strategic alliance for commercially viable business opportunities in hydrogen and other alternative energy sources. Chevron and Cummins intend to initially collaborate on four main objectives: advancing public policy that promotes hydrogen as a decarbonizing solution for transportation and industry; building market demand for commercial vehicles and industrial applications powered by hydrogen; developing infrastructure to support the use of hydrogen for industry and fuel cell vehicles; and exploring opportunities to leverage Cummins' electrolyzer and fuel cell technologies at one or more of Chevron's domestic refineries.

**Starfire**: In 2021, Chevron invested in Starfire, a Boulder, Colorado--based startup developing a modular, distributed ammonia production and cracking system. Ammonia is a promising energy carrier with an energy density comparable to fossil fuels and significantly higher than Li-ion batteries or hydrogen. Starfire designed its system to be cost-competitive.

**Caterpillar**: In 2021, we announced a collaboration agreement with Caterpillar to develop hydrogen demonstration projects and stationary power applications, including prime power. The goals of the collaboration are to confirm the feasibility and performance of hydrogen for use as a commercially viable alternative to traditional fuels for long-haul rail and marine vessels and to demonstrate hydrogen's use in prime power.

**carbon capture, utilization, and storage**

CCUS is an important emissions-removal activity that can help reduce GHG emissions.

We see CCUS opportunities in two areas: reducing the carbon intensity of our existing assets and growing our carbon capture business, primarily through hubs with third-party emitters as partners and customers. Our initial carbon capture projects have been focused on decarbonizing existing assets--such as our Gorgon Project, one of the largest sequestration projects in the world--with the capacity to store up to 4 million tonnes of CO[2] per year--providing us with key operational experience.

We are targeting 25 million tonnes of CO[2] per year in equity storage by the end of this decade. To achieve these ambitions, we're exploring several hub opportunities in the United States and abroad, each including multiple large customers and with facility nameplate capacities of between 5 million and 20 million tonnes of CO[2] per year.

[SEE FIGURE IN ORIGINAL]

***Kern* River Carbon Capture**: Chevron was awarded a project from the DOE to pilot technology that captures CO[2] from post-combustion gas. In collaboration with Svante and the National Energy Technology Laboratory, we are planning to test the technology at our ***Kern*** River facility in San Joaquin Valley, California, with a 30-tonne-per-day plant for a six-month operational trial.

**National Research Foundation**: Chevron is a member of a consortium with the Singapore National Research Foundation and other companies. We are working jointly to develop the first end-to-end decarbonization process in Singapore. This collaboration is aimed at accelerating the development of a highly integrated, energy-efficient CCUS system that can lead to a low-carbon economy and potential commercial developments for Singapore, as well as help the country meet its Paris pledge.

**Carbon Engineering**: Chevron is invested in Carbon Engineering to accelerate the commercialization of Carbon Engineering's direct air capture (DAC) technology, which removes CO[2] directly from the air. The technology is expected to be used as a mechanism to reduce emissions from transportation and enable permanent capture of existing atmospheric CO[2].

**Enterprise**: We announced a framework with Enterprise Products Partners L.P. to study and evaluate opportunities for CCUS from their respective business operations in the U.S. midcontinent and Gulf Coast. Potential projects resulting from the evaluation would seek to create opportunities to capture, aggregate, transport, and sequester CO[2].

**Mendota BECCS project**: Chevron is collaborating with Schlumberger New Energy, Microsoft, and Clean Energy Systems to work toward developing a bioenergy with carbon capture and sequestration (BECCS) project in Mendota, California. The project is designed to utilize agricultural waste to produce renewable power while capturing and permanently storing CO[2] produced in the process in a geologic formation. The project is expected to result in net-negative emissions when fully operational, storing 300,000 tonnes of CO[2] annually.

**Blue Planet**: Chevron is invested in Blue Planet, which uses CO[2] as a raw material for making carbonate rocks used in place of quarried limestone in building material. In addition, we are exploring opportunities to collaborate on potential pilot projects and commercial development in key geographies.

**McKittrick Carbon Capture**: We recently completed FEED (front-end engineering design) for a commercial-scale project in the San Joaquin Valley, California, to capture CO[2] from a co-generation plant's gas turbine. The project combines two technologies: CarbonPoint Solutions' Semi-Closed Cycle CO[2] Concentration Technology and Carbon Clean's Advanced Rotating Packed Bed Solvent Capture Technology. If successful, this opportunity could capture as many as 218 tonnes of CO[2] per day.

**offsets**

In multiple lower carbon scenarios, offsets are expected to make up a notable portion of global reductions, especially in sectors that do not have cost-effective reduction opportunities or for activities that are hard to abate.

Chevron's experience in developing and using offsets dates back nearly two decades and is an important part of our operations in areas like Australia, Canada, Colombia, and California. We have a global carbon trading organization and actively participate in multiple registries and exchanges. We're also planning to invest directly in scalable, nature-based solutions--like soil carbon storage, reforestation, and mangrove restoration--generating high-quality credits.

We expect to be a portfolio supplier of offsets by providing more customers with offset-paired products.

[SEE FIGURE IN ORIGINAL]

**World Bank**: Chevron is party to a memorandum of understanding with the World Bank. The World Bank's goal is to enhance global climate ambitions in mitigation actions and activities to facilitate the development of carbon and climate markets and associated infrastructure based on emerging international and national regulatory frameworks. Specifically, we seek to collaborate on activities that promote the establishment by the World Bank of facilities that may generate, warehouse, acquire, sell, and/or otherwise transfer mitigation outcomes in support of the Paris Agreement.

**IHS Markit**: Chevron is an advisory board member of the IHS Markit Carbon Meta Registry. IHS Markit is leading a consortium of stakeholders in the global carbon markets to develop the market infrastructure needed to support the realization of Paris Agreement carbon-emissions targets. The Carbon Meta Registry will provide a network to connect voluntary and government carbon credit programs, market participants, and service providers. It will leverage distributed ledger technology and reduce the risk that credits are counted or claimed more than once.

***Oil* and Gas Climate Initiative (OGCI)**: Chevron participates in the OGCI's Natural Climate Solutions workstream, exploring ways to enhance the scientific, technological, and operational basis for a global scaling-up of NCSs.

**Boomitra**: Chevron is invested in Boomitra, a startup developing an agricultural technology to enable farm carbon sequestration and monetization. Boomitra has the potential to cost-effectively grow the supply of carbon offsets to meet increasing demand.

**Markets for Natural Climate Solutions Initiative**: Chevron is a founding member of the Markets for Natural Climate Solutions Initiative to boost climate action. NCSs provide a potentially cost-effective form of carbon management that can contribute to the goals of the Paris Agreement. In collaboration with the International Emissions Trading Association, Chevron is working with members and stakeholders on a policy roadmap and market strategy.

**University of Maryland**: Chevron supports the University of Maryland's modeling and analysis to promote carbon markets and transferability of emissions credits.

**Institute of International Finance Taskforce on Scaling Voluntary Carbon Markets**: Chevron is a consultative group member of the Institute of International Finance Taskforce on Scaling Voluntary Carbon Markets (TSVCM). A large, transparent, verifiable, and robust voluntary carbon market can help deliver carbon-reduction goals and is key to the integrity of reductions. The TSVCM brings together experts across the carbon market value chain to help build consensus on how best to scale up voluntary carbon markets.

**Acorns and One Tree Planted**: In collaboration with Acorns, a saving and investing app in the United States, Chevron is piloting a new program in California to have five trees planted via the One Tree Planted organization every time an Acorns account holder fills up at a Chevron gas station. While not an offset credit--generating activity, the program provides an opportunity to better understand consumer interest in offsetting emissions from use of our products.

**emerging areas**

We have a long history of supporting innovation through research and development, innovation ecosystems, and university partnerships. Our investments target technology in areas such as CCUS, hydrogen, energy optimization, digitization, energy storage and management, and emerging power technologies. Emerging power technologies such as fusion technology and advanced geothermal are promising lower carbon energy sources with less intermittency than other renewable sources. We believe that these technologies have the potential to change the way we produce and use energy.

[SEE FIGURE IN ORIGINAL]

**Rice Alliance for Technology and Entrepreneurship**: Chevron is a founding supporter of the Rice Alliance Clean Energy Technology Accelerator, which develops programs to support early-stage energy startups.

**Greentown Labs**: Chevron partnered with Greentown Labs, the largest climate technology startup incubator in North America, to support opening a Houston, Texas, location. This builds on our support for Greentown Labs in Boston since 2013.

**MIT**: Chevron is a sustaining member of the MIT Energy Initiative, which fosters new research and education to develop innovative tools, technologies, and solutions to address global energy needs and challenges.

**Baseload Capital**: Chevron is invested in Baseload Capital, a private-investment company focused on the development and operation of lower-temperature geothermal and heat power assets.

**Zap Energy**: Chevron is invested in Zap Energy, a startup developing a next-generation modular nuclear reactor with an innovative approach to advancing cost-effective, flexible, and commercially scalable fusion.

**Eavor Technologies**: Chevron is invested in Eavor Technologies, a company that provides a closed-loop geothermal technology for both power and direct heat markets. Eavor's innovative system has dispatchability for power load balancing, which is becoming more essential as intermittent renewables saturate more power grids.

**Ocergy**: Chevron is invested in Ocergy, a developer of floating offshore wind foundation technology. The investment will also fund the development of an environmental monitoring buoy that has the potential to gather data and support biodiversity.

**Natel Energy**: Chevron is invested in Natel Energy, a startup providing hydropower-based technology that has the potential to unlock distributed hydropowered resources and that aims to provide a reliable, dispatchable power resource to balance intermittent renewables.

**Mainspring**: Chevron is invested in Mainspring Energy, a startup developing technology that has the potential to enable greater fuel flexibility and utilization of lower carbon fuels with near-zero NO[x] emissions.

**chevron supports innovation to advance and scale climate solutions**

**Chevron is investing in innovative technologies to address climate change**. **We also support government investment in promising pre-commercial technologies, from research to early deployment, to help deliver scalable solutions to climate change that are economic without subsidy within a carbon-pricing program**.

**chevron supports research, development, demonstration, and deployment for emerging technologies to address climate change chevron supports**:

- **A focus on emissions**: Public research, development, and deployment should be based on opportunity for scalable emissions reduction, supporting the most promising pre-commercial opportunities, irrespective of energy source.

- **Balanced and transparent government policies**: Policy should be balanced to enable research, development, and demonstration of promising technologies while minimizing market distortions. Policy should be transparent to build public trust and communicate benefits, costs, and trade-offs to the public.

- **Pre-commercial support**: To maximize limited public resources and minimize harmful market distortions, innovation policy should focus on advancing emerging technologies, so they become commercially scalable without subsidy within a carbon-pricing program. Subsidies for existing commercial opportunities that distort markets and create unfair competition should be avoided.

- **Scalable solutions**: Innovation policy should leverage scientific research to advance promising technologies that can offer scalable economic solutions to climate change. Policy should aim to drive down costs so these opportunities are commercially scalable.

[SEE FIGURE IN ORIGINAL]

**research & development**

- Chevron is investing in low-carbon technologies to enable commercial solutions. Our combined $ 400 million Future Energy Funds invest in promising opportunities such as carbon capture, utilization, and storage (CCUS), next-generation battery storage, hydrogen, and emerging power technologies.

- We committed $ 100 million to the more than $ 1 billion OGCI Climate Investments fund, which invests in solutions to decarbonize ***oil*** and gas, industrials, commercial transport, and buildings.

- We partner with leading researchers, such as the U.S. Department of Energy's National Laboratories and Singapore's National Research Foundation, to develop new carbon capture technologies.

[SEE FIGURE IN ORIGINAL]

**demonstration**

- Chevron is advancing collaborative efforts with the U.S. Department of Energy and Svante, as well as Blue Planet and others, on projects demonstrating innovative technologies to drive down carbon capture costs.

- We are investing in hydrogen fueling demonstration projects and technologies, launching the first "all in one" station accommodating hydrogen, electricity, liquefied petroleum gas, gasoline, and diesel with our affiliate GS Caltex.

- We are investing in innovative storage opportunities, including in Natron Energy, which is developing and scaling production of rapid-charging batteries for data centers, EVs, and dispatchable grid storage.

[SEE FIGURE IN ORIGINAL]

**deployment**

- Chevron invested more than $ 1 billion in CCUS, reducing emissions by nearly 5 million tonnes per year. Our Gorgon facility is one of the world's largest integrated carbon sequestration and storage projects.

- We are partnering with CalBio and Brightmark to produce and market renewable natural gas, helping reduce agricultural methane emissions while providing renewable lower carbon fuels on a lifecycle basis.

- We are investing in renewable fuels, products, and power, including sourcing over 500 megawatts of renewable generation by 2025.

**chevron supports well-designed climate policy**

**Chevron supports the Paris Agreement and is committed to addressing climate change while continuing to deliver energy that supports society. Climate policy should achieve emissions reductions as efficiently and effectively as possible, at the least cost to economies**.

**chevron supports carbon pricing, innovation, and efficient policies chevron supports**:

- **Global engagement**: Build up an integrated global carbon market that creates a level playing field and mitigates trade distortions. Incentivizing the lowest-cost abatement on the widest scale possible is critical to mitigating climate change.

- **Research and innovation**: Support promising precommercial technologies designed to spur innovation and mitigation across all sectors of the economy. Research, development, and deployment for pre-commercial technologies to enable scalable solutions that are economic without subsidy within a carbon-pricing program.

- **Balanced and measured policy**: Involve all sectors to maximize efficient and cost-effective reductions while allocating costs equitably, gradually, and predictably; avoid duplicative and inefficient regulations; balance economic, environmental, and energy needs.

- **Transparency**: Strive for transparency and efficiency in measuring and driving the lowest-cost emissions reductions. Policy benefits, costs, and trade-offs should be transparently communicated to the public.

[SEE FIGURE IN ORIGINAL]

[SEE FIGURE IN ORIGINAL]

**innovation support**

Continued research and innovation are key. Investments in pre-commercial early-stage abatement technologies can enable breakthroughs that lead to scalable technologies that are commercially viable without subsidy under a carbon-pricing program.

[SEE FIGURE IN ORIGINAL]

**carbon pricing**

Carbon pricing should be the primary policy tool to achieve greenhouse gas emissions reduction goals. It incentivizes the most efficient and cost-effective emissions reductions while enabling support to affected communities, consumers, and businesses.

[SEE FIGURE IN ORIGINAL]

**targeted policies**

Regulations should be efficiently targeted to enable cost-effective lower carbon opportunities not addressed by carbonpricing or innovation policies (e.g., apartment efficiency standards, since the owner pays for efficiency improvements, but the renter pays the utility bill).

**chevron supports well-designed methane policy**

**Chevron is proud to be a U.S. industry leader in managing methane emissions and responsibly producing *oil* and gas. We believe methane emissions reductions are possible in the energy industry, and in other key sectors, through adoption of industry best practices and well-designed regulation**.

**chevron supports well-designed and properly enacted methane regulation, in the energy industry and in other key emitting sectors chevron supports**:

- **Performance-based regulation**: Policy should set appropriate methane metrics while providing flexibility for companies to determine the optimal way to meet those metrics.

- **Technological innovation**: Policy should flexibly incorporate new and future technologies, such as aerial and drone monitoring, that can identify and address methane emissions most effectively.

- **Industry best practices**: Methane emissions are disproportionately concentrated among a small number of operators, sites, and equipment. Reasonable minimum equipment standards help ensure all operators are working to curtail methane emissions.

- **All sectors contributing**: Improving methane performance is important for ***oil*** and natural gas (28 percent of U.S. methane emissions), as well as other sectors, which make up the remaining 72 percent. Policy should apply to all key sectors.

[SEE FIGURE IN ORIGINAL]

**partnerships**

- Chevron is a member of the ***Oil*** and Gas Climate Initiative (OGCI), which is engaged in industry-leading methane performance with a collective upstream methane intensity target of below 0.25 percent, with the ambition to achieve 0.2 percent by 2025.

- Chevron partners with CalBio and Brightmark to produce and market renewable natural gas, helping reduce agricultural methane emissions while providing lower carbon fuels, on a lifecycle basis, to our customers.

- We are a proud co-founder/chair of The Environmental Partnership, a voluntary industry effort to cut U.S. methane emissions that has conducted 184,000 leak-detection surveys and replaced more than 13,000 pneumatic controllers with low-/non-emitting technology.

[SEE FIGURE IN ORIGINAL]

**performance**

- In 2019, Chevron's U.S. onshore production methane intensity was 85 percent lower than the U.S. industry average.

- We continue to take action to further reduce methane emissions and have set a target to work to reduce methane intensity by 53 percent by 2028.

- Actions to support achieving this target are tied to the compensation of all our executives and nearly all of our employees worldwide.

**U.S. production methane intensity**

[SEE FIGURE IN ORIGINAL]

[SEE FIGURE IN ORIGINAL]

**technology**

- Chevron supports development of innovative technologies to reduce emissions, including through our combined $ 400 million Future Energy Funds and a $ 100 million commitment to the $ 1 billion OGCI Climate Investments fund.

- As part of the Collaboratory to Advance Methane Science, Chevron has worked with other operators to understand the potential for aerial leak-detection surveys in the Permian Basin.

- Chevron partnered with the NASA Jet Propulsion Laboratory to test one of the first aerial detection technologies for methane, which has been used in studies throughout the United States.

**section 5**

**metrics**

**we demonstrate our commitment to transparency by reporting metrics and performance data annually\***

In the *2020 Corporate Sustainability Report*, we enhanced our reporting by providing index columns to identify common reporting elements between our reported data and the related *Sustainability Accounting Standards* (2018) (SASB) and the IPIECA *Sustainability Reporting Guidance for the* ***Oil*** *and Gas Industry* (2020). We now also leverage the America Petroleum Institute's (API) *Template 1.0 for GHG Reporting* (June 2021) and *Guidance--API Template 1.0 for GHG Reporting* (June 2021) for organization of our reported data and provide an additional index column to identify common reporting elements between our reported data and the API template. This enhancement to our environmental, social, and governance reporting helps provide comparable information for investors and other stakeholders. We are a leader in reporting and were among the first companies to produce a report on climate change resilience and a supplemental report aligned with the Financial Stability Board's Task Force on Climate-related Financial Disclosures framework. We have also disclosed our environmental, social, and governance data, including GHG emissions data, in the IHS Markit ESG Reporting Repository to enable investors and other stakeholders to efficiently compare ESG data across sectors and reporting frameworks. We will continue to aspire to achieve real results and transparently communicate progress on our performance.

|  | **2016** | **2017** | **2018** | **2019** | **2020** | **SASB<1>** | **IPIECA<1>** |
| --- | --- | --- | --- | --- | --- | --- | --- |
| portfolio carbon intensity (grams CO2e/megajoule) + | 74.9 | 73.8 | 73.4 | 72.7 | 71.4 |  |  |
| upstream carbon intensity<2, 3> |  |  |  |  |  |  | CCE4: C4 |
| ***Oil*** intensity (kilograms CO[2]e/boe) | 41.9 | 36.8 | 37.0 | 33.3 | 28.2 |  |  |
| Gas intensity (kilograms CO[2]e/boe) | 32.6 | 35.0 | 34.7 | 30.4 | 26.8 |  |  |
| Methane intensity (kilograms CO[2]e/boe) | 4.5 | 3.3 | 2.8 | 2.4 | 2.0 |  |  |
| Flaring intensity (kilograms CO[2]e/boe) | 8.7 | 7.2 | 6.3 | 4.7 | 3.8 |  |  |
| refining carbon intensity (kilograms CO[2]e/boe)++§ | 36.6 | 34.5 | 34.9 | 35.9 | 38.6 |  |  |
| enabled reductions (millions of tonnes of CO[2]e) | 8 | 7 | 6 | 5 | 5 |  |  |
| Indicates restatement of data. |  |  |  |  |  |  |  |

Indicates restatement of data.

\* Year 2020 performance data reflect varying impacts from changing market conditions and COVID-19.

+ Portfolio carbon intensity is calculated as described in the methodology on pages 59-60. Inputs are collected from financial disclosures and public GHG reporting, with the exception of the biofuels component. Biofuel volumes are based on purchase data for ethanol, renewable diesel, sustainable aviation fuel, and biodiesel and production volumes for renewable natural gas in the United States, Hong Kong, Malaysia, Philippines, Thailand, and Australia. Volumes from international GS Caltex operations in South Korea are assumed to be zero. For 2016-2020, aggregate biofuel volumes used in the PCI calculation are 60,000, 58,000, 59,000, 64,000, and 57,000 barrels of ***oil***-equivalent per day, respectively. Biofuel carbon-intensity values are based on California Air Resources Board (CARB) Low Carbon Fuel Standard (LCFS) default pathway values. For 2016-2020, the weighted-average biofuel carbon-intensity values used in the PCI calculation were 52, 54, 53, 51, and 50 grams carbon dioxide-equivalent GHG emissions per megajoule, respectively.

++ The refining carbon intensity (RCI) provides a measure of GHG released during the transformation of raw materials into refined products. The RCI is throughput-based and includes GHG emissions from Chevron's own refining operations and estimates of emissions associated with third-party processing of imported feedstocks such as hydrogen. Emissions from third-party processing of imported feedstocks are estimated using information including supplier data, industry segment averages, and engineering estimates. Emissions included in the calculation represent refinery processing only and do not include terminals or chemical, additive, base ***oil***, and lubricant facilities not integrated into a refinery. Feedstocks include hydrogen and intermediate products that will be further refined or used in conversion units. Feedstocks do not include natural gas used as fuel or products intended solely for blending into finished products. Feedstocks are assessed on a net basis (imports minus exports).

§ The refining carbon intensity in 2020 reflects decreased refinery utilization due to demand changes associated with the COVID-19 pandemic.

**portfolio carbon intensity, grams CO2e/megajoule**

[SEE FORMULA IN ORIGINAL]

Where: (GHG intensity) *[i]* is the simplified value chain GHG intensity of marketed product *[i]*, (Net GHG removals) *[j]* is the net volume of GHG emissions stored, or offset, and (Energy) *[i]* is the energy of the marketed product *[i]*.

**portfolio carbon intensity methodology note**

**introduction**

The portfolio carbon intensity methodology is designed to facilitate carbon-intensity accounting of a company's portfolio. It uses a representative value chain that includes emissions associated with bringing products to market, including the Scope 3 emissions from their use. The PCI methodology facilitates transparency in calculations and data with information taken from financial statements and emissions disclosures. This approach enables comparison of companies that may participate in different parts of the value chain and the use of real data.

**Intent**: The PCI methodology provides a framework for transparent and consistent comparisons of the mix of energy products provided by a company, inclusive of elements of Scope 1, 2, and 3 emissions. The methodology is broadly applicable to ***oil*** and gas companies involved in exploration and production, refining, or marketing activities.

**PCI definition**: Estimated energy-weighted average GHG emissions intensity from a simplified value chain from the production, refinement, distribution, and end use of marketed energy products per unit of energy delivered.

**Units**: Grams of carbon dioxide-equivalent GHG emissions per megajoule of energy delivered (g CO[2]e/MJ) on a higher-heating-value basis to align with prior frameworks on gas value chain emissions and with heating values commonly used in commercial contracts.\*

**Scope**: The PCI is calculated on an annual basis as the weighted-average GHG intensity of energy delivered across gas, natural gas liquid (NGL), ***oil***, biofuel, hydrogen, and lower carbon power products. Carbon removals are deducted from total lifecycle emissions estimates.

The following energy products ( *[i]*) are included in the PCI methodology:

- **Gas**: piped gas, LNG, and third-party-traded volumes

- **Natural gas liquids**: NGLs from Upstream, refining, and third-party-traded volumes

- ***Oil***: crude ***oil***, refined products (gasoline, diesel, jet fuel, fuel ***oil***, and other petroleum products), and third-party-traded volumes

- **Biofuels**: ethanol, renewable diesel, biodiesel, sustainable aviation fuel, and renewable natural gas

- **Hydrogen**: gray hydrogen, blue hydrogen, and green hydrogen that are externally marketed

- **Lower carbon power**: external sales of wind, solar, and geothermal power

The following removals ( *[j]*) are included in the PCI methodology calculation:

- **Carbon capture, utilization, and storage** removes CO2 either directly from the atmosphere or from streams that would be released to the atmosphere. It does not include CO2 produced from naturally occurring reservoirs that is used for enhanced ***oil*** recovery.

- **High-quality offsets** include nature-based solutions.

For traditional hydrocarbon products (gas, NGL, and ***oil***), marketed volumes are based on the business segment (production, refined products, or marketing) with the largest overall commodity volume, inclusive of all traded volumes.

Chemicals and other business lines that do not primarily supply energy products are excluded from this calculation.

**methodology and data sources**

**Traditional hydrocarbon products**: The intent of the framework is to capture value chain emissions associated with the maximum hydrocarbon product volume for a company among their production, refining, and marketing activities. For all products that a company produces or refines, the PCI methodology uses the company's equity GHG emissions and corresponding GHG intensity. To estimate the emissions for marketed products that the company does not produce or refine, the PCI methodology uses industry-average segment factors from the International Energy Agency's *World Energy Outlook*. Hydrocarbon transportation emissions are estimated in the PCI using IEA *World Energy Outlook* estimates for transportation emissions from ***oil*** and gas. Emissions associated with end use of marketed products are based on industry-standard combustion factors and assume all sold energy products are combusted, although this is not the case (e.g., plastics and lubricants). Exhibit 40 below shows a graphical depiction of the value chain approach for the refined-product value chain.

**Biofuels, hydrogen, and lower carbon power**: GHG emissions are calculated based on third-party lifecycle assessments and the energy provided by Chevron in the most recent year. Lifecycle assessment data sources include California Air Resources Board (CARB) LCFS Pathway Certified Carbon Intensities for similar feedstocks and pathways, a Hydrogen Council report on a lifecycle assessment for hydrogen decarbonization pathways, and harmonized lifecycle assessments of electricity generation from the National Renewable Energy Laboratory and the Intergovernmental Panel on Climate Change Working Group 1. The model does not adjust for the energy efficiency gains associated with some applications of electricity and hydrogen relative to existing hydrocarbon infrastructure. For example, CARB estimates that energy provided as electricity to an electric vehicle is 3.4 times more efficient than energy provided by gasoline to an internal combustion engine. Model updates could be made in the future, if supported by the end use of electricity or hydrogen products.

**CCUS**: Net GHG removal emissions associated with CCUS represent the volume of emissions that would be permanently sequestered underground or utilized in other products with a deduction for supply chain emissions associated with capture, transport, or storage. CCUS projects that reduce Scope 1 and 2 emissions would reduce the production, refining, or other sectoral intensity and would not be double-counted as removals; for example, CO2 captured by an integrated CCS plant would already be accounted for in the facility's Scope 1 emissions intensity.

**Offsets**: Offsets that are retired by the company or on behalf of customers for use of product provided by the company are deducted from the total emissions in the metric.

**Improvements over time**: Methodologies and emissions factors may be updated in future years to reflect additional information or data that become available. For example, updates may include updated industry averages, primary data from third-party producers/refiners, and adjustments to energy efficiency assumptions, if warranted, based on the end-use applications for volumes of energy marketed by the company.

**Exhibit 40. This depicts the PCI approach for the refined-product value chain**.

[SEE IMAGE IN ORIGINAL]

Percentages shown are based on data from IEA, *World energy outlook 2018*, November 2018, iea.org/reports/world-energy-outlook-2018.

**upstream carbon intensity, kilograms CO[2]e/boe**

[SEE IMAGE IN ORIGINAL]

**refining carbon intensity, kilograms CO[2]e/boe**

[SEE IMAGE IN ORIGINAL]

The refining carbon intensity (RCI) metric provides a measure of GHG released during the transformation of raw materials into refined products.

The RCI is throughput-based and includes GHG emissions from Chevron's own refining operations and estimates of emissions associated with third-party processing of imported feedstocks such as hydrogen.\*+

The metric is on an equity basis.

LNG = liquefied natural gas GTL = gas-to-liquid

\* Emissions from third-party processing of imported feedstocks are estimated using information including supplier data, industry segment averages, and engineering estimates. Emissions included in the calculation represent refinery processing only and do not include terminals or chemical, additive, base ***oil***, and lubricant facilities not integrated into a refinery. Feedstocks include hydrogen and intermediate products that will be further refined or used in conversion units. Feedstocks do not include natural gas used as fuel or products intended solely for blending into finished products. Feedstocks are assessed on a net basis (imports minus exports).

+ Emissions associated with the production of hydrogen can account for 25 percent of total refinery emissions, and more than half of the hydrogen used in U.S. refining is imported from a third party. ("Available and emerging technologies for reducing greenhouse gas emissions from the petroleum refinery industry," US EPA Office of Air and Radiation 2010 and U.S. Energy Information Administration, *EIA-820 Annual Refinery Report* and *EIA-810 Refinery and Blender Net Input*).

**enabled reductions, million tonnes CO[2]e/year**

[SEE FORMULA IN ORIGINAL]

Where: *GHG Intensity[fossil fuel]* is the average intensity of displaced fossil fuel that is calculated in the PCI methodology, (GHG intensity) *[i]* is the simplified lifecycle GHG intensity of energy product *[i]*, (Energy) *[i]* is the energy of the marketed low-carbon product *[i]* (e.g., biofuels, hydrogen), and (Net GHG removals) *[j]* is the net volume of GHG emissions stored.

**enabled emissions-reductions methodology note**

Enabled emissions reductions are the estimated avoided emissions relative to fossil fuel use primarily associated with biofuels, hydrogen, CCUS, and offsets that the Company has marketed in the most recent calendar year, regardless of whether the Company retained rights to the emissions-reduction attributes.

Over time, new energy products may be added to the calculation, along with associated volume information. Avoided emissions associated with natural gas-fired power generation via co-generation or coal-fired power generation displacement are excluded from this calculation for purposes of simplicity.

For biofuels and hydrogen products, the enabled emissions reductions are calculated based on the lifecycle GHG savings relative to the same amount of energy provided by diesel fuel. Where appropriate, energy efficiency factors are used to calculate the volumes of displaced fossil fuels. More details on emissions factors and calculation assumptions are available in the PCI methodology note (see pages 59-60).

Net GHG removal emissions associated with CCUS and offsets represent the volume of emissions that would be sequestered or utilized in other products. GHG emissions associated with CCUS or offset value chains would be netted from the reductions associated with the activity.

| **equity emissions<2, 4, 5>** |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
|  | **2016** | **2017** | **2018** | **2019** | **2020** | **API** | **SASB** | **IPIECA** |
| direct GHG emissions (Scope 1)\<6, 7, 8, 9> |  |  |  |  |  | 1 |  |  |
| direct GHG emissions (Scope 1) - all GHGs |  |  |  |  |  |  |  | CCE4: |
| (million tonnes CO[2]e)<10> | 64 | 63 | 66 | 62 | 54 | 1.1 |  | C1/A1 |
| Upstream - all GHGs (million tonnes CO[2]e)<11> | 31 | 27 | 28 | 27 | 23 | 1.1.1 | EM-EP-110a.1 | CCE4: C3 |
| CO2 (million tonnes) | 27 | 24 | 25 | 24 | 21 |  |  |  |
| CH[4] (million tonnes CH[4])<12> | 0.17 | 0.12 | 0.10 | 0.10 | 0.08 |  |  |  |
| CH[4] (million tonnes CO[2]e)<12> | 4.1 | 3.0 | 2.5 | 2.4 | 2.1 | 1.1.1.1 |  |  |
| Other GHGs (million tonnes CO[2]e) | 0.1 | 0.1 | 0.1 | 0.1 | 0.1 |  |  |  |
| Upstream flaring - all GHGs (subset of Scope 1) | 7 | 5 | 5 | 5 | 4 | 1.1.1.2 | EM-EP-110a.2 | CCE7: C4 |
| (million tonnes CO[2]e)<11> |  |  |  |  |  |  |  |  |
| CO2 (million tonnes) | 6 | 5 | 5 | 4 | 3 |  |  |  |
| CH[4] (million tonnes CH[4])<12> | 0.03 | 0.02 | 0.02 | 0.01 | 0.01 |  |  |  |
| CH[4] (million tonnes CO[2]e)<12> | 0.7 | 0.5 | 0.5 | 0.4 | 0.3 |  |  |  |
| Other GHGs (million tonnes CO[2]e) | < 0.1 | < 0.1 | < 0.1 | < 0.1 | < 0.1 |  |  |  |
| Volume of flares (mmscf) | 100,000 | 80,000 | 70,000 | 60,000 | 50,000 | 1.1.1.3 |  | CCE7: A1 |
| Midstream - all GHGs (million tonnes CO[2]e) | O[2 | O[2 | O[2 | 1 | 1 | 1.1.2 | EM-MD-110a.1 | CCE4: C3 |
| CO2 (million tonnes) | 1 | CO2 | CO2 | 1 | 1 |  |  |  |
| CH[4] (million tonnes CH[4])<12> | < 0.01 | < 0.01 | < 0.01 | < 0.01 | < 0.01 | 1.1.2.1 |  |  |
| CH[4] (million tonnes CO[2]e)<12> | < 0.1 | < 0.1 | < 0.1 | < 0.1 | < 0.1 |  |  |  |
| Other GHGs (million tonnes CO[2]e) | < 0.1 | < 0.1 | < 0.1 | < 0.1 | < 0.1 |  |  |  |
| Downstream - all GHGs (million tonnes CO[2]e)<13> | 21 | 21 | 20 | 19 | 18 | 1.1.3 | EM-RM-110a.1 | CCE4: C3 |
| CO2 (million tonnes) | 21 | 20 | 20 | 19 | 18 |  |  |  |
| CH[4] and other GHGs (million tonnes CO[2]e) | 0.1 | 0.1 | 0.1 | 0.1 | 0.1 |  |  |  |
| Liquified Natural Gas (LNG) - all GHGs | 4 | 7 | 9 | 8 | 7 | 1.1.4 | EM-EP-110a.2 | CCE4: C3 |
| (million tonnes CO[2]e) |  |  |  |  |  |  |  |  |
| CO2 (million tonnes) | 4 | 7 | 9 | 8 | 7 |  |  |  |
| CH[4] and other GHGs (million tonnes CO[2]e) | 0.2 | 0.4 | 0.5 | 0.3 | 0.2 |  |  |  |
| Chemicals - all GHGs (million tonnes CO[2]e)<14> | 5 | 5 | 5 | 5 | <14 |  |  | CCE4: C3 |
| CO2 (million tonnes) | 5 | 5 | 5 | 5 | 4 |  |  |  |
| CH[4] and other GHGs (million tonnes CO[2]e) | < 0.1 | < 0.1 | < 0.1 | < 0.1 | < 0.1 |  |  |  |
| Other - all GHGs (million tonnes CO[2]e)<15> | O[2 | )<1 | O[2 | )<1 | )<1 |  |  | CCE4: C3 |
| CO2 (million tonnes) | CO2 | 1 | CO2 | 1 | 1 |  |  |  |
| CH[4] and other GHGs (million tonnes CO[2]e) | < 0.1 | < 0.1 | < 0.1 | < 0.1 | < 0.1 |  |  |  |

|  | **2016** | **2017** | **2018** | **2019** | **2020** | **API** | **SASB<1>** | **IPIECA<1>** |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| direct GHG emissions (Scope 1) - all GHGs |  |  |  |  |  |  |  |  |
| (million tonnes CO[2]e)<10>, cont. |  |  |  |  |  |  |  |  |
| Emissions associated with exported electricity | 1 | 1 | 1 | 1 | 1 |  |  | CCE4: |
| and steam (million tonnes CO[2]e)<16> |  |  |  |  |  |  |  | C3/A6 |
| Upstream (million tonnes CO[2]e)<11> | e)<1 | e)<1 | e)<1 | e)<1 | <1 |  |  |  |
| Midstream (million tonnes CO[2]e) | 0 | 0 | 0 | 0 | 0 |  |  |  |
| Downstream (million tonnes CO[2]e)<13> | e)<1 | e)<1 | e)<1 | e)<1 | <1 |  |  |  |
| LNG (million tonnes CO[2]e) | 0 | 0 | 0 | 0 | 0 |  |  |  |
| Chemicals (million tonnes CO[2]e)<14> | 0 | 0 | 0 | 0 | 0 |  |  |  |
| Other (million tonnes CO[2]e)<15> | )<1 | )<1 | )<1 | )<1 | <1 |  |  |  |
| indirect GHG emissions from imported |  |  |  |  |  | 2 |  |  |
| energy (Scope 2)<6,17> |  |  |  |  |  |  |  |  |
| indirect GHG emissions from imported |  |  |  |  |  |  |  |  |
| electricity, heat, steam, and cooling | 3 | 3 | 3 | 2 | 4 | 2.1 |  | CCE4: |
| (Scope 2, market-based)<10> |  |  |  |  |  |  |  | C2/C3 |
| Upstream - all GHGs (million tonnes CO[2]e)<11> | )<1 | )<1 | )<1 | )<1 | )<1 | 2.1.1 |  |  |
| Midstream - all GHGs (million tonnes CO[2]e) | <1 | <1 | <1 | <1 | <1 | 2.1.2 |  |  |
| Downstream - all GHGs (million tonnes CO[2]e)<13> | O[2 | )<1 | )<1 | )<1 | )<1 | 2.1.3 |  |  |
| LNG - all GHGs (million tonnes CO[2]e) | 0 | 0 | 0 | 0 | 0 | 2.1.4 |  |  |
| Chemicals - all GHGs (million tonnes CO[2]e)<14> | e)<1 | e)<1 | e)<1 | e)<1 | 1 |  |  |  |
| Other - all GHGs (million tonnes CO[2]e)<15> | e)<1 | e)<1 | e)<1 | e)<1 | <1 |  |  |  |
| third-party verification<18> |  |  |  |  |  | 6 |  |  |
| Assurance level | Limited | Limited | Limited | Limited | Limited | 6.1 |  |  |
| Assurance provider | ERM CVS | ERM CVS | ERM CVS | ERM CVS | ERM CVS |  |  | 6.2 |
| additional GHG reporting |  |  |  |  |  |  |  |  |
| Indirect GHG emissions - all other (Scope 3)<10,19> |  |  |  |  |  |  |  | CCE4: A2 |
| Use of sold products - production method | 364 | 377 | 396 | 412 | 412 |  |  |  |
| (million tonnes CO[2]e) |  |  |  |  |  |  |  |  |
| Use of sold products - throughput method | 355 | 365 | 380 | 382 | 372 |  |  |  |
| (million tonnes CO[2]e) |  |  |  |  |  |  |  |  |
| Use of sold products - sales method | 598 | 613 | 628 | 639 | 583 |  |  |  |
| (million tonnes CO[2]e) |  |  |  |  |  |  |  |  |

| **operated emissions<2,4,5>** |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
|  | **2016** | **2017** | **2018** | **2019** | **2020** | **API** | **SASB<1>** | **IPIECA<1>** |
| direct GHG emissions (Scope 1)<6,7> |  |  |  |  |  | 1 |  |  |
| direct GHG emissions (Scope 1) - all GHGs | 66 | 67 | 68 | 63 | 56 | 1.1 |  | CCE4: |
| (million tonnes CO[2]e)<10> |  |  |  |  |  |  |  | C1/A1 |
| Upstream - all GHGs (million tonnes CO[2]e)<11> | 43 | 37 | 35 | 34 | 30 | 1.1.1 | EM-EP-110a.1 | CCE4: C3 |
| CO[2] (million tonnes) | 37 | 32 | 32 | 31 | 28 |  |  |  |
| CH4 (million tonnes CH4)<12> | 0.24 | 0.17 | 0.14 | 0.12 | 0.11 |  |  |  |
| CH4 (million tonnes CO[2]e)<12> | 6.0 | 4.2 | 3.5 | 3.0 | 2.7 | 1.1.1.1 |  |  |
| Other GHGs (million tonnes CO[2]e) | 0.1 | 0.1 | 0.1 | 0.1 | 0.1 |  |  |  |
| Upstream flaring - all GHGs (subset of Scope 1) | 13 | 9 | 9 | 8 | 6 | 1.1.1.2 | EM-EP-110a.2 | CCE7: C4 |
| (million tonnes CO[2]e)<11> |  |  |  |  |  |  |  |  |
| CO[2] (million metric tons) | 12 | 8 | 8 | 7 | 5 |  |  |  |
| CH4 (million tonnes CH4)<12> | 0.06 | 0.04 | 0.03 | 0.02 | 0.02 |  |  |  |
| CH4 (million tonnes CO[2]e)<12> | 1.5 | 0.9 | 0.8 | 0.6 | 0.4 |  |  |  |
| Other GHGs (million tonnes CO[2]e) | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 |  |  |  |
| Volume of flares (mmscf) | 190,000 | 140,000 | 130,000 | 100,000 | H190,000 | 1.1.1.3 |  | CCE7: A1 |
| Midstream - all GHGs (million tonnes CO[2]e) | O[2 | O[2 | O[2 | 1 | 1 | 1.1.2 | EM-MD-110a.1 | CCE4: C3 |
| CO[2] (million tonnes) | 1 | O[2 | O[2 | 1 | 1 |  |  |  |
| CH4 (million tonnes CH4)<12> | <0.01 | <0.01 | <0.01 | <0.01 | <0.01 | 1.1.2.1 |  |  |
| CH4 (million tonnes CO[2]e)<12> | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 |  |  |  |
| Other GHGs (million tonnes CO[2]e) | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 |  |  |  |
| Downstream - all GHGs (million tonnes CO[2]e)<13> | 16 | 16 | 15 | 14 | 14 | 1.1.3 | EM-RM-110a.1 | CCE4: C3 |
| CO[2] (million tonnes) | 16 | 16 | 15 | 14 | 14 |  |  |  |
| CH4 and other GHGs (million tonnes CO[2]e) | 0.1 | 0.1 | 0.1 | 0.1 | 0.1 |  |  |  |
| LNG - all GHGs (million tonnes CO[2]e) | 3 | 11 | 13 | 11 | 9 | 1.1.4 | EM-EP-110a.2 |  |
| CO[2] (million tonnes) | 3 | 10 | 12 | 11 | 9 |  |  |  |
| CH4 and other GHGs (million tonnes CO[2]e) | 0.1 | 0.7 | 0.8 | 0.4 | 0.3 |  |  |  |
| Chemicals - all GHGs (million tonnes CO[2]e)<14> | e)<1 | e)<1 | e)<1 | e)<1 | e)<1 |  |  | CCE4: C3 |
| CO[2] (million tonnes) | <1 | <1 | <1 | <1 | <1 |  |  |  |
| CH4 and other GHGs (million tonnes CO[2]e) | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 |  |  |  |
| Other - all GHGs (million tonnes CO[2]e)<15> | O[2 | )<1 | O[2 | )<1 | )<1 |  |  | CCE4: C3 |
| CO[2] (million tonnes) | O[2 | 1 | O[2 | 1 | 1 |  |  |  |
| CH4 and other GHGs (million tonnes CO[2]e) | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 |  |  |  |

|  | **2016** | **2017** | **2018** | **2019** | **2020** | **API** | **SASB<1>** | **IPIECA<1>** |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| direct GHG emissions (Scope 1) -- all GHGs |  |  |  |  |  |  |  |  |
| (million tonnes CO[2]e),<10> cont. |  |  |  |  |  |  |  |  |
| Emissions associated with exported electricity |  |  |  |  |  |  |  | CCE4: |
|  | 2 | 1 | 1 | 1 | 1 |  |  |  |
| and steam (million tonnes CO[2]e)<16> |  |  |  |  |  |  |  | C3/A6 |
| Upstream (million tonnes CO[2]e)<11> | < 1 | < 1 | < 1 | < 1 | < 1 |  |  |  |
| Midstream (million tonnes CO[2]e) | 0 | 0 | 0 | 0 | 0 |  |  |  |
| Downstream (million tonnes CO[2]e)<13> | < 1 | < 1 | < 1 | < 1 | < 1 |  |  |  |
| LNG (million tonnes CO[2]e) | 0 | 0 | 0 | 0 | 0 |  |  |  |
| Chemicals (million tonnes CO[2]e)<14> | 0 | 0 | 0 | 0 | 0 |  |  |  |
| Other (million tonnes CO[2]e)<15> | )<1 | )<1 | )<1 | )<1 | < 1 |  |  |  |
| indirect GHG emissions from imported |  |  |  |  | 2 |  |  |  |
| energy (Scope 2)<6, 17> |  |  |  |  |  |  |  |  |
| indirect GHG emissions from imported |  |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |  | CCE4: |
| electricity, heat, steam, and cooling | 2 | 2 | 2 | 1 | 1 | 2.1 |  |  |
|  |  |  |  |  |  |  |  | C2/C3 |
| (Scope 2, market-based)<10> |  |  |  |  |  |  |  |  |
| Upstream -- all GHGs (million tonnes CO[2]e)<11> | )<1 | )<1 | )<1 | )<1 | )<1 | 2.1.1 |  |  |
| Midstream -- all GHGs (million tonnes CO[2]e) | < 1 | < 1 | < 1 | < 1 | < 1 | 2.1.2 |  |  |
| Downstream -- all GHGs (million tonnes CO[2]e)<13> | )<1 | )<1 | )<1 | < 1 | < 1 | 2.1.3 |  |  |
| LNG -- all GHGs (million tonnes CO[2]e) | 0 | 0 | 0 | 0 | 0 | 2.1.4 |  |  |
| Chemicals -- all GHGs (million tonnes CO[2]e)<14> | < 1 | < 1 | < 1 | < 1 | < 1 |  |  |  |
| Other -- all GHGs (million tonnes CO[2]e)<15> | < 1 | < 1 | < 1 | < 1 | < 1 |  |  |  |
| GHG mitigation |  |  |  |  | 3 |  |  |  |
| Carbon capture, utilization, and storage | 0 | < 1 | < 1 | < 1 | 3 | 3.1.1 |  | CCE3: A6 |
| (CCUS) -- all GHGs (million tonnes CO[2]e)<20> |  |  |  |  |  |  |  |  |
| Renewable Energy Credits (RECs for indirect | 0 | 0 | 0 | < 1 | < 1 | 3.1.2 |  | CCE3: A7 |
| emissions) -- all GHGs (million tonnes CO[2]e)<21> |  |  |  |  |  |  |  |  |
| Offsets -- all GHGs (million tonnes CO[2]e)<22> | 4 | 4 | 3 | 1 | O[2 | 3.1.3 |  |  |
| additional GHG reporting |  |  |  |  |  |  |  |  |
| Indirect GHG emissions -- all other (Scope 3)<10, 19> |  |  |  |  |  |  |  | CCE4: A2 |
| Use of sold products -- production method | 539 | 608 | 617 | 622 | 588 |  |  |  |
| (million tonnes CO[2]e) |  |  |  |  |  |  |  |  |
| Use of sold products -- throughput method | 341 | 386 | 406 | 411 | 392 |  |  |  |
| (million tonnes CO[2]e) |  |  |  |  |  |  |  |  |
| Indicates restatement of data. |  |  |  |  |  |  |  |  |

Indicates restatement of data.

| **operated other environmental metrics<2>** |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
|  | 2016 | 2017 | 2018 | 2019 | 2020 | API | SASB<1> | IPIECA<1> |
| other environmental metrics |  |  |  |  |  |  |  |  |
| Energy efficiency |  |  |  |  |  |  |  | CCE6 |
| Total energy consumption, operated assets and |  |  |  |  |  |  |  |  |
|  | 830 | 833 | 928 | 910 | 851 |  |  | CCE6: C1 |
| nonoperated joint-venture refineries (trillion BTUs) |  |  |  |  |  |  |  |  |
| Total energy consumption, operated assets |  |  |  |  |  |  |  |  |
| and nonoperated joint-venture refineries | 876 | 879 | 980 | 960 | 898 |  |  | CCE6: C1 |
| (million gigajoules) |  |  |  |  |  |  |  |  |
| Total energy consumption, operated assets |  |  |  |  |  |  |  |  |
|  | 671 | 677 | 766 | 752 | 700 |  |  | CCE6: C1 |
| (trillion BTUs) |  |  |  |  |  |  |  |  |
| Total energy consumption, operated assets |  |  |  |  |  |  |  |  |
|  | 708 | 715 | 808 | 794 | 739 |  |  | CCE6: C1 |
| (million gigajoules) |  |  |  |  |  |  |  |  |
| Manufacturing Energy Index (Refining) (no units)<23> | 85 | 85 | 85 | 85 | 88 |  |  | CCE6: A4 |
| Upstream Energy Intensity (thousand BTUs |  |  |  |  |  |  |  |  |
|  | 312 | 315 | 358 | 362 | 340 |  |  | CCE6: A2 |
| per barrel of ***oil***-equivalent) |  |  |  |  |  |  |  |  |
| Pipeline Energy Intensity (BTUs per barrel of |  |  |  |  |  |  |  |  |
|  | 20 | 13 | 10 | 8 | 10 |  |  | CCE6: A2 |
| ***oil***-equivalent-mile) |  |  |  |  |  |  |  |  |
| Shipping Energy Intensity (BTUs per metric |  |  |  |  |  |  |  |  |
|  | 43 | 70 | 75 | 70 | 69 |  |  | CCE6: A2 |
| ton--mile) |  |  |  |  |  |  |  |  |
| Non-Manufacturing Energy Index |  |  |  |  |  |  |  |  |
|  | 75 | 75 | 74 | 67 | 71 |  |  | CCE6: A3 |
| (Oronite, Lubricants, etc.) (no units)<24> |  |  |  |  |  |  |  |  |
| Natural resources -- water<25> |  |  |  |  |  |  |  | ENV1 |
|  |  |  |  |  |  |  | EM-EP-140a.1 |  |
| Fresh water withdrawn (million cubic meters) | 80 | 72 | 71 | 70 | 63 |  |  | ENV1: C1 |
|  |  |  |  |  |  |  | EM-RM-140a.1 |  |
|  |  |  |  |  |  |  | EM-EP-140a.1 |  |
| Fresh water consumed (million cubic meters) | 79 | 71 | 70 | 69 | 62 |  |  | ENV1: C2 |
|  |  |  |  |  |  |  | EM-RM-140a.1 |  |
| Nonfresh water withdrawn (million cubic meters) | 36 | 41 | 39 | 45 | 34 |  |  | ENV1: A4 |

**1** We provide index columns to identify common reporting elements between our current reporting data and the related *Sustainability Accounting Standards* (2018) (SASB) and the IPIECA *Sustainability Reporting Guidance for the* ***Oil*** *and Gas Industry* (2020). The indices are based solely on Chevron's interpretation and judgment and do not indicate the application of definitions, metrics, measurements, standards, or approaches set forth in the SASB framework and IPIECA standards. Please refer to the relevant footnotes for information about Chevron's data-reporting basis.

**2** Unless otherwise noted, data collected as of September 2, 2021.

**3** Emissions reported are net (Scope 1 and 2). The emissions included in the metrics generally represent Chevron's equity share of emissions from Upstream, including LNG, which are emissions from operated and nonoperated joint-venture (NOJV) assets based on Chevron's financial interest. The scope may include sources outside traditional scoping of equity emissions, including captive emissions from processes like drilling and completions, and tolling agreements up to the point of third-party custody transfer of the ***oil*** or gas product. For ***oil*** and gas production intensity metrics, production is aligned with net production values reported in the Chevron Corporation *Supplement to the Annual Report*, which represent the Company's equity share of total production after deducting both royalties paid to landowners and a government's agreed-upon share of production under a Production Sharing Agreement. Chevron's equity-share emissions include emissions associated with these excluded royalty barrels in accordance with IPIECA guidance. Also in accordance with IPIECA guidance, Chevron's equity-share emissions do not include emissions associated with royalty payments received by the Company. Allocation of emissions between ***oil*** and gas is based on the fraction of production represented by liquids or gas. Flaring and methane intensities use the total of liquids and gas production. ***Oil*** and gas production intensities use liquids production and natural gas production, respectively.

**4** The World Resources Institute/World Business Council for Sustainable Development *Greenhouse Gas Protocol: A Corporate Accounting and Reporting Standard* (2015) defines three "scopes" that Chevron uses to report GHG emissions.

**5** Table leverages the American Petroleum Institute's (API) *Template 1.0 for GHG Reporting* (June 2021) and *Guidance--API Template 1.0 for GHG Reporting* (June 2021) for organization and contains an index column to identify common reporting elements. The use of this reporting format and index column does not indicate the application of all of the definitions, metrics, measurements, standards, or approaches set forth in the template and guidance.

**6** Numbers in table may not sum due to rounding.

**7** Scope 1 includes direct emissions. Direct GHG emissions related to production of energy in the form of electricity or steam exported or sold to a third party are included in the reported Scope 1 emissions to align with IPIECA's *Sustainability Reporting Guidance for the* ***Oil*** *and Gas Industry* (2020). Chevron's Scope 1 includes emissions of six Kyoto GHGs--carbon dioxide (CO2), methane (CH4), nitrous oxide (N2O), sulfur hexafluoride, perfluorocarbons, and hydrofluorocarbons. Calculation methods are based on API's *Compendium of Greenhouse Gas Emissions Methodologies for the* ***Oil*** *and Natural Gas Industry* (2009) or, where relevant, local regulatory reporting methodologies.

**8** Where limited emissions information is available for NOJVs, Chevron's equity share of total CO2-equivalent (CO2e) emissions is allocated to Scope 1 CO2 emissions.

**9** Chevron's equity-share emissions for Loma Campana concession excluded for 2016-2018 and included for 2019-2020. Chevron's equity-share emissions for CalBioGas LLC and Brightmark RNG Holdings LLC NOJVs excluded for 2020.

**10** Chevron identified common reporting elements between our current reporting data and the related September 2020 World Economic Forum (WEF) sustainability metrics from the white paper *Measuring Stakeholder Capitalism Towards Common Metrics and Consistent Reporting of Sustainable Value Creation*. This identification is based solely on Chevron's interpretation and judgment. This identification does not indicate the application of definitions, metrics, measurements, standards, or approaches set forth in the WEF sustainability metrics.

**11** Consistent with June 2021 API template and guidance, Liquefied Natural Gas (LNG)-related data that Chevron previously reported as part of Upstream data are now reported separately.

**12** As governments update their Global Warming Potentials (GWPs), we anticipate updating methane data reporting in our environmental tables and the associated performance evaluation. For transparency, and to enable stakeholders to make their own calculations based on their preferred timeline and GWPs, we provide methane emissions data and intensity performance as a mass of methane as well as its conversion under the AR4 100-year GWP to a CO2-equivalent. Although we strive to provide consistent data from our operated and nonoperated assets, some nonoperated assets may provide their data only on a CO2e basis. Given the common industry practice of using the AR4 100-year GWP, we have assumed that those nonoperated assets that did not provide methane mass data use a 100-year GWP of 25. We continue to work with our joint-venture partners to provide information on a standardized basis to increase transparency.

**13** Downstream includes emissions from refineries and terminals. Chemical and base ***oil*** facilities located within refineries are included in refinery emissions.

**14** Chemicals includes emissions from stand-alone chemical, additive, and lubricant facilities.

**15** Other emissions include GHG emissions from Chevron Power and Energy Management, Corporate Aviation, Chevron Environmental Management and Real Estate Company, and North American Data Center.

**16** Exported emissions are direct GHG emissions related to production of energy in the form of electricity or steam that are exported or sold to a third party.

**17** Scope 2 includes indirect emissions from imported electricity and steam. CO2, CH4, and N2O are accounted for in Chevron's Scope 2 emissions. Scope 2 emissions are accounted for using the market-based approach as described in the World Resources Institute's *GHG Protocol Scope 2 Guidance* (2015).

**18** Annual third-party verification covers Chevron's total Scope 1 and total Scope 2 equity emissions, as first reported in Chevron's *Corporate Sustainability Report* for each reporting year, but generally does not cover subsequent restatements and does not include Chevron equity-share emissions for Chevron Phillips Chemical Company LLC. In the course of normal business processes, Chevron seeks limited assurance of prior-year total Scope 1 and total Scope 2 GHG emissions data for publication in its *Corporate Sustainability Report*.

**19** Chevron calculates emissions from third-party use of our products in alignment with methods in Category 11 of IPIECA's *Estimating Petroleum Industry Value Chain (Scope 3) Greenhouse Gas Emissions* (2016). Emissions are based on aggregate production, throughput, and sales numbers that include renewable fuels.

**20** CCUS includes both CO2 sold to third parties and CO2 (and other gas) injected for carbon storage.

**21** RECs are credits generated from renewable electricity generation within the United States that are retired by the Company.

**22** Offsets are credits generated from the avoidance or reduction of GHG emissions or the removal of GHGs from the atmosphere that are purchased/developed and retired by the Company, excluding RECs. Includes offsets retired in compliance programs. For programs with multiyear compliance periods, offsets are apportioned according to the compliance obligation for each year.

**23** Refining performance is measured by the Manufacturing Energy Index (MEI), which is calculated using the Solomon Energy Intensity Index methodology. MEI includes operated assets and NOJV refineries.

**24** Energy performance for Chemicals, Americas, and International Fuels & Lubricants is measured by the Non-Manufacturing Energy Index, which is the energy required to produce Chevron products compared with the energy that would have been required to produce the same products in 1992 (the index's base year).

**25** Fresh water withdrawn from the environment is defined per local legal definitions. If no local definition exists, fresh water is defined as water extracted, directly or indirectly, from surface water, groundwater, or rainwater that has a total dissolved solids concentration of less than, or equal to, 2,000 mg/L. Fresh water withdrawn does not include effluent or recycled/reclaimed water from municipal or other industrial wastewater treatment systems, as this water is reported under nonfresh water withdrawn. Nonfresh water withdrawn could include seawater, brackish groundwater or surface water, reclaimed wastewater from another municipal or industrial facility, desalinated water, or remediated groundwater used for industrial purposes. Produced water is excluded from fresh water withdrawn, fresh water consumed, and nonfresh water withdrawn.

**climate-related disclosure**

Chevron recognizes climate change is a growing area of interest for our investors and stakeholders. The table below shows how the disclosures in this report align with the recommendations of the Financial Stability Board's Task Force on Climate-related Financial Disclosures, as the TCFD has described the categories, and where the relevant information can be found in this report. Further information can be found in Chevron's 2020 Annual Report on Form 10-K, *Climate Change Resilience: A Framework for Decision Making* (2019), and Chevron's Corporate Sustainability reports.

| **TCFD recommendation\*** |  | **disclosure** | **location** |
| --- | --- | --- | --- |
| Governance |  |  |  |
| Disclose the organization's | (a) Describe the organization's governance around | Board oversight | 1.1 |
| governance around potential | potential climate-related risks and opportunities. | Public Policy and Sustainability Committee | 1.1.1 |
| climate-related risks and |  | Other Board-level committees | 1.1.2-1.1.4 |
| opportunities. |  | Director qualifications and nominating process | 1.1.4 |
|  | (b) Describe management's role in assessing and | Executive management of climate risks | 1.2 |
|  | managing potential climate-related risks | Global Issues Committee | 1.2.2 |
|  | and opportunities. | Chevron Strategy & Sustainability organization | 1.3 |
| Strategy |  |  |  |
| Disclose the actual and | (a) Describe the potential climate-related risks and | Chevron's strategic and business planning processes | 3.1-3.4 |
| potential impacts of | opportunities the organization has identified |  |  |
| climate-related risks and | over the short, medium, and long terms. |  |  |
| opportunities on the | (b) Describe the impact of potential climate-related risks | Business planning | 3.5 |
| organization's business, | and opportunities on the organization's businesses, | Capital-project approvals | 3.5 |
| strategy, and financial | strategy, and financial planning. | Our portfolio | 4 |
| planning where such | (c) Describe the resilience of the organization's strategy, | The resilience of our portfolio under the IEA's NZE 2050 | 3.6 |
| information is material. | taking into consideration different climate-related | and the IPCC's AR5 RCP8.5 |  |
|  | scenarios, including a 2° C or lower scenario. |  |  |
| Risk management |  |  |  |
| Disclose how the | (a) Describe the organization's processes for identifying | Physical risk | 2.1 |
| organization identifies, | and assessing potential climate-related risks. | Transition risk | 2.2 |
| assesses, and manages | (b) Describe the organization's processes for | Physical risk | 2.1 |
| potential climate- | managing potential climate-related risks. | Transition risk | 2.2 |
| related risks. | (c) Describe how processes for identifying, assessing, and | Risk management | 2 |
|  | managing potential climate-related risks are integrated |  |  |
|  | into the organization's overall risk management. |  |  |
| Metrics and targets |  |  |  |
| Disclose the metrics and | (a) Disclose the metrics used by the organization to assess | Lower carbon strategy and investments | 4.3 |
| targets used to assess | potential climate-related risks and opportunities in |  |  |
| and manage potential | line with its strategy and risk management process. |  |  |
| climate-related risks and | (b) Disclose Scope 1, Scope 2, and, if appropriate, | Approach to Scope 3 | 4 |
| opportunities where such | Scope 3 GHG emissions estimates and the |  |  |
| information is material. | potential related risks. | Metrics | 5 |
|  | (c) Describe the targets used by the organization | Lower carbon strategy and investments | 4.3 |
|  | to manage potential climate-related risks and |  |  |
|  | opportunities and performance against targets. |  |  |

\* See Section 6: About This Report.

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**section 3**

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**section 6**

**about this report**

This report covers our owned and operated businesses and does not address the performance or operations of our suppliers, contractors, and partners unless otherwise noted. In the case of certain joint ventures for which Chevron is the operator, we exercise influence but not control. Thus, the governance, processes, management, and strategy for those joint ventures are known to differ from those detailed in this report. On October 5, 2020, we announced the completion of the acquisition of Noble Energy, Inc. (Noble); the integration of Noble operations into our operations is ongoing. This report does not speak to Noble's historic governance, risk management, strategy approaches, or emissions performance unless specifically referenced. All financial information is presented in U.S. dollars unless otherwise noted.

This report contains forward-looking statements relating to the manner in which Chevron intends to conduct certain of its activities, based on management's current plans and expectations. These statements are not promises or guarantees of future conduct or policy and are subject to a variety of uncertainties and other factors, many of which are beyond our control, including government regulation and ***oil*** and gas prices. See the Forward-Looking Statements Warning on page 72 of this report.

Therefore, the actual conduct of our activities, including the development, implementation, or continuation of any program, policy, or initiative discussed or forecasted in this report, may differ materially in the future. As with any projections or estimates, actual results or numbers may vary. Many of the standards and metrics used in preparing this report continue to evolve and are based on management assumptions believed to be reasonable at the time of preparation but should not be considered guarantees. The statements of intention in this report speak only as of the date of this report. Chevron undertakes no obligation to publicly update any statements in this report.

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As used in this report, the term *Chevron* and such terms as *the Company, the Corporation, their, our, its, we*, and *us* may refer to one or more of Chevron's consolidated subsidiaries or affiliates or to all of them taken as a whole. All of these terms are used for convenience only and are not intended as a precise description of any of the separate entities, each of which manages its own affairs.

**forward-looking statements warning**

CAUTIONARY STATEMENTS RELEVANT TO FORWARD-LOOKING INFORMATION FOR THE PURPOSE OF "SAFE HARBOR" PROVISIONS OF THE PRIVATE SECURITIES LITIGATION REFORM ACT OF 1995

This report contains forward-looking statements relating to Chevron's energy transition plans and operations that are based on management's current expectations, estimates, and projections about the petroleum, chemicals, and other energy-related industries. Words or phrases such as "anticipates," "expects," "intends," "plans," "targets," "forecasts," "projects," "believes," "seeks," "schedules," "estimates," "positions," "pursues," "may," "could," "should," "will," "budgets," "outlook," "trends," "guidance," "focus," "on schedule," "on track," "is slated," "goals," "objectives," "strategies," "opportunities," "poised," "potential," "ambitions," "aspires," and similar expressions are intended to identify such forward-looking statements. These statements are not guarantees of future performance and are subject to certain risks, uncertainties, and other factors, many of which are beyond the company's control and are difficult to predict. Therefore, actual outcomes and results may differ materially from what is expressed or forecasted in such forward-looking statements. Our ability to achieve the goals, targets, and aspirations outlined in this report depends on making extensive progress with independent third parties, including development of policy and regulatory support, technological advancement, successful commercial negotiations, availability of cost-effective and verifiable offsets in a global market, and the granting of necessary permits by governing authorities. The reader should not place undue reliance on these forward-looking statements, which speak only as of the date of this report. Unless legally required, Chevron undertakes no obligation to update publicly any forward-looking statements, whether as a result of new information, future events, or otherwise.

Among the important factors that could cause actual results to differ materially from those in the forward-looking statements are: changing crude ***oil*** and natural-gas prices and demand for our products, and production curtailments due to market conditions; crude ***oil*** production quotas or other actions that might be imposed by the Organization of Petroleum Exporting Countries (OPEC) and other producing countries; technological advancements; changes to government policies in the countries in which the company operates; development of large carbon capture and offsets markets; public health crises, such as pandemics and epidemics, and any related government policies and actions; changing economic, regulatory, and political environments in the various countries in which the company operates; general domestic and international economic and political conditions; changing refining, marketing, and chemicals margins; the company's ability to realize anticipated cost savings, expenditure reductions, and efficiencies associated with enterprise transformation initiatives; actions of competitors or regulators; timing of exploration expenses; timing of crude ***oil*** liftings; the competitiveness of alternate-energy sources or product substitutes; the results of operations and financial condition of the company's suppliers, vendors, partners, and equity affiliates; the inability or failure of the company's joint-venture partners to fund their share of operations and development activities; the potential failure to achieve expected net production from existing and future crude ***oil*** and natural-gas development projects; potential delays in the development, construction, or startup of planned projects; the potential disruption or interruption of the company's operations due to war, accidents, political events, civil unrest, severe weather, cyber threats, terrorist acts, or other natural or human causes beyond the company's control; the potential liability for remedial actions or assessments under existing or future environmental regulations and litigation; significant operational, investment, or product changes required by existing or future environmental statutes and regulations, including international agreements and national or regional legislation and regulatory measures to limit or reduce greenhouse gas emissions; the potential liability resulting from pending or future litigation; the company's future acquisitions or dispositions of assets or shares or the delay or failure of such transactions to close based on required closing conditions; the potential for gains and losses from asset dispositions or impairments; government-mandated sales, divestitures, recapitalizations, industry-specific taxes, tariffs, sanctions, changes in fiscal terms, or restrictions on scope of company operations; foreign currency movements compared with the U.S. dollar; material reductions in corporate liquidity and access to debt markets; the receipt of required Board authorizations to pay future dividends; the effects of changed accounting rules under generally accepted accounting principles promulgated by rule-setting bodies; the company's ability to identify and mitigate the risks and hazards inherent in operating in the global energy industry; and the factors set forth under the heading "Risk Factors" on pages 18 through 23 of the 2020 Annual Report on Form 10-K. Other unpredictable or unknown factors not discussed in this report could also have material adverse effects on forward-looking statements.

**a view from our lead director**

"Providing guidance and oversight for Chevron's approach to climate change is an important Board priority.

We regularly consider climate and related sustainability issues as an integral part of our review of the Company's overall business strategy. We seek to understand climate-related risks over a range of scenarios, then put in place effective protocols to ensure responsible actions that mitigate these risks and strengthen the long-term resilience of our business. Demonstrating our commitment to greater transparency and disclosure, Chevron has in recent years issued four increasingly detailed voluntary climate disclosure reports.

Chevron management and Directors meet regularly with investors and other outside stakeholders to better understand your views and suggestions. Like you, we at Chevron are committed to helping achieve a lower-carbon future."

**-- Dr. Ronald D. Sugar**

Lead Director

**chairman's letter**

In 2018, Chevron published *Climate Change Resilience: A Framework for Decision Making*, our first report aligned with the Task Force on Climate-related Financial Disclosures (TCFD) framework. This report was created to share the governance, risk management, processes, and metrics we use to manage climate change-related risks and opportunities. This year's report provides an update and speaks to actions we are taking in support of a lower-carbon future.

The global response to the COVID-19 pandemic has created profound economic and social impact around the world. Despite these challenges, we have stayed focused on the health and safety of our people and the communities where we operate, providing the affordable, reliable, ever-cleaner energy the world needs, taking actions to advance a lower-carbon future, and delivering results for our investors and stakeholders.

We've also engaged in conversations about the future of energy and the best way to achieve the world's climate goals. We believe reducing the carbon intensity of the energy on which billions of people rely every day is a tremendous opportunity to make progress toward the global net-zero ambitions of the Paris Agreement.

As a company, we take actions that drive measurable progress toward our commitments. This means reducing the carbon intensity of our operations and assets, increasing the use of renewables and offsets in support of our business, and investing in low-carbon technologies that can enable commercial solutions. These actions will make energy and supply chains more sustainable--helping industries and our customers realize their own lower-carbon goals.

We have set ambitious, achievable metrics on carbon-emissions reductions. To enable others to track our performance, we aim to lead the industry on transparent carbon-emissions reporting, aligning metrics by commodity based on our equity interest.

Our metrics, coupled with our view of Scope 3--which includes supporting a price on carbon through well-designed policies; transparently reporting emissions from use of our products for nearly two decades; and enabling customers to lower their emissions through increasing our renewable products, offering offsets, and investing in low-carbon technologies--support a global approach in order to achieve the goals of the Paris Agreement as efficiently and cost-effectively as possible.

This report, *Climate Change Resilience: Advancing a Lower-Carbon Future*, offers further insights into the steps we are taking. Throughout the report, we answer the questions that are frequently asked, including about our role in global efforts to address climate change, our approach to innovation to scale climate solutions, our strategy and portfolio, and our positions on important climate policies. We are committed to an energy economy that works for all. We intend this report to contribute to an open and thoughtful conversation.

We appreciate the feedback we receive from investors and all our stakeholders--it informs and shapes our point of view, and we look ahead with optimism to working together to help create a lower-carbon future.

Thank you,

**Michael K. Wirth**

Chairman of the Board and

Chief Executive Officer

March 2021

**executive summary**

At Chevron, we believe the future of energy is lower carbon and we support the global net-zero ambitions of the Paris Agreement. Affordable, reliable, ever-cleaner energy is essential to achieving a more prosperous and sustainable world. In this report, we outline our governance, risk management, strategy, portfolio, actions, and metrics.

**reliable and disciplined oversight**

Our governance structure calls for Chevron's full Board of Directors and executive leadership to exercise their oversight responsibilities with respect to climate change-related risks and energy-transition opportunities. This oversight is executed through regular engagement by the full Board of Directors and also through deeper, focused engagement by all Board Committees. This occurs primarily through the Board's Public Policy and Sustainability Committee, as well as the Board's Management Compensation, Audit, and Nominating and Governance Committees. At the executive level, we manage climate change-related risks and energy-transition opportunities through the Enterprise Leadership Team and the Global Issues Committee, each of which meets regularly throughout the year. We periodically reassess our governance structure to enable Chevron to maintain a Board composition and governance framework that is effective for managing the Company's performance and risks as we deliver value to our investors.

**risk assessment and management**

We face a broad array of risks, including physical, legal, policy, technology, market, and reputational risks. We utilize an enterprise-wide process to assess major risks to the Company and seek to apply appropriate mitigations and safeguards. As part of this process, we conduct an annual risk review with executive leadership and the Board of Directors and assess our risks, safeguards, and mitigations.

**higher returns, lower carbon**

Our primary objective is to deliver higher returns, lower carbon, and superior shareholder value in any business environment. Chevron's strategic and business planning processes bring together the Company's views on long-term energy market fundamentals to guide decision making by executives and to facilitate oversight by the Board of Directors. The world's energy demands are greater now than at any time in human history. Most published outlooks conclude that fossil fuels will remain an important part of the energy system over the coming decades, and that the energy mix will include increasingly lower-carbon sources. As part of our strategic planning process, we use proprietary models to forecast demand, energy mix, supply, commodity pricing, and carbon prices--all of which include assumptions about future policy, such as those that may be implemented in support of the Paris Agreement's goal of "holding the increase in the global average temperature to well below 2° C above pre-industrial levels and pursuing efforts to limit the temperature increase to 1.5° C above pre-industrial levels."

In 2020, more than 60 percent of our total Scope 1 and Scope 2 equity greenhouse gas (GHG) emissions were in regions with existing or developing carbon-pricing policies.1 In this environment, and into a future likely to include additional lower-carbon policies, we seek to find solutions that are good for society and good for investors.

We use carbon prices and derived carbon costs in business planning, investment decisions, impairment reviews, reserves calculations, and assessment of carbon-reduction opportunities. We believe that our portfolio is resilient and that our asset mix enables us to be flexible in response to potential changes in supply and demand, even in lower-carbon scenarios like the International Energy Agency's Sustainable Development Scenario or under higher-emissions scenarios like the Intergovernmental Panel on Climate Change's Representative Concentration Pathway 8.5 to model the potential upper bound of physical risks.

**success in a lower-carbon future**

Our intent is to deliver affordable, reliable, ever-cleaner energy that enables human progress and delivers superior stockholder value. Our actions are focused on (1) lowering our carbon intensity cost-efficiently, (2) increasing renewables and offsets in support of our business, and (3) investing in low-carbon technologies to enable commercial solutions.

**in summary**

We believe the future of energy is lower carbon and we support the net-zero ambitions of the Paris Agreement. Our Board of Directors provides reliable and disciplined oversight; we assess and manage risks related to climate change; we intend to deliver higher returns and lower carbon; and we are advancing a lower-carbon future through our three action areas.

**Q&A**

**with the honorable jon m. huntsman jr., former ambassador and member of the PPSC** Climate change resilience: Advancing a lower-carbon future

**As you return to the Chevron Board, including serving on the Public Policy and Sustainability Committee, what do you see as the greatest policy issue facing the Company today**?

**Huntsman**: Chevron is a world-class company with a significant global reach. Of all the policy issues facing the Company, the one that transcends all others is climate change. We must lead and be solution oriented, which gladly is recognized by Chevron leadership, starting with the Board. We are well-positioned to confront the post-COVID environment, which will carry both social and economic challenges. But at the same time, we will ensure that Chevron helps advance a lower-carbon economy. With 140 years of navigating difficult circumstances and policy issues, Chevron is better prepared than ever to lead as a responsible and respected global energy company.

**Some are calling for Chevron to establish an ambition for net zero by 2050. What is your view on the issue**?

**Huntsman**: If Chevron is to lead responsibly on climate, then ambitions are required. We support the Paris Agreement, which calls for achieving net-zero GHG emissions in the second half of this century. Chevron is already a leader in producing energy at a carbon intensity well below the average of the global system and is in the best-performing quartile of all ***oil*** and gas producers. Addressing the world's need for affordable, reliable, and lower-carbon energy is a priority that must be tailored to our broader goals around sustainability while generating a competitive return for investors. Our Board is deeply engaged on this issue and has aligned the Company's metrics to advance these opportunities.

**With your background as a diplomat, policymaker, and businessperson, how do you think Chevron can best support the global effort to reach the goals of the Paris Agreement**?

**Huntsman**: The best way a company can support this effort is to report on the carbon efficiency of the products they sell, along with making continuous carbon efficiency improvements and advancing new technologies that expedite all the above. Companies like Chevron that are global leaders must play a role in informing good policy, driving innovative solutions, and working with others to lower the carbon intensity of the global economy. None of this will happen without strong and unprecedented global collaboration around Paris Agreement goals while maintaining economic growth and enhancing the standard of living for all. As I return to the Board, I've never been more optimistic or impressed about what Chevron is doing to support the global energy transition.

section 1

governance framework

Our climate-related governance is designed to manage climate change--related risks and energy-transition opportunities. Board oversight, executive management, and organizational capability are foundational elements to our reliable and disciplined approach.

**1.1 board oversight**

Chevron's Board oversees the Company's strategic planning and risk management, both of which include climate change issues. Chevron's governance structure includes multiple avenues for the Board to exercise its oversight responsibilities with respect to risks and opportunities, including those related to climate change.

The full Board, on an annual basis, reviews the Company's strategy, including long-term energy outlooks and leading indicators that could signify change. The Board has access to education and training on climate-related materials and to Chevron's internal subject matter experts. The Board also regularly receives briefings on climate-related issues, including policies and regulations, technology, and adaptation. The full Board has met with external experts who have shared their perspectives on climate change and the energy transition. Accessing external experts--who have differing viewpoints about the speed and scale of the energy transition--in addition to internal experts, enables the Board to consider the risks and energy opportunities arising from climate change.

The Board and its committees annually review Chevron's Enterprise Risk Management (ERM) process, which assists the Board of Directors and executive leadership in overseeing key strategic risks for the Company. Climate change is addressed in a comprehensive manner in the ERM process (see page 9).

Given the nature of climate change and its relevance to our business, the entire Board addresses climate change--related issues, with each of the Board's committees focused on certain aspects. The Board has four standing committees: Public Policy and Sustainability; Audit; Nominating and Governance; and Management Compensation. Each Board committee includes only independent Directors, and each is chaired by an independent Director, who determines the frequency, length, and agenda of the meetings. Each Committee Chair has access to management, Company information, and independent advisors, as needed. Issues considered by the committees are regularly reported to the Board. In 2020 and 2021, the full Board reviewed its governance of climate change--related risks and energy-transition opportunities with the aim of ensuring complete coverage and assignment of responsibilities. Each committee undertook a revision of its charter in order to clearly and proactively articulate its oversight related to climate issues and coverage of related Board responsibilities. The Public Policy and Sustainability Committee's charter was enhanced to underscore its leadership role among the Board committees in providing oversight of climate change--related risks and energy-transition opportunities.

**1.1.1 Public Policy and Sustainability Committee (PPSC)**

The PPSC assists the Board in monitoring, identifying, and evaluating climate risks, policies, and trends that affect Chevron's activities and performance. The PPSC discusses Chevron's progress in addressing the energy transition, establishment of climate-related goals, and voluntary reporting of environmental matters, including those related to sustainability and climate change. The PPSC reviews Chevron's political activities, including how its direct and indirect lobbying on climate issues supports Chevron's climate strategy and reflects on the Company's reputation. In conjunction with the Board Nominating and Governance Committee, the PPSC reviews climate-related proxy proposals and makes recommendations on the Company's responses. The PPSC is also responsible for overall coordination within the Board on climate-related issues.

**1.1.2 Audit Committee (AC)**

The AC is responsible for oversight of the integrity and compliance of the Company's financial statements and for seeing that financial reports and associated disclosures adequately reflect all financial risks that are material to the business. The AC analyzes potential financial risk exposures as part of Chevron's ERM process, including potential financial risks associated with climate change. These risks are discussed in the Risk Factors section of the Company's Annual Report on Form 10-K. n2 The AC selects and engages the Company's independent auditor and oversees the Board's responsibility with respect to the independent audit of the Company's financial statements.

**the role of an auditor**

Registered public accounting firms must follow auditing and related professional practice standards established by the Public Company Accounting Oversight Board (PCAOB).

- The objective of the audit of financial statements by an independent auditor is the expression of an opinion on the fairness with which the statements present, in all material respects, a company's financial position, results of operations, and cash flow in conformity with generally accepted accounting principles.

- Auditors must maintain independence as required by the American Institute of Certified Public Accountants' Code of Professional Conduct and by Securities and Exchange Commission requirements.

Chevron monitors developments in PCAOB standards, including Auditing Standard 3101 regarding critical audit matters, and incorporates them into our internal processes. More information on auditing standards is available on the PCAOB website.

**1.1.3 Management Compensation Committee (MCC)**

The MCC considers the relative alignment of the Company's compensation policies and practices with investors' interests, including those related to sustainability, climate change risks, and energy-transition opportunities. The MCC assesses and approves the incorporation of GHG-related performance measures into the scorecard that affects the compensation of management and most other employees.

**1.1.4 Board Nominating and Governance Committee (BNGC)**

The BNGC identifies and recommends prospective Directors with the goal of maintaining a Board composition appropriate to overseeing the wide-ranging risks that affect Chevron. The BNGC regularly reviews the appropriate skills and qualifications of Directors in the context of the current composition of the Board, the operating requirements of the Company, and the long-term interests of investors. Among the skills and qualifications desired on our Board are experience in environmental affairs, and extensive knowledge of governmental, regulatory, legal, or public policy issues. Under our Corporate Governance Guidelines, the BNGC considers expertise and experience with respect to climate issues when assessing Board membership.

Chevron's Directors have a diverse set of skills, experience, and expertise to enable the Board to effectively provide oversight of climate change--related risks and energy-transition opportunities. Several independent Directors bring specific environmental and policy skills and qualifications to the Board. Their experience comes from academic, government, and business sectors. These diverse perspectives help enable the Board to challenge itself and management on climate change--related risks and energy-transition opportunities.

The Board periodically reassesses Chevron's governance structure and the skills, experience, and expertise of the Board of Directors in an effort to enable Chevron to maintain an effective frame work for managing the Company's performance and the risks to our business.

**our nomination process**

To maintain a balance of knowledge, experience, background, and capability, when conducting its review of the appropriate skills and qualifications desired of Directors, the BNGC considers:

- Leadership experience in business as a chief executive officer, senior executive, or leader of significant business operations

- Expertise in science, technology, engineering, research, or academia

- Extensive knowledge of governmental, regulatory, legal, or public policy issues

- Expertise in finance, financial disclosure, or financial accounting

- Experience in global business or international affairs

- Experience in environmental issues (including climate change)

- Service as a public company director

- Diversity of age, gender, and ethnicity

- Such other factors as the committee deems appropriate, given the current needs of the Board and the Company

**1.2 executive management of climate risks**

Under the direction of the Board, Chevron's Executive Committee is composed of executive officers of Chevron and carries out Board policy in managing the business affairs of the Company. The Enterprise Leadership Team (ELT) and Global Issues Committee (GIC), described below, are subcommittees of the Executive Committee.

**1.2.1 Enterprise Leadership Team**

The ELT is responsible for managing the composition, resource allocation, and strategic direction of Chevron's portfolio to achieve Chevron's objectives. The ELT focuses on performance improvement by understanding current performance and business drivers, and assessing the progress and status of key corporate initiatives, like our climate and energy-transition strategy (see pages 12-31). The ELT also oversees the ERM process (see page 9), which addresses climate change--related risks. At its monthly meetings, the ELT receives briefings from Chevron's subject matter experts on topics such as energy transition and climate change, geopolitical risk, innovation and technology, the policy landscape, and market conditions. For example, in 2020, the ELT received briefings and provided guidance on energy-transition strategies; peer activities; enterprise-wide optimization and funding of carbon-reduction projects; performance on and updates to metrics; technology and innovation; policy; and future energy opportunities. The ELT also consults outside experts to discuss energy transition and climate change issues. In addition to these topical discussions, the ELT reviews carbon-price forecasts, which are incorporated into all business units' business plans and, as appropriate, into their carbon management plans (see page 30).

**1.2.2 Global Issues Committee**

The GIC oversees the development of Chevron's policies and positions related to global issues that may have a significant impact on Chevron's business interests and reputation. The GIC receives updates from subject matter experts on an array of climate change--related issues, such as carbon policy development around the world; Company positions on carbon policy; political developments; lobbying and trade association activity; and environmental, social, and governance (ESG) reporting practices. The GIC reviews the climate change--related actions of other companies to understand how our peers are responding to climate change--related risks and energy-transition opportunities. It also oversees our stockholder engagement plan and reviews feedback from our stockholder engagements. The GIC is focused on ensuring that our strategy is clearly communicated and that stakeholder feedback and concerns are carefully considered.

**1.3 organizational capability on climate issues**

To further enhance enterprise coordination and organizational capability on climate issues, we established the Energy Transition Team in 2018 to bring together subject matter experts on climate strategy, GHG-reduction initiatives, and lower-carbon businesses. The ESG & Sustainability Team was also established in 2018 to coordinate ESG-related engagement with investors, other stakeholders--including framework developers such as the IPIECA (the global ***oil*** and gas industry association for advancing environmental and social performance), the Task Force on Climate-related Financial Disclosures, and the Sustainability Accounting Standards Board--and rating agencies. Chevron aims to engage annually with our top 50 investors and other key stakeholders to gain valuable feedback that is then shared with the Board, Board committees, management, and subject matter experts.

In 2020, Chevron moved the Energy Transition and ESG & Sustainability teams into one organization and added professionals with technical, commercial, and related project experience. We placed this group in the newly renamed and enhanced Chevron Strategy & Sustainability organization, along with Chevron's strategic, macroeconomic, forecasting, and competitor intelligence teams, which collectively facilitate the Company's long-term strategy.

**section 2**

**risk management**

**chevron employs long-standing risk management processes for identifying, assessing, and managing the risks to our business, including risks related to climate change**

Our Enterprise Risk Management process provides corporate oversight for assessing major risks to the Company and overseeing the safeguards and mitigations that are put in place. As part of the annual ERM process, the Enterprise Leadership Team evaluates categories of risks and their potential consequences, financial and otherwise. It also identifies and assesses the effectiveness of safeguards and mitigations in place to manage each risk category. When necessary, the ELT develops and implements improvements to strengthen the Company's safeguards. Following endorsement by the ELT, the annual ERM assessment is reviewed by the Board of Directors. Potential climate change--related risks are integrated into multiple ERM categories. Our management of risk is further aided by other systems and processes. For example, operational risks vary by geography and segment, but we seek to approach risk management in a consistent manner through our Operational Excellence Management System (OEMS).

Climate disclosure frameworks generally identify two main areas of corporate climate risk: physical risks n3 and transition risks. Physical risks include potential physical impacts driven by both acute events and long-term shifts in climate patterns. Transition risks include the potential risks to a company arising from the transition to a lower-carbon energy system, such as policy changes, litigation, technology advancements, shifts in supply and demand, and changing stakeholder perceptions.

**2.1 physical risk**

According to the UN Intergovernmental Panel on Climate Change (IPCC), the physical risks of climate change are varied and widespread. As disclosed on page 20 of the Company's 2020 Annual Report on Form 10-K, the Company's operations are subject to disruption from natural or human causes beyond its control, including physical risks from hurricanes, severe storms, floods, heat waves, other forms of severe weather, wildfires, ambient temperature increases, and sea level rise.

We have in place practices to manage risks to our operations associated with the impacts of ambient conditions and extreme weather events. These long-standing practices are currently applied to address possible effects of climate change and to maintain the ongoing resilience of our infrastructure. For example, Chevron's Metocean Design and Operating Conditions Standard provides guidance for the physical parameters to be used in the design, construction, and operation of offshore and coastal facilities, including those on land that may be threatened by coastal inundation due to storm surges. In addition, our Climate Adaptation Risk Assessment procedure is designed to identify and address potential physical impacts of climate change to capital projects, facilities, and operations under our control (see page 36).

With worldwide operations subject to diverse microclimates and weather phenomena, we stay prepared for the possibility of natural disasters. Based on risk evaluations and business impact analysis, business units develop and implement a Business Continuity Plan to provide continuous availability--or prompt recovery--of critical business processes, resources, and facility operations. Our business units work with local communities and emergency response teams to develop site-specific plans in the event of any disruption. The plans and processes are regularly reviewed and tested to promote business continuity.

**2.2 transition risks**

Our ERM process encompasses risks typically identified as climaterelated transition risks, including legal, policy, technology, market, and reputational risks. Risks that could materially impact our operations and financial condition are discussed in the Risk Factors section of our Annual Report on Form 10-K.

**2.2.1 Policy risks**

Policies addressing climate-related issues are evolving (see pages 14-20). The direct effects, as well as second- and thirdorder effects, of potential policy changes will depend on the type and timing of such changes. As disclosed on pages 21-23 of the Company's 2020 Annual Report on Form 10-K, significant changes in the regulatory environment, including those driven by climaterelated issues, could affect our operations.

For example, legislation, regulation, and other government actions related to GHG emissions and climate change could continue to increase Chevron's operational costs and reduce demand for Chevron's hydrocarbon and other products.

**working together**

Trade associations serve as an important voice for the industry, working to identify issues that range across a broad spectrum of topics and to develop and promote sound policy.

1. We are committed to compliance, transparency, and accountability in our lobbying activities.

2. We have executive management and Board oversight of direct and indirect lobbying activities.

3. We are committed to having an honest conversation. This means sharing our perspective, listening to others, respecting differences, and working to find solutions.

4. Our climate lobbying activities are designed to support our commitment to delivering affordable, reliable, and ever-cleaner energy and to help advance the global energy transition.

5. We rarely agree 100 percent with any trade association, but we believe participation is important to advancing Chevron's view on the energy transition.

See our lobbying report at chevron.com/-/media/chevron/sustainability/documents/chevron-climate-lobbying-report.pdf for more information on our engagement with trade associations and page 49 for our climate policy positions.

Climate-related issues are integrated into the Company's strategy and planning, capital investment reviews, and risk management tools and processes, where applicable (see pages 30-31). They are also factored into the Company's long-range supply, demand, and energy price forecasts (see page 29).

**2.2.2 Technology risks**

Development and deployment of innovations and emerging technologies in pursuit of a lower-carbon economy may disrupt or displace portions of the current economic system. As disclosed on pages 19-20 of the Company's 2020 Annual Report on Form 10-K, technology advancements could affect the price of crude ***oil***.

The Chevron Technical Center (CTC) supports Chevron's businesses through research, technology, and capability development. The CTC also helps bridge the gap between business unit needs and emerging technology solutions developed externally in areas affecting our business (see pages 21-22, 47). In 2018, Chevron established the Chevron Future Energy Fund with a commitment of $ 100 million, and a follow-up Future Energy Fund II in 2021 with a commitment of $ 300 million, to invest in breakthrough technologies that could enable the energy transition.

**Our investments and partnerships have focused on areas such as alternative energy, transportation and infrastructure, capturing and reducing emissions, and energy storage**.

**2.2.3 Market risks**

The potential impacts of climate change on markets are both complex and uncertain. As disclosed on page 19 of the Company's 2020 Annual Report on Form 10-K, Chevron is primarily in a commodities business that has a history of price volatility. Potential consumer use of substitutes to Chevron's products may impact our business.

We are focused on maintaining a strong balance sheet as well as maintaining prudent liquidity levels. Our policies and controls provide centralized governance over key enterprise processes, including banking, liquidity management, foreign exchange, credit risk, financing, and climate change--related risks and energytransition opportunities (see pages 30-31).

**litigation**

In recent years, Chevron, along with many other investor-owned energy companies (comprising a small, select subset of the broader ***oil*** and gas industry), has been named in more than a dozen lawsuits brought by various U.S. cities, counties, states, and trade associations, all of which seek to hold these investorowned companies financially responsible for changes in climate and the effects of those changes. To date, none of these cases has survived a motion to dismiss, and we will continue vigorously defending ourselves against claims that we believe are factually and legally without merit.

Suggesting that investor-owned energy companies, which are responsible for only a small amount of the overall global ***oil*** and gas production, and an even smaller portion of the overall global GHG inventory, should be held retroactively liable for the effects of the cumulative phenomena of climate change is illogical. First, the extraction, production, and sale of ***oil*** and gas have long been actively promoted by governments--by law and by express policy. Second, retroactive liability against a small subset of ***oil*** and gas companies ignores issues of legal causation, the history of how our complex energy system has developed, and national and international geopolitics. Moreover, any putative relief will neither have an effect on global demand for fossil fuels nor efficiently address global impacts of climate change. Focusing on investor-owned companies is arbitrary and opportunistic; it punishes successful companies who are often the most responsive, transparent, innovative, and responsible producers.

Claims that we have concealed superior knowledge of climate change from the public are false. The potential effects of greenhouse gases on the climate have been the subject of study and public discussion by prominent scientists and government officials for more than half a century.

Climate change is a global issue that requires a global solution by policymakers. We welcome meaningful efforts to address the issue of climate change and look forward to continuing to engage with governments and stakeholders to develop constructive solutions to help deliver a lower-carbon future. But litigation is neither an appropriate nor an effective tool for accomplishing that objective.

**2.2.4 Legal risks**

In recent years, a variety of plaintiffs have brought legal claims against various defendants alleging climate-related losses and damages. As disclosed on page 23 of the Company's 2020 Annual Report on Form 10-K, increasing attention to climate change may result in additional government investigations and private litigation against Chevron.

We have highly capable legal staff and associated safeguards through all levels of the enterprise to identify, evaluate, and actively address legal risks. Our legal experts review and report on emerging issues and trends that could impact the Company. They aim to provide consistent reviews of matters to identify, evaluate, and effectively manage risks associated with pending matters.

**2.2.5 Reputational risks**

As disclosed on page 23 of the Company's 2020 Annual Report on Form 10-K, increasing attention to climate change matters may impact our business. Organizations that provide information to investors on corporate governance and related matters have developed ratings processes for evaluating companies on their approach to environmental, social, and governance matters. Such ratings are used by some investors to inform their investment and voting decisions. Also, some stakeholders, including but not limited to sovereign wealth, pension, and endowment funds, have been promoting divestment of fossil fuel equities and urging lenders to limit funding to companies engaged in the extraction of fossil fuel reserves. Unfavorable ESG ratings and investment community divestment initiatives may lead to increased negative investor sentiment toward Chevron and our industry and to the diversion of investment to other industries. Refer to Section 1, Governance Framework (see pages 5-8).

**Our Global Issues Committee actively stewards our reputation by ensuring alignment of key corporate policies, practices, and public positions related to climate change**.

Our OEMS includes a Stakeholder Engagement and Issues Management process that facilitates engagement with local communities and stakeholders to identify and assess the unique risks for each business unit's operations. Potential social, political, and reputational risks are identified, leading to risk management strategies. We regularly engage with investors and other stakeholders to receive feedback on climate-related issues.

**section 3**

**strategy**

**higher returns, lower carbon**

As a global company, we operate in many jurisdictions that have enacted lower-carbon policies. In 2020, more than 60 percent of our total Scope 1 and Scope 2 equity GHG emissions were in regions with existing or developing carbon-pricing policies, in addition to other lower-carbon policies like mandates for biofuels and renewables, methane regulation, and emerging support for technologies like carbon capture, utilization, and storage (CCUS) and hydrogen. Under current and potential future market conditions, we seek to understand the impacts of climate-related actions and strategies and to advance opportunities to increase returns to investors.

Chevron's energy-transition strategy is to advance a lowercarbon future and we will leverage our capabilities, assets, and expertise to focus on three action areas that aim to deliver measurable progress that is both good for investors and good for society:

- Lowering carbon intensity cost-efficiently

- Increasing renewables and offsets in support of our business

- Investing in low-carbon technologies to enable commercial solutions

Our strategic and business planning processes guide our actions to deliver higher returns and lower carbon. We discuss our approach to each energy-transition opportunity in Section 4, Our Portfolio (see pages 37-52).

**Our strategic and business planning process: Analyzing the fundamentals to drive strategic focus and action**

Chevron's strategic and business planning processes bring together the Company's views on long-term energy market fundamentals to guide decision making by executives and facilitate oversight by the Board of Directors. We use proprietary models to forecast demand, energy mix, supply, commodity prices, and carbon prices--all of which include assumptions about future policy and technology developments.

The chart below details fundamental areas analyzed in our strategic planning process. These fundamentals help guide our decisions on strategy, portfolio management, business planning, and capital allocation.

The world's energy demands in recent years are greater than at any time in human history, and most published outlooks conclude that fossil fuels will remain a significant part of an energy system that increasingly incorporates lower-carbon sources of supply over the coming decades. Within this context, we align our strategy with areas in which we have a competitive advantage and in which we see potential to generate increased value for our investors.

Our strategic process supports our ability to operate in a lowercarbon policy environment. For example, we use carbon prices and derived carbon costs in business planning, investment decisions, impairment reviews, reserves calculations, and evaluation of carbon-reduction opportunities. We believe that lower-carbonintensity ***oil*** and gas assets will remain economically competitive under a wide range of future scenarios. We believe our portfolio is resilient, and that our asset mix enables us to be flexible in response to potential changes in supply and demand, even in lower-carbon scenarios like the International Energy Agency's (IEA) Sustainable Development Scenario (SDS) (see pages 32-35).

[SEE Exhibit 1. A disciplined approach to strategy development IN ORIGINAL]

**3.1 how we approach long-term fundamentals**

We have a dedicated cross-functional team that tracks and forecasts long-term fundamentals to inform us of potential changes in market dynamics that could indicate the need for changes to strategy.

**3.1.1 Macroeconomic and demographic drivers: Population growth, increasing standards of living, and consumer behaviors**

Affordable, reliable energy enables economic development by facilitating modern production techniques, which ultimately leads to increased lifespans and a higher quality of life. n4 Individuals and society benefit from access to affordable, reliable, and evercleaner energy. As populations and incomes grow and billions of people in less-developed countries seek a higher standard of living, many experts forecast global energy demand to increase, even as the energy intensity of the world's economic output is declining. n5 As incomes improve, more economic growth comes from the service sector, which is often more energy and carbon efficient than manufacturing. In addition, technological advancements and ongoing improvements in energy efficiency will likely further reduce energy intensity. These effects may be less prevalent in nations that are in the process of industrialization and infrastructure development, as these activities require immense energy resources. n6

Changes in consumer behavior can also influence energy demand. Some behaviors, like remote working and videoconferencing, can lead to a decrease in energy demand. Other behaviors, like increased use of home delivery, can lead to an increase in energy demand. The impact of behavioral changes may be modulated by other demand drivers, such as government policies or the long life of existing infrastructure. For example, although some municipalities have passed ordinances prohibiting the inclusion of gas infrastructure in new buildings, natural gas still accounts for about 24 percent of household energy use in the United States. n7 Demand for natural gas is primarily driven by existing homes and buildings, which typically have very long service lives. Accordingly, the IEA's 2020 *World Energy Outlook* (WEO) expects behavioral changes to be "influential" but "not game-changers" in their scenarios (Stated Energy Policies Scenario and Delayed Recovery Scenario). n8

[SEE Exhibit 2. A growing middle class drives demand for access to energy IN ORIGINAL]

[SEE Exhibit 3. Billions of people would benefit from affordable, reliable, and ever-cleaner energy IN ORIGINAL]

**3.1.2 Policy: Trends, framework, and impact analysis**

Policies, like those that support the Paris Agreement, can change the amount of energy consumed, the rate of energy-demand growth, the energy mix, and the relative economics of one fuel versus another. Tracking and anticipating policy trends helps us identify potential changes in energy mix and supply/demand scenarios and adjust our outlooks accordingly.

**Policy trends**: The Paris Agreement, which was ratified in 2016, aims to hold "the increase in the global average temperature to well below 2° C above pre-industrial levels and [to pursue] efforts to limit the temperature increase to 1.5° C above pre-industrial levels." Under the agreement, each country may pursue its own strategies for achieving its Nationally Determined Contributions (NDCs). According to the IEA, the current NDCs do not appear to enable achieving the goals of the Agreement, n9 although new, updated, or reconfirmed NDCs are intended to be submitted.

According to the IPCC, achieving the Paris Agreement's goals will require peaking emissions as soon as possible and global netzero emissions by "around 2070" (2065-2080). The IPCC finds that achieving a 1.5° C scenario with high confidence and without any temporary overshoot would require net zero by "around 2050" (2045-2055). Other IPCC scenarios reach net zero later this century, but they achieve 1.5° C outcomes through greater adoption of carbon dioxide removal opportunities. Achieving a 1.5° C goal will require nations to reduce emissions across all sectors of the economy. It will also require increasing removals by sinks, such as nature-based solutions (e.g., forestry), and through technological solutions (e.g., CCUS).

The IPCC finds there are numerous potential pathways to achieving the goals of the Paris Agreement. All pathways include the continued use of ***oil*** and gas, even in rapid decarbonization scenarios. To achieve net-zero emissions by 2050, direct air carbon dioxide capture and storage and carbon capture and storage (CCS) are required to be scaled up and globally deployed. Without this technology, the IPCC climate models cannot achieve theoretical solutions to reach net zero in the desired time frame.

**Exhibit 4. Nearly all countries have ratified the Paris Agreement and are supporting net-zero ambitions**

[SEE MAP IN ORIGINAL]

As of March 2021.

Sources: United Nations Treaty Collection, treaties.un.org/Pages/ViewDetails.aspx?src=TREATY&mtdsg\_no=XXVII-7-d&chapter=27&clang=\_en; United Nations Framework Convention on Climate Change, unfccc.int.

**to achieve global net zero, markets should be empowered to incentivize the most carbon-efficient producers**

We support the Paris Agreement and its goal of "holding the increase in the global average temperature to well below 2° C above pre-industrial levels and pursuing efforts to limit the temperature increase to 1.5° C above pre-industrial levels," which per the IPCC implies reaching global net zero in the second half of this century. We believe that the optimal approach for society is to drive the most efficient and cost-effective reductions economywide, paired with negative emissions from man-made and natural sources. Narrow sectoral or geographic metrics are less efficient than broad economywide solutions, which are uniquely able to incentivize the most efficient and cost-effective reductions. Chevron supports a price on carbon, applied as widely and broadly as possible, as the best approach to reduce emissions. We work to encourage national policies to support international linkages (for example, through Article 6 of the Paris Agreement), with the goal of ultimately building up to a liquid and integrated global carbon market.

Individual companies contribute to achieving the goals of the Paris Agreement through their participation in policies that may be included in the NDCs of the countries in which the companies operate. We work with governments to encourage well-designed policies that can strengthen the NDCs, such as carbon pricing and rewarding the most efficient and least carbon-intensive producers. Most energy forecasts agree that ***oil*** and gas will continue to be a significant source of energy--even in a net-zero scenario. Therefore, it is critical that markets incentivize the most efficient and least carbon-intensive producers to provide ***oil*** and gas. Such an approach may not result in each individual company reaching net zero, but it is, we believe, the most promising path toward the ultimate goal of global net zero.

**Policy organizational framework**: Given the sheer scale of the global challenge to address climate change, allocation of limited resources as efficiently and effectively as possible is critical to creating the greatest opportunity for success. Prioritizing efforts that curtail emissions at the lowest cost per tonne, irrespective of where or in which sectors those abatements occur, is the most economically efficient approach. These efforts, grouped by category, can be ordered by cost of the reduction on a per-tonne basis in a graphical representation (Exhibit 5), often called a marginal abatement cost curve (MACC). n10

Each bar represents one type of mitigation opportunity. The height of each bar represents the cost of abatement, generally expressed in a breakeven cost per tonne of carbon dioxide-equivalent (CO[2]e), and the width of each bar represents the volume of abatement, usually in tonnes of CO[2]e. Generally, efficiency and some renewable-power applications are less costly than nature- and land-based reductions, which are generally less costly than CCUS and other technologies still in early development. Potential carbon-reduction costs and volumes can also vary by geography or application. n11

Because it is impossible to know the exact abatement cost and reduction available in order to design specific policies for targeted reduction opportunities, most economists believe the most efficient way to achieve economywide emissions reduction is through a price on carbon. n12 Carbon pricing incentivizes reductions across the economy and investment in reduction technologies for the future. A price in the form of either a tax--which sets the cost of reduction--or a cap-and-trade system--which sets the volume of reduction--can flexibly integrate additional information and solutions within a market-based framework, strengthening and compounding its comparative advantages over time (Exhibit 6). In addition, carbon prices could raise revenue that can either be invested in reduction technologies whose commercial application might otherwise be too distant to incentivize investment or returned to impacted communities and consumers.

The wider the coverage of a price, the more opportunities there are to find carbon reductions. For example, in non-OECD economies, it is often less expensive to reduce emissions because investment may not have been made in the most efficient technology. By linking OECD and non-OECD economies, financing can be mobilized to incentivize reductions from the lowest-cost area. It is estimated that with global cooperation (for example through the Paris Agreement), reductions can be made at half the cost of an inefficient and unlinked system. n13

**Exhibit 5. A MACC can be a helpful organizational framework for policy analysis and abatement-potential analysis**

[SEE CHART IN ORIGINAL]

Note: Example of a marginal abatement cost curve; project ranking represents average prices, but specific projects within categories vary.

**Exhibit 6. In markets with carbon pricing, the carbon cost often follows the cost of abatement in the market\***

[SEE CHART IN ORIGINAL]

**Exhibit 7. In markets with narrowly targeted policies, abatement opportunities may be reordered\***

[SEE CHART IN ORIGINAL]

\*For illustration only. Not drawn to scale.

Policies narrowly targeted at specific geographic regions, sectors, or technologies can miss the efficiencies of a comprehensive market-based system. The impact of a targeted approach may be a reordering of the MACC-abatement opportunities--by shifting a higher-cost activity to the left on the graph (Exhibit 7). This typically achieves emissions reductions at greater overall costs to society and may distort price signals (e.g., lower the carbon price) by adding reductions, or supply, to the market.

Although carbon pricing is generally regarded as the most efficient way to widely reduce emissions, governments may want to support innovation by investing in technologies whose commercialization could unlock greater reduction opportunities even though they are currently more expensive and have a "green premium," which is the "additional cost of choosing a clean technology over one that emits a greater amount of greenhouse gases." n14 Similarly, targeted policies are sometimes helpful for addressing instances in which a desirable reduction activity would not otherwise occur because of a barrier. For example, although efficiency projects often are economic, the entity that needs to invest in the reduction activity may not be the same entity that receives the benefit from the investment (e.g., in situations that involve leased equipment).

**Policy impacts**: The timing, scope, scale, and design of policies to support the goals of the Paris Agreement will vary and could have direct and indirect impacts on the Company. Policies can change the amount of energy consumed, the rate of energy-demand growth, and the relative economics of one fuel versus another.

- Efficiency improvements are expected to have the largest impact on moderating energy-demand growth (e.g., consumers purchase more-efficient vehicles or more-efficient appliances). Efficiency policies, up to a point, are often some of the most cost-efficient on a per-tonne basis. You can read more about our actions on efficiency on page 41.

- Technology mandates, like renewable fuel and portfolio standards, and electric vehicle mandates, can change the economics of different energy sources and may change the energy mix. You can read more about our actions on renewables on pages 44-45.

- Carbon pricing and fuel taxes increase the cost of fossil fuels and can affect the relative economics of the fuel mix. In addition, carbon pricing can incentivize the most efficient producer of a particular product. You can read more about Chevron's approach to carbon pricing on page 29. You can read more about our approach to carbon-efficient production on page 41.

- Policy design in major demand centers and markets is increasingly important because of impacts on the relative economics of fuel choices, particularly for those that trade in global markets. ***Oil***, gas, and associated products are globally traded commodities (Exhibits 8 and 9). Border carbon adjustment mechanisms, which are applied in carbon-pricing programs and import requirements under renewable fuels mandates to prevent offshoring of emissions to other jurisdictions (also known as leakage), can raise the cost of an imported product. Impact is often tied to the benchmarked carbon intensity of the product's production.

**Exhibit 8. About 50 percent of global daily *oil* production crosses borders**

[SEE MAP IN ORIGINAL]

Source: IHS Markit, ihsmarkit.com.

mmbd = millions of barrels per day

**Exhibit 9. Virtually all LNG produced crosses borders**

[SEE MAP IN ORIGINAL]

Source: IHS Markit October 2020 LNG flows.

LNG = liquefied natural gas

mmt = million metric tonnes

**Direct policy cost impact analysis: The extent to which a policy can affect commodity prices and margins depends on the ability to recover the costs in the marketplace. Many jurisdictions take this into consideration in the context of local production and refining trade competitiveness**.

**Exhibit 10. Policy applied to producer below the marginal producer leads to the least ability to recover costs\***

[SEE CHART IN ORIGINAL]

If a policy is applied to a single producer or jurisdiction, the cost can erode margins and may make the supply/refining/ sale uncompetitive.

**Exhibit 11. Policy applied to the marginal producer leads to some ability to recover costs\***

[SEE CHART IN ORIGINAL]

If a policy is applied to the marginal producer, the commodity price can rise to recover a portion of the cost or to the level at which the next producer becomes the marginal producer, whichever is less.

**Exhibit 12. Policy applied to all producers leads to the greatest ability to recover costs\***

[SEE CHART IN ORIGINAL]

If a policy is applied to all producers by the same amount per unit of production, the cost of supply rises, thus enabling the greatest cost recovery potential; however, less total supply is needed.

**Exhibit 13. Policy applied to all producers; production efficiency incentivized and leads to the ability to recover more than costs\***

[SEE CHART IN ORIGINAL]

If a policy cost is applied to all producers by the same amount per tonne of emissions, such as via a performance benchmark, those producers with more-efficient production have a greater ability to recover costs, which may increase margins even though less total supply is needed. Conversely, less-efficient producers may incur higher costs and be priced out of the market.

\*For illustration only. Not drawn to scale.

**carbon pricing**

**Exhibit 14. Carbon-pricing mechanisms are in place or under development in 46 national and 35 subnational jurisdictions around the world**

[SEE MAP IN ORIGINAL]

Sources, as modified by Chevron Corporation: World Bank, *Carbon-pricing Dashboard*, carbonpricingdashboard.worldbank.org; Energy Intelligence Group, *EI New Energy Global Carbon Prices*, January 2021; Government of Canada, canada.ca/en/services/environment/weather/climatechange/climate-action/pricing-carbon-pollution.

**Last year, more than half of our Scope 1 and Scope 2 emissions were in regions with existing or developing carbon-pricing policies**.

**Alberta** Our joint-venture Upstream assets are subject to the economywide carbon price of $ 22/tonne (CAD30). A price on carbon has been in effect in Alberta since 2007. A performance benchmark for large emitters was established under the Technology Innovation and Emissions Reduction program in 2020, and designed to protect the competitiveness of trade-exposed industries.

**Atlantic Canada** Atlantic Canada has a broad-based carbon-pricing program that tracks the federal program. Our joint-venture assets in Atlantic Canada are under this performance-based large-emitter program.

**Australia** Our Upstream facilities are regulated by the federal Safeguard Mechanism that took effect in 2016, which caps facility-level emissions and requires emissions above this cap to be offset, creating an indirect carbon-pricing policy. As of November 2020, the price for an Australian offset was $ 11/tonne (AUD17).

**British Columbia** Our Upstream interests are subject to the economywide carbon tax of $ 26/tonne (CAD35) for combustion emissions in effect since 2008.

**California** Our Upstream ***oil*** assets, refineries, and refined gasoline and diesel sales are regulated under a cap-and-trade policy that took effect in 2013. In Upstream and refining, allowance allocations are aligned with a performance benchmark to consider competitiveness of trade-exposed industries. All fuel suppliers are covered by the regulation for refined-product sales. As of November 2020, the price for an allowance in California was $ 17/tonne.

**Canada Federal** The government implemented a carbon tax of $ 15/tonne (CAD20) in 2019 that increases to $ 37/tonne (CAD50) in 2022, which may be met with an equivalent program at the provincial level. Provinces may use the revenue generated as they see fit, including to protect trade-exposed industries. The federal price acts as a backstop and is applied in provinces not deemed equivalent to provincial pricing programs.

**Colombia** Our fuel supplies, along with others sold in the country, are subject to a $ 5/tonne (COP19,500) carbon tax in effect since 2017. Alternatively, we can sell carbon-neutral fuel via the use of offsets.

**European Union** Our Oronite plant in France is regulated under the European Union cap-and-trade system in effect since 2005. It receives an allowance allocation that aligns with a performance benchmark that considers the competitiveness of trade-exposed industries. As of November 2020, the price for an EU allowance was $ 30/tonne (EUR26).

**Kazakhstan** Our joint-venture Upstream assets are regulated under a cap-and-trade policy that started in 2013. Allowance allocations are aligned with a performance benchmark to consider the competitiveness of trade-exposed industries.

**Singapore** A carbon tax of $ 4/tonne (SGD5), in effect since 2019, is being applied to our joint-venture refinery and Oronite additive facility.

**South Korea** Our joint-venture refinery is regulated under a cap-and-trade system in effect since 2015. Allowance allocations are aligned with a performance benchmark to consider the competitiveness of trade-exposed industries. As of November 2020, the price of a Korean allowance was $ 19/tonne (KRW22,560).

**Others** Jurisdictions such as China, Thailand, Brazil, and the states of Washington, New Mexico, and Oregon are in the process of analyzing or developing carbon-pricing programs. Coverage and other details regarding these programs are still under consideration.

**We believe it is a competitive advantage to already operate in a lower-carbon policy environment. We have direct exposure to carbon pricing via our operations in some of these jurisdictions. In addition to carbon-pricing regulations, we operate in areas that incentivize low-carbon intensity via GHG regulations such as low-carbon fuel standards and methane regulations**.

**methane\***

**California** Chevron's California Upstream operations are subject to a methane rule that requires leak detection and repair, and storage tank and other equipment controls. Most requirements have been in effect since 2018 and apply to both new and existing facilities.

**Canada Federal** The Canadian government published federal methane regulations in 2018 and works with provinces and territories to establish regulations equivalent to federal guidelines.

*Newfoundland has agreed to work with the federal government to develop regulations, including limiting use of pneumatic devices, to reduce methane emissions by 45 percent by 2025. Proposals include leak detection and equipment controls, most of which would come into effect between 2020 and 2023*.

In 2019, Alberta and British Columbia both finalized equivalency agreements with the federal government that allow the provinces to regulate province-level programs that will ultimately achieve the same objectives.

**Colorado** Chevron's Upstream operations are subject to methane rules that require leak detection and repair, and storage tank and other equipment controls. The rules apply to new and existing facilities and have been in effect since 2014, with recent updates in 2020 that added emissions-monitoring requirements on new flowback operations.

**New Mexico** *New Mexico has announced plans for two rules in 2021, one targeting volatile organic compounds and the other targeting waste of gas across upstream and midstream operations. Both rules are intended to reduce methane as a co-benefit and are part of the state's climate change strategy*.

**U.S. Federal** Starting in 2016, Chevron's Upstream and Midstream assets were regulated for volatile organic compounds with methane as a co-benefit under the Clean Air Act for new and modified sources, and in 2020, the U.S. Environmental Protection Agency (EPA) finalized revisions to no longer regulate methane. The Biden administration has indicated it is considering directly regulating methane. Currently, methane may be indirectly regulated as a co-benefit of volatile organic compound regulation in ozone non-attainment areas for both new and existing sources, as well as under several state rules.

\* *Italics* indicates a policy is under development.

**biofuels\***

**Australia** A renewable-fuel-blending mandate in the state of New South Wales, in effect since 2007, and in the state of Queensland, in effect since 2017, applies to all fuel suppliers and requires that volumes of biofuel be blended into diesel and gasoline fuels.

**California** A low-carbon-fuel mandate, in effect since 2011, applies to all fuel suppliers in California and sets carbon-intensity standards for gasoline, diesel, and the fuels that replace them.

**Colombia** A renewable-fuel-blending mandate, in effect since 2001, applies to all fuel suppliers and requires that volumes of biofuels, if available domestically, be blended into motor fuels.

**Malaysia** A renewable-fuel-blending mandate, in effect since 2014, applies to all fuel suppliers and requires that volumes of biofuel be blended into diesel fuel.

**Oregon** A renewable-fuel-blending mandate, in effect since 2009, did apply to all fuel suppliers and required that volumes of biofuels be blended into gasoline and diesel fuels. In 2016, a low-carbon-fuel mandate replaced the renewable-fuel-blending mandate.

**Philippines** A renewable-fuel-blending mandate, in effect since 2007, applies to all fuel suppliers and requires that volumes of biofuels be blended into gasoline and diesel fuels.

**South Korea** A renewable-fuel-blending mandate, in effect since 2012, applies to all fuel suppliers and requires that volumes of biodiesel be blended into diesel fuel.

**Thailand** A renewable-fuel-blending mandate, in effect since 2002, applies to all fuel suppliers and requires that volumes of biofuels, if available, be blended into gasoline and diesel fuel.

**U.S. Federal** A renewable-fuel-blending mandate, in effect since 2006, requires the introduction of increasing volumes of biofuels into the U.S. fuel supply. This obligation applies to all refiners/importers of gasoline and diesel fuels.

**Washington** A renewable-fuel-blending mandate, in effect since 2008, applies to all fuel suppliers and requires that volumes of biofuels be blended into gasoline and diesel fuels. *A low-carbon-fuel mandate is currently being discussed*.

\* *Italics* indicates a policy is under development.

**other policies that incentivize energy-transition opportunities**

**Exhibit 15. From renewable portfolio standards to carbon capture regulations, policy-enabled markets are advancing around the world**

[SEE MAP IN ORIGINAL]

Sources: European Commission, *CO2 emission performance standards for cars and vans (2020 onwards)*, ec.europa.eu/clima/policies/transport/vehicles/regulation\_en; IEA, *Global EV Outlook 2020*, webstore.iea.org/login?ReturnUrl=%2fdownload%2fdirect%2f3007; EU Energy Directive, *Renewable Energy Directive*, ec.europa.eu/energy/topics/renewable-energy/renewable-energy-directive\_en; Lawrence Berkeley National Laboratory, *U.S. Renewables Portfolio Standards*, eta-publications.lbl.gov/sites/default/files/2017-annual-rps-summary-report.pdf; Singapore Ministry of Sustainability and the Environment, a-star.edu.sg/Research/funding-opportunities/lcer-fi-grant.

EV = electric vehicle; BEV = battery electric vehicle; FCEV = fuel cell electric vehicle; ZLEV = zero-/low-emissions vehicle

**Australia** Hydrogen: Australia released a national hydrogen strategy in 2019, and in May 2020, it directed the Clean Energy Finance Corporation to make approximately US$ 220 million available to support growth in the hydrogen industry.

Hydrogen and CCUS: Australia recently released its first Low Emissions Technology Statement, which aims to leverage co-investment from the private sector and other levels of government to drive at least US$ 38 billion of new investment over the decade. Priority areas include CCUS and hydrogen.

**Europe** *Hydrogen and CCUS: The European Union's green stimulus calls for accelerating funding for renewable hydrogen and CCUS projects. The EU innovation fund under the EU Emissions Trading System is expected to raise up to $ 13 billion (EUR11.5 billion) between 2021 and 2030, which will support scaling up hydrogen and CCUS projects. The United Kingdom has also announced over $ 1 billion (GBP800 million) to support four CCUS hubs and clusters*.

**South Korea** Hydrogen: In 2019, South Korea announced its national Hydrogen Economy Roadmap to support hydrogen and fuel cell development. In 2020, South Korea's National Assembly passed the Hydrogen Economy Promotion and Hydrogen Safety Management Law, which provides a legal framework for government efforts, including providing subsidies to industry.

**United States** CCUS: Starting from 2018, the United States expanded its federal 45Q tax credit, which provides $ 50/tonne for CO[2] stored permanently and $ 35/tonne if the CO[2] is put to use in support of CCUS applications. This can be combined with state-level programs, such as California's Low Carbon Fuel Standard, to incentivize CCUS deployment to produce lower-carbon-intensity fuels.

\* *Italics* indicates a policy is under development.

**3.1.3 Technology trends: CCUS and hydrogen are key to a lower-carbon future**

Improvements in technology can reduce energy costs, lower emissions, and influence the energy mix by changing the relative competitiveness of different energy types. Three of the most prominent areas of investment include carbon capture, utilization, and storage; hydrogen; and battery storage.

**Carbon capture, utilization, and storage**: According to the IEA and the IPCC, carbon capture will be an essential tool in mitigating GHG emissions and meeting the goals of the Paris Agreement (Exhibit 16). n15 The IPCC 1.5° C report pointed out that many pathways to achieving the <2° C goal will require "negative emissions" approaches, such as combining bioenergy power generation with CCUS. According to the IEA's *Energy Technology Perspectives 2020* report, CCUS is expected to play a central role as one of four key pillars of global energy transitions, alongside renewables-based electrification, bioenergy, and hydrogen. CCUS may also unlock faster decarbonization of carbon-intensive production processes such as cement manufacturing.

**Hydrogen**: Hydrogen is a versatile energy carrier, with potential as a lower-carbon fuel, particularly in sectors that are hard to decarbonize. Under some scenarios, hydrogen demand could more than triple by 2050 n16 if costs come down and infrastructure is built out (Exhibit 17). Targeted policies can encourage research and development to drive down costs and improve performance so hydrogen can become commercially viable. Policy can also help lower the risk of investment for first movers by enabling development of supply chains and infrastructure that drive down costs and enable economies of scale.

**Battery storage**: Over the past decade, there has been notable cost reduction and performance improvement in lithium-ion (Li-ion) batteries and other storage technologies. Such progress, combined with a drop in the cost of producing renewable energy and advancements in other technologies, such as smart-grid and demand-management innovations, has the potential to increase electrification in sectors like light-duty passenger transportation. These advances facilitate increased use of renewable energy in electricity generation and help mitigate the problem of intermittency.

However, even with these improvements in energy storage, most leading energy experts agree that additional technology breakthroughs are needed to enable wider scaling of renewables and decarbonization in other hard-to-abate sectors. CCUS and hydrogen are the among the most promising of these other technologies.

**Exhibit 16. Under the IEA's SDS, CCUS is an important technology that could make a long-term contribution toward reducing GHG emissions**

[SEE CHART IN ORIGINAL]

Source: IEA, *Energy Technology Perspectives 2020*, iea.org/reports/energy-technology-perspectives-2020.

**Exhibit 17. Under the IEA's SDS, hydrogen demand could more than triple by mid-century**

[SEE CHART IN ORIGINAL]

Source: IEA, *Energy Technology Perspectives 2020*, iea.org/reports/energy-technology-perspectives-2020.

**Exhibit 18. Energy density of different fuel sources (shown with tank) can drive the attractiveness of fuel types**

[SEE CHART IN ORIGINAL]

Sources: Argonne National Laboratory, GREET model fuel specifications; AABC (Advanced Automotive Battery Conference) for Li-ion battery performance; with Chevron internal compilations.

**Energy density of different fuels**: The energy density and portability of a fuel are among the most important characteristics when considering viability for use in transportation. Two important aspects are as follows:

- **Gravimetric density**, the energy contained in a unit mass of fuel, determines how far one can travel with a given amount of fuel. Higher gravimetric density means less weight is required to be carried as fuel, meaning more weight capacity is available for carrying people and freight.

- **Volumetric density**, the energy stored in a unit volume of fuel, determines how much space the fuel takes up. Higher volumetric energy density means less space is required to store the fuel, and thus more space is available for carrying people and freight.

Fundamental differences in energy densities are a major obstacle to using alternative fuels for some modes of transport, such as long-distance shipping and air travel. To date, few alternative fuels or energy storage systems can surpass the energy densities of liquid fuels.

Gaseous fuels like compressed natural gas and hydrogen currently require large and heavy tanks for on-board vehicle storage. Further research and development are needed to reduce the weight and size of such storage tanks. Li-ion battery systems have achieved considerable progress in light-duty vehicle applications in the past decade, but some trade-offs in range, which is dictated by energy density, still exist. n17

**3.2 how we approach the future energy mix**

We have a dedicated cross-functional team that forecasts the energy system decades into the future. We track and analyze energy demand and mix drivers to understand which sources of energy supply are likely to meet expected demand. We believe the energy mix will continue to be primarily determined by the economics of each energy supply source, which are influenced by the intersection of macroeconomic and consumer, policy, and technology trends. The relative importance of these factors can vary by region and over time.

***Oil*** and gas currently account for a majority of global energy supply, at approximately 350 exajoules. We utilize signposts to help us track key demand indicators to test our reference case views and to help determine whether the world is headed in a different direction. In 2040, ***oil*** and gas demand is projected to be 46 percent of the energy mix in the IEA's SDS and 54 percent in the IEA's Stated Energy Policies Scenario (STEPS). In the IEA's Net-Zero 2050 (NZE2050) scenario, ***oil*** and gas demand fall to the SDS 2040 levels by 2030.

***Oil*** and gas have a diverse set of end uses. In some uses, like aviation, marine, freight, and petrochemicals, there are few, if any, cost-effective and scalable alternatives to ***oil***. Although the future is uncertain, and ***oil*** and gas may fall below today's share, most energy experts agree that these commodities will still be required to satisfy global energy demand under almost any future market scenario--even one in which policies increasingly aim to limit fossil fuel use and reduce GHG emissions. For example, in the IEA's lower-carbon SDS case, ***oil*** and gas make up nearly half of the global total primary energy mix in 2040.

**Exhibit 19. Most forecasts show a range of energy sources will make up the future energy mix**

[SEE CHART IN ORIGINAL]

Sources: IEA, *World Energy Outlook 2020*, iea.org/reports/world-energy-outlook-2020; IHS Markit 2020 Scenarios; Wood Mackenzie, *Energy Transition Outlook 2020: Highlights*.

mmboed = millions of barrels of ***oil***-equivalent per day

**Exhibit 20. *Oil* and gas have many important and diverse uses, as shown in world energy flows**

[SEE The IEA estimates that primary energy demand in 2020 declined by approximately 6 percent. IN ORIGINAL]

\* **Power loss** = Loss in gas distribution, electricity transmission, and coal transport. **Non-energy use** = Those fuels that are used as raw materials in the different sectors and are not consumed as a fuel or transformed into another fuel. Non-energy use is shown separately in final consumption under the heading *non-energy use*. **Non-specified use** = All fuel use not elsewhere specified, as well as consumption in the above-designated categories for which separate figures have not been provided. Military fuel use for all mobile and stationary use is included here (e.g., ships, aircraft, roads, and energy used in living quarters), regardless of whether the fuel delivered is for the military of that country or for the military of another country.

Based on data from: IEA, *2018 World Balances*, excluding "Other Energy Sector" balances, iea.org/sankey/, modified by Chevron Corporation.

**Exhibit 21. Turnover of energy infrastructure will influence the pace of change**

[SEE ILLUSTRATION IN ORIGINAL]

Sources: EIA, Today in Energy page, *Natural gas generators make up the largest share of overall U.S. generation capacity*, rb.gy/mkqtf2; Bureau of Transportation Statistics (BTS), *Average Age of Automobiles and Trucks in Operation in the United States*, bts.gov/content/average-age-automobiles-and-trucks-operation-united-states; BTS, *Average age of aircraft 2019*, bts.gov/average-age-aircraft-2019; National Renewable Energy Laboratory (NREL), *Useful Life* | *Energy Analysis*, nrel.gov/analysis/tech-footprint.html; *Assumptions to the Annual Energy Outlook 2021: Commercial Demand Module*, eia.gov/outlooks/aeo/assumptions/pdf/commercial.pdf; Massachusetts Institute of Technology, *Buildings Life Cycle Assessment (LCA)* | *Concrete Sustainability Hub*, cshub.mit.edu/buildings/lca.

**3.3 our approach to demand and supply**

**How we approach demand**: Our views on short- and long-term demand are based on analysis of macroeconomic and demographic trends, technological pathways, consumers' behavioral patterns, and policy impacts, among other factors. Growing populations, rising incomes, and urbanization are the principal forces behind energy-demand growth, as they typically lead to greater use of transportation, heating, cooling, lighting, and refrigeration. Policies will continue to play a large role in aggregate energy demand and fuel mix. Given the range of uncertainty across key demand drivers, we analyze multiple demand scenarios as part of our annual planning cycle.

As the world recovers from the COVID-19 pandemic, we expect energy demand to return to pre-crisis levels, although the timing of recovery may vary by region and type of demand.

**3.3.1 View on *oil* demand**

In 2019, global liquid fuel demand was approximately 100 million barrels per day (MMBD). In 2020, the COVID-19 pandemic reduced demand by approximately 8 MMBD, to about 92 MMBD. n18 The IEA's STEPS predicts ***oil*** demand to recover to pre-crisis levels by 2023. n19 Although global ***oil*** demand has grown at a rate of about 1 MMBD, or 1 percent per year, over the past several decades, the STEPS shows global ***oil*** demand growth slowing to about 750,000 barrels per day through 2030, due to economic impacts from COVID-19; slower long-term structural economic growth; aging populations in traditional ***oil***-consuming centers like Europe, Japan, and the United States; and policy-driven efforts to increase vehicle efficiency and alternative-fuel penetration. The STEPS forecasts that growth in demand will then plateau, with a growth rate of less than 100,000 barrels per day through 2040. n20

**How we approach supply**: Every year we develop a range of long-term ***oil***, gas, and refined-product supply scenarios to inform our views on prices, test our strategies, and assess business risks. The process involves our proprietary view of the principal drivers of supply growth, including resource supply curves, production constraints, capacities at secondary processing facilities, fiscal and financial requirements, and geopolitical trends and shifts. Given the complex set of variables and uncertainties associated with forecasting long-term supply, we routinely examine multiple scenarios and assess our forecasts against third-party perspectives.

**Exhibit 22. Realized decline rates determine the size of the supply gap and opportunities for new investment**

[SEE FIGURE IN ORIGINAL]

Source: IEA, *World Energy Outlook 2020*, iea.org/reports/world-energy-outlook-2020; production decline rates based on data from Rystad Energy UCube, December 2020.

mmboe = millions of barrels of ***oil***-equivalent

**Exhibit 23. Global liquids long-term supply curve and average point forward breakeven prices in 2029 show the supply curve is relatively flat, implying increased competition among producers**

[SEE FIGURE IN ORIGINAL]

Liquids supply shown above includes crude ***oil***, natural-gas liquids, coal-to-liquids (CTLs), and gas-to-liquids (GTLs).

Point forward breakeven is the amount of capital needed to produce the resource from today forward. This differs from full-cycle breakeven, which includes all costs for developing a new field. For a further discussion of breakeven calculations, see Energy Economics, *Tight* ***oil*** *market dynamics: Benchmarks, breakeven points, and inelasticities*, 2017.

Source, as modified by Chevron Corporation: Wood Mackenzie, ***Oil*** *Supply Tool*, May 2020, sciencedirect.com/science/article/pii/S0140988317304103.

mmbd = millions of barrels per day

bbl = barrel

**3.3.2 View on *oil* supply**

At a macro-level, ***oil*** supply is significantly impacted by producers' strategies to manage near- and long-term uncertainties. For example, producers respond to demand expectations by adjusting investment levels. The IEA estimates that upstream ***oil*** and gas investments will have fallen by a third globally in 2020 due to COVID-related demand shocks. Further, geopolitical factors can drive production levels, evidenced by the breakdown of cooperation among OPEC+ (OPEC plus 11 non-OPEC members) in spring 2020, which severely disrupted global ***oil*** markets.

Capital spending on ***oil*** and gas is also impacted by the continued need for maintenance and investment in existing assets to manage decline rates. The production profile for a well, a field, or a geography depends on geological circumstances, engineering practices, and government policies, among other factors.

Although non-OPEC decline rates have been estimated to be about 3 percent n21 over the past decade, recent cost-cutting efforts and the shift in project base to higher portions of shale and tight ***oil*** have led to higher decline rates. Price declines stemming from COVID-19 demand shocks and OPEC+ tensions, uncertainty about the nature of demand recovery from the pandemic, limited price recovery, and a more constrained capital market could lead to inadequate investment, future supply shortages, and price volatility. Although ***oil*** markets are well supplied in the short term, in the medium term, more investment would be required to meet increased demand--often referred to as the supply gap. We analyze this gap in order to forecast which types of resources will be needed in the future. Typically, the most economical barrels are produced from reinvesting in existing production to minimize natural decline.

A common way to visualize ***oil*** supply is via a supply curve by resource type, in which the width of the bar represents the amount of total production for a given year and the height of the bar indicates a representative price range over which that resource is economical to produce (Exhibit 23). Similar types of resources, or resources from certain regions, are grouped together and thus show a range of prices instead of a single price. In a more detailed and expanded version, every field would be its own line on the supply stack. Assets can move relative to one another when their breakeven values change due to technology, geopolitical or policy changes, fiscal terms, or other reasons. The supply stack is a useful way to gauge trends in the overall cost of supply and whether there have been shifts through time. However, care should be taken when drawing detailed conclusions from a supply stack, as the exact annual values depend on forecasts, such as project timing and performance.

**3.3.3 View on natural-gas demand**

In 2019, global demand for natural gas was approximately 4,000 billion cubic meters, of which approximately 354 billion cubic meters was liquefied natural gas (LNG). LNG accounted for approximately 38% of natural-gas exchanges. n22 North America makes up more than 27 percent of demand, followed by Asia Pacific at 21 percent, and Europe at 15 percent. Gas markets are priced regionally, and Asia continues to be the market with the largest forecasted growth. Growth in natural-gas demand is driven by its status as a relatively cost-competitive resource, a desire among key energy consumers to diversify fuel sources, and efforts in some jurisdictions to reduce air pollution (e.g., China's Blue Sky Action Plan, which includes coal-to-gas objectives). Demand in Asia is expected to grow by 40 to 50 percent from 2019 to 2030. n23 There is not enough pipeline gas to satisfy the projected demand; thus, it is expected that Asia will continue to be a major importer of LNG. There are potential risks to the growth of gas in the power sector, including lower-cost coal and renewables penetration. Nevertheless, we see sustained growth for gas, particularly in the industrial sector, where gas is better positioned to provide high-temperature heat, compared with renewables. Gas has the advantage over refined products on price and over coal on emissions. Early indications of interest are emerging for lower-carbon-intensity gas.

**3.3.4 View on natural-gas supply**

As with ***oil***, we analyze future gas-supply needs against demand growth in the context of a supply curve to forecast future economically competitive sources of supply. For global natural-gas markets, the IEA projects there will be enough capacity from producing assets and projects under construction to satisfy global demand through 2025 (Exhibit 24). n24 In the medium- to long-term, a supply gap could open up as soon as the mid-2020s or beyond 2030, depending on the shape of the pandemic recovery, the adoption of gas in emerging economies, and the pace of renewable penetration. Asia is expected to experience the greatest demand growth, and with limited pipeline capacity, the region is forecasted to import more LNG. This is one reason LNG is predicted to be the fastest-growing source of supply within the gas sector.

**Exhibit 24. LNG supply and demand could balance post-2030**

[SEE FIGURE IN ORIGINAL]

Source: IEA, *World Energy Outlook 2020*, iea.org/reports/world-energy-outlook-2020.

**Carbon intensity of upstream production**: Carbon intensity, or CO[2]e per unit of production, of each resource type is loosely correlated to the resource's position, or cost of production, on the supply curve. Like the wide distribution of supply cost for each resource type, carbon intensity for each resource type is widely distributed and can be influenced by the producer. The charts from the IEA's *World Energy Outlook 2018* presented in Exhibits 25 and 26 represent the IEA's estimates for global carbon intensity supply stacks for ***oil*** and gas with the methane global warming potential converted to the IPCC AR4 values. The IPCC AR4 is currently used by the U.S. EPA, the European Commission, and common ***oil*** and gas industry calculations. n25, n26, n27

**Exhibit 25. The global average *oil* production carbon intensity is 46 kg CO[2]e/boe**

Source: IEA, *World Energy Outlook 2018*, iea.org/reports/world-energy-outlook-2018. boe = barrels of ***oil***-equivalent

mmboed = millions of barrels of ***oil***-equivalent per day

**Exhibit 26. The global average gas production carbon intensity is 71 kg CO[2]e/boe**

Source: IEA, *World Energy Outlook 2018*, iea.org/reports/world-energy-outlook-2018.

boe = barrels of ***oil***-equivalent

bcm/y = billion cubic meters per year

Higher-cost production is often correlated with more energy-and emissions-intensive production. For example, some heavy ***oil*** may require steam for production, which can impact both cost and emissions.

LNG is generally more carbon intensive than gas supplied via pipeline. Decisions about electrification, recovering waste heat, avoiding fugitive and vented emissions and flaring, and deploying CCUS technology can all impact the carbon intensity of gas.

**3.3.5 View on refined-products demand**

Transportation fuels and petrochemicals have accounted for all of the growth in global ***oil*** demand since 2000 and are expected to underpin sustained growth in demand over the next decade. According to the IEA's outlook, product-demand growth continues as increases in demand for transportation services and petrochemicals offset lower demand due to improved vehicle efficiency, greater use of biofuels, and electrification. Demand for high-value petrochemicals, used to produce plastics, resins, and fibers (among other products), is projected to rise by 25 percent between 2019 and 2030 in the STEPS. Policies and technologies aimed at reducing plastic waste and increased chemical recycling could reduce demand for ***oil*** and gas feedstocks. A delayed pandemic recovery could lead to a delay or weakening of these policies, although it could also lead to a dampening of demand growth for transport fuels.

**3.3.6 View on refined-products supply**

Global refining capacity stood at a little over 102 MMBD as of 2019. However, utilization was less than 75 percent during the second half of 2020, with about 1.2 MMBD of capacity closures since the start of 2020 due to impacts from the pandemic. n28 With a little less than 5 MMBD of additional capacity scheduled to come online over the next few years, it is expected that further closures are likely, with the bulk of them happening in Europe. n29 Most capacity additions are expected in Asia, where the majority of demand growth is expected to occur. Additional capacity growth is expected in the Middle East. Some refiners in the United States and Europe may convert to biofuels production to take advantage of existing and emerging policies. Biofuels production is expected to increase by 25 percent from 2019 to 2024. n30

**Carbon intensity of refining**: Generally, more complex refineries are more carbon intensive per unit of throughput than simpler refineries. More complex refineries also have the ability to produce higher-value products like gasoline, diesel, and jet fuel. The chart presented in Exhibit 28 represents the IEA's estimates for global carbon intensity supply stacks for refining on a throughput basis.

**Exhibit 27. The gap between refinery runs and total capacity is expected to narrow in the next decade**

[SEE FIGURE IN ORIGINAL]

Source: IEA, *World Energy Outlook 2020*, iea.org/reports/world-energy-outlook-2020.

mmbd = millions of barrels per day

**Exhibit 28. The global average refining carbon intensity is 33 kg CO[2]e/boe**

Source: IEA, *World Energy Outlook 2018*, iea.org/reports/world-energy-outlook-2018.

boe = barrels of ***oil***-equivalent

mmboed = millions of barrels of ***oil***-equivalent per day

**3.4 how we approach prices: near term and long term**

We analyze near- and long-term commodity prices with climate change policies and other regulatory and policy impacts. We utilize various quantitative methods to combine our supply-and-demand views and solve for equilibrium commodity prices at which the marginal producer can enter the market and still earn a reasonable rate of return.

**Exhibit 29. Price is set where supply crosses demand**

[SEE FIGURE IN ORIGINAL]

Note: For illustration only. Not drawn to scale.

Producers with costs lower than the marginal producer--lower and to the left on the blue stack--produce more and have larger margins than the marginal producer, in yellow. Producers with costs higher than the marginal producer--higher and to the right on the gray supply stack--typically would not develop assets.

\* Margin is shared between all parties involved in production.

**Near term**: Markets are primarily characterized by the existing fixed capital stock, which was determined by past capital investment decisions. For conventional ***oil*** and gas assets, a new investment cannot immediately bring new supply to the market to affect price. For a new conventional ***oil*** field, "first ***oil***" may take three to 10 years, depending on multiple factors, including the asset type and regulation. Tight ***oil*** has shorter development times; however, as discussed on page 25, uncertainties about shale operators' access to capital could limit tight ***oil***'s impact on near-term prices.

**Long term**: Competitive markets are characterized by mobility of capital investment. Over the long term, prices are determined where long-term supply and long-term demand curves intersect at a point that reflects the marginal operating costs, the investment costs on both the supply side and the demand side, and a minimum rate of return.

**commodity-price forecasts**

Our comprehensive, proprietary forecasts of commodity prices significantly influence our strategic and business planning. Because price is determined in a competitive marketplace, scenarios are used to reflect market uncertainties, generating multiple price trajectories. Our price outlooks include carbonprice forecasts and cover a wide range of ***oil*** prices, naturalgas prices, and costs of goods and services, among other considerations. These forecasts reflect long-range effects from population and economic growth, renewable fuel penetration, energy efficiency standards, climate-related policy actions, and demand response to ***oil*** and natural-gas prices.

**difference between**

**carbon price and carbon cost**

Although the terms are sometimes used interchangeably, a carbon price, a carbon cost, and a shadow or proxy carbon price are different. For example, the term *carbon cost* is sometimes used to refer to carbon pricing and sometimes used to refer to the societal impacts from carbon emissions. A *shadow* or *proxy* carbon price is a hypothetical, aggregated price of carbon, which may include estimates for non-pricing regulations, published for investment analysis purposes.

For us, the term *carbon pric*e refers to an external price resulting from a policy like a carbon tax or cap-and-trade system, and for us, a *carbon cost* is generally a function of a jurisdictionspecific carbon-price forecast and asset-specific characteristics that represent the cost for compliance the asset would face. Like ***oil*** price forecasts, the proprietary information and the analysis that go into carbon-price forecasts and carbon-cost calculations are important to our strategy. Disclosure of our carbon-price forecasts or carbon-cost calculations could compromise commercially and competitively sensitive information. Consistent with our proprietary ***oil***- and gas-price forecasts, we do not disclose our carbon-price forecasts or carbon costs.

**We use, but do not disclose, carbon costs**.

**We have not published a proxy carbon price**.

**We support a carbon price**.

**In this section, we outline how climate change risks are strategically managed, and we provide examples of how we have aligned specific segments of our portfolio in response to current market conditions**.

**3.5 strategic processes and action areas**

We aim to deliver industry-leading results and superior stockholder value in any business environment. As discussed, ***oil*** and gas are declining resources and investment is needed to maintain them in order to fulfill projected demand, even in lower-carbon scenarios. Given this, we will continue to develop resources to fulfill the world's demand for energy. At the same time, we will continue to maintain flexibility in our portfolio and will continually examine ways to adapt investment patterns in response to changing policy, demand, and energy-transition opportunities. Our experience indicates that superior financial performance is more achievable through active portfolio management--including allocating capital where highest returns are forecasted--than through presetting targets for certain types of assets.

**chevron strategy and sustainability**

For more than 140 years, we have strived to build a track record of operating with integrity and holding our-selves accountable to the high expectations of our stakeholders. We take this responsibility seriously and are proud of our role in delivering the affordable, reliable, ever-cleaner energy that is vital to human progress. Refer to Section 1, Governance, on pages 5-8, to learn more about organizational changes we have made to reflect the importance we place on sustainability.

**3.5.1 Our strategic processes: Decision Analysis, business planning, capital-project approvals, business-development screening, and the marginal abatement cost curve process**

**Our Decision Analysis process**: The scale of investment and time involved in finding, extracting, and processing ***oil*** and gas requires long-term planning and decision making to effectively manage the uncertainties inherent in these opportunities. Our Decision Analysis (DA) process is underpinned by a systematic, analytical approach that leads to clarity of action in support of a decision. The DA process is structured for developing, evaluating, and comparing alternatives, including future options, in the face of risk and uncertainty. It uses deterministic and probabilistic analyses and economic and financial-analysis tools, along with debiasing techniques, to improve the quality of all decisions. Our DA function is engaged throughout the organization to achieve high decision quality and decision clarity. DA concepts and tools are used in many of the processes described below.

**Business planning**: Business units incorporate carbon costs and anticipated capital and operating expenditures related to carbon issues in multiple ways.

- Business plans: In jurisdictions with regulations that impose a carbon price, carbon costs are included in business plans; in jurisdictions that do not yet have such regulations, but that are projected to implement them in the future, carbon costs are included in the business plan the year the prices are forecasted to start.

- Carbon management plans: Business units in jurisdictions with regulations that impose a carbon price go through an annual compliance-planning process with the goal of achieving the most efficient manner of compliance. Where we have multiple assets in a single jurisdiction, integrated plans are developed to optimize total compliance costs across the business. We develop MACCs for our facilities and compare the cost of internal reduction options with the carbon price or fees and purchasing offsets or allowances. The anticipated compliance costs, including investments to generate internal emissions reductions, are included in business plans.

**stranded assets**

High-profile publications have stated that the portfolios of many ***oil*** and gas companies are not competitive in a "well below 2° C world," implying that companies and their investors have significant exposure to "stranded" assets because a company's value is tied to these undeveloped assets. An ***oil*** and gas company's primary valuation comes from the ***oil*** and gas reserves it holds. Per the U.S. Securities and Exchange Commission, the definition of "reserves" requires that those assets be economically producible as of a given date. The commodity price used in these calculations is the average of the first-of-the-month pricing of the prior year, projected forward as a "flat" unescalated price for the life of the field. For example, the 2019 commodity price used in reserve calculations is similar to the lower price indicated in the IEA's SDS, thus, current estimated reserves would not be stranded even in a scenario such as the IEA's SDS.

**Proved reserves**: ***Oil*** and gas judged to be economically producible in future years from known reservoirs under existing economic and operating conditions and assuming continuation of current regulatory practices using conventional production methods and equipment.

**Probable reserves**: Additional reserves that analysis of geoscience and engineering data indicates are less likely to be recovered than proved reserves, but are more certain to be recovered than possible reserves. When probabilistic methods are used, there should be at least a 50 percent probability that the actual quantities recovered will equal or exceed estimated values.

**Possible reserves**: Additional reserves that analysis of geoscience and engineering data suggests are less likely to be recoverable than probable reserves. When probabilistic methods are used, there should be at least a 10 percent probability that the actual quantities recovered will equal or exceed estimated values.

***Oil*** and gas assets that do not meet one of these requirements fall into the category known as "resources" and are not generally used when calculating a company's value. Further, these assets represent a static snapshot of a company's current portfolio mix and do not necessarily represent the long-term strategy for a company. As discussed in this report, we continually evaluate climate-related risks and energy-transition opportunities as part of our decision-making around future investments and portfolio composition.

- Impairment reviews: Impairment reviews are triggered when events test market assumptions upon which our business plans and long-term investment decisions are made. Impairments could occur, for example, due to changes in national, state, or local environmental laws, including those designed to stop or slow the production of ***oil*** and gas. When triggering events arise, we perform impairment reviews to determine whether any write-down in the carrying value of an asset is required. Carbon costs are included in impairment reviews.

- Reserves: When calculating reserves, we incorporate a carbon cost in jurisdictions with enacted carbon-pricing regulations. For reserves accounting, per guidance in Accounting Standards Codification 932, our carbon-cost estimates are based on enacted regulations, not carbon-price forecasts, and follow reserve-accounting principles.

**Capital-project approvals**: Individual investments are developed, approved, and implemented in the context of the strategic plan, segment-specific business plans, and commodity price forecasts. Investment proposals are evaluated by management and, as appropriate, reported to the Executive Committee and the Board of Directors. Our final investment decisions are guided by a strategic assessment of the business landscape. Our internal carbon-price forecast and derived carbon costs are considered in the economic evaluations supporting major capital-project appropriations. In addition, a number of GHG-related factors are considered in project-appropriation assessments, such as:

- The annual profile of anticipated project GHG emissions and emissions intensity (both Scope 1 and Scope 2)

- The identification and assessment of the options for reducing GHG emissions and optimizing carbon intensity

**Business-development screening**: We continue to enhance our screening processes to assess opportunities for portfolio fit, including assessing energy-transition opportunities and current and future opportunities' impact on the carbon intensity of our portfolio.

**Marginal abatement cost curve process**: Our MACC process is a disciplined and value-driven approach to reduce the carbon intensity of our operations and assets by optimizing carbon-reduction opportunities and integrating GHG-mitigation technologies across the enterprise (see page 41).

**3.6 the resilience of our portfolio under the IEA's SDS and the IPCC's representative concentration pathway (RCP) 8.5 scenario test**

We use long-term energy-demand scenarios and a range of commodity prices to test our portfolio, assess investment strategies, and evaluate business risks to strive to deliver results under a range of potential futures. We analyze alternative scenarios to stress-test our portfolio and integrate learnings into our decision making to remain competitive and resilient in any environment.

For longer-term scenarios, we routinely use external views to both inform and challenge our internal views. This includes scenarios that keep global warming to well below 2° C above pre-industrial levels, as well as scenarios forecasting net-zero emissions by 2050. n31 In addition, we use the scenarios from the IPCC to inform our physical and financial exposure to climate change. Some suggest the abrupt reduction in demand from the COVID?19 pandemic has presented a real-world stress test for our portfolio and the industry. The pandemic's impact on energy markets illustrates the scale of changes and disruption that would accompany a reordering of the economy and behavior in order to meet the goals of the Paris Agreement. n32

**3.6.1 The IEA's SDS: Energy demand, *oil*, natural gas, refined product, and portfolio analysis**

One example of a lower-carbon scenario against which we test our portfolio is the IEA's SDS. The SDS outlines one potential path to 2040 that reflects the objectives of recent energy policies, including the Paris Agreement, of keeping global average temperatures well below 2° C above pre-industrial levels and putting the world on track to achieve net-zero emissions by 2070. The SDS achieves lower emissions mainly through policies aimed at increasing efficiencies and renewable energy sources, which limit energy-demand growth. In this scenario, declines in long-term ***oil*** and gas demand put downward pressure on prices. The estimated market price reductions will be dependent on specific supply curves, as discussed earlier. It is possible, for example, that declines in ***oil*** and gas demand will place the market on a relatively flat portion of the supply curve, resulting in fairly small price changes in response to changes in long-term demand expectations. The TCFD provides guidance on evaluating business impacts and on disclosure. n33, n34 To test the effects of the IEA's SDS, we input its demand projections into our proprietary model of supply and commodity prices and tested our portfolio against the new price tracks generated to meet the SDS level of demand. n35

**Energy demand**: The SDS results in global energy demand in 2040 that is roughly 10 percent lower than 2019 levels. The SDS assumptions relevant to the ***oil*** and gas sector are as follows:

- Efficiency playing a central role, with a significant share of spending across transportation, buildings, and industry sectors going to efficiency measures

- Behavioral changes leading to 30 million fewer internal combustion engine vehicles being sold per year

- Renewable share of the power sector reaching more than 50 percent and natural gas dropping to approximately 15 percent

- Increased electrification and efficiency improvements in industrial processes

- Policies promoting production and use of alternative fuels and technologies such as hydrogen, biogas, biomethane, and CCUS across sectors

- Existing buildings undergoing extensive retrofitting to move them away from fossil fuels

- Carbon pricing reaching more than $ 140/tone

**Exhibit 31. IEA 2019 world total primary energy mix vs. SDS in 2040**

[SEE FIGURE IN ORIGINAL]

Source: IEA, *World Energy Outlook 2020*, iea.org/reports/world-energy-outlook-2020.

mmtoe = million tons of ***oil***-equivalent

**Exhibit 32. Total primary energy demand in the IEA's SDS**

[SEE FIGURE IN ORIGINAL]

**Exhibit 33. Global CO n2 emissions from energy reductions in the IEA's SDS**

[SEE FIGURE IN ORIGINAL]

Source: IEA, *World Energy Outlook 2020*, iea.org/reports/world-energy-outlook-2020.

***Oil***

- ***Oil* demand**: In the SDS, ***oil*** demand decreases by about 28 MMBD by 2040 relative to 2019. The SDS still projects ***oil*** to make up about 23 percent of the total energy demand. Relative to the STEPS, there is less demand for ***oil*** in all uses except petrochemicals, which is expected to increase by about 33 percent relative to 2019. ***Oil*** demand for transport, meanwhile, is expected to drop by almost 60 percent.

- ***Oil* supply**: Lower demand implies that less supply is required. However, because of the natural decline inherent in ***oil*** production, investment in the most cost-competitive assets, such as existing production and brownfield opportunities, is still needed. Assuming the previously discussed global decline rates, the supply gap in the SDS is 9 MMBD by 2040.

- ***Oil* price**: We estimate the SDS demand reduction to be large enough that it lowers ***oil*** prices. Although this lower price leads to lower development and operating costs, it also intensifies cost competition in a smaller marketplace. The outcome is similar to the low-price track against which we analyze our portfolio. The low-price track still provides profitability to those producers that remain in the market.

**Natural gas**

- **Natural-gas demand**: Gas demand in the SDS plateaus by the end of this decade before declining by approximately 500 billion cubic meters per year compared with 2019.

Although gas demand declines across Europe, the Americas, and the Middle East, it continues to grow in Asia. Natural gas accounts for approximately 23 percent of global energy demand in 2040.

- **Natural-gas supply**: In the SDS, there is an ongoing need from 2021 to 2040 for about $ 2.7 trillion to be invested in gas infrastructure. For LNG, existing and planned developments are enough to meet demand through the remainder of this decade, with a supply gap opening up beyond 2030.

- **Natural-gas price**: In the SDS, gas prices are lower globally, although there is regional variation. The resulting gas prices, in the Americas and Asia, are comparable with those assumed in our low-price scenario, against which we analyze our portfolio.

**Refined products**

- **Refined-product supply and margins**: In the SDS, global demand for gasoline, diesel fuel, and jet fuel does not return to 2019 levels and continues to decline over the next two decades. However, the shape of this decline differs by region, with demand in Asia continuing to grow through the first half of this decade. Excess refining capacity dampens refinery margins until additional closures happen. Refineries able to shift production to petrochemical feedstocks and biofuels may gain a competitive advantage, as both of these products see increased demand in the SDS. However, the increased use of natural-gas liquids as direct petrochemical feedstock supply could limit this upside. Refineries able to shift into other areas, such as chemical recycling or hydrogen production, may be reconfigurable to avoid full closure in the SDS. In a perfectly competitive market, the least-efficient and least-profitable refineries close, leaving a balanced market. However, nonfinancial factors could prolong the overcapacity or lead to continued operation of less-efficient refineries at the expense of more-efficient refineries. Upstream and Downstream value-chain optimization could be more important to maximizing enterprise value.

**Portfolio analysis**: We test our portfolio against projected prices under the SDS. Given our focus on the most competitive assets in our Upstream portfolio and actions to align Downstream & Chemicals around scaled, efficient, flexible, integrated, and higher-margin value chains, we believe our portfolio should be resilient even under the SDS.

- **Short-term impact (0-10 years), Upstream**: Chevron's diverse portfolio mitigates risk and enables us to take advantage of opportunities that may arise from changes in industry economics.

- Today, much of our Upstream investment is focused on unconventional assets in the Permian Basin, Argentina, Canada, and the DJ Basin. The presence of these short-cycle assets in the portfolio gives us the flexibility to efficiently manage commodity price volatility, cash flow, and earnings, even in a low-price environment like the IEA's SDS.

- In addition to these unconventional assets, our strong Upstream base businesses in Kazakhstan, the Deepwater Gulf of Mexico, and Nigeria will continue to generate cash flow and earnings in the short term at lower crude prices based on investments made largely in the past. These assets will provide opportunities for investment in brownfield projects that are typically higher return and lower risk because they leverage existing assets and infrastructure. The startup of the Future Growth Project in Kazakhstan in 2022 or 2023 will increase the cash-generation power and earnings of our base business.

- Our LNG assets in Australia will generate cash flow and earnings in an environment that lacks substantial price growth with just our existing asset base and select brownfield investments. Our gas assets in the eastern Mediterranean region represent an additional and sizable source of cash flow and earnings during this period with only limited investment.

- In a low-price environment like the SDS, operating costs decline across the portfolio, driven by efficiency initiatives and portfolio rationalization, and there is a general reduction in industry cost structures due to reduced demand for goods and services.

- **Short-term impact (0-10 years), Downstream & Chemicals**: Although there is declining demand for transport fuels in the United States, the Downstream portion of our portfolio remains resilient due to actions we have taken over the past decade to enhance refinery competitiveness. Our investments in biofuels and renewables provide new opportunities in support of our Downstream business as demand for these commodities increases. Petrochemical demand continues increasing in the SDS, which will help maintain earnings from the chemicals business.

- **Long-term impact (10-plus years), Upstream**: Production and cash generation from our existing assets plus select brownfield investments remain robust into the 2030s, even at the SDS prices. Competition for new production opportunities is intense as companies look to offset natural field declines with lower-cost assets that could be profitable at sustained lower prices. These same lower prices, however, continue to push other industry costs lower. Margins and cash flow settle at levels that ensure there is enough supply to meet the world's continued need for energy through the period. Lower prices may challenge assets in disadvantaged parts of the supply stack, which may lead to changes in our portfolio in the long term. In this environment, we use our portfolio's scale, efficiency, diversity, and flexibility to maintain the business; we continue to exhibit capital discipline in our investment decisions; and we lower our cost base to maximize the value of our portfolio.

- **Long-term impact (10-plus years), Downstream & Chemicals**: Declining demand for all hydrocarbon transport fuels results in margins dropping globally. Lighter crudes and lower runs lead to less feed for conversion units in more-complex refineries, which, in the absence of flexibility, efficiency, and reconfiguration, could disadvantage high-conversion refineries (e.g., coking) relative to simpler refineries. Refining investments remain curtailed, although select investments, including in petrochemicals, could continue.

**net-zero emissions by 2050**

The IEA's Net-Zero Emissions by 2050 scenario puts the world on a pathway to achieve net-zero emissions by 2050 through more rapid deployment of low-carbon energy technologies and significant behavioral changes that reduce energy use. Putting the world on a net-zero 2050 path results in a more rapid decline in demand than depicted in the SDS. In 2030, ***oil*** and gas constitute approximately 50 percent of the primary energy mix in the NZE2050 scenario, compared with 66 percent in the SDS. ***Oil*** demand in NZE2050 is nearly 25 percent below SDS levels in 2030, whereas gas demand is about 8 percent below SDS levels in 2030. Incremental upstream investment remains required in the NZE2050 scenario as mature field decline outpaces projected demand reductions. The more rapid demand decline in NZE2050 implies increased market competition for supply and rationalization of refining capacity. Overall market and portfolio impacts under NZE2050 are expected to be similar to those in the SDS on a more accelerated time horizon. Further detail on the demand profiles by region and fuel that extend beyond 2030 for the NZE2050 scenario are needed to understand specific energy price and portfolio impacts similar to the SDS analysis. We update our analysis of scenarios as information is released by the IEA.

**3.6.2 The IPCC's RCP8.5: Physical risk and adaptation analysis**

We have existing practices that identify and manage risks associated with the impacts of ambient conditions and extreme weather events on our operations (see page 9). Recognizing that climate models continue to evolve, in 2020, we undertook a stress-test exercise for our operated assets with regard to the potential upper bound of physical risks that third parties model as potentially related to climate change using a time horizon of 30 years. Our assessment used third-party tools and methodologies n36 and evaluated IPCC Representative Concentration Pathways (RCPs).

RCPs are GHG concentration scenarios "that include time series of emissions and concentrations of the full suite of greenhouse gases and aerosols and chemically active gases, as well as land use/land cover" that are used for climate modeling and research as part of the IPCC's AR5. n37 RCP scenarios are not predictions. Among the full set of RCPs, RCP8.5 is the pathway with the highest greenhouse gas emissions. RCP8.5 assumes continued accumulation of GHG concentrations with an increase in radiative forcing greater than 8.5 W/m<2> and a projected temperature increase by 2100 of 2.6° C to 4.8° C relative to the beginning of this century. See Exhibit 34. Although the high-emissions RCP8.5 scenario is viewed by some as representing a higher temperature change than implied by current emission trends and is not meant to be predictive, we used RCP8.5 to enable assessment of the upper bound of inherent risk in the absence of further expected decarbonization.

[SEE Exhibit 34. Example of modeled potential changes in 2050 mean temperature compared with 1986-2005 under IPCC RCP8.5 IN ORIGINAL]

Notes: Based on RCP8.5. Spatial resolution is 25 km.

Sources: Lower-carbon-NEX-GDDP CMIP5 ensemble; ACRE.

We assessed acute hazards (lethal heat waves, wildfires, droughts, coastal flooding, riverine flooding, and severe storms) as well as chronic hazards (mean ambient temperature and outdoor workability conditions) to 2050. The analysis drew on emerging methods n38 in climate science to create modeled outcomes from public data. n39 Limitations include the desktop nature of analysis, uncertainties around emissions pathways and the pace of warming, climate model accuracy and natural variability, and uncertainties inherent in predicting outcomes that could be related to climate change and relating those outcomes to potential impacts on us.

**Portfolio analysis**: Because of the global nature of our business, our assets do not all share the same physical attributes and would not all be impacted in the same way. We observed that, under the modeled outcomes, our asset portfolio is generally resilient to acute and chronic hazards under RCP8.5 through 2030. Assuming modeled outcomes are realized, maintaining a high level of resilience to acute hazards beyond 2030 may require additional hardening for specific assets. We would expect this hardening to be managed in the ordinary course of our business through facilities management and business planning processes. Based on modeled outcomes, chronic hazards could increase impacts on some assets beyond 2030. We would expect that financial impact would be limited and could be mitigated if we were to undertake appropriate adaptation measures in the future. For example, under modeled RCP8.5 outcomes, Pascagoula, Mississippi, could face increases in temperature and humidity, which if unmitigated could lead to labor productivity losses. Yet, we would expect such productivity loss could be reduced by adjusting scheduled maintenance work to cooler seasons and adjusting the timing of daily worker shifts. Under modeled outcomes, we would expect our operated facilities to be generally resilient to modeled physical risk. There may, however, be dependencies on third-party-owned and third-party-operated assets, like local infrastructure, that could affect operations. Notably, these dependencies already exist and are managed in the ordinary course of our business.

**summary of scenario test**

We believe our portfolio is resilient, although some assets could be exposed if we were to take no action. Our processes for tracking leading indicators and managing these changes, combined with our asset mix, enable us to be flexible in response to potential changes in supply, demand, and physical risk.

**section 4**

**our portfolio**

**our strategic focus areas: upstream, downstream, and lower carbon**

Our primary objective is to deliver higher returns, lower carbon, and superior shareholder value in any business environment. We have a long history of managing complex engineering projects and processes, world-class subsurface management, application of chemistry in manufacturing, and innovation in customer-facing activities. We are optimizing Upstream and Downstream value chains to maximize enterprise value.

**$ 239.8 billion** total assets\*\*

**$ 94.5 billion** sales and other operating revenues\*

**3.08 million barrels** net ***oil***-equivalent daily production\*

**11.1 billion barrels** net ***oil***-equivalent proved reserves\*\*

\* Year ended December 31, 2020.   \*\* At December 31, 2020.

**4.1 upstream**

We strive to ensure our Upstream business provides competitive returns, regardless of commodity prices. We are focused on expanding cash and earnings margins by reducing operating costs, building efficiency into day-to-day operations, increasing reliability, lowering carbon intensity, and completing major capital projects under construction.

Our Upstream portfolio is anchored by key assets, including ***oil*** and gas in Kazakhstan, LNG in Australia, shale and tight ***oil*** in the U.S. onshore, deepwater assets in the U.S. Gulf of Mexico, and natural gas in the eastern Mediterranean. These assets are supplemented by other competitive assets globally.

We believe that the most appropriate approach for measuring the emissions performance of an Upstream asset is GHG intensity by commodity on an equity basis--the same method we use to report production. This is aligned with the intent to provide useful GHG information to help stakeholders make decisions. Based on a comparison of the IEA's WEO 2018 data, we estimate that more than 75 percent of our production of both ***oil*** and gas is below the global average carbon intensity for each commodity.

[SEE Exhibit 35. A diverse and advantaged Upstream portfolio IN ORIGINAL]

**4.2 downstream**

We seek to grow earnings across the Downstream & Chemicals value chain by making targeted investments to shift our exposure to higher-return segments while strengthening our refining and marketing value chains.

**The targeted investments are designed to strengthen our value chain, eliminate costs, and improve efficiencies. We continually examine ways to meet demand and policy changes**.

Chevron's Downstream portfolio is focused in areas of manufacturing strength on the U.S. West Coast, on the U.S. Gulf Coast, and in Asia. We have created tightly integrated value chains in the markets where we operate and are well-positioned to supply growing markets. As our focus is on value, not volume, we will continue to improve our operations, lower carbon intensities, and grow margins across the value chain. In our petrochemicals business, our portfolio focus is on world-scale facilities, proprietary technology, and low-cost feedstocks.

Complex refineries play an important role in transforming crude into high-value products. Complex refineries tend to have a higher carbon intensity when measured on a throughput basis, sometimes referred to as a "simple barrel" basis. We are working to develop a product output-based methodology and in the interim have set a 1 to 2 percent emissions intensity reduction target on a throughput basis from 2016 to 2023. While the methodology is under development, we are using a refinery throughput metric to provide our current performance information transparently. Based on data from the IEA's WEO 2018, approximately 25 percent of our refinery capacity is below the global average of refinery throughput carbon intensity, which is expected when using a throughput basis and taking into account our portfolio of complex refineries.

**Exhibit 36. Optimizing Downstream & Chemicals value chains to maximize value**

[SEE U.S. West Coast IN ORIGINAL]

[SEE U.S. Gulf Coast IN ORIGINAL]

[SEE Asia-Pacific IN ORIGINAL]

-- Products and intermediaries

**4.3 lower-carbon strategy and investments**

Chevron's energy-transition strategy is to help advance a lower-carbon future. We aim to leverage our market position, assets, organizational capability, technology, and venture capital to pursue lower-carbon opportunities and seek progress toward the ambitions of the Paris Agreement. We strive to apply our capabilities toward developing and commercializing breakthrough technologies, helping create lower-carbon solutions that can compete effectively in the marketplace and ultimately achieve global scale.

**Our strategy focuses on actions and investments in three areas that can deliver measurable progress today and for the future: we will lower carbon intensity cost-efficiently; increase renewables and offsets in support of our business; and invest in low-carbon technologies to enable commercial solutions**.

**Exhibit 37. Energy-transition action areas to advance a lower-carbon future**

[SEE lower carbon intensity cost-efficiently IN ORIGINAL]

[SEE increase renewables and offsets in support of our business IN ORIGINAL]

[SEE invest in low-carbon technologies to enable commercial solutions IN ORIGINAL]

**4.3.1 Lower carbon intensity cost-efficiently**

In our first action area, we set metrics that communicate performance in the activities in which we participate. We establish our Upstream metrics on an equity basis and then on an individual commodity basis. We have established targeted carbon intensities for ***oil***, gas, flaring, and methane to communicate our targeted performance transparently. In alignment with the Paris Agreement requirement that governments report their performance in five-year stocktakes, we have set metrics for 2023 and 2028 and intend to do so every five years thereafter. We have set 2016 as our baseline to align with the year the Paris Agreement came into force.

Our actions and progress are linked to virtually all employees' compensation as part of the corporate scorecard, which determines a component of variable compensation through the Chevron Incentive Plan.

**extending upstream production carbon-intensity metrics to 2028**

| ***oil*** | **gas** | **flaring** | **methane** |
| --- | --- | --- | --- |
| 24 kg CO[2]e/boe | 24 kg CO[2]e/boe | 3 kg CO[2]e/boe | 2 kg CO[2]e/boe |

**Exhibit 38. Targeting a 40 percent reduction in *oil* carbon intensity\***

[SEE FIGURE IN ORIGINAL]

**Exhibit 39. Targeting a 66 percent reduction in flaring carbon intensity\*\***

[SEE FIGURE IN ORIGINAL]

**Exhibit 40. Targeting a 26 percent reduction in gas carbon intensity\***

[SEE FIGURE IN ORIGINAL]

boe = barrels of ***oil***-equivalent

\*Metrics are baselined to 2016. Emissions reported are net Scope 1 and Scope 2. The emissions included in the metrics generally represent the equity share of emissions, which are emissions from operated and nonoperated joint-venture (NOJV) assets. The scope may include sources outside traditional scoping of equity emissions, including captive emissions from processes like drilling and completions and tolling agreements up to the point of third-party custody transfer of the ***oil*** or gas product. For ***oil*** and gas production intensity metrics, allocation of emissions between ***oil*** and gas is based on the fraction of production represented by liquids or gas. Production is aligned with values reported as net production in the *Chevron Corporation Supplement to the Annual Report*. ***Oil*** and gas production intensities use liquids production and natural-gas production, respectively.

**Exhibit 41. Targeting a 53 percent reduction in methane intensity\*\***

[SEE FIGURE IN ORIGINAL]

boe = barrels of ***oil***-equivalent

\*\*Metrics are baselined to 2016. Emissions reported are net Scope 1 and Scope 2. The emissions included in the metrics generally represent the equity share of emissions, which are emissions from operated and NOJV assets. The scope may include sources outside traditional scoping of equity emissions, including captive emissions from processes like drilling and completions and tolling agreements up to the point of third-party custody transfer of the ***oil*** or gas product. Flaring and methane intensities use the total of liquids and gas production.

**Our approach to driving down GHG emissions intensity: good for the investor, good for society**: We are building on our strengths to reduce the carbon intensity of our operations and assets by optimizing carbon-reduction opportunities, and integrating GHG-mitigation technologies across the enterprise. These efforts drive progress on metrics, enabling us to update progress on a timeline aligned with the Paris Agreement.

Like supply stacks, MACCs can enable a visualization of abatement opportunities, showing their relative cost and abatement potential on a similar basis. In our enterprise-wide effort to aggregate opportunities, we sourced opportunities from assets that represent approximately 70 percent of our equity GHG emissions. Most of our Scope 1 emissions are combustion-related, which can be addressed via energy efficiency measures, fuel switching to lowercarbon sources (e.g., from diesel to gas), CCUS, or offsets.

**Exhibit 42. Working toward a net-zero future**

[SEE FIGURE IN ORIGINAL]

**Exhibit 43. A MACC approach to emissions reduction presents opportunities that are good for investors and society**

[SEE identify reduction opportunities IN ORIGINAL]

[SEE Investment conduct probabilistic analysis and portfolio optimization IN ORIGINAL]

[SEE recommend opportunities to progress IN ORIGINAL]

[SEE operationalize IN ORIGINAL]

The next-largest source category of our Scope 1 emissions is from flaring, fugitive, and venting activities, which can be addressed by identifying fugitive emission sources, actioning reduction activities, and reducing venting and flaring activities. Scope 2 emissions, a type of indirect emissions associated with imported power or steam, can be addressed by efficiency measures and activities such as fuel switching to lower-carbon sources like using renewable power purchase agreements. Finally, technology innovations in areas such as CCUS and use of offsets can help address emissions in any source category.

We aggregated all the opportunities in key focus areas of energy efficiency, flare reductions, venting and fugitive reductions, renewables, and CCUS. We then applied both deterministic and probabilistic analysis to assess emissions reduction opportunities, consistent with our Decision Analysis practices discussed on page 30. We modeled portfolios and used efficient frontier analysis to identify a portfolio of opportunities to fund across the technology spectrum, segments, and business units.

We selected more than 60 projects to advance to execution, and plan to spend more than $ 100 million in 2021. We expect to spend approximately $ 2 billion through 2028, on the path to deliver our 2028 performance metrics. Further out, we have additional MACC opportunities identified that have the potential to lower our Upstream carbon intensity into the mid-teens. Significant technology advancements and the development of large offset markets could enable reductions to net zero by mid-century.

**Energy efficiency**

Emissions associated with our own energy use make up about 70 percent of our Scope 1 and Scope 2 emissions, which is why energy management is a key focus area for driving down emissions intensity. Aggregated at a corporate level, such projects contribute significant reduction opportunities. We are progressing approximately 35 projects forecasted to reduce more than 1 million tonnes of CO[2]e per year once fully implemented. In addition to our internal efforts, we also support external efforts to contribute to the advancement of energy management. For example, we have a long-standing collaboration with the University of California at Davis Energy Efficiency Institute.

**Longer-term tracking standards**

Digital forms a critical foundation for enabling our lower-carbon strategy. We have already made important strides in modernizing our information technology and digital systems and continue to invest, directly and through partnerships, in developing critical digital products such as for carbon tracking and tracing. By partnering with those who share this aspiration, we can bring life-cycle carbon-footprinted products to market, which will enable a supply chain of affordable, reliable, and ever-cleaner products. Access to reliable, verifiable carbon-footprinted data is important for buyers to make informed decisions, enabling contributions toward meeting Paris Agreement goals. In addition, carbon-footprinted data can enable price discovery, a comparison of the "green premium" and alternatives, and potentially incentivize reducing both carbon intensity and the "green premium" cost-efficiently.

**Exhibit 44. Working to track the carbon footprint through the value chain**

[SEE drilling & completions IN ORIGINAL]

[SEE production IN ORIGINAL]

[SEE pipeline IN ORIGINAL]

[SEE liquefaction/refining IN ORIGINAL]

[SEE shipping IN ORIGINAL]

[SEE use IN ORIGINAL]

**World Business Council for Sustainable Development--Carbon Transparency Pathfinder**: End-to-end value-chain transparency on primary GHG emissions at a product level provides important data to help organizations make informed decisions as they work toward a lower-carbon future to achieve the goals of the Paris Agreement. Within the Pathfinder, Chevron is working together with other committed stakeholders from across the value chain, independent industry bodies such as GHG Protocol, and technology companies to develop the methodological and technical infrastructure required to create such transparency.

**LNG GHG value-chain emissions reporting**: Pavilion Energy Trading and Chevron have signed a five-year LNG sale and purchase agreement under which each LNG cargo delivered will be accompanied by a statement of its GHG emissions. The parties are committed to co-developing and implementing a GHG quantification and reporting methodology for LNG based on internationally recognized standards and covering emissions from the well-to-discharge terminal, including LNG transportation.

**chevron's approach to scope 3 emissions**

Chevron believes the world's demand for ***oil*** and gas should be supplied by the cleanest and most efficient producers.

Chevron addresses Scope 3 emissions by: (1) supporting a price on carbon through well-designed policies; (2) transparently reporting Scope 3 emissions from the use of our products; and (3) enabling customers to lower their emissions through increasing renewable products, offering offsets, and investing in low-carbon technologies.

These contributions support a global approach to achieve the goals of the Paris Agreement as efficiently and cost-effectively as possible for society.

**Scope 1** refers to direct emissions.

**Scope 2** refers to indirect emissions from imported electricity and steam.

**Scope 3** includes all other indirect emissions, such as the combustion of gasoline or diesel in cars and of natural gas in electricity generation and industrial use.

**Methane emissions**

Methane accounts for approximately 5 percent of our CO[2]e emissions. Methane's higher global warming potential relative to that of carbon dioxide makes it a key focus area. For our industry, methane comes from three main sources: (1) vents; (2) fugitive emissions; and (3) flares. We are actively addressing the reduction of methane emissions by using data, technology, and innovation to prioritize opportunities and execute the most efficient detection and reduction strategies. For example, we continue to field-test various detection technologies, including aerial and satellite technologies. As a part of our update to the methane metric, we are deploying a global methane detection campaign that will utilize proven and emerging detection technologies at assets representing 80 percent of our equity methane emissions.

Methane emissions detection and reduction and flare reductions should be a shared goal that industry works collaboratively and proactively to achieve. We work to share effective solutions, which include stronger regulation, technological innovation, and broad voluntary adoption of best practices.

- **Fugitive emissions**: We continue to design, construct, and operate facilities with an eye toward limiting fugitive emissions. For example, onshore U.S. operations have reduced fugitive methane and volatile organic compound emissions through leak detection and repair, low-/no-emissions pneumatic devices, and centralized production batteries where practical.

We were among the first in the industry to remove or retrofit all continuous high-bleed pneumatic controllers at our U.S. onshore facilities and have installed more than 1,000 lower-emitting pneumatic controllers at these facilities since 2013. Recently, we completed a pilot in Angola to optimize the gas usage in a deaeration unit, showing the potential to reduce methane venting from the process unit by as much as 70 percent.

- **Flare management and avoidance**: We flare natural gas only when necessary for safety and operational purposes and in areas where pipelines and other alternatives for transporting gas do not exist.

We have developed internal country-specific plans to minimize gas flaring. Since 2013, we have reduced flaring and associated emissions by 22 percent. In the Permian Basin, we are an industry leader in reducing flaring. We consider gas-takeaway availability in development planning, just as we would a permitting condition. This integrated approach to operations promotes gathering and takeaway systems that operate reliably, efficiently, and in coordination with production teams, resulting in some of the lowest methane intensities among those operating in the Permian Basin.

Internationally, we also look at ways to reduce flaring. For example, our Angola LNG joint venture was built to provide a use for associated gas. It has reduced annual flare volumes in Upstream production by more than 70 percent since 2016, contributing to the elimination of gas flaring in the country.

**The Environmental Partnership**: Chevron is a founding partner of The Environmental Partnership, an industry initiative aimed at accelerating the adoption of practices that reduce methane emissions. To date, companies in this initiative have conducted more than 184,000 leak-detection surveys and replaced more than 13,000 pneumatic controllers with loweror non-emitting technologies. In December 2020, The Environmental Partnership adopted a program to advance best practices that reduce flare volumes, promote beneficial use of associated gas, improve flare reliability and efficiency when flaring does occur, and collect data to calculate flare intensity as the key metric to gauge progress from year to year.

**Project ASTRA: Advancing Next Generation Methane Innovation**: Chevron is a participant in Project ASTRA, a partnership led by the University of Texas at Austin that aims to demonstrate a novel approach to measuring methane emissions from ***oil*** and gas production sites, using advanced technologies to help minimize releases into the atmosphere. Project ASTRA will establish a sensor network that will leverage advances in methane-sensing technologies, data sharing, and data analytics to provide near-continuous monitoring.

**World Bank's Zero Routine Flaring Initiative**: Chevron is a signatory of the World Bank's Zero Routine Flaring Initiative, which brings together governments, ***oil*** companies, and development institutions that agree to cooperate to eliminate routine flaring by no later than 2030.

**Collaboratory to Advance Methane Science (CAMS) and Methane Emissions Test and Evaluation Center (METEC)**: Chevron is a founding member of CAMS, a joint industry project to conduct peer-reviewed research around methane emissions. Chevron also serves on the Industrial Advisory Board of the METEC, a facility that provides realistic ***oil***-field settings to test new methane detection and abatement technologies and supports the Methane Guiding Principles.

**World Bank's Global Gas Flaring Reduction Public-Private Partnership (GGFR)**: Chevron is an active participant in the World Bank's GGFR voluntary standard. The GGFR recently partnered with the Payne Institute for Public Policy at the Colorado School of Mines to develop a transparent web platform to support real-time mapping and tracking of global gas flaring data. Chevron supported a $ 1 million commitment to this partnership through our membership in the ***Oil*** and Gas Climate Initiative (OGCI).

***Oil* and Gas Climate Initiative (OGCI)**: OGCI member companies, including Chevron, have a methane-intensity target to reduce collective average upstream methane intensity to 0.20 percent as a share of marketed gas, by 2025. As of October 2020, member companies' collective methane intensity was 0.23 percent.

**4.3.2 Increase renewables and offsets in support of our business**

In our second action area, we are advancing opportunities to develop renewables and offsets that improve returns and help reduce Scope 2 and, in some cases, Scope 3 emissions. We are investing in renewable fuels, products, and power, with the aim of making energy and global supply chains more sustainable.

Our strategy to deploy mature, renewable power-generation solutions is focused and selective. We invest in wind and solar projects that have the greatest ability to cost-efficiently lower carbon emissions. We are increasing the use of renewables in a number of our products with the aim of reducing life-cycle emissions, as well as working to provide verified, low-cost, high-quality offsets to our customers around the world in an effort to help them achieve their own lower-carbon goals.

**Renewable power**

By sourcing more electricity from renewable sources, such as our 65 megawatt wind-power purchase agreement in the Permian Basin, we are switching to a lower-carbon fuel source and working toward optimizing between purchased and self-generated power. These types of efforts can reduce the direct and indirect emissions associated with our operations and lower the overall life-cycle carbon intensity of our products.

**Energy storage**

Energy storage is an important component to help address intermittency with renewable generation. By combining energy storage solutions with lower-carbon fuel sources, we can lower the overall carbon intensity of our products.

**Algonquin**: Chevron is partnering with Algonquin Power & Utilities Corporation to co-develop renewable-power projects that provide electricity to strategic assets across our global portfolio. This builds upon our prior use of renewable power in operations in Texas and California. Under the four-year agreement, we will source 500 megawatts of existing and future electricity demand from renewables, and expect to make up to $ 250 million in investments by 2025. We are prioritizing opportunities in the U.S. Permian Basin (Texas and New Mexico), Argentina, Kazakhstan, and Western Australia. Projects will be jointly owned and co-developed by both parties. Algonquin will lead the design, development, and construction of the renewable-power assets. We will purchase electricity through power purchase agreements. This represents the latest, and largest, advance in our efforts to integrate renewable power in support of our operations.

**Spear Power Systems**: Chevron has invested in Spear Power Systems, who designs and manufactures energy storage system solutions for marine, aircraft, and industrial applications.

**SunPower**: Chevron and our partner SunPower completed construction in 2020 on a solar power project that supplies our Lost Hills production facilities in California with solar energy. We expect that the project will provide more than 1.4 billion kilowatt-hours of solar energy over the potential 20-year term of the agreement.

**Natron Energy**: Chevron's investments in battery technology include Natron Energy, which is developing a new generation of sodium-ion battery products that offer potential performance advantages over current technologies.

**Renewable fuels**

Renewable fuels can play an important role in reducing the lifecycle carbon intensity of transportation fuels while meeting the world's growing energy needs. Over the next few years, we expect to invest more than $ 500 million pursuing opportunities to make these fuels scalable and affordable for consumers. Our efforts include evaluating options for biomass processing and leveraging our current manufacturing facilities to co-process biofeedstock.

**Co-processing biofeedstock**: Our El Segundo Refinery in California is set to become the first refinery in the U.S. to ratably co-process biofeedstock in a fluid catalytic cracker unit to make gasoline, jet fuel, and diesel fuel with renewable content. El Segundo supplies more than 20 percent of all motor vehicle fuels consumed in Southern California and is expected to start supplying consumers in the area with biofuel products by mid-2021.

**Renewable natural gas (RNG)**: Biomethane often comes from animal waste and other biomass sources. Capturing the biomethane and converting it into RNG produces a GHG benefit by combusting methane and converting it into CO[2], which has a lower global warming potential than methane. In addition to its GHG benefits, RNG can provide heavy-duty vehicles with an affordable and reliable alternative to conventional diesel fuel.

**Brightmark LLC**: Chevron and Brightmark LLC announced the formation of a joint venture, Brightmark RNG Holdings LLC, to develop projects across the United States to produce RNG. The joint venture will fund the construction of infrastructure and the commercial operation of dairy biomethane projects in multiple states, from which we will purchase RNG and market the volumes for use in vehicles operating on renewable compressed natural gas.

**Clean Energy Fuels Corporation**: Chevron has partnered with California natural-gas retailer Clean Energy Fuels Corporation on Adopt-a-Port, an initiative that provides truck operators serving the ports of Los Angeles and Long Beach with RNG. Truck operators participating in the program, which supports the ports' Clean Trucks Program and Clean Air Action Plan, agree to fuel up at the Clean Energy stations supplied by Chevron. Truck operators and their import and export customers will help local communities by reducing smog-forming NOx emissions by 98 percent, compared with diesel trucks.

**Getting to Zero Coalition**: Chevron has joined more than 120 companies in the Getting to Zero Coalition, a partnership between the Global Maritime Forum, the Friends of Ocean Action, and the World Economic Forum. It brings together participants from across the shipping value chain to get commercially viable deep-sea zero-emissions vessels into operation by 2030 to support the International Maritime Organization's ambition to reduce GHG emissions from shipping by at least 50 percent by 2050.

**CalBio**: Chevron has partnered with CalBio and dairy farmers to form a joint-venture company, CalBioGas LLC, which produces and markets biomethane as a fuel for heavy-duty trucks and buses. These efforts mitigate dairy methane emissions and reduce waste. In 2020, we announced the first renewable natural-gas production from dairy farms in the California Central Valley.

**Novvi LLC**: Chevron is an equity investor in Novvi LLC, a California-based company that engages in the development, production, marketing, and distribution of high-performance base ***oils*** from renewable sources. We entered into an agreement to jointly develop and bring to market novel renewable base ***oil*** technologies, and in 2020, Novvi reached first production of 100 percent renewable base ***oil*** from its Deer Park (Houston) facility. This partnership leverages the complementary technologies of Chevron's long-standing expertise in hydroprocessing, particularly ISODEWAXING, with Novvi's innovative use of renewable feedstocks to produce and market high-performance, synthetic, and renewable premium base ***oils***.

**San Francisco International Airport**: Chevron was a part of the San Francisco International Airport (SFO) 2019 landmark agreement for the use of sustainable aviation fuels (SAFs), a lower-carbon alternative to jet fuel. SFO worked with a group of eight airlines and fuel producers to expand the use of SAFs at the airport in what is the first project of its kind to include fuel suppliers, airlines, and airport agencies. Before the pandemic, airlines at SFO used more than 1 billion gallons of jet fuel annually.

**Offsets**

In multiple lower-carbon scenarios, offsets are expected to make up a notable portion of global reductions, especially in sectors that do not have cost-effective reduction opportunities or for activities that are hard to abate. They are a complementary lever in our multipronged strategy to drive down our GHG-emissions intensity and can provide a mechanism for our customers to achieve their emissions reduction goals. Offsets can provide a path toward avoiding and removing emissions. Additionally, they provide an indirect link between countries and companies to collaborate in achieving the goals of the Paris Agreement. We participate in offsets markets in Colombia, the United States, and Canada, and partner with associations to enhance the global scaling-up of offsets, particularly those from natural climate solutions (NCSs).

**World Bank**: Chevron is party to a memorandum of understanding with the World Bank. The World Bank's goal is to enhance global climate ambitions in mitigation actions and activities to facilitate the development of carbon and climate markets and associated infrastructure based on emerging international and national regulatory frameworks. Specifically, we seek to collaborate on activities that promote the establishment by the World Bank of facilities that may generate, warehouse, acquire, sell, and/or otherwise transfer mitigation outcomes in support of the Paris Agreement.

***Oil* and Gas Climate Initiative (OGCI)**: Chevron participates in the OGCI's Natural Climate Solutions workstream, exploring ways to enhance the scientific, technological, and operational basis for a global scaling-up of NCSs.

**Markets for Natural Climate Solutions Initiative**: Chevron is a founding member of the Markets for Natural Climate Solutions Initiative to boost climate action. NCSs provide a potentially cost-effective form of carbon management that can contribute to the goals of the Paris Agreement. In collaboration with the International Emissions Trading Association, Chevron is working with members and stakeholders on a policy roadmap and market strategy.

**University of Maryland**: Chevron supports the University of Maryland's modeling and analysis to promote carbon markets and transferability of emissions credits.

**Institute of International Finance Taskforce on Scaling Voluntary Carbon Markets**: Chevron is a consultative group member of the Institute of International Finance Taskforce on Scaling Voluntary Carbon Markets (TSVCM). A large, transparent, verifiable, and robust voluntary carbon market can help deliver carbon-reduction goals and is key to ensuring the integrity of reductions. The TSVCM brings together experts across the carbon market value chain to help build consensus on how best to scale up voluntary carbon markets.

**Acorns and One Tree Planted**: In collaboration with Acorns, a saving and investing app in the United States, Chevron is piloting a new program in California to have five trees planted via the One Tree Planted organization every time a customer fills up at the pump. While not an offset credit-generating activity, the program provides an opportunity to better understand consumer interest in offsetting emissions from use of our products.

**IHS Markit**: Chevron is an advisory board member of the IHS Markit Carbon Meta Registry. IHS Markit is leading a consortium of stakeholders in the global carbon markets to develop the market infrastructure needed to support the realization of Paris Agreement carbon-emissions targets. The Carbon Meta Registry will provide a network to connect voluntary and government carbon credit programs, market participants, and service providers. It will leverage distributed ledger technology and reduce the risk that credits are counted or claimed more than once.

**4.3.3 Invest in low-carbon technologies to enable commercial solutions**

Our third strategic focus is an integrated approach toward commercial solutions and technology. This includes supporting innovation and venture capital investment, deploying technologies that could be a part of a lower-carbon future, and developing new commercial opportunities.

**Research and development**: We have a long history of supporting innovation through research and development, innovation ecosystems, and university partnerships. Additionally, Chevron's global businesses support lower-carbon research and development within their markets, such as partnerships with the U.S. Department of Energy and the Singapore National Research Foundation.

**Venture**: Chevron Technology Ventures (CTV) investments target technology in areas such as CCUS, hydrogen, energy optimization, digitization, energy storage and management, and emerging power technologies. Chevron has more than two decades' experience with venture investing, with eight funds that have supported more than 100 startups, and has worked with more than 200 co-investors.

We have committed $ 100 million to our Future Energy Fund, $ 300 million to our Future Energy Fund II, and $ 100 million to the OGCI Climate Investments fund. This brings the Company's total low-carbon funds commitment to $ 500 million, along with the more than $ 300 million invested in our Core Venture Fund. In addition to our own managed funds, Chevron makes investments indirectly through funds such as the OGCI Climate Investments fund, targeting the decarbonization of ***oil*** and gas, industry, and commercial transportation; Emerald Ventures, targeting energy, water, industrial IT, advanced materials, and more; and HX Venture Fund, targeting Houston high-growth startups.

**Deployment**: Chevron Technical Center (CTC) develops and deploys technology across the entire business, including integrating lower-carbon technology into our operations.

**Commercial opportunities**: We have commercial opportunities focused in our strategic lower-carbon areas, such as our active carbon capture projects, emerging power investments, and hydrogen fueling efforts.

**Rice Alliance for Technology and Entrepreneurship**: Chevron is a founding supporter of the Rice Alliance Clean Energy Technology Accelerator, which develops programs to support early-stage energy startups.

**Greentown Labs**: Chevron partnered with Greentown Labs, the largest climate technology startup incubator in North America, to support opening a Houston, Texas, location. This builds on our support for Greentown Labs in Boston since 2013.

**MIT**: Chevron is a sustaining member of the MIT Energy Initiative, which fosters new research and education to develop innovative tools, technologies, and solutions to address global energy needs and challenges.

**Emerging power technologies**: Emerging power technologies such as fusion technology and advanced geothermal are promising lower-carbon energy sources with less intermittency than other renewable sources. These technologies have the potential to change the way we produce and use energy.

**Baseload Capital**: Chevron is invested in Baseload Capital, a private-investment company focused on the development and operation of lower-temperature geothermal and heat power assets.

**Zap Energy**: Chevron is invested in Zap Energy, a startup developing a next-generation modular nuclear reactor with an innovative approach to advancing cost-effective, flexible, and commercially scalable fusion.

**Eavor Technologies**: Chevron is invested in Eavor Technologies, a company that provides a closed-loop geothermal technology for both power and direct heat markets. Eavor's innovative system has dispatchability for power load balancing, which is becoming more essential as intermittent renewables saturate more power grids.

**Carbon capture, utilization, and storage** We are leveraging existing and building new commercial relationships with technology companies, pipeline companies, power providers, refiners, and other emitters to advance CCUS in key geographies.

We have invested more than $ 1 billion in CCUS research, development, and deployment opportunities to reduce our GHG-emissions intensity. Project investments were primarily in Canada and Australia and include the Gorgon CO[2] injection project, one of the world's largest integrated CCUS projects. These projects are expected to reduce GHG emissions by nearly 5 million tonnes per year, approximately equivalent to the GHG emissions from the average annual electricity usage in 660,000<39> U.S. homes.

***Kern* River Carbon Capture Project**: Chevron was awarded a project from the U.S. Department of Energy (DOE) to pilot technology that captures CO[2] from post-combustion gas. In collaboration with Svante and the National Energy Technology Laboratory, we are planning to test the technology at our ***Kern*** River facility in San Joaquin Valley, California, with a 30-tonne-per-day plant for a six-month operational trial.

**National Research Foundation**: Chevron is a member of a consortium with the Singapore National Research Foundation and other companies. We are working jointly to develop the first end-to-end decarbonization process in Singapore. This collaboration is aimed at accelerating the development of a highly integrated, energy-efficient CCUS system that can lead to a low-carbon economy and potential commercial developments for Singapore, as well as help the country meet its Paris pledge.

**Carbon Engineering**: Chevron is invested in Carbon Engineering to accelerate the commercialization of Carbon Engineering's direct air capture (DAC) technology, which removes CO[2] directly from the air. The technology is expected to be used as a mechanism to reduce emissions from transportation and enable permanent capture of existing atmospheric CO[2].

**Blue Planet**: Chevron is invested in Blue Planet, which uses CO[2] as a raw material for making carbonate rocks used in place of quarried limestone in building material. Additionally, we are exploring opportunities to collaborate on potential pilot projects and commercial development in key geographies.

**NovoNutrients**: NovoNutrients, a startup focused on using carbon dioxide emissions to make inputs, like protein flours, for the food system, is part of Chevron's Catalyst Program, which is focused on accelerating early-stage companies working on innovative technologies.

**Mendota BECCS project**: Chevron is collaborating with Schlumberger New Energy, Microsoft, and Clean Energy Systems (CES), to work toward developing a bioenergy with carbon capture and sequestration (BECCS) project in Mendota, California. The project is designed to utilize agricultural waste from California to produce renewable power using CES's oxy-combustion technology, while capturing and permanently storing CO[2] produced in the process in the geologic formation below the project site. The project is expected to result in net-negative emissions when fully operational, storing 300,000 tonnes of CO[2] annually--equivalent to the emissions from the annual electricity usage of more than 65,000 U.S. homes.<40>

**Hydrogen**

We are advancing hydrogen opportunities through strategic partnerships and by investing in demonstration projects and technologies related to production, transport, and storage.

Chevron is a board member of the California Fuel Cell Partnership. The organization supports a long-term vision for hydrogen in California and will be expanding across the United States in 2021. Chevron has partnered with the DOE on a hydrogen study that is exploring the potential of RNG to manufacture hydrogen. Chevron joined the Hydrogen Council, the industry's leading international trade association. Through membership on the council, we gain access to industry best practices and are better positioned to explore hydrogen opportunities. Chevron is also a member of the OGCI transportation workstream focusing on hydrogen as a fuel.

As a proof of concept, Chevron's affiliate GS Caltex launched the first all-in-one fuel station in 2020, providing hydrogen, electric vehicle charging, liquefied petroleum gas, gasoline, and diesel fuel.

Additionally, we participated in the California Energy Commission's Clean Transportation Program and, as a result, plan to develop hydrogen stations.

**chevron supports well-designed climate policy**

**Chevron supports the Paris Agreement and is committed to addressing climate change while continuing to deliver energy that supports society. Climate policy should achieve emissions reductions as efficiently and effectively as possible, at the least cost to economies**.

**chevron supports carbon pricing, innovation, and efficient policies chevron supports**:

- **Global engagement**: Build up an integrated global carbon market that creates a level playing field and mitigates trade distortions. Incentivizing the lowest-cost abatement on the widest scale possible is critical to mitigating climate change.

- **Research and innovation**: Support promising precommercial technologies designed to spur innovation and mitigation across all sectors of the economy. Research, development, and deployment for pre-commercial technologies to enable scalable solutions that are economic without subsidy within a carbon-pricing program.

- **Balanced and measured policy**: Involve all sectors to maximize efficient and cost-effective reductions while allocating costs equitably, gradually, and predictably; avoid duplicative and inefficient regulations; balance economic, environmental, and energy needs.

- **Transparency**: Ensure transparency and efficiency in measuring and driving the lowest-cost emissions reductions. Policy benefits, costs, and trade-offs should be transparently communicated to the public. Climate change resilience: Advancing a lower-carbon future

**innovation support**

Continued research and innovation are essential. Investments in precommercial early-stage abatement technologies can enable breakthroughs that lead to scalable technologies that are commercially viable without subsidy under a carbon-pricing program.

**carbon pricing**

Carbon pricing should be the primary policy tool to achieve greenhouse gas emissions reduction goals. It incentivizes the most efficient and cost-effective emissions reductions while enabling support to affected communities, consumers, and businesses.

**targeted policies**

Regulations should be efficiently targeted to enable cost-effective lower-carbon opportunities not addressed by carbon-pricing or innovation policies (e.g., apartment efficiency standards, since the owner pays for efficiency improvements, but the renter pays the utility bill).

**chevron supports well-designed methane policy**

**Chevron is proud to be a U.S. industry leader in managing methane emissions and responsibly producing *oil* and gas. We believe methane emissions reductions are possible in the energy industry, and in other key sectors, through adoption of industry best practices and well-designed regulation**.

**chevron supports well-designed and properly enacted methane regulation, in the energy industry and in other key emitting sectors chevron supports**:

- **Performance-based regulation**: Policy should set appropriate methane metrics while providing flexibility for companies to determine the optimal way to meet those metrics.

- **Technological innovation**: Policy should flexibly incorporate new and future technologies, such as aerial and drone monitoring, that can identify and address methane emissions most effectively.

- **Industry best practices**: Methane emissions are disproportionately concentrated among a small number of operators, sites, and equipment. Reasonable minimum equipment standards help ensure all operators are working to curtail methane emissions.

- **All sectors contributing**: Improving methane performance is important for ***oil*** and natural gas (28 percent of U.S. methane emissions), as well as other sectors, which make up the remaining 72 percent. Policy should apply to all key sectors.

**partnerships**

- Chevron is a member of the ***Oil*** and Gas Climate Initiative (OGCI), which is committed to industry-leading methane performance with a collective upstream methane intensity target below 0.25 percent, with the ambition to achieve 0.2 percent by 2025.

- Chevron partners with CalBio and Brightmark to produce and market renewable natural gas, helping reduce agricultural methane emissions while providing lower-carbon fuels, on a life-cycle basis, to our customers.

- We are a proud co-founder/chair of The Environmental Partnership, a voluntary industry effort to cut U.S. methane emissions that has conducted 184,000 leakdetection surveys and replaced more than 13,000 pneumatic controllers with low-/non-emitting technology.

**performance**

- In 2019, Chevron's U.S. onshore production methane intensity was 85 percent lower than the U.S. industry average.

- We continue to take action to further reduce methane emissions and have set a metric to reduce methane intensity by 53 percent by 2028.

- Actions to support achieving this metric are tied to the compensation of all our executives and nearly all of our employees worldwide.

**U.S. production methane intensity**

**technology**

- Chevron supports development of innovative technologies to reduce emissions, including through our combined $ million Future Energy Funds and a $ 100 million commitment to the $ 1 billion OGCI Climate Investments fund.

- As part of the Collaboratory to Advance Methane Science, Chevron has worked with other operators to understand the potential for aerial leak-detection surveys in the Permian Basin.

- Chevron partnered with the NASA Jet Propulsion Laboratory to test one of the first aerial detection technologies for methane, which has been used in studies throughout the United States.

**chevron supports innovation to advance and scale climate solutions**

**Chevron is investing in innovative technologies to address climate change. We also support government investment in promising pre-commercial technologies, from research to early deployment, to help deliver scalable solutions to climate change that are economic without subsidy within a carbon-pricing program**.

**chevron supports research, development, demonstration, and deployment for emerging technologies to address climate change chevron supports**:

- **A focus on emissions**: Public research, development, and deployment should be based on opportunity for scalable emissions reduction, supporting the most promising pre-commercial opportunities, irrespective of energy source.

- **Balanced and transparent policies**: Policy should be balanced to enable research, development, and demonstration of promising technologies while minimizing market distortions. Policy should be transparent to build public trust and communicate benefits, costs, and trade-offs to the public.

- **Pre-commercial support**: To maximize limited public resources and minimize harmful market distortions, innovation policy should focus on advancing emerging technologies, so they become commercially scalable without subsidy within a carbon-pricing program. Subsidies for existing commercial opportunities that distort markets and create unfair competition should be avoided.

- **Scalable solutions**: Innovation policy should leverage scientific research to advance promising technologies that can offer scalable economic solutions to climate change. Policy should aim to drive down costs so these opportunities are commercially scalable.

**research & development**

- Chevron is investing in low-carbon technologies to enable commercial solutions. Our combined $ 400 million Future Energy Funds invest in promising opportunities such as carbon capture, utilization, and storage (CCUS), next-generation battery storage, hydrogen, and emerging power technologies.

- We committed $ 100 million to the more than $ 1 billion OGCI Climate Investments fund, which invests in solutions to decarbonize ***oil*** and gas, industrials, commercial transport, and buildings.

- We partner with leading researchers, such as the U.S. Department of Energy's National Laboratories and Singapore's National Research Foundation, to develop new carbon capture technologies.

**demonstration**

- Chevron is advancing collaborative efforts with the U.S. Department of Energy and Svante, as well as Blue Planet and others, on projects demonstrating innovative technologies to drive down carbon capture costs.

- We are investing in hydrogen fueling demonstration projects and technologies, launching the first "all in one" station accommodating hydrogen, electricity, liquefied petroleum gas, gasoline, and diesel with our affiliate GS Caltex.

- We are investing in innovative storage opportunities, including in Natron Energy, which is developing and scaling production of rapid-charging batteries for data centers, EVs, and dispatchable grid storage.

**deployment**

- Chevron invested more than $ 1 billion in CCUS, reducing emissions by nearly 5 million tonnes per year. Our Gorgon facility is one of the world's largest integrated carbon sequestration and storage projects.

- We are partnering with CalBio and Brightmark to produce and market renewable natural gas, helping reduce agricultural methane emissions while providing renewable lower-carbon fuels on a life-cycle basis.

- We are investing in renewable fuels, products, and power, including sourcing over 500 megawatts of renewable generation by 2025.

**chevron supports well-designed emissions intensity reduction metrics**

**Our approach is designed to facilitate carbon accounting that not only reduces our own emissions, but also sets a framework that facilitates the possibility of achieving global net zero as efficiently and effectively as possible, and at least cost to society. Achieving these metrics is directly tied to the compensation of our executives and most of our employees worldwide**.

**upstream production net greenhouse gas emissions intensity reduction metrics for 2028**:

|  |  |
| --- | --- |
| 24 kg CO[2]e/boe for ***oil*** (global industry averages 46) | 40% reduction from 2016 |
| 24 kg CO[2]e/boe for gas (global industry averages 71) | 26% reduction from 2016 |
| 2 kg CO[2]e/boe for methane and a global methane detection campaign | 53% reduction from 2016 |
| 0 routine flaring by 2030 and 3 kg CO[2]e/boe for overall flaring | 66% reduction from 2016 |

**section 5**

**metrics**

**we demonstrate our commitment to transparency by reporting metrics and performance data annually\***

**chevron's equity GHG intensity, kilograms CO[2]e/boe**

(Direct emissions (Scope 1) + Indirect emissions associated with imported electricity and steam (Scope 2) - Emissions associated with exported electricity and steam)/Net production of liquids ← Allocated to liquids on a production basis (boe)

(Direct emissions (Scope 1) + Indirect emissions associated with imported electricity and steam (Scope 2) - Emissions associated with exported electricity and steam)/ Net production of gas (including LNG and GTL) ← Allocated to gas on a production basis (boe)

**upstream flaring intensity**

Direct flaring emissions as CO[2]e (Scope 1)

Net production of gas and liquids (including LNG and GTL)

**upstream methane intensity**

Direct methane emissions as CO[2]e (Scope 1)

Net production of gas and liquids (including LNG and GTL)

LNG = liquefied natural gas GTL = gas-to-liquid

\* Year 2020 performance data reflect varying impacts from changing market conditions and COVID-19.

| **equity emissions<a, 1>** |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
|  | **2016** | **2017** | **2018** | **2019** | **2020** | **SASB<b>** | **IPIECA<c>** |
| **Upstream production net emissions intensity** |  |  |  |  |  |  | **CCE4: C4** |
| **(kilograms CO[2]e/boe)<2>** |  |  |  |  |  |  |  |
| ***Oil*** intensity | 41.9 | 36.8 | 37.0 | 33.3 | 28.3 |  |  |
| Gas intensity | 32.6 | 35.0 | 34.7 | 30.4 | 26.8 |  |  |
| Flaring intensity | 8.7 | 7.2 | 6.3 | 4.7 | 3.9 |  |  |
| Methane intensity | 4.5 | 3.3 | 2.8 | 2.4 | 2.0 |  |  |

Indicates restatement of data.

| **equity emissions,<a,1>** |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
|  | **2016** | **2017** | **2018** | **2019** | **2020** | **SASB<b>** | **IPIECA<c>** |
| direct GHG emissions (Scope 1)<d,3,4,5,6> |  |  |  |  |  |  |  |
| direct GHG emissions (Scope 1) |  |  |  |  |  |  | CCE4: |
| (million tonnes CO[2]e)<w> | 64 | 63 | 66 | 62 | 54 |  | C1/A1 |
| Upstream (million tonnes CO[2]e) | 35 | 35 | 37 | 35 | 30 | EM-EP-110a.1 | CCE4: C3 |
| CO[2] (million tonnes) | 30 | 31 | 34 | 32 | 27 |  |  |
| CH[4] (million tonnes CH[4])<7> | 0.17 | 0.13 | 0.12 | 0.11 | 0.09 |  |  |
| CH[4] (million tonnes CO[2]e)<7> | 4.3 | 3.3 | 3.0 | 2.7 | 2.3 |  |  |
| Other GHG (million tonnes CO[2]e) | 0.1 | 0.1 | 0.1 | 0.1 | 0.1 |  |  |
| Midstream (million tonnes CO[2]e) | O[2 | O[2 | O[2 | 1 | 1 | EM-MD-110a.1 | CCE4: C3 |
| CO[2] (million tonnes) | 1 | O[2 | O[2 | 1 | 1 |  |  |
| CH[4] (million tonnes CH[4])<7> | <0.01 | <0.01 | <0.01 | <0.01 | <0.01 |  |  |
| CH[4] (million tonnes CO[2]e)<7> | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 |  |  |
| Other GHG (million tonnes CO[2]e) | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 |  |  |
| Downstream (million tonnes CO[2]e)<8> | 21 | 21 | 20 | 19 | 18 | EM-RM-110a.1 | CCE4: C3 |
| CO[2] (million tonnes) | 21 | 20 | 20 | 19 | 18 |  |  |
| CH[4] and other GHG (million tonnes CO[2]e) | 0.1 | 0.1 | 0.1 | 0.1 | 0.1 |  |  |
| Chemicals (million tonnes CO[2]e)<9> | 5 | 5 | 5 | 5 | 4 |  | CCE4: C3 |
| CO[2] (million tonnes) | 5 | 5 | 5 | 5 | 4 |  |  |
| CH[4] and other GHG (million tonnes CO[2]e) | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 |  |  |
| Other (million tonnes CO[2]e)<10> | O[2 | )<1 | O[2 | )<1 | )<1 |  | CCE4: C3 |
| CO[2] (million tonnes) | O[2 | 1 | O[2 | 1 | 1 |  |  |
| CH[4] and other GHG (million tonnes CO[2]e) | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 |  |  |
| select breakdowns of GHG emissions<w> |  |  |  |  |  |  |  |
| Upstream flaring (million tonnes CO[2]e)<11> | 8 | 7 | 7 | 5 | 4 | EM-EP-110a.2 | CCE7: C4 |
| CO[2] (million tonnes) | 7 | 7 | 6 | 5 | 4 |  |  |
| CH[4] (million tonnes CH[4])<7> | 0.03 | 0.03 | 0.03 | 0.02 | 0.01 |  |  |
| CH[4] (million tonnes CO[2]e)<7> | 0.8 | 0.6 | 0.6 | 0.4 | 0.3 |  |  |
| Other GHG (million tonnes CO[2]e) | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 |  |  |
| Volume of flares (MMSCF) | 130,000 | 110,000 | 100,000 | 70,000 | 60,000 |  | CCE7: A1 |

| **equity emissions,<a,1>** |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
|  | **2016** | **2017** | **2018** | **2019** | **2020** | **SASB<b>** | **IPIECA<c>** |
| select breakdowns of GHG emissions,<w> cont. |  |  |  |  |  |  |  |
| Emissions associated with exported electricity |  |  |  |  |  |  | CCE4: |
| and steam (million tonnes CO[2]e)<12> | )<1 | )<1 | )<1 | )<1 | )<1 |  | C3/A6 |
| Upstream (million tonnes CO[2]e) | <1 | <1 | <1 | <1 | <1 |  |  |
| Midstream (million tonnes CO[2]e) | 0 | 0 | 0 | 0 | 0 |  |  |
| Downstream (million tonnes CO[2]e)<8> | <1 | <1 | <1 | <1 | <1 |  |  |
| Chemicals (million tonnes CO[2]e)<9> | 0 | 0 | 0 | 0 | 0 |  |  |
| Other (million tonnes CO[2]e)<10> | )<1 | )<1 | )<1 | )<1 | <1 |  |  |
| indirect GHG emissions (Scope 2)<d,13> |  |  |  |  |  |  |  |
| indirect GHG emissions (Scope 2) |  |  |  |  |  |  | CCE4: |
| (million tonnes CO[2]e)<w> | 3 | 3 | 3 | O[2 | 4 |  | C2/C3 |
| Upstream (million tonnes CO[2]e) | 1 | 1 | 1 | 1 | 1 |  |  |
| Midstream (million tonnes CO[2]e) | <1 | <1 | <1 | <1 | <1 |  |  |
| Downstream (million tonnes CO[2]e)<8> | O[2 | 1 | 1 | 1 | 1 |  |  |
| Chemicals (million tonnes CO[2]e)<9> | <1 | <1 | <1 | <1 | 1 |  |  |
| Other (million tonnes CO[2]e)<10> | e)<1 | e)<1 | e)<1 | e)<1 | <1 |  |  |
| CO[2] sales, storage, purchase, or injection |  |  |  |  |  |  | CCE3: A6 |
| (million tonnes CO[2]e) |  |  |  |  |  |  |  |
| Sales or storage of company CO[2] (million tonnes CO[2]e)<14> | e)<1 | e)<1 | e)<1 | )<1 | 2 |  |  |
| Purchase or injection of third-party CO[2] (million tonnes CO[2]e)<15> | )<1 | )<1 | )<1 | )<1 | 1 |  |  |
| offsets |  |  |  |  |  |  |  |
| Offsets purchased/developed outside the inventory boundary |  |  |  |  |  |  |  |
| and retired by company (million tonnes CO[2]e)<16> | 4 | 4 | 3 | )<1 | 2 |  |  |
| Offsets developed within the inventory boundary and |  |  |  |  |  |  |  |
| sold/transferred to third parties (million tonnes CO[2]e)<17> | e)<1 | e)<1 | e)<1 | e)<1 | -- |  |  |
| indirect GHG emissions - all other (Scope 3)<18> |  |  |  |  |  |  | CCE4: A2 |
| Use of sold products - production method |  |  |  |  |  |  |  |
| (million tonnes CO[2]e) | 364 | 377 | 396 | 412 | 412 |  |  |
| Use of sold products - throughput method |  |  |  |  |  |  |  |
| (million tonnes CO[2]e) | 355 | 365 | 380 | 382 | 372 |  |  |
| Use of sold products - sales method (million tonnes CO[2]e) | 598 | 613 | 628 | 639 | 583 |  |  |

| **equity emissions,<a,1>** |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
|  | **2016** | **2017** | **2018** | **2019** | **2020** | **SASB<b>** | **IPIECA<c>** |
| third-party verification<19> |  |  |  |  |  |  |  |
|  |  |  |  |  | Anticipated |  |  |
| Assurance level | Limited | Limited | Limited | Limited | to be |  |  |
|  |  |  |  |  | limited<20> |  |  |
| Assurance provider | ERM CVS | ERM CVS | ERM CVS | ERM CVS | ERM CVS |  |  |

| **operated emissions<a,1>** |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
|  | **2016** | **2017** | **2018** | **2019** | **2020** | **SASB<b>** | **IPIECA<c>** |
| direct GHG emissions (Scope 1)<d,w,3> |  |  |  |  |  |  |  |
| direct GHG emissions (Scope 1) |  |  |  |  |  |  | CCE4: |
| (million tonnes CO[2]e) | 66 | 67 | 68 | 63 | 56 |  | C1/A1 |
| Upstream (million tonnes CO[2]e) | 46 | 47 | 49 | 45 | 40 | EM-EP-110a.1 | CCE4: C3 |
| CO[2] (million tonnes) | 39 | 42 | 44 | 42 | 37 |  |  |
| CH[4] (million tonnes CH[4])<7> | 0.24 | 0.19 | 0.17 | 0.14 | 0.12 |  |  |
| CH[4] (million tonnes CO[2]e)<7> | 6.1 | 4.8 | 4.2 | 3.4 | 3.0 |  |  |
| Other GHG (million tonnes CO[2]e) | 0.1 | 0.2 | 0.1 | 0.1 | 0.1 |  |  |
| Midstream (million tonnes CO[2]e) | O[2 | O[2 | O[2 | 1 | 1 | EM-MD-110a.1 | CCE4: C3 |
| CO[2] (million tonnes) | 1 | O[2 | O[2 | 1 | 1 |  |  |
| CH[4] (million tonnes CH[4])<7> | <0.01 | <0.01 | <0.01 | <0.01 | <0.01 |  |  |
| CH[4] (million tonnes CO[2]e)<7> | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 |  |  |
| Other GHG (million tonnes CO[2]e) | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 |  |  |
| Downstream (million tonnes CO[2]e)<8> | 16 | 16 | 15 | 14 | 14 | EM-RM-110a.1 | CCE4: C3 |
| CO[2] (million tonnes) | 16 | 16 | 15 | 14 | 14 |  |  |
| CH[4] and other GHG (million tonnes CO[2]e) | 0.1 | 0.1 | 0.1 | 0.1 | 0.1 |  |  |
| Chemicals (million tonnes CO[2]e)<9> | <1 | <1 | <1 | <1 | <1 |  | CCE4: C3 |
| CO[2] (million tonnes) | <1 | <1 | <1 | <1 | <1 |  |  |
| CH[4] and other GHG (million tonnes CO[2]e) | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 |  |  |

| **operated emissions <a, 1>** |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
|  | **2016** | **2017** | **2018** | **2019** | **2020** | **SASB<b>** | **IPIECA<c>** |
| direct GHG emissions (Scope 1) | 66 | 67 | 68 | 63 | 56 |  | CCE4: |
| (million tonnes CO[2]e), cont. |  |  |  |  |  |  | C1/A1 |
| Other (million tonnes CO[2]e) 10 | O[2 | ) 1 | O[2 | ) 1 | ) 1 |  | CCE4: C3 |
| CO[2] (million tonnes) | O[2 | 1 | O[2 | 1 | 1 |  |  |
| CH[4] and other GHG (million tonnes CO[2]e) | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 |  |  |
| select breakdowns of GHG emissions |  |  |  |  |  |  |  |
| Upstream flaring (million tonnes CO[2]e)<11> | 15 | 13 | )<11 | 9 | 7 | EM-EP-110a.2 | CCE7: C4 |
| CO[2] (million metric tons) | 13 | 12 | 10 | 8 | 6 |  |  |
| CH[4] (million tonnes CH[4])<7> | 0.06 | 0.04 | 0.04 | 0.03 | 0.02 |  |  |
| CH[4] (million tonnes CO[2]e)<7> | 1.6 | 1.1 | 0.9 | 0.7 | 0.5 |  |  |
| Other GHG (million tonnes CO[2]e) | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 |  |  |
| Volume of flares (MMSCF) | 230,000 | 200,000 | 170,000 | 130,000 | 110,000 |  | CCE7: A1 |
| Emissions associated with exported electricity | 1 | 1 | 1 | 1 | 1 |  | CCE4: |
| and steam (million tonnes CO[2]e)<w, 12> |  |  |  |  |  |  | C3/A6 |
| Upstream (million tonnes CO[2]e) | <1 | <1 | <1 | <1 | <1 |  |  |
| Midstream (million tonnes CO[2]e) | 0 | 0 | 0 | 0 | 0 |  |  |
| Downstream (million tonnes CO[2]e)<8> | <1 | <1 | <1 | <1 | <1 |  |  |
| Chemicals (million tonnes CO[2]e)<9> | 0 | 0 | 0 | 0 | 0 |  |  |
| Other (million tonnes CO[2]e)<10> | )<1 | )<1 | )<1 | )<1 | <1 |  |  |
| indirect GHG emissions (Scope 2)<d, w, 13> |  |  |  |  |  |  |  |
| indirect GHG emissions (Scope 2) |  |  |  |  |  |  | CCE4: |
| (million tonnes CO[2]e) | O[2 | O[2 | O[2 | 1 | 1 |  | C2/C3 |
| Upstream (million tonnes CO[2]e) | 1 | 1 | 1 | 1 | 1 |  |  |
| Midstream (million tonnes CO[2]e) | <1 | <1 | <1 | <1 | <1 |  |  |
| Downstream (million tonnes CO[2]e)<8> | 1 | 1 | 1 | <1 | <1 |  |  |
| Chemicals (million tonnes CO[2]e)<9> | <1 | <1 | <1 | <1 | <1 |  |  |
| Other (million tonnes CO[2]e) <10> | ) <1 | ) <1 | ) <1 | ) <1 | <1 |  |  |
| CO[2] sales, storage, purchase, or injection |  |  |  |  |  |  | CCE3: A6 |
| Sales or storage of company CO[2] (million tonnes CO[2]e)<14> | -- | e)<1 | e)<1 | )<1 | 3 |  |  |
| Purchase or injection of third-party CO[2] (million tonnes CO[2]e) <15> | <1 | <1 | <1 | <1 | 1 |  |  |
| offsets |  |  |  |  |  |  |  |
| Offsets purchased/developed outside the inventory boundary | 4 | 4 | 3 | 1 | 2 |  |  |
| and retired by company (million tonnes CO[2]e)<16> |  |  |  |  |  |  |  |
| Offsets developed within the inventory boundary and | 0 | 0 | 0 | 0 | 0 |  |  |
| sold/transferred to third parties (million tonnes CO[2]e)<17> |  |  |  |  |  |  |  |
| indirect GHG emissions - all other (Scope 3)<18> |  |  |  |  |  |  | CCE4: A2 |
| Use of sold products - production method | 539 | 608 | 617 | 622 | 588 |  |  |
| (million tonnes CO[2]e) |  |  |  |  |  |  |  |
| Use of sold products - throughput method | 341 | 386 | 406 | 411 | 392 |  |  |
| (million tonnes CO[2]e) |  |  |  |  |  |  |  |
| Indicates restatement of data. |  |  |  |  |  |  |  |

Indicates restatement of data.

notes to pages 53-58

**global notes**

**a** All restatements for greenhouse gas (GHG) emissions, associated emissions intensities, the category of energy efficiency, and the category of water withdrawn are restated against the March 2021 release of the *Climate Change Resilience:* *Advancing a Lower-Carbon Future* report. All other restatements are restated against the May 2020 release of the 2019 *Corporate Sustainability Report*.

**b** We used the general SASB topics to organize Chevron's table and provide an index column to identify common reporting elements between our current reporting data and the related SASB standards. The SASB index is based solely on Chevron's interpretation and judgment. The inclusion of the SASB index does not indicate the application of definitions, metrics, measurements, standards, or approaches set forth in the SASB framework. Please refer to the relevant footnotes for information about Chevron's data-reporting basis. As reflected in the table, Chevron currently discloses data on a number of issues recommended in the SASB ***Oil*** and Gas Exploration and Production, Midstream, and Refining and Marketing standards. Further, there are many topics on which Chevron discloses data beyond the SASB framework.

SASB recommendations not addressed in the data table are being studied by Chevron for potential future inclusion. Chevron could determine that some SASB recommendations do not reflect useful sustainability performance information or would be overly burdensome to implement on a global basis; such disclosures will not be included in a future data table. We strive to continually improve our data-performance reporting, and we believe that our SASB index is a positive step in further aligning our ESG reporting to SASB framework recommendations. We also continue to assess alignment with other emerging frameworks.

**c** Our performance data table includes an index column that maps Chevron's data to the corresponding relevant 2020 IPIECA standards.

**d** Numbers in table may not sum due to rounding.

**e** Unless otherwise noted, this section reflects 2020 data collected as of May 6, 2021. All data are reported on an operated basis unless otherwise noted.

**w** The "w" identifies common reporting elements between our current reporting data and the related September 2020 World Economic Forum (WEF) sustainability metrics. The WEF indictor symbol is based solely on Chevron's interpretation and judgment. The inclusion of the WEF indicator symbol does not indicate the application of definitions, metrics, measurements, standards, or approaches set forth in the WEF sustainability metrics.

**1** The World Resources Institute/World Business Council for Sustainable Development *Greenhouse Gas Protocol: A Corporate Accounting and Reporting* *Standard* defines three "scopes" that Chevron uses to report GHG emissions.

**2** Emissions reported are net (Scope 1 and Scope 2). The emissions included in the metrics generally represent Chevron's equity share of emissions, which are emissions from operated and nonoperated joint-venture (NOJV) assets based on Chevron's financial interest. The scope may include sources outside traditional scoping of equity emissions, including captive emissions from processes like drilling and completions, and tolling agreements up to the point of third-party custody transfer of the ***oil*** or gas product. For ***oil*** and gas production intensity metrics, production is aligned with net production values reported in the *Chevron* *Corporation Supplement to the Annual Report*, which represent the company's equity share of total production after deducting both royalties paid to landowners and a government's agreed-upon share of production under a Production Sharing Agreement. Chevron's equity-share emissions include emissions associated with these excluded royalty barrels in accordance with IPIECA guidance. Also in accordance with IPIECA guidance, Chevron's equity-share emissions do not include emissions associated with royalty payments received by the company. Allocation of emissions between ***oil*** and gas is based on the fraction of production represented by liquids or gas. Flaring and methane intensities use the total of liquids and gas production. ***Oil*** and gas production intensities use liquids production and natural gas production, respectively.

**3** Scope 1 includes direct emissions. Direct GHG emissions related to production of energy in the form of electricity or steam exported or sold to a third party are included in the reported Scope 1 emissions to align with IPIECA's *Sustainability Reporting Guidance for the* ***Oil*** *and Gas Industry* (2020). Chevron's Scope 1 includes emissions of six Kyoto GHGs--carbon dioxide (CO[2]), methane (CH[4]), nitrous oxide (N2O), sulfur hexafluoride, perfluorocarbons, and hydrofluorocarbons. Calculation methods are based on API's *Compendium of* *Greenhouse Gas Emissions Methodologies for the* ***Oil*** *and Natural Gas Industry* (2009) or, where relevant, local regulatory reporting methodologies.

**4** Where limited emissions information is available for NOJVs, Chevron's equity share of total CO[2]-equivalent (CO[2]e) emissions is allocated to Scope 1 CO[2] emissions.

**5** Restated 2016-2019 Scope 1 equity emissions include Chevron's equity-share emissions for Chevron Phillips Chemical Company LLC ( CPChem) and reporting improvements. Additionally, restated 2019 Scope 1 equity emissions include Chevron's equity-share emissions for NOJVs in which Chevron has less than a 16 percent equity share (where previously excluded).

**6** Chevron's equity-share emissions for Loma Campana concession excluded for 2016-2018 and included for 2019-2020. Restated 2018 and 2019 numbers include Chevron's equity-share emissions for Clair Ridge NOJV. Chevron's equity-share emissions for CalBioGas LLC and Brightmark RNG Holdings LLC NOJVs excluded for 2020.

**7** As governments update their Global Warming Potentials (GWPs), we anticipate updating methane data reporting in our environmental tables and the associated performance evaluation. For transparency, and to enable stakeholders to make their own calculations based on their preferred timeline and GWPs, we provide methane emissions data and intensity performance as a mass of methane as well as its conversion under the AR4 100-year GWP to a CO[2]-equivalent. Although we strive to provide consistent data from our operated and nonoperated assets, some nonoperated assets may provide their data only on a CO[2]e basis. Given the common industry practice of using the AR4 100-year GWP, we have assumed that those nonoperated assets that did not provide methane mass data use a 100-year GWP of 25. We continue to work with our joint-venture partners to provide information on a standardized basis to increase transparency.

**8** Downstream includes emissions from refineries and terminals. Chemical and base ***oil*** facilities located within refineries are included in refinery emissions.

**9** Chemicals includes emissions from stand-alone chemical, additive, and lubricant facilities.

**10** Other emissions include GHG emissions from Chevron Power and Energy Management, Corporate Aviation, Chevron Environmental Management and Real Estate Company, and North American Data Center.

**11** Upstream flaring emissions closely represent the contribution of flaring to Chevron's total GHG emissions.

**12** Exported emissions are direct GHG emissions related to production of energy in the form of electricity or steam that are exported or sold to a third party.

**13** Scope 2 includes indirect emissions from imported electricity and steam. CO[2], CH[4], and N2O are accounted for in Chevron's Scope 2 emissions. Scope 2 emissions are accounted for using the market-based approach as described in the World Resources Institute's *GHG Protocol Scope 2 Guidance* (2015).

**14** For equity reporting, sales or storage of company CO[2] (Chevron and NOJV) includes both CO[2] sold to third parties and CO[2] (and other gas) injected for carbon storage. Credits generated from CO[2] injection by NOJV partners may be sold. For operated reporting, sales or storage of company CO[2] (Chevron) includes both CO[2] sold to third parties and CO[2] (and other gas) injected for carbon storage.

**15** For equity reporting, purchase or injection includes third-party CO[2] purchased and injected for enhanced ***oil*** recovery, excluding equity-share NOJV data. For operated reporting, purchase or injection includes third-party CO[2] purchased and injected for enhanced ***oil*** recovery.

**16** Includes offsets retired in compliance programs. For programs with multi-year compliance periods, offsets are apportioned according to the compliance obligation for each year.

**17** Excludes offsets sold as part of a divestiture. Offsets are reported for the year in which the offset was generated (vintage year) only if subsequently sold.

**18** Chevron calculates emissions from third-party use of our products in alignment with methods in Category 11 of IPIECA's *Estimating Petroleum Industry Value* *Chain (Scope 3) Greenhouse Gas Emissions* (2016). Emissions are based on aggregate production, throughput, and sales numbers that include renewable fuels.

**19** Annual third-party verification covers Scope 1 and Scope 2 equity emissions, as first reported in Chevron's *Corporate Sustainability Report* for each reporting year, but generally does not cover subsequent restatements and does not include Chevron equity-share emissions for CPChem.

**20** In the course of normal business processes, Chevron seeks limited assurance of prior-year GHG emissions data for publication in its *Corporate Sustainability Report*.

**forward-looking statements warning**

CAUTIONARY STATEMENTS RELEVANT TO FORWARD-LOOKING INFORMATION FOR THE PURPOSE OF "SAFE HARBOR" PROVISIONS OF THE PRIVATE SECURITIES LITIGATION REFORM ACT OF 1995

This report contains forward-looking statements relating to Chevron's operations that are based on management's current expectations, estimates, and projections about the petroleum, chemicals, and other energy-related industries. Words or phrases such as "anticipates," "expects," "intends," "plans," "targets," "forecasts," "projects," "believes," "seeks," "schedules," "estimates," "positions," "pursues," "may," "could," "should," "will," "budgets," "outlook," "trends," "guidance," "focus," "on schedule," "on track," "is slated," "goals," "objectives," "strategies," "opportunities," "poised," "potential," and similar expressions are intended to identify such forward-looking statements. These statements are not guarantees of future performance and are subject to certain risks, uncertainties, and other factors, many of which are beyond the company's control and are difficult to predict. Therefore, actual outcomes and results may differ materially from what is expressed or forecasted in such forward-looking statements. The reader should not place undue reliance on these forward-looking statements, which speak only as of the date of this report. Unless legally required, Chevron undertakes no obligation to update publicly any forward-looking statements, whether as a result of new information, future events, or otherwise. Among the important factors that could cause actual results to differ materially from those in the forward-looking statements are: changing crude ***oil*** and natural-gas prices and demand for our products, and production curtailments due to market conditions; crude ***oil*** production quotas or other actions that might be imposed by the Organization of Petroleum Exporting Countries (OPEC) and other producing countries; public health crises, such as pandemics (including coronavirus [COVID-19]) and epidemics, and any related government policies and actions; changing economic, regulatory, and political environments in the various countries in which the company operates; general domestic and international economic and political conditions; changing refining, marketing, and chemicals margins; the company's ability to realize anticipated cost savings, expenditure reductions, and efficiencies associated with enterprise transformation initiatives; actions of competitors or regulators; timing of exploration expenses; timing of crude ***oil*** liftings; the competitiveness of alternate-energy sources or product substitutes; technological developments; the results of operations and financial condition of the company's suppliers, vendors, partners, and equity affiliates, particularly during extended periods of low prices for crude ***oil*** and natural gas during the COVID-19 pandemic; the inability or failure of the company's joint-venture partners to fund their share of operations and development activities; the potential failure to achieve expected net production from existing and future crude ***oil*** and natural-gas development projects; potential delays in the development, construction, or startup of planned projects; the potential disruption or interruption of the company's operations due to war, accidents, political events, civil unrest, severe weather, cyber threats, terrorist acts, or other natural or human causes beyond the company's control; the potential liability for remedial actions or assessments under existing or future environmental regulations and litigation; significant operational, investment, or product changes required by existing or future environmental statutes and regulations, including international agreements and national or regional legislation and regulatory measures to limit or reduce greenhouse gas emissions; the potential liability resulting from pending or future litigation; the company's ability to achieve the anticipated benefits from the acquisition of Noble Energy, Inc.; the company's future acquisitions or dispositions of assets or shares or the delay or failure of such transactions to close based on required closing conditions; the potential for gains and losses from asset dispositions or impairments; government-mandated sales, divestitures, recapitalizations, industry-specific taxes, tariffs, sanctions, changes in fiscal terms, or restrictions on scope of company operations; foreign currency movements compared with the U.S. dollar; material reductions in corporate liquidity and access to debt markets; the receipt of required Board authorizations to pay future dividends; the effects of changed accounting rules under generally accepted accounting principles promulgated by rule-setting bodies; the company's ability to identify and mitigate the risks and hazards inherent in operating in the global energy industry; and the factors set forth under the heading "Risk Factors" on pages 18 through 23 of the 2020 Annual Report on Form 10-K. Other unpredictable or unknown factors not discussed in this report could also have material adverse effects on forward-looking statements.

**climate-related disclosure**

Chevron recognizes climate change is a growing area of interest for our investors and stakeholders. The table below shows how the disclosures in this report align with the recommendations of the Financial Stability Board's Task Force on Climate-related Financial Disclosures, as the TCFD has described the categories, and where the relevant information can be found in this report. Further information can be found in Chevron's 2020 Annual Report on Form 10-K, *Climate Change* *Resilience: A Framework for Decision Making* (2019), and Chevron's Corporate Sustainability reports.

| **TCFD recommendation\*** |  | **disclosure** | **location** |
| --- | --- | --- | --- |
| Governance |  |  |  |
|  |  |  |  |
| Disclose the organization's | (a) Describe the organization's governance around | Board oversight | 1.1 |
|  | climate-related risks and opportunities. |  |  |
| governance around |  | Public Policy and Sustainability Committee | 1.1.1 |
| climate-related risks and |  | Other Board-level committees | 1.1.2-1.1.4 |
| opportunities. |  | Director qualifications and nominating process | 1.1.4 |
|  |  |  |  |
|  | (b) Describe management's role in assessing and | Executive management of climate risks | 1.2 |
|  | managing climate-related risks and opportunities. | Global Issues Committee | 1.2.2 |
|  |  | Chevron Strategy & Sustainability organization | 1.3 |
| Strategy |  |  |  |
|  |  |  |  |
| Disclose the actual and | (a) Describe the climate-related risks and | Chevron's strategic and business planning processes | 3.1-3.4 |
|  | opportunities the organization has identified |  |  |
| potential impacts of | over the short, medium, and long terms. |  |  |
| climate-related risks and |  |  |  |
| opportunities on the | (b) Describe the impact of climate-related risks and | Business planning | 3.5 |
| organization's business, | opportunities on the organization's businesses, | Capital-project approvals | 3.5 |
| strategy, and financial | strategy, and financial planning. | Our portfolio | 4 |
| planning where such |  |  |  |
| information is material. | (c) Describe the resilience of the organization's strategy, | The resilience of our portfolio under the IEA's SDS | 3.6 |
|  | taking into consideration different climate-related | and the IPCC's RCP8.5 |  |
|  | scenarios, including a 2° C or lower scenario. |  |  |
| Risk management |  |  |  |
|  |  |  |  |
| Disclose how the | (a) Describe the organization's processes for | Physical risk | 2.1 |
| organization identifies, | identifying and assessing climate-related risks. |  |  |
| assesses, and manages |  | Transition risk | 2.2 |
| climate-related risks. | (b) Describe the organization's processes for | Physical risk | 2.1 |
|  | managing climate-related risks. | Transition risk | 2.2 |
|  |  |  |  |
|  | (c) Describe how processes for identifying, assessing, | Risk management | 2 |
|  | and managing climate-related risks are integrated |  |  |
|  | into the organization's overall risk management. |  |  |
| Metrics and targets |  |  |  |
| Disclose the metrics and | (a) Disclose the metrics used by the organization to | Lower-carbon strategy and investments | 4.3 |
| targets used to assess | assess climate-related risks and opportunities in |  |  |
| and manage relevant | line with its strategy and risk management process. |  |  |
| climate-related risks and | (b) Disclose Scope 1, Scope 2, and, if appropriate, | Approach to Scope 3 | 4.3 |
| opportunities where such | Scope 3 GHG emissions and the related risks. | Metrics | 5 |
| information is material. |  |  |  |
|  | (c) Describe the targets used by the organization | Lower-carbon strategy and investments | 4.3 |
|  | to manage climate-related risks and opportunities |  |  |
|  | and performance against targets. |  |  |

\* See Section 6: About This Report.

**section 6**

**about this report**

This report covers our owned and operated businesses and does not address the performance or operations of our suppliers, contractors, and partners unless otherwise noted. In the case of certain joint ventures for which Chevron is the operator, we exercise influence but not control. Thus, the governance, processes, management, and strategy for those joint ventures are known to differ from those detailed in this report. On October 5, 2020, we announced the completion of the acquisition of Noble Energy, Inc. (Noble); the integration of Noble operations into our operations is ongoing. This report does not speak to Noble's historic governance, risk management, strategy approaches, or emissions performance unless specifically referenced. All financial information is presented in U.S. dollars unless otherwise noted.

This report contains forward-looking statements relating to the manner in which Chevron intends to conduct certain of its activities, based on management's current plans and expectations. These statements are not promises or guarantees of future conduct or policy and are subject to a variety of uncertainties and other factors, many of which are beyond our control, including government regulation and ***oil*** and gas prices. See the Forward-Looking Statements Warning on page 59 of this report.

Therefore, the actual conduct of our activities, including the development, implementation, or continuation of any program, policy, or initiative discussed or forecasted in this report, may differ materially in the future. As with any projections or estimates, actual results or numbers may vary. Many of the standards and metrics used in preparing this report continue to evolve and are based on management assumptions believed to be reasonable at the time of preparation but should not be considered guarantees. The statements of intention in this report speak only as of the date of this report. Chevron undertakes no obligation to publicly update any statements in this report.

This report contains information from third parties, such as the IEA. Chevron makes no representation or warranty as to the third-party information. Where necessary, Chevron received permission to cite third-party sources, but the information and data remain under the control and direction of the third parties. Where Chevron has used information, such as displaying data from third parties in graphical form, it has noted the source. This report contains terms used by the TCFD, as well as information about how the disclosures in this report align with the recommendations of the TCFD, as it has described the categories. In doing so, Chevron does not intend to endorse or adopt and is not endorsing or adopting these phrases or recommendations. In using these terms and referencing the recommendations, Chevron is not obligating itself to use the terms in the way defined by the TCFD, nor is it obligating itself to comply with any specific recommendations or to provide any specific disclosure. Chevron makes no representation or warranty as to the TCFD's use or definition of specific terms or recommendations. For example, with respect to the use of the term *material*, individual companies are best suited to determine what information is *material*, under the long-standing U.S. Supreme Court definition of that term, and whether to disclose this information in U.S. Securities and Exchange financial filings.

As used in this report, the term *Chevron* and such terms as *the Company, the Corporation*, *their, our*, *its, we*, and *us* may refer to one or more of Chevron's consolidated subsidiaries or affiliates or to all of them taken as a whole. All of these terms are used for convenience only and are not intended as a precise description of any of the separate entities, each of which manages its own affairs.

**our energy-transition approach**

[SEE FIGURE IN ORIGINAL]

**2020 corporate sustainability report**

**for complete reporting, visit chevron.com/sustainability**

**2020 ESG highlights**

[SEE FIGURE IN ORIGINAL]

**message from our chairman and CEO**

In the face of this environment, our people responded with resilience, embracing adversity as an opportunity to learn and improve. Though we shared hardships, the lessons of 2020 made us a better company, and strengthened our ongoing commitment to help advance a better future for all.

We believe energy enables modern life and powers human progress. As the human energy company, we use our ingenuity to solve problems, overcome obstacles and deliver solutions. Our culture allows ingenuity to thrive and creates an atmosphere where diverse voices, ideas, experiences and backgrounds are not only respected, but celebrated.

We transform these beliefs into actions and meaningful results through our environmental, social and governance (ESG) priorities, which are based on three pillars: protecting the environment, empowering people and getting results the right way.

**protecting the environment**

We set ambitious goals and strive for actions that drive measurable progress. Since 2016, we've reduced flaring by more than 60 percent and methane emissions by nearly 50 percent. With these successes and the adoption of new 2028 carbon intensity reduction targets, we're driving our combined ***oil*** and natural gas carbon intensity to be about 35 percent lower than 2016 levels. We're holding ourselves accountable by tying executive and employee compensation to these shared goals.

**empowering people**

Living by our social contract with employees and other stake holders was perhaps never more important than it was this past year. We strive to create an inclusive work environment that values the uniqueness of each individual's talents, experiences and ideas. With operations, business partners and colleagues located around the world, we recognize and encourage diverse voices--not only because it's the best

source of innovation, but because it's the right thing to do. This is a long-standing commitment, marked by the 20th anniversary of our employee networks--communities that celebrate and promote diversity and work to attract, retain and mentor Chevron talent.

**getting results the right way**

We aim to act with the highest integrity and operate with the highest ethical standards. We embrace the expectations of our stockholders and stakeholders and hold ourselves accountable by transparently reporting on performance. We published our third  **Task Force on Climate-related Financial Disclosures (TCFD)**  aligned report and released our first  ***Climate Lobbying Report*** , both of which detail governance, oversight and activities related to climate policy engagement.

While 2020 was a year of unprecedented adversity, we believe the prospects for human progress remain as positive as ever. The race for a COVID-19 vaccine brought together scientific ingenuity, technological innovation and manufacturing agility to advance the common good. The same spirit of cooperation, goodwill and perseverance will enable us to address other global challenges. We find that prospect energizing and encouraging.

**Michael K. Wirth**

Chairman of the Board and

Chief Executive Officer

May 2021

**2020 awards and recognition**

. *Forbes*' Just 100 and Best Employers For Women lists

. Top 14 percent of 200 global companies receiving EDGE Certification for Gender Equality

. 13th of 250 companies--and 1st among energy companies--on As You Sow's Racial Justice S&P 250 Scorecard

. National Business Inclusion Consortium: Best of the Best Corporations for Inclusion

. The American Chamber of Commerce Thailand: CSR Excellence Recognition Award (Platinum)

. 100 percent on the Disability Equality Index for the Best Places to Work for Disability Inclusion

. 100 percent rating: Human Rights Campaign Equality Index (15th consecutive year)

. Organization of the Year (Company) award at the Society of Asian Scientists and Engineers Professional Conference

. Top Veteran-Friendly Company by *U.S. Veterans Magazine*

. 5-star rating in Employment and Governance, The Hispanic Association on Corporate Responsibility

. Pink Petro presented Chevron's Black Employee Network with the GRIT Award for the "Best of the Best" Affinity Group in the Energy industry

**in this report**

[SEE FIGURE IN ORIGINAL]

**message from our VP, strategy and sustainability**

**Bruce Niemeyer**

Vice President, Strategy and Sustainability

Last year's *Corporate Sustainability Report* highlighted the integration of the Chevron strategy and sustainability groups into a single team.

This shift has improved our ability to drive actions across a diverse, complex global organization, enabling us to identify new opportunities for progress on our sustainability priorities and achieve results faster. I'm proud to say that our accomplishments this past year have been the result of a companywide effort.

This starts with engagement by Chevron's Board of Directors. At the highest level, the Board maintains focus on environmental, social and governance (ESG) issues and leverages their diverse experience to challenge assumptions about the future. Their role is to provide oversight of Chevron's efforts to build an enduring business--one that is capable of delivering strong financial returns while meeting our sustainability goals.

This Board-level approach is actively embraced by our leadership team, beginning with our CEO. Together, we create alignment across the company to drive progress through transparent, responsible performance.

Chevron's commitment to sustainability has never been stronger. This report demonstrates how our approach is integrated through-out our business to strive to protect the environment, empower people and get results the right way--today and tomorrow.

**The integration of teams, processes and value chains has accelerated our ESG progress, as demonstrated by the following examples**:

. **Exceeding carbon intensity reduction targets and establishing new targets**. We exceeded our 2023 Upstream carbon intensity reduction targets three years ahead of schedule, announced lower 2028 targets and committed to zero routine flaring by 2030. Achieving these new goals will allow Chevron to remain a global top-quartile ***oil*** and gas producer.

. **Making global supply chains more transparent**. Chevron recently signed an agreement to supply carbon-footprinted liquefied natural gas (LNG) to Singapore's Pavilion Energy. Along with partners, Chevron is co-developing a greenhouse gas quantification and reporting methodology for LNG, so that each LNG cargo can be accompanied by a carbon footprint value from wellhead to point of delivery. This standardized, data-driven LNG carbon footprinting methodology will be one of the first for the industry, creating the opportunity to deliver verified offset-paired LNG.

. **Developing more diverse leaders**. During Chevron's 2020 reorganization, we advanced visible diversity. Through the design of a more efficient structure and the engagement of broadly diverse leaders in the selection process itself, we increased the share of senior-level jobs held by women and racial and ethnic minorities to 44 percent.

. **Highlighting sustainability's role in good governance**. The Board revised the Public Policy and Sustainability Committee charter to clarify their leadership role among the Board committees in providing oversight of climate risks, policies and trends that affect Chevron's activities and performance.

**board insight**

**a conversation with the outgoing and incoming chairs of the board's public policy and sustainability committee**

**Dr. Wanda M. Austin**

Outgoing Public Policy and Sustainability Committee Chair

**Hernandez**: One of Chevron's governance best practices is periodic rotation of Board committee assignments and Chair positions. As I step into my new role as Chair of the Board's Public Policy and Sustainability Committee (PPSC), I'm eager to get your insights from serving in this role for the past few years. What stands out to you about your time as Chair of PPSC?

**Austin**: I'll start with how the Board and the company responded to the challenge of COVID-19. The PPSC's charter calls for us to assist the Board in overseeing risks that may arise in connection with the social, political, environmental, human rights and public policy aspects of Chevron's business and activities. COVID-19 posed a significant, real-world test of Chevron's risk management approach and systems. I am proud of how Chevron's leadership and employees maintained the company's resilience throughout this challenging period. I believe this is a direct reflection of The Chevron Way.

**Hernandez**: What other achievements are most memorable from your time as PPSC Chair?

**Austin**: I am proud of the level of reporting and actions taken to position Chevron to thrive in the energy transition. When the company issued our first *Climate* *Lobbying Report* in December 2020, we demonstrated responsiveness to our stockholders' concerns, particularly those relating to ESG and sustainability issues, as we strive for more transparency. This, together with our 2021 *Climate Change Resilience* report, shows the company's actions to enhance our reporting on climate change risks and opportunities.

**Enrique Hernandez, Jr.**

Incoming Public Policy and Sustainability Committee Chair

**Hernandez**: As a member of the PPSC for the past eight years, I share your view that the PPSC has been active in addressing these social and policy issues.

**Austin**: As I join the Management Compensation Committee (MCC), I'd appreciate your thoughts on linkages between the MCC and the PPSC.

**Hernandez**: You talked about how the PPSC and the entire Board responded to the COVID-19 pandemic. My experience as recent Chair of the MCC reinforces that the Board has been mindful of the circumstances around compensation for 2020--and of the extraordinary commitment displayed by our employees in very challenging circumstances. The Board took decisive action to address the expectations of our stockholders on this issue. We believe we made the correct decision to provide no bonus for executives, while rewarding employees for contributing to stockholder value and upholding The Chevron Way.

**Austin**: Are there other aspects of your work with the MCC that link up with the PPSC?

**Hernandez**: One important aspect of our MCC role involves approving an executive compensation philosophy that aligns with Chevron's strategy and stockholder interests, including those related to sustainability and climate change risks and opportunities. That certainly pertains to the focus I'll have with the PPSC.

**our board of directors**

**Michael K. Wirth Chairman and Chief Executive Officer**

Former Vice Chairman of the Board and Executive Vice President of Midstream & Development, Chevron

**Ronald D. Sugar**

**Lead Director**

Retired Chairman and CEO, Northrop Grumman Corporation (2)

**Wanda M. Austin**

Retired President and CEO, The Aerospace Corporation (2, 3)

**John B. Frank**

Vice Chairman, Oaktree Capital Group, LLC (1)

**Alice P. Gast**

President, Imperial College London (2, 4)

**Enrique Hernandez, Jr**.

Chairman and CEO, Inter-Con Security Systems, Inc. (4)

**Marillyn A. Hewson**

Retired Chairman, CEO and President, Lockheed Martin Corporation (1)

**Jon M. Huntsman, Jr**.

Former U.S. Ambassador to China, Russia; Former Governor of Utah (4)

**Charles W. Moorman IV**

Senior Advisor to Amtrak; Retired Chairman and CEO, Norfolk Southern Corporation (2, 3)

**Dambisa F. Moyo**

CEO, Mildstorm LLC (1)

**Debra Reed-Klages**

Retired Chairman, CEO and President, Sempra Energy (1)

**D. James Umpleby III**

Chairman and CEO, Caterpillar Inc. (2, 4)

**COVID-19**

**the pandemic demonstrated that effective emergency response is part of our corporate DNA**

As the human energy company, we aim to prioritize the health, safety and well-being of our people and communities everywhere we do business. The pandemic has presented challenges, forcing us to adapt quickly to dynamic and unpredictable circumstances. Effective emergency response is part of our corporate DNA and has served us well as we've dealt with this evolving risk.

We entered the crisis with a robust existing response infrastructure and experience that has enabled us to deal with a diverse set of unprecedented events--from earthquakes in our home state of California to hurricanes and other extreme events in other parts of our global operations. We learned to be agile and effective in dealing with other epidemics, from SARS1 and Ebola to HIV/AIDS. While the COVID-19 pandemic and its associated circumstances are unprecedented on many fronts, we utilized our experience and preparation to execute an agile and effective emergency response.

Chevron assembled a global Corporate Pandemic Response Team (CPRT) to protect our workers, contractors and the communities where we operate from the rapidly spreading SARS-CoV-2 virus. The CPRT consists of enterprise experts from multiple functional disciplines. Within the first three days, the CPRT established plans to ensure our operations around the world could continue to deliver the energy the world needs to support the response to COVID-19. We quickly identified workers deemed "essential" to safely maintain onsite functions and facilities, such as offshore production platforms and refineries. We established protocols to keep these essential workers safe and switched the bulk of our workforce to remote work to protect their health and safety.

While the SARS-CoV-2 virus poses ongoing and evolving challenges, the CPRT remains dedicated to safety. To back up that commitment, we benchmark ourselves to learn where we excel and where we may become even more rigorous and effective in our response.

**maintaining financial strength**

The pandemic posed major challenges to our company's financial position, following two years in which we simultaneously increased our dividend, funded our capital program, increased production and bought back shares, all while further paying down debt. While 2020 was markedly different, both in financial and human terms, our financial priorities remained unchanged: growing the dividend, reinvesting to grow future cash flows, maintaining a strong balance sheet and returning excess cash to stockholders. We've responded to the COVID-19 crisis by focusing on the things we can control: reducing capital spending, deferring early-phase projects, curtailing production, reducing operating costs, releasing drilling and workover rigs, and suspending well-completion programs. Through these efforts, we increased our dividend, reduced our 2020 CAPEX from $ 20 billion to $ 14 billion and maintained the strongest balance sheet among our peers. We are confident that these strategies will sustain us through the COVID-19 pandemic and beyond.

**keeping major capital projects on track**

We are managing our major capital projects while safeguarding our employees and contractors around the globe. For example, our joint-venture Tengizchevroil (TCO) in Kazakhstan has worked to balance safety and progress on the Future Growth Project (FGP). At the beginning of the pandemic, TCO initiated a temporary demobilization of more than 27,000 project personnel to reduce workforce risk and allow greater access to medical facilities, including critical care. Throughout this demobilization effort, production operations were not interrupted and critical logistics work for FGP continued. TCO also instituted "podding," or compartmentalization, strategies across accommodations, facilities and worksites to prevent close contact between groups of workers. To date, these efforts have been successful, allowing TCO to remobilize 25,000 workers at site (as of March 31, 2021).

**supporting our communities**

Chevron has a long history of contributing to crisis response and relief efforts. As of December 2020, we have committed over $ 29 million to local communities specifically for COVID-19-related response efforts.

**providing for adequate health care**

Ensuring the health and safety of our employees and the communities in which we operate is a core value of The Chevron Way. One of the ways we demonstrate this is by providing direct health care to our employees in Nigeria and certain other countries where we operate. During COVID-19, we expanded access for virtual medical appointments, particularly in locations where it was unsafe to visit a doctor. This pandemic has created stress for many of our employees, particularly those balancing work-life issues such as child care and elder care. In response, we stepped up our mental health program and encouraged employees to utilize our Employee Assistance Program, which includes access to mental health and wellness resources, a substance abuse program, and a new resiliency app.

**employee pay and benefits related to COVID-19**

In 2020, an employee survey focused on the COVID-19 impact on employee well-being and the company's response to the pandemic. The survey results positively reinforced some actions taken by Chevron and helped inform further actions to address the impact on employees and their families. We offered enhanced mental health and wellness support, financial assistance for unplanned child care needs, and remote learning resources, among other efforts. We continue to offer expanded sick pay and family leave pay to assist employees with quarantine, school closures, family care obligations or other pandemic-related issues. In the United States, a new policy allowed paid time off for employees missing work as a result of family care or child care circumstances due to COVID-19.

**managing our supply chain**

The economic impact of COVID-19 on our industry threatened the financial health of many of our suppliers. To safeguard operations and reduce disruptions, we increased monitoring of supplier financial risks and utilized flexibility to respond to our business partners' needs. Our efforts are focused on supply assurance, commercial assurance and relationship management. For example, we shortened the payment cycle for suppliers encountering financial problems and have negotiated special rates with key suppliers that may be disproportionately impacted by reduced drilling operations. These efforts have limited schedule disruptions and budget impacts on our major capital projects and other base-business operations.

**applying the lessons we've learned**

We pride ourselves on being a "learn and improve" organization. While we had plans in place before COVID-19, we developed new safeguards and operating standards and updated existing protocols to adjust for the ever-changing conditions of this pandemic. We have also learned that the infrastructure adopted by CPRT can be applied, with modifications, to similar global-scale crises. Additionally, we've developed a "back to workplace" strategy, with paced, evidence-based stages. As with all events, lookbacks may provide more helpful emergency response insights.

**employee spotlight**

Shortly after the first cases of COVID-19 were reported in China, our Pandemic Preparedness Alert System was activated. The team initially focused on returning nonnative and nonessential China-based employees to their home countries and on actively monitoring conditions and the spread of the SARS-CoV-2 virus. I remember, it was like watching the slow, yet inevitable, spread of an unabated wildfire. As confirmed cases of COVID-19 climbed, I was responsible for quickly activating Chevron's Corporate Pandemic Response Team (CPRT) to proactively protect our workers, contractors and global operations. We reduced operations to essential employees and became creative in helping workers return home safely, overcoming obstacles like border closings, flight cancellations and other mobility challenges. Sometimes, we chartered or booked humanitarian flights--a heroic effort by our Global Travel Team, coordinating with governments and global partners.

Responding to emergencies and crises, particularly over prolonged periods, can be truly demanding. We have to look out for one another. Our CPRT employed a variety of mechanisms to address fatigue and burnout, including rotating time off, mindfulness sessions, and acknowledgments for those that went the "extra mile."

**IPIECA/IOGP**

Members of the International Petroleum Industry Environmental Conservation Association (IPIECA) and International ***Oil*** and Gas Producers' (IOGP) Joint Health Committee, including Chevron, share best practices to ensure the well-being of workers and communities during the COVID-19 crisis. The issues range from working in remote and offshore locations, to procedures related to return to normal workplaces. The committee, which consists of professionals from across the ***oil*** and gas sector, has produced a range of relevant materials over the past year. These include a briefing document on the mental health impacts of the pandemic, a paper on COVID-19 testing, a position paper on COVID-19 vaccination usage and a recent document that provides an update on approved vaccines.

**protecting the environment**

we work to deliver the energy the world needs while protecting the environment

[SEE FIGURE IN ORIGINAL]

**climate change**

We believe achieving 24kg CO[2]e/boe for ***oil*** and for natural gas would place Chevron in the top quartile of total production, meaning among the most carbon-efficient producers. This is our objective for 2028. **chevron.com/sustainability/environment/energy-transition**

**24=higher returns, lower carbon**

[SEE FIGURE IN ORIGINAL]

**our goal**

We are building on our strengths to reduce the carbon intensity of our operations and assets by optimizing carbon-reduction opportunities and integrating greenhouse gas (GHG) mitigation technologies across the enterprise. These efforts drive progress on metrics, enabling us to update progress on a timeline aligned with the Paris Agreement.

**chevron.com/climatechange**

**to achieve global net zero, markets should be empowered to incentivize the most carbon-efficient producers**

We support the Paris Agreement and its goal of "holding the increase in the global average temperature to well below 2° C above pre-industrial levels and pursuing efforts to limit the temperature increase to 1.5° C above pre-industrial levels," which, per the Intergovernmental Panel on Climate Change (IPPC), implies reaching global net zero in the second half of this century. We believe that the optimal approach for society is to drive the most efficient and cost-effective reductions economywide, paired with negative emissions from man-made and natural sources. Narrow sectoral or geographic metrics are less efficient than broad economywide solutions, which are uniquely able to incentivize the most efficient and cost-effective reductions. Chevron supports a price on carbon, applied as widely and broadly as possible, as the best approach to reduce emissions. We work to encourage national policies to support international linkages (for example, through Article 6 of the Paris Agreement), with the goal of ultimately building up to a liquid and integrated global carbon market.

**reliable and disciplined oversight**

Our governance structure calls for Chevron's full Board of Directors to exercise their oversight responsibilities and executive leadership to set strategy and day-to-day management with respect to climate change-related risks and energy-transition opportunities. Oversight is executed through regular engagement by the full Board of Directors and also through deeper, focused engagement by all Board committees. This occurs primarily through the Board's Public Policy and Sustainability Committee, and also involves the Board's Management Compensation, Audit, and Nominating and Governance committees. At the executive level, we manage climate change-related risks and energy-transition oppor tun ities through the Enterprise Leadership Team and the Global Issues Committee.

**risk assessment and management**

We face a broad array of risks, including physical, legal, policy, technology, market and reputational risks, as laid out in our 10-K filings. We utilize an enterprisewide process to assess major risks to the company and seek to apply appropriate mitigations and safeguards.

As part of this process, we conduct an annual risk review with executive leadership and the Board of Directors and assess our risks, safeguards and mitigations.

**higher returns, lower carbon**

Our primary objective is to deliver higher returns, lower carbon and superior stockholder value in any business environment. Chevron's strategic and business planning processes bring together the company's views on long-term energy market funda mentals to guide decision-making by executives and to facilitate oversight by the Board of Directors. Most published outlooks conclude that fossil fuels will remain an important part of the energy system over the coming decades, and that the energy mix will include increasingly lower-carbon sources. As part of our strategic planning process, we use proprietary models to forecast demand, energy mix, supply, commodity pricing and carbon prices--all of which include assumptions about future policy, such as those that may be implemented in support of the Paris Agreement's goal of "holding the increase in the global average temperature to well below 2° C above pre-industrial levels and pursuing efforts to limit the temperature increase to 1.5° C above pre-industrial levels."

**our strategy**

[SEE FIGURE IN ORIGINAL]

**success in a lower-carbon future**

As a global company, we operate in many jurisdictions that have enacted lower-carbon policies. In 2020, more than 60 percent of our total Scope 1 and Scope 2 equity GHG emissions were in regions with existing or developing carbon-pricing policies, in addition to other lower-carbon policies like mandates for biofuels and renewables, methane regulation, and emerging support for technologies like carbon capture, utilization and storage (CCUS) and hydrogen. Under current and potential future market conditions, we seek to understand the impacts of climate-related actions and strategies and to advance opportunities to increase returns to investors.

Chevron's energy-transition strategy is to advance a lower-carbon future, and we will leverage our capabilities, assets and expertise to focus on three action areas that aim to deliver measurable progress that is both good for investors and good for society.

Our intent is to deliver affordable, reliable and ever-cleaner energy that enables human progress and delivers superior stockholder value. Our actions are focused on: (1) lowering our carbon intensity cost-efficiently, (2) increasing renewables and offsets in support of our business, and (3) investing in low-carbon technologies to enable commercial solutions.

We use carbon prices and derived carbon costs in business plan ning, investment decisions, impairment reviews, reserves calculations and assessment of carbon-reduction opportunities. We believe that our portfolio is resilient and that our asset mix enables us to be flexible in response to potential changes in supply and demand, even in lower-carbon scenarios.

See our *Climate Change Resilience: Advancing a Lower-Carbon Future* report, Section 3.6, for more, **chevron.com/climatechangeresilience2021**.

**API**

Chevron has been working in leadership roles within the American Petroleum Institute (API) to develop a template for ***oil*** and gas companies' reporting of core GHG emissions data. By developing a template that prompts for reporting of consistent, comparable GHG data, API seeks to support API member companies in reporting climate information in a transparent manner to the financial sector, policy makers, industry customers and other stakeholders. When finalized, the template will be a tool that individual energy companies can use in their climate reporting. The initiative is consistent with API's principle of advancing the understanding of global climate change risks and  **opportunities to help achieve effective future policies** .

**Colby Hall**

Integrated Optimization

Team Lead, Cabinda Gulf ***Oil*** Co.

**employee spotlight**

I've always been a results-driven person, and my current position enables me to see positive results in two interdependent categories--decreasing our operating expenses and reducing the intensity of our greenhouse gas emissions (GHGs).

Our workforce was inspired by the marginal abatement cost curve (MACC) studies in 2019 and we kicked into gear in the second half of 2020. Basically, MACC is a visualization that represents a rank order of GHG-reduction opportunities by showing their relative cost and abatement potentials. MACCs help us target carbon-reduction activities more efficiently.

During the economically challenging second half of 2020, our team was able to develop a roadmap and began progressing the small capital projects that had the highest-impact GHG reduction at the lowest cost.

I find it exciting to have an impact in my work at Chevron, and I continue to be motivated by the growing environmental stewardship of Angolan employees and corporate experts.

We are building on our strengths to reduce the carbon intensity of our operations and assets by optimizing carbon-reduction opportunities, and integrating GHG-mitigation technologies across the enterprise. These efforts drive progress on metrics, enabling us to update progress on a timeline aligned with the Paris Agreement.

We selected more than 60 MACC projects to lower our carbon intensity to advance to execution. We plan to spend more than $ 100 million in 2021. We expect to spend approximately $ 2 billion on them through 2028, on the path to deliver our 2028 performance metrics. Further out, we have additional MACC opportunities identified that have the potential to lower our Upstream carbon intensity into the mid-teens. Significant technology advancements and the development of large offset markets could enable reductions to net zero by mid-century.

**working toward a net-zero future**

[SEE FIGURE IN ORIGINAL]

**$ 2B** by 2028 in carbon-reduction projects

**$ 750M** by 2028 in investments in renewables and offsets

**$ 300M** committed to the Future Energy Fund II

**$ 3B+** invested through 2028 to advance our energy-transition strategy

**carbon footprinting**

Access to reliable, verifiable carbon-footprinted data is important for buyers to make informed decisions, enabling contributions toward meeting Paris Agreement goals. In addition, carbon-footprinted data can enable price discovery, a compar i son of the "green premium" and alternatives, and potentially incen tivize reducing both carbon intensity and the "green premium" cost-efficiently.

**working to track the carbon footprint through the value chain**

[SEE FIGURE IN ORIGINAL]

**wbcsd**

**World Business Council for Sustainable Development--Value Chain Carbon Transparency Pathfinder:** End-to-end value-chain transparency on primary GHG emissions at a product level provides important data to help organizations make informed decisions as they work toward a lowercarbon future to achieve the goals of the Paris Agreement. Within the Pathfinder, Chevron is working together with other committed stakeholders from across the value chain, independent industry bodies such as GHG Protocol, and technology companies to develop the methodological and technical infrastructure required to create such transparency.

PAVILION ENERGY

**Liquefied Natural Gas (LNG) GHG value-chain emissions reporting**: Pavilion Energy and Chevron have signed a five-year LNG sale and purchase agreement under which each LNG cargo delivered will be accompanied by a statement of its GHG emissions. The parties are committed to co-developing and implementing a GHG quantification and reporting methodology for LNG based on internationally recognized standards and covering emissions from well-to-discharge terminal, including LNG transportation.

**chevron's approach to key climate issues**

Chevron supports the Paris Agreement and is committed to addressing climate change while continuing to deliver energy that supports society. Climate policy should achieve emissions reductions as efficiently and effectively as possible at the least cost to economies.

**we believe the world's *oil* and gas should be supplied by the most efficient producers, and we address Scope 3 emissions by**:

- Supporting a price on carbon

- Transparently reporting

- Enabling customers to lower their emissions

**we believe a price on carbon should**:

- Be the primary policy to reduce emissions

- Be economywide to apply to all sectors

- Spur innovation and enable support to affected communities, consumers and businesses

**we support research, development, demonstration and deployment for emerging technol ogies to address climate change**

- A focus on emissions

- Pre-commercial support

- Scalable solutions

**we support well-designed and properly enacted methane regulation, in the energy industry and in other key emitting sectors**

- Performance-based regulation

- Technological innovation

- Industry best practices

- All sectors contributing

**chevron supports well-designed emissions-reduction metrics**

Our approach is designed to facilitate carbon accounting that not only reduces our own emissions, but also sets a framework that facilitates the possibility of achieving global net zero as efficiently and effectively as possible, and at the least cost to society. Achieving these metrics is directly tied to the compen sation of our executives and most of our employees worldwide.

This approach, coupled with our view of Scope 3--supporting a price on carbon through well-designed policies; transparently reporting emissions from the use of our products for nearly two decades; and enabling customers to lower their emissions through increasing our renewable products, offering offsets and investing in low-carbon technologies--supports a global approach to achieve the goals of the Paris Agreement as efficiently and cost-effectively as possible for society.

**chevron upstream emissions intensity reduction metrics for 2028**:

**24** kg CO[2]e/boe for ***oil*** (global industry averages 46) 40% reduction from 2016

**24** kg CO[2]e/boe for gas (global industry averages 71) 26% reduction from 2016

**2** kg CO[2]e/boe for methane and a global methane detection campaign 53% reduction from 2016

**0** routine flaring by 2030 and 3 kg CO[2]e/boe for overall flaring 66% reduction from 2016

[SEE FIGURE IN ORIGINAL]

**environmental risk management**

**our goal**

Protecting the environment while providing affordable, reliable and ever-cleaner energy takes commitment, supported by effective processes, leading technologies and dedicated people. It takes the commitment to keep learning--and constantly improving.

**chevron.com/sustainability/environment#enhancingenvironmentalstewardship**

Chevron's Operational Excellence Management System (OEMS) has helped build our Operational Excellence (OE) culture and improve our health, safety and environmental performance over time.

To facilitate continual improvements in environmental performance, we have developed a new environmental risk management strategy that is aligned with our Chevron environmental principles. The strategy provides a dynamic framework to identify emerging and long-term environmental risks and issues as well as drive actions to improve our performance across the enterprise.

Chevron's environmental risk management strategy will:

- Set and track objectives to meet environmental expectations

- Enable data-driven decision-making with enhanced digital innovation and analytics

- Expand the use of risk management practices and costeffective technologies to identify and mitigate risk, benefit the environment, and make better decisions

- Inspire our workforce by recognizing the good work we already do and by increasing employee engagement

**we've devised a new environmental risk management strategy to better identify emergency and long-term risks**

**the chevron way**: who we are, what we believe, how we achieve and where we aspire to go

**OEMS, environment focus area**: the framework we use to manage significant environmental risks

**environmental risk management strategy**: drive improvements in environmental performance across the enterprise

**environmental risk management process**: identify and manage environmental risks across the asset life cycle

**Don Danmeier**

Integrated Optimization

Manager, Waste and Water

**employee spotlight**

My education and training were as an ocean engineer, and during my first several years at Chevron, I applied numerical models and analysis to support offshore capital projects and marine operations. This included establishing metocean design criteria and operational support for drill rigs in the Gulf of Mexico. I loved that work.

I moved into the Health, Safety and Environment function several years ago with a focus on environmental and ***oil*** spill risks. I especially enjoy working with teammates who bring multiple perspectives to a problem and appreciate that Chevron is open to collecting input from a diverse group of subject matter experts with a deep understanding across physics, chemistry and biology. Their technical rigor and range of experience help us seamlessly integrate science into the decision-making process and provide the comprehensive risk management our Operational Excellence Management System demands.

The company has a finite amount of resources, and we want to prioritize how we use them so we effectively identify and manage high-consequence environmental risk. Grounding our processes in science helps us understand our risks and have appropriate safeguards to manage them.

**UNEP-WCMC**

**The Biodiversity Indicators for Site-based Impacts (BISI) project**--a joint initiative between the United Nations Environment Programme-World Conservation Monitoring Centre (UNEP-WCMC), Conservation International and Fauna & Flora International, with support from the International Petroleum Industry Environmental Conservation Association (IPIECA) and the Proteus Partnership--developed and tested a methodology for aggregating biodiversity impact/benefit and performance data at a site level to provide indicators of biodiversity management performance at the corporate level. The screening step of Chevron's new Environmental Risk Assessment and Management Procedure is designed to align with the BISI methodology to allow for consistent screening of biodiversity risk across the enterprise.

Our Mid-Continent business unit (MCBU) has been using elements of the environmental risk management strategy to drive automated and integrated data collection, analytics and visualization to improve environmental performance, communication and compliance efficiencies with a long-term focus on maintaining progress. Additionally, MCBU conducts cross-functional competency training to equip their workforce with current, relevant information related to regulatory changes, compliance refreshers, enterprise environmental goals and commitments, and best management practices. These actions are designed to enable recognition of environmental conditions, so our employees are capable stewards who are empowered to actively care for the environment no matter what role they serve. The environmental risk management strategy is evergreen, and the shaping plan to realize the strategy will continue to evolve as our business evolves.

Chevron's Environmental, Social and Health Impact Assessment (ESHIA) process has been the cornerstone of evaluating potential impacts of capital projects. To build on the success of ESHIA, we are expanding our approach to risk management to enable the evaluation of environmental risks throughout the life cycle of Chevron's assets. We have developed a new Environmental Risk Management Process (ERMP) that works alongside our existing Stakeholder Engagement and Issue Management (SEIM) process to strengthen our integrated approach and consistently manage environmental, social and health risks.

The ERMP is designed to align with the practices of the  **Chevron OE Risk Management Process**  in identifying, mitigating and managing environmental risks from exploration activities, capital projects, operations, and asset retirement. The goal is for each business unit to have its environmental information documented in an environmental risk register to understand its risk profile and appropriate mitigation options more clearly.

Field studies are an example of how the ERMP can be utilized to assess environmental risk, aiding the business to make data-driven decisions. In our Australasia business unit (ABU), sensors mounted on remotely operated underwater vehicles, gliders on the ocean surface and unmanned aerial vehicles have been used to verify characteristics of an offshore permitted discharge at our Wheatstone Platform. This field measurement allowed ABU to confirm that the project design was conservative and that the discharged wastewater was mixing with ocean water more vigorously than modeling had indicated, resulting in a lower estimation of risk than originally established. Implementation of the ERMP will aid in the identification of high-consequence environmental risk scenarios, which would allow for more systematic risk-based field monitoring.

**water**

**using water responsibly is integral to our values, environmental policy and practices**

Conserving and protecting water resources is essential for the communities where we operate and for our business. Using water responsibly is an important part of being a good partner in the communities where we work. We protect this critical natural resource through our risk-based management systems, processes and standards.

**chevron.com/water**

**from 15% to 0**

decrease in the proportion of fresh water used in MCBU's completions from 2016 to 2020

**from 0 to 29%**

increase in the use of recycled produced water by MCBU since 2017

We updated our  **Operational Excellence Management System**  (OEMS) to emphasize more visible linkages between risk, assur ance and safeguards and a streamlined approach to managing risk. Our  **Chevron Way values**  and OEMS expectations provide a solid foundation to guide our decisions and actions. Our environ mental principles integrate a risk-based approach to drive continual improvement.

We have a range of processes that evaluate and help us manage risks that may be associated with our water use. These processes focus on:

- Considering water conservation and efficiency in key decisions

- Striving to conserve, reuse and recycle

- Using appropriate metrics to report on water use

- Engaging with governments, partners, local communities and other stakeholders on significant water resource issues in areas where we operate

**reducing freshwater use**

Our Mid-Continent business unit (MCBU) has a Surface Water Use philosophy that aligns with Chevron's water statement in its goal to reduce the amount of fresh water used in operations. MCBU strives to cut freshwater use by using brackish water resources and recycled produced water instead of fresh water when possible. In the Permian Basin, the organization has decreased the proportion of fresh water used in their completions from 15 percent in 2016 to zero in 2020. Concurrently, they have increased the use of recycled produced water from zero in 2017 to 29 percent in 2020. These results demonstrate the unit's practice of integrating a risk-based approach that assesses potential social and environmental impacts across the life of their assets.

**operations and water variability**

Operating in an area of water variability, our Richmond, California, refinery meets its industrial water needs through a cooperative relationship with the East Bay Municipal District (EBMUD). EBMUD operates one of the largest industrial water reuse projects in California, with the capability to provide around 7.5 million gallons per day of recycled water for the refinery.

The relationship is twofold. One operation involves the treatment of secondary-treated wastewater to an even higher purity standard to supply four cooling towers at the refinery. In addition, the refinery receives recycled water from the Richmond Advanced Recycled Expansion (RARE) Water Project for use in its boilers to generate steam while manufacturing gasoline, jet fuel, diesel and lubricants. Only high-purity water can be used in boilers for reliable operations.

By using recycled water for most of its water needs, the refinery frees up enough drinking water to meet the indoor and outdoor water needs of more than 83,000 residents.

**balancing our water needs and those of society**

Our Tengizchevroil (TCO) joint venture applied a robust riskbased approach to balance and forecast various water needs of their day-to-day operations, a major construction project (the Future Growth Project--or FGP) and the local community's need for potable water for drinking and recreational activities.

TCO collaborated with Chevron Technical Center and the RAND Corporation to create a model that helped to explain the impacts of water shortages, the importance of seasonal spikes in demand, and the different constraints on potable and technical water (for use in TCO's construction and operations). TCO then focused on increased conservation in their residential campus and contractor camps, a shift in water supply from potable to technical water in one village, and additional investment to ensure that existing wastewater treatment and recycling facilities were operating reliably. For their FGP construction, TCO used alternate water sources, including recycled or recovered water for most of their construction needs.

Concurrently, TCO commissioned a wastewater treatment facility (WTF) and associated water recycling facilities (WRF) to focus on freshwater conservation and wastewater management. The treated wastewater from the WTF provides the WRF influent to produce high-quality water for operational purposes. Operation of the WRF supports TCO initiatives related to freshwater conservation and wastewater management. Since the WRF was completed in 2016, recycled water from their operation has increased TCO's annual recycled water rate to over 30 percent of overall consumption. And the facility is a major component of TCO's long-term, comprehensive water management program.

Recognizing that water stress models continue to evolve, in 2020 we conducted an initial review of our operated assets using the Water Resources Institute (WRI)  **Water Risk Atlas**  to increase our understanding of the baseline water stress in the areas where we operate. Because of the global nature of our business, our assets do not share the same physical attributes and would not be impacted in the same way across our portfolio. Our OEMS processes will help manage risks and develop safeguards that may be associated with our water use, while we continue to explore water indicators that effectively communicate our water use over time and track performance.

**Bhavana Karnik**

Environmental Program Manager, Environmental Risk and Process

**employee spotlight**

I'm passionate about water management as an important component of Chevron's broader environmental focus area. The company has evolved from managing water as an operational issue to recognizing it as a vital need for our entire society. We incorporate tools and guidance and collect data to include potential environmental, social and community impacts to inform decision-making. As someone with a Ph.D. in water management, the scientist in me is encouraged by Chevron's strategy to drive data-based decision-making to best conserve, recycle and use water responsibly.

Before taking on my current role, I was a Health, Safety and Environment specialist for our Mid-Continent business unit. My role provided perspective that helped me recognize water as a local issue that had to be analyzed and managed taking local factors into consideration. Additionally, decisions need cross-functional engagement and alignment for success ful implementation. That understanding carries over into assessing water needs across our operations. One number can't be used to make all decisions about water manage ment. We need to have the openness to recognize that one metric can mean very different things from one location to another. We are using a risk-based approach to protect people and the environment to guide decisions and safeguard selections for our enterprisewide water use. We're still learning. But I'm confident that we're on a journey that's worth making. **IPIECA**

Chevron, as a corporate member of the  **International Petroleum Industry Environmental Conservation Association**  (IPIECA), collaborates closely with the Water Working Group (WWG) on several projects related to water management. Chevron has recently been involved in developing a peer-to-peer workshop to continue to promote awareness and implementation of WWG products in the wider ***oil*** and gas industry, which is scheduled to occur during the first half of 2021. Chevron is also collaborating on a study to understand and identify physical climate risk assessed by publicly available drought and flood risk tools and their application within the ***oil*** and gas industry. By actively leveraging our collective expertise, we're helping to incorporate our environmental vision in the documents and products developed by this group.

**environment** **biodiversity**

**we support biodiversity through our values, performance, communication and engagement**

We understand that humans and the natural environment interact with each other in various ways. Ecosystems per form many functions in supporting sustainable economic development. Through our  **Operational Excellence Management System**  (OEMS), we work to identify and manage potential impacts our operations and activities may have on the natural environment and the ecosystem services relied upon by communities.

**chevron.com/biodiversity**

**values**

Our company's enduring culture of operational excellence drives us to deliver results the right and responsible way. This includes placing the protection of communities and the environment among our highest priorities. It is this value that helps define and shape our actions on biodiversity.

**performance**

Our new  **Environmental Risk Management Process**  (ERMP), under OEMS, is designed to operationalize a risk-based approach to identify, assess and manage potential risks to the environment, including those related to biodiversity, across the life cycle of Chevron assets. This approach is guided by the principles of the mitigation hierarchy, which seeks to avoid, reduce, mitigate or offset potential impacts to the environment, including on sensitive species and habitats. The ERMP is designed to build on our existing OEMS processes and practices to:

- Incorporate biodiversity considerations into our business decision-making and management. This can include modifying how and where we design, build and operate our facilities

- Consider whether and how to operate in a protected or sensitive area based on area- and operation-specific circumstances, legal authorization, and ability to meet or exceed regulatory requirements, and capability to manage the risk of potential impacts by using appropriately protective operating practices

**schematic diagram showing the implementation of the mitigation hierarchy preventive**

[SEE FIGURE IN ORIGINAL]

- Apply Chevron's "Protective by Design" concept, which requires the application of the principles of the mitigation hierarchy, where there are potential risks from our operations to sensitive biological resources, and seek ways to make positive contributions to biodiversity conservation in the area

**technology to drive performance**

To understand and protect species and ecosystems on and surrounding our assets, we review available tools and technologies for application in our operations. One such tool is environmental DNA (eDNA) technology, which detects DNA fragments in environmental samples and matches them to known species' DNA sequences in online libraries to identify which species are present in an area. Enabled by recent advances in DNA sequencing technology, eDNA is faster, more cost-effective and more powerful than most conventional ecological measurement methods. eDNA allows a comprehensive assessment of local environments and is highly sensitive to detection of rare, threatened or invasive species.

We have applied eDNA in a variety of environments, including to understand and manage the potential risks of alien invasive species associated with marine transport operations; to test for the presence of rare, endangered or invasive species prior to the commencement of new operations; and to provide a rapid baseline data collection approach for impact and recovery monitoring during a potential ***oil*** spill.

**collaboration between the private sector and the UNEP-WCMC**

Through our collaboration in the  **Proteus Partnership** , we have access to global biodiversity data to support quality decision-making and risk assessments where we operate. Proteus is a voluntary collaboration involving the UN Environment Programme World Conservation Monitoring Centre (UNEP-WCMC), other major conservation organizations and private sector companies. Proteus partners share biodiversity data, participate in forums and training sessions, and collaborate on approaches to better understand, plan for and manage potential biodiversity impacts.

**Anargul Kalelova**

Environmental, Labor and Community Team Lead, Tengiz Field, Tengizchevroil

**employee spotlight**

My greatest privilege is working with the people committed to managing Tengizchevroil's (TCO's) environmental, labor and community issues and seeking to reduce, or avoid as much as possible, our footprint in our environment and community. I am proud I am working with them.

Working with biodiversity experts, I have expanded my knowledge of the ecosystem here and of the importance of conserving biodiversity, which involves our having strong management plans. I am focused on conservation efforts to protect our natural areas and the flora and fauna that occupy them.

TCO recently announced support for an exciting conservation project: to design and test a number of conservation measures that will be implemented to provide breeding conditions for the Sociable Lapwing. The Sociable Lapwing, a bird listed as Critically Endangered by the International Union for Conservation of Nature, breeds on open grassland in the steppes. Kazakhstan is home to the main breeding colony of the birds, which annually migrate from their nesting groups to the Middle East, Eastern Europe, East Africa and Asia.

The project has five objectives, including working with farmers to safeguard nests at risk from plowing, satellite tracking of these birds, field research to understand changes in their nesting habitat, and raising awareness of the Sociable Lapwing and its conservation status within local communities. TCO is proud to be a supporter of the project to help an iconic bird of the Kazakh steppe.

**30,000 trees**

were planted on five sites by our CBU in 2020 as a restoration activity

**protecting species**

Biodiversity can also shape our decisions at the end of a project's life cycle and can include restoration activities designed to restore site habitat and biodiversity functions consistent with the surrounding setting.

For example, our Canada business unit (CBU) has been conducting restoration work in the Horn River area of British Columbia since they ceased activity on a natural gas site in 2019. At Horn River, CBU's well-abandonment activity involved contouring the site area in a way that matched the surrounding environment.

In summer 2020, work was completed on five sites, which included planting more than 30,000 trees, managing invasive species and conducting final detailed site assessments. In 2021, Chevron will apply for our first Certificates of Restoration in British Columbia on three sites, which involves demonstrating the trees have been established successfully.

Paul Dziuba, environmental specialist at CBU, explained that CBU's goal is "that in the future you'll never know any ***oil*** and gas activity took place on the lease." He added, "We're on the lookout for signs like sensitive species to use as a directional guide that we'll achieve that goal."

CBU's environmental team was rewarded with a sign of their success recently when the team spotted a caribou foraging in the area. "Caribou are what's called an 'indicator species' because they are highly sensitive to disturbances in their habitat," explains Dziuba. "Their presence on a restored location is a solid indication of success because a species as sensitive as caribou likely wouldn't use the site were it not consistent with the surrounding area."

**communication and engagement**

We work to raise internal and external awareness of the importance of conserving biodiversity, to build partnerships around the issue, and to support wider efforts in biodiversity conservation. These include:

- Communicating about our biodiversity-related activities to employees and outside audiences

- Engaging with government, local communities and others to understand and work to address significant biodiversity issues in areas where we operate

- Participating in industry associations and other forums to share and promote information and awareness around biodiversity conservation

- Seeking to understand and, where appropriate, participate in development of external policy-making activities that affect our operations, such as those adopted under the UN Convention on Biological Diversity and national, regional and local biodiversity policies and plans

**collaboration with wildlife habitat council**

The Wildlife Habitat Council (WHC) empowers companies to implement habitat conservation and education initiatives on company lands, and certifies these activities through its voluntary sustainability standard, WHC Conservation Certification.(R) In 2020, Chevron received Conservation Certification renewal for wetlands that were constructed as part of the reclamation process at our former Cincinnati Refinery. Additionally, Chevron is engaging with WHC to leverage WHC's technical expertise in designing closure plans to help establish sustainable ecosystems and improve wildlife habitat.

**social**

**diversity and inclusion**

**we are building a strong, inclusive culture by encouraging diverse ideas and experiences**

Throughout our history, Chevron has been a place where we celebrate ingenuity and potential. A culture that is built on a common purpose, teamwork, respect and feedback--and rooted in inclusion, trust and empowerment--is essential for everyone to be their best in the workplace. And by fostering diversity and inclusion at all levels of our company, we rely on individuals with an array of talents, ideas and experiences to drive our success.

**chevron.com/diversityandinclusion**

Our future success depends upon preparing our workforce for an ever-changing energy market. Chevron's key Human Capital Management (HCM) goals involve investing in our people and culture to meet the world's future energy challenges. Foundational to those goals is our cornerstone value of diversity and inclusion as part of  **The Chevron Way** .

We focus on:

- People strategies that help us attract a new generation of problem-solvers, build the capabilities needed for the future, and reinforce collaborative and team behaviors

- A compelling, consistent employee experience that aligns the needs of our workforce with business objectives, such as rewarding long-term performance, promoting a continual learning culture, and encouraging informal learning and personal growth

- Developing the leadership capability of our workforce and managing our succession plans

- Fostering a workplace culture that enables the entire workforce to reach its full potential

We have launched updated demographic dashboards to provide leaders with greater insights into workforce representation. Additionally, we ensure diverse selection teams and diverse slates as part of our selection practices, and inclusion counselors were embedded in job selection teams during the company's 2020 reorganization to help minimize bias in the candidate selection process.

**recognizing our high-potential women**

In 2020, we launched the Global Women's Leadership Development Program (GWLDP). The establishment of GWLDP is consistent with our recognition that we achieve the best business results when we draw upon and develop the diverse talents of our workforce.

With a goal of increasing the number of women at senior levels, we set three broad objectives for the program:

- Provide strategic development planning for high-potential women earlier in their careers

- Offer access and visibility to influential senior leaders, job owners and personnel development committees

- Establish resources to support development, including coaching, mentoring and skills growth

GWLDP kicked off with a two-phase pilot program involving women employees from eight countries, 12 reporting units and 12 functions. During an initial phase in February, the program explored self-awareness, a recognition of pitfalls that might impede success and the development of strategic approaches. The participants were given training to pursue before resuming the program for a second, two-week module online in July and September, which focused on senior management and stakeholder engagement, how to gain greater visibility and pursue one's career goals, and how to benefit from external coaching.

Program feedback was consistently positive. Participants cited learning activities that helped them focus on strengths and weaknesses, the opportunity to build relationships, and receiving coaching as the most valuable components.

**investing in racial equity**

In 2020, Chevron evolved our long-term approach to improve racial equity by increasing our support and investment in the external education and internal development of Black talent and leadership. This approach is in response to a convergence of events that include the spread of COVID-19, an economic downturn that led to massive unemployment, and social unrest growing out of the death of George Floyd and other Black citizens in the United States. These events sparked a movement to eliminate systemic racism, racial inequality and economic inequality that have disproportionately affected Black Americans and other people of color.

Our racial equity approach includes a $ 15 million commitment that has four pillars: education, job creation, talent and leadership development, and community and small business partnerships. We are also working to expand our existing relationships with community, business and educational partners such as K-12 science, technology, engineering and mathematics (STEM) organizations and Historically Black Colleges and Universities (HBCUs).

Advancing Black talent and leader development is critical to enhancing racial equity within our company. We increased leadership development training through our partnership with the Executive Leadership Council (ELC) to strengthen the Black leadership pipeline. In the second half of 2020, 37 Chevron employees participated in ELC leadership development programs. And several Black employees who have participated in ELC talent development programs have moved into senior positions.

In 2020, we launched our first formal sponsorship program for employees in the Finance function, and we plan to expand similar programs across the enterprise. We recognized that informal sponsorship does not always include underrepresented talent. By creating a formal sponsorship program, we are better able to ensure that all employees benefit.

We not only seek to achieve better representation and retention of Black employees, but also to increase our workforce's understanding of Black experiences and adopt or revise practices, policies and programs to create greater racial equity. For example, the leadership team of Chevron's Black Employee Network sponsored a reverse-mentoring program with our Chairman and CEO and some members of his executive leadership team to provide a greater understanding of how racial injustice perpetuates inequalities for Blacks. These dialogues provided senior leaders the opportunity to explore ways to better support Black Americans in our workforce and the community. Our executive leadership team continues to engage in meetings with leaders from our Black Employee Network, HBCUs, and other business and professional organizations to gain a greater understanding of the experiences of Black people in the workplace and in our communities.

Recognizing that data play an important role in understanding the recruitment, retention and promotion of our talent, we have enhanced our tools and practices to track and report on diversity metrics.

**employee networks--strengthening our culture of inclusion**

At a 20th-anniversary celebration of Chevron's employee networks, held in 2020, Chairman and CEO Mike Wirth said, "Our 12 employee networks, nearly 20,000-strong and 40 percent of our workforce, are the lifeblood and driving force in strengthening our culture of inclusion."

Our employee networks aim to reinforce and strengthen Chevron's commitment to build on our diverse and inclusive culture where everyone feels included, valued and purposeful. And, in helping everyone reach their full potential, they drive business success.

The networks contribute to Chevron's culture in three ways:

- By encouraging more meaningful employee engagement, which enables individual development and allows the emergence of future leaders

- By acting as a resource for attracting and retaining new talent and providing formal and informal mentoring and coaching to facilitate the transfer of knowledge, skills and experiences throughout the company

- By being the crucible of new ideas as technology and a changing workforce require new insights and new perspectives

**Some 2020 initiatives**  demonstrate the networks' contributions to Chevron's culture and success:

- A new program, called Elevate, is patterned after the structure of the Women's Employee Network's Men Advocating Real Change (MARC) program, which created a framework for men and women to exchange frank, open dialogue about gender equity and headwinds that women face in the workplace. Elevate expands that framework beyond gender to include many other dimensions of diversity, such as age, ethnicity, military veterans and disabilities

- ENABLED has partnered with our Talent Acquisition and IT departments, to establish a neurodiversity program to attract talented individuals from the autism community in areas such as infrastructure, cybersecurity and data science

- The XYZ Network launched Extend@Chevron, a pilot program designed to create solutions for business leaders and opportunities for employees by connecting Chevron workers to short-term projects aligned with their career goals

These initiatives, among others, demonstrate the employee networks' role in supporting Chevron's culture of innovation, encouragement of new ideas, and a recognition that we believe diversity and inclusion are vital to the company's future.

**London Worrell**

Finance Manager, Crude Supply & Trading North America

**employee spotlight**

While at Chevron, I've been fortunate to have several opportunities to help drive cultural change. In 2019, after our CFO Pierre Breber and the Finance Leadership Team chose me as the Diversity and Inclusion (D&I) Advisor for Global Finance, I helped to set up Finance's D&I structure, goals, strategies and action plan. In 2020, Finance won Diversity, Inclusion and Ombuds' "D&I Function of the Year" award and I was recognized for my involvement in supporting the function's D&I growth.

Another example of how our culture is evolving is the threeday Women of Color workshop for multicultural women that Chevron's Diversity, Inclusion and Ombuds (DIO) organized in 2019. I was one of 24 women across Chevron invited to attend, and the experience really inspired me. The workshop resulted in recommendations from the participants that led to several impactful actions that DIO implemented.

Since then, we've organized an internal social media page, "Empowering Women of Color at Chevron," for women of color and advocates to support the goals and aspirations of greater diversity and inclusion. With support from the Women's Employee Network, we're creating podcasts to bring awareness and building other forms of recognition for Women of Color at Chevron.

I've also been on Finance's team to create Chevron's first formalized sponsorship program, through which we identify individuals who are talented but who may be experiencing headwinds in their careers. The 21 sponsored individuals will spend a year developing relationships with senior members of Finance, who will act as their sponsors. We hope that over time, they'll become individuals who have tailwinds behind them in their careers.

Perhaps my proudest moment came when the Black Employee Network named me their 2020 Diversity Ambassador. Being Diversity Ambassador means a lot to me. I can help impact people's lives at Chevron in a positive way.

**API**

Chevron and our colleagues in the American Petroleum Institute's (API's) Diversity, Equity and Inclusion (DE&I) Member Working Group are focused on efforts to further workforce and supplier diversity. The group's DE&I initiatives are designed to increase awareness of these issues among API members and share best practices. Ultimately, API aims to help increase opportunities for diverse suppliers across the industry and better recruit and serve minority-skills servers in the ***oil*** and natural gas industry. API established its  **DE&I Working Group**  in 2020 to foster increased conversations and accelerate its progress to continue driving meaningful change.

**social**

**human rights**

**respect for human rights is rooted in our values and applies wherever we do business**

Our Human Rights Policy reflects our commitment to getting results the right way. We updated our policy in 2019 to more clearly articulate the company's respect for human rights. As described below, we have been implementing actions to further incorporate that respect into our practices.

**chevron.com/humanrights**

**implementation in action**

**2018**

Added requirement for appropriate operations to utilize a Grievance Mechanism

**2019**

Human Rights Policy updated

**2020**

More than 10 business units update risk profiles; 8 Grievance-Mechanism reviews conducted

In our 2018 report, we shared details about the revised approach to  **Stakeholder Engagement and Issues Management**  (SEIM), highlighting changes that deepened the integration of social risks into business units' risk management process. As part of that process, business units are required to regularly update their risk profiles. In 2020, more than 10 business units updated their risk profiles. The types of risks captured through this process vary considerably and can include social and human rights impacts. Once a Chevron business unit identifies a risk, it establishes management plans to address the risk and prevent or mitigate potential impacts.

Beginning in 2021, Chevron will assess certain of our nonoperated joint-venture partners' processes to manage social impacts and stakeholder engagement, including the availability of Grievance Mechanisms.

**operational-level grievances**

In addition to maintaining and updating risk profiles, the SEIM process requires business units to design and maintain a Grievance Mechanism at the appropriate operational level. In 2020, eight business units and other facilities underwent reviews of their Grievance Mechanisms to assess the efficacy of the systems and identify opportunities for improvement.

Our processes aim to accord with globally recognized human rights standards, such as the UN Universal Declaration of Human Rights and International Labour Organization Declaration on Fundamental Principles and Rights at Work.

**a digital solution**

We recently updated our Stakeholder Management System (SMS), Chevron's digital tool to manage stakeholder engagements and issues. SMS enables our business units to track stakeholder engagements, consistently collect and track grievances, and enhance cross-functional collaboration on issue management, including human rights. The use of SMS and the SEIM process supports internal alignment on key issues and improves communi? cation with leadership about high-priority issues.

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| --- | --- | --- | --- | --- |
| chevron human rights policy |  |  |  |  |
| employees | security | communities | suppliers | other |
| We treat all | We protect | We commit to | We expect our | business |
|  |  |  |  | partners |
| employees with | personnel and assets | regularly engage | suppliers and | We encourage |
| respect and dignity, | and provide a secure | communities near | contractors to respect | our customers and |
| and promote diversity | environment for | our operational | human rights and | business partners |
| in the workplace. | business operations. | and project areas | adhere to applicable | to respect human |
|  |  | in meaningful | international | rights and adhere to |
|  |  | conversations. | principles. | applicable international |
|  |  |  |  | principles. |
| focus areas | focus areas | focus areas | focus areas | focus areas |
| Our company policies | We conduct our | We engage stakeholders | We engage with key | We encourage all |
| and procedures adhere | operations and | on key human rights | suppliers to reinforce | business partners to |
| to all applicable domestic | execute projects in | issues in our operating | awareness of our policies | respect the spirit and |
| laws, and we commit to | accordance with the | areas, including: | and potential human | intent of the following |
| core international labor | Voluntary Principles on |  | rights issues such as: | Chevron policies and |
| principles, including: | Security and Human | - Indigenous peoples |  | statements: |
|  | Rights, which guide |  | - Working and living | - Human Rights Policy |
| - Freedom of | engagement with | - Resettlement | conditions |  |
| associa tion and | security providers to |  |  | - Indigenous Peoples |
| collective bargaining | ensure human rights | - Grievances | - Forced labor | Guidance |
|  | are respected in the |  |  |  |
| - Elimination of forced | protection of company | - Livelihoods | - Child labor | - Statement on Human |
| or compulsory labor | facilities and premises. |  |  | Rights Defenders |
|  |  | - Environmental matters | - Human trafficking |  |
| - Nondiscrimination in |  |  |  | - Guidance related |
| the workplace |  | - Human rights | - Conflict minerals | to land tenure and |
|  |  | defenders | sourcing | water rights |
|  |  |  |  |  |
|  |  |  | - Protecting human |  |
|  |  |  | rights defenders |  |

**doing business in conflict-affected areas**

We understand the complexity of working in sensitive operating areas. We also understand that we can have a positive role in the communities where we operate by promoting energy security and economic opportunities. The implementation of our Human Rights Policy through our core processes and operational activities is an important component of our ability to invest and operate responsibly in sensitive environments.

Chevron regularly engages with key stakeholders to promote responsible investment and respect for human rights. In 2020, we helped convene a multi-stakeholder event on best practices for companies operating in areas affected by conflict. The event brought together cross-sectoral expertise for a robust discussion on the role of business in areas impacted by conflict.  **We continue to engage externally**  on the topic through participation in groups such as the  **Global Business Initiative on Human Rights; see next page** .

With the acquisition of Noble Energy in 2020, our portfolio has expanded to new geographies. As part of the integration process, we continue to adhere to our Human Rights Policy and intend to deploy and implement our established policies, procedures and systems on human rights, such as security processes aligned with the  **Voluntary Principles on Security and Human Rights** .

**protecting human rights during COVID-19**

Chevron's respect for human rights does not waver in times of economic downturns, emergencies or crises such as COVID-19. Throughout our response to COVID-19, we have identified, addressed and mitigated potential and actual impacts of COVID-19, primarily by taking swift action to protect the health and safety of our employees and contractors around the world, and by supporting some of the communities in which we operate.

The spread of COVID-19 has placed a spotlight on the different levels of vulnerability among various racial, ethnic and socioeconomic groups. And by being mindful that our purpose is to help improve lives, our business units have been able to identify vulnerable communities surrounding our operations and prioritize them for support.

For example, Chevron initiated the People-to-People Emergency Assistance Project in Kazakhstan to help lessen the impact of the pandemic. The project aided medical workers, vulnerable groups and migrants and provided job-creation initiatives and advisory support to micro- and nano-businesses.

**GBI**

The  **Global Business Initiative on Human Rights**  (GBI) enables representatives of business, including Chevron, to discuss relevant human rights concerns with experts in the field, such as the UN Working Group on Business and Human Rights. External engagement with human rights experts, likewise with civil society, governments and industry groups, contributes to our ability to identify and manage potential impacts in adherence to our Human Rights Policy.

**employee spotlight**

I've been with Chevron for more than a decade. The past two years have presented a new kind of challenge.

After the passage of the Australian Modern Slavery Law in 2018, I became involved in Chevron Australia's development of a methodology to manage the risk of modern slavery in relation to our operations and supply chain. At a personal level, coming to terms with the gravity of modern slavery as a global issue was very unsettling, especially as it raised my awareness of the high representation of women and children considered at risk around the world.

We developed a strong cross-functional team to navigate the process. We then reviewed publicly available material concerning modern slavery risk in the ***oil*** and gas sector, which helped us identify classes of suppliers who were highrisk. Mapping this against our supply chain, we identified first-tier suppliers and subcontractors from each category, and subsequently issued questionnaires to these suppliers to understand their risks more closely.

In February 2021, we completed Chevron Australia's Modern Slavery Statement, which identifies our actions to assess and address the risks, guided by Chevron's principles and policies. The statement indicates our plan to conduct periodic audits based on a risk-ranking, determined by the nature of the work to be performed, and by the responses to our questionnaire on supplier policies, processes and performance. The statement also stresses the need for us to provide training to reinforce respect for human rights among our suppliers and employees.

We recognize the process of protecting against human slavery will involve a rigorous journey, but I'm proud of Chevron's culture in enabling us to reach this point in our first year of reporting.

**social**

**creating prosperity**

**we strive to empower people around the world to improve their lives**

Wherever we work, we strive to build lasting partner ships to create prosperity now and into the future. By listening to our partners and engaging with stake holders, we localize our programs to help meet the needs of each community.

**chevron.com/sustainability/social#creatingprosperity**

**donorschoose**

Chevron's support for social investment is rooted in our Chevron Way value of partnership, which dictates that we build trusting, mutually beneficial relationships to achieve solutions and breakthroughs that benefit our stockholders and society. Through our decade-long relationship with DonorsChoose, Chevron has channeled more than $ 50 million to community schools to increase educational access to science, technology, engineering and mathematics (STEM) opportunities, especially for Black, Hispanic/Latinx and Indigenous Americans. DonorsChoose is a nonprofit that hosts a website that enables teachers at U.S. public schools to request books, art supplies, technology and other resources they need for the classroom.

**investing in education**

**Equity-forward collaborations**

In 2020, Chevron collaborated with DonorsChoose to provide teachers and students with resources that promote racial equity and increase access to STEM opportunities for Black, Hispanic/ Latinx and Native Americans/Indigenous Peoples. The program grows out of our recognition that education will play a critical role in combating racial inequity and injustice. Building on our existing educational relationship with DonorsChoose, Chevron supported teachers and students by doubling donations on projects promoting equity, inclusion and anti-racism in select locations. The company also tripled donations on STEM projects from Black, Hispanic/Latinx and Native American/Indigenous Peoples teachers, or projects serving schools with majority Black, Hispanic/Latinx and Native American/Indigenous Peoples students in select locations.

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| U.S. chevron humankind 2020 n1 | U.S. noble energy employee match program | |  |  |
| $ 36M+ | 67,992 | 1,244 | $ 350,000+ | 292 |
| contributed to U.S. nonprofits | volunteer hours were | charitable organizations in | contributed to U.S. nonprofits | volunteer hours were logged |
| through a combination of | logged in the United States | the United States benefited | through a combination of | in the United States |
| employee and retiree giving and |  | from volunteer time | Noble Energy matching funds | during Noble Energy program |
| company matching funds |  |  |  |  |

**generating opportunity**

**Collaborating in Colorado**

Through collaboration with key stakeholders in our communities, Chevron n2 aims to help improve the lives of people around the world. We rely on building effective relationships to benefit the communities in operating areas such as Northern Colorado. The company's support for the Women's Foundation of Colorado (WFCO) enables Chevron to help meet the needs of women and families today and propel them toward a more stable future. Chevron's contribution to WFCO's research, grantmaking, public policy, statewide engagement and support for such programs as Women Achieving Greater Economic Security, the Women and Families of Colorado Relief Fund, and Women & Girls of Color Fund has been driven by greater need during the 2020 pandemic.

**Empowering Latina women**

Since 2014, the Richmond, California, refinery has been supporting the Incubator Project of the Richmond-based Latina Center, which is improving economic self-sufficiency for Latinx women and their families. Each year, the project nurtures microenterprises for up to 50 Latinx immigrant women to promote empowerment and create and sustain jobs in Richmond.

Latinx are the fastest-growing population in the city of Richmond and among the hardest-hit by COVID-19. Latinx are overrepresented in high-risk and low-paying jobs and likely face greater risk of exposure to the coronavirus in the workplace than other groups.

The independence that comes with financial self-sufficiency is even more critical for the communities that the Latina Center supports due to the pandemic. Chevron's aid to the center helps deliver transformative leadership and culturally relevant services that strengthen vulnerable social support networks, improve individual and family health outcomes, and promote economic self-sufficiency.

**delivering community health**

**Meeting health needs**

Consistent with our support for the health of communities where we operate, in 2020 Chevron contributed to several local initiatives in Brazil. These initiatives included support for construction of a 200-bed field hospital in the Gávea area that served COVID-19 patients from neighboring communities. The company also donated 5,000 disposable medical aprons to meet the high demand at the Martagão Gesteira Childcare and Pediatric Institute of the Federal University of Rio de Janeiro. In addition, Chevron volunteers raised funds to provide the hospital with 1,800 personal hygiene kits to distribute to parents accompanying hospitalized children.

**Karen Rawls**

Senior Social Investment Advisor, Corporate Affairs

**employee spotlight**

I have the best job in the world. Managing U.S. corporate educational social investment programs gives me the chance to work on projects that make a long-term impact on so many communities. Internally, I advise our U.S. business units, work with the Office of Global Diversity and communicate our social investment strategy to the presidents of Chevron's employee networks. Externally, I work with our community partners, organizations like DonorsChoose, the Fab Foundation and Techbridge Girls, all of which are natural fits because they share our values.

We have opportunities to make a positive impact on the communities, especially at a time of crisis such as we've been having with the pandemic. Some other companies have drawn back, but we've been consistently in line with our values in maintaining our goals.

Last summer, there were a lot of uncomfortable conversations about racial inequities in the United States. We were receiving social media posts asking how we were going to make an impact. And our leadership was unwavering. Chairman and CEO Mike Wirth insisted that education was the natural pathway to making a long-term social impact, and he has a "reverse mentor" from our Black Employee Network.

We already had a strong involvement through our support for Historically Black Colleges and Universities and our K-12 STEM programs. And we stuck to our strategy and our core values in introducing a new approach to achieve social equity through educational support.

This adherence to our values is a big part of why I'm proud to work for Chevron.

**tengizchevroil and european bank for reconstruction and development supplier development project**

To support the development of Kazakhstani suppliers, our Tengizchevroil joint-venture partners work with the European Bank for Reconstruction and Development to implement a joint supplier development program. The program enables potential suppliers to access a diverse range of consulting services to build their capacity in quality management systems, quality certifications, finances and management information systems.

The program has resulted in:

- Sales increasing by 66 percent in 73 percent of the assisted companies

- Employees increasing by 32 percent

- New jobs increasing by 20 percent

- Productivity per employee increasing by 13 percent

- Exports reported increasing by two of the 15 companies

The program has demonstrated that through direct capacity development and training, local enterprises can show significant growth and contribute to our shared prosperity in Kazakhstan.

**sustainable development goals**

In our effort to help create prosperity wherever we operate, we are inspired by the **UN Sustainable Development Goals** (SDGs), which seek to achieve a more sustainable future and make progress toward a global 2030 agenda. Chevron touches all 17 SDGs through our business operations, partnership initiatives and social investment opportunities. In focusing on the four goals discussed below, we stress our recognition of the critical need to work with key partners, communities and industry groups to make positive contributions to society.

To learn more, visit **chevron.com/sustainability/social#contributingtothesdgs**.

|  |  |  |  |
| --- | --- | --- | --- |
| SDG 3: | SDG 4: | SDG 7: | SDG 8: |
| good health | quality | affordable and | decent work and |
| and well-being | education | clean energy | economic growth |
|  |  |  |  |
| ensure healthy | ensure inclusive | ensure access to | promote sustained, |
| lives and promote | and equitable quality | affordable, reliable, | inclusive and sustainable |
| well-being for all | education and promote | sustainable and | economic growth, |
| at all ages | lifelong learning | modern energy for all | full and productive |
|  | opportunities for all |  | employment and |
| The health of any business |  | In operations around the world, | decent work for all |
| depends on the well-being of its | Our Richmond, California, | we seek innovative ways to |  |
| community. For 35 years, Chevron | refinery supports the Hidden | increase energy efficiency while | During the early phase of |
| has supported HIV/AIDS partners | Genius Project in Richmond, | reducing our carbon footprint. | the pandemic, many U.S. |
| and programs to empower | which trains and mentors Black | In Western Australia, Chevron's | communities in which we operate |
| individuals and communities to | male youth in technology creation, | major liquefied natural gas (LNG) | were especially hard-hit by |
| prevent disease, support health | STEM-related entrepreneurship | Wheatstone Project is helping | the virus and were short on |
| system strength, improve health | and leadership skills to transform | provide residents of the Onslow | critical supplies. In collaboration |
| equity and security, and build | their lives and communities. | community with affordable, | with the Fab Foundation, we |
| prosperous communities. | The program is designed to | reliable and ever-cleaner energy | funded skilled sewers and other |
|  | address the dramatic contrast | through a solar and natural gas- | community members with the |
| One example is our long-standing | between the high unemployment | powered microgrid. Together | goal to manufacture more than |
| support of the Global Fund to | of Black male youth and the | with the Western Australia state | 20,000 masks to help protect |
| Fight AIDS, Tuberculosis and | widespread career opportunities | government, Chevron and its | local citizens. In Houston, we also |
| Malaria and its work in Africa and | within the local technology sector. | joint-venture participants have | supported the Fab Foundation |
| the Pacific Rim. Since 2008, we |  | invested in a pilot project that | and Connect Community to |
| have contributed over $ 60 million | In 2020, the Chevron-supported | will help make Onslow home | train community members to |
| to help the organization's success | program was implemented in | to Australia's largest distributed | become skilled sewers, enabling |
| in preventing mother-to-child | collaboration with the Richmond | energy resource microgrid. | them not only to produce the |
| transmission of HIV, reducing new | Fab Lab at Kennedy High School | An advanced metering system | safety masks but to continue |
| HIV infections and improving the | and the Autodesk Black Network. | will play an important role in | receiving a livable wage for |
| quality of life for the infected and | Engineers from Autodesk | making the solar and battery | their professional services. |
| those affected by the disease. | trained the youths in AutoCAD, | components of power genera - | This initiative was an extension |
| Similarly, we have been involved | a critical technology linked to | tion an affordable option for | of our collaboration with the |
| with the International AIDS | Chevron's industry and to wider | the community. | foundation, which began in 2014 |
| Conference since 2006 and | software applications across |  | when we made a $ 20 million |
| have been a sponsor since 2012. | multiple industries. |  | commitment to increase STEM |
| Again in 2020, we sponsored |  |  | knowledge and opportunities |
| the conference, which was held |  |  | through digital fabrication by |
| virtually. Its theme of resilience |  |  | investing in Fab Labs across the |
| resounded for us as we maintain |  |  | United States. |
| our global effort to help educate |  |  |  |
| communities, prevent new |  |  |  |
| infections, and improve access to |  |  |  |
| care and support. |  |  |  |

**getting results the right way**

we cultivate a culture of integrity and commit ourselves to do things the right and responsible way

**Above**: An employee at the GS Caltex refinery complex at Yeosu, Korea. In this section, learn how we approach Health and Safety.

**governance**

**governance**

**chevron believes that strong governance is the foundation to creating value for our stockholders**

We have structures and processes in place to responsibly govern our decisions and actions.

Our Investor Relations, ESG and Sustainability, and Corporate Governance departments are engaging with stockholders to discuss operational, financial, governance, executive compensation, environmental, safety, and social and policy issues.

Fostering long-term relationships and maintaining stock-holder trust and confidence are core Chevron objectives.

**chevron.com/sustainability/governance**

**board of directors**

The Chevron  **Board of Directors**  provides oversight of the risk management systems that are employed throughout the company.

They regularly consider critical risk topics as part of their deliberative decision-making processes. Annually, through Chevron's Enterprise Risk Management process, they review financial, operational, market, political and other risks inherent in our business.

Our Board of Directors is made up of individuals who bring diverse experiences and qualities, such as leadership, strategic insights and the ability to provide oversight of risk management. Their range of expertise spans operations, environmental, policy, regulatory and finance.

Their breadth of experience is reflected in their oversight of preparedness and resilience in the face of challenges, such as the company experienced in 2020 with the COVID-19 pandemic that resulted in a significant decrease in demand for Chevron's products and a precipitous drop in commodity prices.

The Board has four standing committees, all composed entirely of independent Directors: the Audit Committee, the Board Nominating and Governance Committee, the Management Compensation Committee, and the Public Policy and Sustainability Committee (PPSC). Each committee fulfills important responsibilities to assist the Board's oversight of risks and build long-term stockholder value.

**executive-level committees**

The Executive Committee comprises corporate officers and is chartered by the Board of Directors to carry out policies in managing the company's business.

The Executive Committee has established two subcommittees that specialize in various matters important to the company, including strategy and compliance. The Enterprise Leadership Team is responsible for managing the composition, resource allocation and strategic direction of Chevron's portfolio to achieve our objectives. The Global Issues Committee (GIC) oversees the development of Chevron's policies and positions with respect to issues of global significance, including climate change, and recommends appropriate actions to respond. The GIC receives updates from subject matter experts on an array of climate change-related issues, such as carbon policy developments around the world, political developments, technological opportunities, and stock-holder and stakeholder positions. The Vice President, Strategy and Sustainability, chairs the GIC and serves as the secretary to the PPSC of the Board, connecting the GIC's work to the oversight of the PPSC.

**compliance**

The Chevron Way forms the foundation of our compliance program through its expression of values and expectations for socially responsible and business conduct. From these overarching principles, the Business Conduct and Ethics Code communicates specific expectations for ethical business conduct.

The  **Business Conduct and Ethics Code**  reinforces our compliance commitment and the responsibility of each employee to ensure Chevron's activities fully adhere to legal and policy requirements everywhere we operate. Chevron maintains internal accounting, administrative and operational controls to manage these standards of conduct and compliance. We communicate this requirement to our business partners through our contractual requirements and through ongoing engagement. Suppliers and contractors play a vital role in our success and we rely heavily on them to help us deliver top-tier business results.  **At Chevron, it is not only about delivering business results, it is about delivering them the right way** .

Our compliance program addresses detailed compliance requirements for many important subjects, including anti-corruption, internal controls, international trade, anti-boycott, operational excellence, data privacy and competition law. For each subject, senior-level Chevron leaders provide risk-based guidance on the company's compliance requirements and training. Chevron employees and contractors receive training on Chevron's Business Conduct and Ethics Code every two years. For 2020, the enterprisewide completion rate for this training exceeded 90 percent. Additional computer-based and in-person compliance training is also assigned and provided on a scheduled basis. Individual business units have ultimate accountability for compliance requirements.

**BPC**

Through our membership in the  **Bipartisan Policy Center**  (BPC), Chevron participates in deliberative, inclusive and informed dialogue on important issues such as energy and environmental policy. BPC is a Washington, D.C.-based think tank that actively fosters bipartisanship by combining the best ideas from various parties to promote sensible solutions. With its strong convening ability, BPC assembles different perspectives on challenging issues to chart a productive path forward. This approach enables Chevron to effectively engage with key stakeholders on all points on the political spectrum.

**Karen Knutson**

Vice President and General Manager, Government Affairs

**employee spotlight**

My team and I are Chevron's advocates, telling the company's story to a very important audience: policymakers at the U.S. federal and state level, as well as talking to international governments in Washington, D.C. We want to be the honest brokers in the room, with a deep awareness of the opportunities and impacts of legislation and regulation, and an obligation to support affordable, reliable and ever-cleaner energy. And in every conversation, we come prepared to focus on climate--it's the one topic at the top of everyone's list.

Having been on the other side of the table during my years of working with the Senate and the White House, I understand how we can help policy makers by advocating in a way that makes their job easier. This also applies to our international work, where we find the U.S. government is interested in our perspectives on the countries in which we operate. My team works in close concert with our Corporate Affairs teams around the world every day.

Above all, our reputation and our trustworthiness as a company that doesn't take shortcuts and that lives by the values of The Chevron Way are the most important elements of our advocacy work.

**corporate alliance for the rule of law**

Chevron is a founding member of the  **Corporate Alliance for the Rule of Law**  (CAROL), which mobilizes the private sector to support, promote and strengthen the rule of law as the foundation for social and economic development and the pro - tection of personal freedoms. Several Chevron attorneys have worked pro bono with other members to provide their collective expertise on a range of projects. Recent ventures have included strengthening the capacity and independence of the Guatemalan judiciary; conducting workshops for 70 Kenyan judges; providing an international perspective to women judges in Mexico to improve their decision-making and personal advancement; and developing an assessment tool to assist Latin American countries in combating corruption.

**lobbying and trade associations**

In our 2020 *Corporate Sustainability Report*, we have provided examples of the broad range of issues that Chevron contributes to via trade associations and partnerships.

Collaborating with trade associations across a spectrum of issues provides our company access to a range of perspectives and creates important opportunities to shape positions that align to our corporate values and with the interests of our employees, stakeholders and stockholders.

Trade associations strive to represent the collective point of view of the membership. While there are times when our views diverge from those of other members, we actively engage with trade association partners, believing an open, rigorous examination of the issues helps to promote stronger progress for all. **ade associations**

**climate lobbying report**

In December 2020, we published our first  ***Climate Lobbying Report*** . The report reflects our focus on transparency and desire to be responsive to stakeholders' increasing interest in more details about how we conduct our climate lobbying.

The report explains that our climate lobbying activities are designed to support our commitment to deliver afford able, reliable and ever-cleaner energy and help advance the global energy transition.

The report describes: (1) our energy transition strategy and policy framework; (2) how our Board of Directors and management provide oversight on climate lobbying; (3) our direct climate lobbying and trade association process; and (4) how our key trade associations contribute to and advance the dialogue regarding the energy transition.

**five takeaways from the climate lobbying report include >**

**1**

**at chevron, we are committed to compliance, transparency and accountability in our lobbying activities**

**2**

**we have executive management and board oversight of direct and indirect lobbying activities**

**3**

**we are committed to having an honest conversation**

**this means sharing our perspective, listening to others, respecting differences and working to find solutions**

**4**

**our climate lobbying activities are designed to support our commitment to deliver affordable, reliable and ever-cleaner energy and help advance the global energy transition**

**5**

**we rarely agree 100 percent with any trade associations, but we believe our analysis shows that they help advance chevron's view on the energy transition**

**select climate-related positions by major US trade associations**

|  |  |
| --- | --- |
| American Chemistry Council (ACC) | ACC aims to advocate for a thriving chemical industry, supporting opportunities to use chemistry to |
| ACC represents U.S. chemical manufacturers | develop efficient and effective climate change solutions. The trade association advocates for: 1) the goals |
|  | of the Paris Agreement; 2) market-based mechanisms, such as an economywide price on carbon over other |
|  | regulatory systems or command-and-control approaches; 3) carbon leakage protection measures; and |
|  | 4) continued investment in research and development and innovative technology, such as renewable energy |
|  | and carbon capture, utilization and storage (CCUS), to enable significant and cost-effective solutions and |
|  | mitigation actions. |
| American Fuel & Petrochemical | Chevron has engaged with AFPM with the goal of encouraging advocacy for policies that enable members |
| Manufacturers (AFPM) AFPM represents | to provide the fuels and petrochemicals that society needs in a sustainable way. AFPM's climate principles |
| U.S. petroleum refining and petrochemical | call for policies that are balanced, measured, transparent, harmonized and economywide. |
| manufacturing industries |  |
| American Petroleum Institute (API) | API believes that the ***oil*** and natural gas industry is part of the global solution to climate change and |
| API represents all segments of America's | has a vital role to play in developing and deploying technologies and products that continue to reduce |
| ***oil*** and natural gas industry. API is also a | greenhouse gas (GHG) emissions while advancing economic prosperity. For instance, API created a new |
| standards-setting organization that publishes | Climate Committee and has developed new policy positions that support market-based approaches |
| and maintains widely accepted standards and | and innovation to address climate change. API supports the ambitions of the Paris Agreement. It also |
| recommendations for the industry | supports innovation, including reauthorization of the ARPA-E. On methane, API has focused on ensuring |
|  | the EPA's rule is consistent with the federal Clean Air Act and ensuring that effective state regulations are |
|  | recognized. In 2017, API launched The Environmental Partnership, of which Chevron is a founding member. |
|  | Among its activities, The Environmental Partnership has programs designed to further reduce flaring, |
|  | emissions of methane and volatile organic compounds using cost-effective technologies. |
| Business Roundtable (BRT) BRT is an | BRT believes that corporations should lead by example, support sound public policies and drive innovation |
| association of chief executive officers of | to address climate change. According to BRT, the U.S. should adopt a more comprehensive, coordinated |
| America's leading companies | and market-based approach to reducing emissions. In September 2020, BRT established new climate policy |
|  | principles. The BRT's principles call for economywide carbon pricing as the primary policy tool to address |
|  | climate change, support for innovative technologies such as CCUS, and efficient nonduplicative regulations. |
| Consumer Energy Alliance (CEA) CEA | CEA states that energy production and environmental stewardship are not mutually exclusive. CEA is |
| advocates for various consumer stakeholders | focused on advancing policies that consider consumer needs and support technology and innovation. |
| on energy and environmental issues on | CEA supports affordable and reliable energy in all forms. |
| the regional, state and federal levels |  |
| Independent Petroleum Association of | IPAA's stated purpose is to advocate for federal policies that promote the safe development and use of |
| America (IPAA) IPAA represents U.S. | American ***oil*** and natural gas. IPAA believes well-reasoned, cost-effective steps can be taken to limit |
| independent ***oil*** and natural gas producers | the generation of GHG emissions. IPAA also supports global cooperation, which it views as essential to |
|  | avoid national adverse economic actions without global GHG benefits. |
| The National Association of Manufacturers | The NAM supports the objectives of the Paris Agreement to reduce climate risks. The NAM has called |
| (NAM) The NAM represents small and large | for Congressional action on climate policy that achieves meaningful, cost-effective GHG reductions while |
| U.S. manufacturers in various industry sectors | maintaining a strong economy. The NAM's principles support a level playing field that prevents carbon |
| and advocates pro-manufacturing policies | leakage, while maintaining manufacturers' global competitiveness. The NAM supports innovation and |
|  | technological deployment to help decarbonize manufacturing. |
| Natural Gas Supply Association (NGSA) | NGSA supports the Paris Agreement and believes the U.S. should remain part of the Agreement. In addition, |
| NGSA represents U.S. integrated and | NGSA advocates for economywide carbon pricing and, in the absence of national policy, carbon pricing in |
| independent companies that supply natural | power markets. For example, NGSA encouraged the Federal Energy Regulatory Commission (FERC) to hold |
| gas, and focuses on producer-marketer issues | a technical conference on carbon pricing, and NGSA participated in that September 2020 FERC conference. |
| related to the downstream natural gas industry | On methane, NGSA supports cost-effective methane policies and regulations. NGSA is committed to reducing |
|  | methane emissions and improving the quality of methane data to achieve greater transparency. |
| United States Council for International | USCIB's priorities include advancing global climate action alongside energy security, innovation and climate |
| Business (USCIB) USCIB promotes a | resilience. Related to its priorities, USCIB supports the Paris Agreement and believes the U.S. should remain |
| variety of business views across multiple | part of the Agreement. USCIB principles recognize carbon pricing as an important climate policy tool, and |
| sectors to the U.S. government and to | USCIB seeks opportunities to design international climate cooperation that works with markets to encourage |
| international policy makers | companies in all sectors to integrate climate mitigation into their activities, supply and value chains. |
| U.S. Chamber of Commerce (U.S. Chamber) | The U.S. Chamber believes that the U.S. should be a world leader in climate change science and technologies. |
| The U.S. Chamber develops and implements | In November 2019, the U.S. Chamber announced its support for U.S. participation in the Paris Agreement. |
| policy on major issues affecting U.S. businesses | The U.S. Chamber also emphasizes the importance of market-based approaches, efficiency and resilient |
| of all sizes across many sectors of the economy | infrastructure in addressing climate change. The U.S. Chamber supports innovation-related legislation, and |
|  | the phasedown of hydrofluorocarbons (HFCs). It is also working on a path forward on light-duty vehicle fuel |
|  | economy and GHG standards that provide regulatory certainty, continue progress on mileage and emissions |
|  | reductions, and preserve a unified national program for vehicle sales. |
| Western States Petroleum Association | WSPA works to support development of the energy the world needs, while addressing concerns associated |
| (WSPA) WSPA is a nonprofit trade association | with climate change. WSPA recommends, for states considering climate policies, that market-based |
| that represents companies involved in | approaches can help balance the need to achieve GHG emissions targets while reducing the economic |
| petroleum exploration, production, refining, | impact on families, consumers and the economy. |
| transportation and marketing, in the five |  |
| western states of Arizona, California, Nevada, |  |
| Oregon and Washington |  |

We are committed to our culture of Operational Excellence (OE) and continually work to improve our OE performance by eliminating serious injuries and fatalities, and by learning from our incidents. We believe the more effectively we work on safety, the less often we will need to respond to an incident or potential injury involving our colleagues.

Our strong safety record reflects the evolution of our  **Operational Excellence Management System**  (OEMS), established in 2004 and updated in 2018, to manage health, safety and environmental risks. The OEMS enables us to systematically manage risk, implement and assure safeguards, and foster a culture of learning.

**supporting physical and emotional well-being**

2020 presented unprecedented pandemic-related health and well-being risks. While many of our employees were able to work remotely, others continued working onsite to keep our operations running safely. As stressors increased during the pandemic, Chevron connected employees with programs that support physical and emotional well-being to cope with the many challenges posed by COVID-19.

With up to 90 percent of our office-based employees shifting to remote work, demand for Chevron's Repetitive Stress Injury Prevention services increased, and ergonomic solutions were needed to respond to a change in work environments. Our Global Health and Medical ergonomic teams utilized technology to provide ergo evaluations and assistance for more than 6,300 Chevron U.S. employees, using a variety of communications channels and digital images of at-home workstations. Ergonomic evaluation support was extended to an 18-hour window each day to accommodate Chevron employees around the world.

As our workers experienced increasing stress in balancing work-life issues and other pressures, the company encouraged employees to utilize our suite of wellness programs that provide mental health and wellness resources, a substance abuse program, and new app-based resilience tools. Our longstanding Employee Assistance Program, now in its 51st year, offered a range of virtual programs for our employees and their families, including art contests, music classes, mindfulness and yoga instruction, storytelling sessions, and comic strips. Employees experiencing emotional issues were able to utilize meQuilibrium, an engaging resilience app that coaches employees on managing stress, overcoming negative thinking and making healthy lifestyle choices.

**employee spotlight**

Before joining Chevron in 2006, I worked as a researcher at the National Aeronautics and Space Administration, where I helped develop nutritional requirements for astronauts coping with isolation and stress while in space. This proved to be good training for my work at Chevron, where I am helping to influence the health and well-being of a global workforce. It has been very motivating to influence the well-being of our workforce who live and work on offshore rigs, which can be as isolating as space travel in its own way.

As a trained nutritionist, my first assignment at Chevron was helping employees develop healthy eating habits to combat illnesses such as heart disease, the No.1 killer in the United States and much of the world. Each assignment since then has inspired me and made me proud to work for a company that cares so much about people's physical and emotional well-being.

An exciting part of my journey has involved Chevron's focus on Human Performance factors, such as fatigue and stress, as targets for influencing individual well-being. That focus has continued in my new position, which I began in October 2020, where I continue to concentrate on resilience and psychological well-being as one of the key factors in operating safely and productively. After all the challenges we faced in the past year, resilience is now even more critical for us to maintain.

**product stewardship: chemicals in products**

Chevron Oronite Company LLC, or  **Oronite** , the company's additives and specialty chemicals business, adheres to an internal policy to place new products on the market that, when possible and without compromising safety or reliability, do not contain more than 0.1 percent (w/w, per weight) of a given priority substance. Priority substances include those, for example, that are known to be carcinogenic; reprotoxic; mutagenic; or persistent, bio-accumulative and toxic (PBT). Oronite routinely evaluates opportunities to reduce or eliminate priority substances from the company's product lines.

**applying technology for safer, faster results**

During the pandemic, a key safeguard was physical distancing, particularly important for our offshore and seagoing workforce, who live and work together for extended periods. Advances in digital technologies enabled us to conduct remote audits to assess safe operations in our facilities, while keeping our workers physically distanced.

We recognized the potential for conducting remote audit and assurance activities in early 2020 and began pilot testing at our Blind Faith Platform in the Gulf of Mexico. By year-end, we had completed corporate audits in our Upstream, Midstream and Downstream U.S. businesses, and had developed a fully remote 2021 audit schedule including several international locations.

Our safety team utilizes a variety of technologies to conduct remote audits, including Microsoft Teams,(R) smartphones, tablets and HoloLens. Microsoft's HoloLens is a headset that operates as a fully self-contained holographic computer. Coupled with Microsoft Dynamics 365(R) Remote Assist,(TM) the technology provides a remote view of operations that allows auditors to verify safeguards as if they were onsite, maintaining a high standard of compliance without introducing the risk of additional personnel. Chevron is continuing to evaluate products and technology to help us assess and promote our OE culture.

**IOGP**

As a member of the International Association of ***Oil*** and Gas Producers (IOGP), we recognize the importance of collaborating on a wide range of industry initiatives that support our business objectives. Through our work as part of IOGP's Safety Committee, we helped develop a set of  **Life-Saving Rules** . Published in 13 languages, these rules provide industry workers with actions they can take to protect themselves and their colleagues from serious injuries and fatalities. These rules complement Chevron's thorough guidelines on safe workplace procedures.

We also participated in the development of  **Process Safety Fundamentals** , a companion approach to helping our work? force identify process safety risks. Adoption of these programs can be particularly helpful to ***oil*** and gas service company personnel who work for a variety of operators and benefit from standardization and consistency in our approach to workforce and process safety.

**expansion of ePTW**

Electronic Permit-to-Work (ePTW) is a digital tool that replaces manual, paper-intensive processes required for routine and high-risk maintenance operations. In 2019, the HSE Workforce Safety Team collaborated with software provider Enablon to configure their software tool for our work processes. The pilot version of ePTW supported permit and isolation workflows across multiple permit types. The primary objective of Chevron's ePTW deployment is an enhanced focus on safeguard verification. By reducing the administrative burden associated with permitting work, there is more time for robust hazard analysis development and review, and safeguard verification. An unexpected but notable benefit during the pandemic has been ePTW's ability to support physical distancing of the workforce. In 2020, our ePTW technology was expanded to 12 new sites, in addition to the initial three sites piloted in 2019. New software releases provided additional enhancements, including integration with maintenance manage?ment systems and improved identification of potential risks and available safeguards. The tool was also made available in four additional languages to support our global operations.

As a result of travel restrictions driven by the pandemic, the ePTW team pivoted to a virtual train-the-trainer approach to enable business unit employees to deliver training. Deployment to additional sites will continue through 2021 and beyond, with ongoing software releases for continued enhancement.

**enhancing our process safety culture**

It is important to understand the effectiveness of our process safety procedures and programs at all levels of the organization. Are they producing the desired effects? Are risks identified and well understood? Are safeguards in place and functioning as intended? Are there signs or weak signals that need to be addressed?

The systems to manage process safety are complex, and it takes people with skills in a wide variety of disciplines working together to keep our safeguards strong and effective. For this reason, we created a guide designed to help leaders more effectively engage employees and contractors in the essential process safety elements, to build and sustain a culture where we rigorously apply established practices with a keen eye to recognize and respond to warning signs.

The guide is targeted at supervisors with responsibility and accountability for specific process safety elements and provides planning questions, expectations, warning signs and suggested reviews to help supervisors understand more deeply how each topic area is addressed within their business. When facility leaders set aside time on a regular basis to address process safety issues in an honest, thoughtful manner, it sends a clear message to all employees that process safety is important. By encouraging our supervisors and their teams to ask the right questions every time they approach a task, we believe we can maintain our focus and strengthen our process safety culture.

**enforcing greater road safety**

Motor vehicle crashes are a leading cause of death in every industry group. In Chevron, we have set rigorous OE standards for transportation safety and consistently seek ways to ensure that we meet these standards.

In March 2019, Chevron committed to only purchase, lease and contract 5-Star New Car Assessment Program (NCAP)--rated vehicles. This rating measures the crashworthiness of light vehicles and is based on factors such as front- and side-impact crash testing, as well as rollover resistance testing. Research indicates that by using only 5-Star cars, we can lower the risk of a fatal injury by 68 percent compared to 2-Star-rated vehicles, and by about 12 percent compared to 4-Star-rated vehicles.

Our commitment to purchase 5-Star vehicles when existing Chevron fleet vehicles are replaced, to update contract language, to work with our rental car partners, and to review options with ride-share companies will take several years to fully implement.

We demonstrate our commitment to transparency by reporting metrics and performance data annually so we can hold ourselves responsible for our progress and our stakeholders can hold us accountable.

We consider the reporting guidelines, indicators and terminology in the *Sustainability Reporting Guidance for the* ***Oil*** *and Gas Industry* (2020) by the International Petroleum Industry Environmental Conservation Association (IPIECA), the International ***Oil*** and Gas Producers (IOGP) Association and the American Petroleum Institute (API), as well as other leading reporting frameworks, to determine which data to include in the table. The content for this table and the larger report was identified through issue-prioritization processes and engagements with both internal and external stakeholders.

Beginning in the 2019 *Corporate Sustainability Report*, we enhanced our reporting by aligning our performance data table with the recommendations of the Sustainable Accounting Standards Board (SASB) voluntary framework, as reflected in the SASB index. This enhancement to our environmental, social and governance (ESG) reporting helps provide comparable and decision-useful information for investors and other stakeholders. In addition, we have indicated where our data relate to the core *Stakeholder Capitalism* metrics developed by the World Economic Forum (WEF).

We have also disclosed our ESG data, including greenhouse gas (GHG) emissions data, in the IHS Markit ESG Reporting Repository to enable investors and other stakeholders to efficiently compare ESG data across sectors and reporting frameworks.

|  | **2016** | **2017** | **2018** | **2019** | **2020** | **SASB<b>** | **IPIECA<c>** |
| --- | --- | --- | --- | --- | --- | --- | --- |
| Upstream production net emissions intensity |  |  |  |  |  |  | CCE4: C4 |
| (kilograms CO[2]e/boe)<2> |  |  |  |  |  |  |  |
| ***Oil*** intensity | 41.9 | 36.8 | 37.0 | 33.3 | 28.3 |  |  |
| Gas intensity | 32.6 | 35.0 | 34.7 | 30.4 | 26.8 |  |  |
| Flaring intensity | 8.7 | 7.2 | 6.3 | 4.7 | 3.9 |  |  |
| Methane intensity | 4.5 | 3.3 | 2.8 | 2.4 | 2.0 |  |  |
| direct GHG emissions (Scope 1)<d, 3, 4, 5,6> |  |  |  |  |  |  |  |
| direct GHG emissions (Scope 1) |  |  |  |  |  |  | CCE4: |
|  | 64 | 63 | 66 | 62 | 54 |  |  |
| (million tonnes CO[2]e)<w> |  |  |  |  |  |  | C1/A1 |
| Upstream (million tonnes CO[2]e) | 35 | 35 | 37 | 35 | 30 | EM-EP-110a.1 | CCE4: C3 |
| CO[2] (million tonnes) | 30 | 31 | 34 | 32 | 27 |  |  |
| CH[4] (million tonnes CH[4]<7> | 0.17 | 0.13 | 0.12 | 0.11 | 0.09 |  |  |
| CH[4] (million tonnes CO[2]e)<7> | 4.3 | 3.3 | 3.0 | 2.7 | 2.3 |  |  |
| Other GHG (million tonnes CO[2]e) | 0.1 | 0.1 | 0.1 | 0.1 | 0.1 |  |  |
| Midstream (million tonnes CO[2]e) | O[2 | O[2 | O[2 | 1 | 1 | EM-MD-110a.1 | CCE4: C3 |
| CO[2] (million tonnes) | 1 | O[2 | O[2 | 1 | 1 |  |  |
| CH[4] (million tonnes CH[4])<7> | <0.01 | <0.01 | <0.01 | <0.01 | <0.01 |  |  |
| CH[4] (million tonnes CO[2]e)<7> | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 |  |  |
| Other GHG (million tonnes CO[2]e) | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 |  |  |
| Downstream (million tonnes CO[2]e)<8> | 21 | 21 | 20 | 19 | 18 | EM-RM-110a.1 | CCE4: C3 |
| CO[2] (million tonnes) | 21 | 20 | 20 | 19 | 18 |  |  |
| CH[4] and other GHG (million tonnes CO[2]e) | 0.1 | 0.1 | 0.1 | 0.1 | 0.1 |  |  |
| Chemicals (million tonnes CO[2]e)<9> | 5 | 5 | 5 | 5 | 4 |  | CCE4: C3 |
| CO[2] (million tonnes) | 5 | 5 | 5 | 5 | 4 |  |  |
| CH[4] and other GHG (million tonnes CO[2]e) | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 |  |  |
| Other (million tonnes CO[2]e)<10> | O[2 | )<1 | O[2 | )<1 | )<1 |  | CCE4: C3 |
| CO[2] (million tonnes) | O[2 | 1 | O[2 | 1 | 1 |  |  |
| CH[4] and other GHG (million tonnes CO[2]e) | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 |  |  |
| select breakdowns of GHG emissions<w> |  |  |  |  |  |  |  |
| Upstream flaring (million tonnes CO[2]e)<11> | 8 | 7 | 7 | 5 | 4 | EM-EP-110a.2 | CCE7: C4 |
| CO[2] (million tonnes) | 7 | 7 | 6 | 5 | 4 |  |  |
| CH[4] (million tonnes CH[4])<7> | 0.03 | 0.03 | 0.03 | 0.02 | 0.01 |  |  |
| CH[4] (million tonnes CO[2]e)<7> | 0.8 | 0.6 | 0.6 | 0.4 | 0.3 |  |  |
| Other GHG (million tonnes CO[2]e) | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 |  |  |
| Volume of flares (MMSCF) | 130,000 | 110,000 | 100,000 | 70,000 | 60,000 |  | CCE7: A1 |
| Emissions associated with exported electricity |  |  |  |  |  |  | CCE4: |
|  | 1 | 1 | 1 | 1 | 1 |  |  |
| and steam (million tonnes CO[2]e)<12> |  |  |  |  |  |  | C3/A6 |
| Upstream (million tonnes CO[2]e) | <1 | <1 | <1 | <1 | <1 |  |  |
| Midstream (million tonnes CO[2]e) | 0 | 0 | 0 | 0 | 0 |  |  |
| Downstream (million tonnes CO[2]e)<8> | <1 | <1 | <1 | <1 | <1 |  |  |
| Chemicals (million tonnes CO[2]e)<9> | 0 | 0 | 0 | 0 | 0 |  |  |
| Other (million tonnes CO[2]e)<10> | )<1 | )<1 | )<1 | )<1 | <1 |  |  |
| indirect GHG emissions (Scope 2)<d, 13> |  |  |  |  |  |  | > |
| indirect GHG emissions (Scope 2) |  |  |  |  |  |  | CCE4: |
|  | 3 | 3 | 3 | 2 | 4 |  |  |
| (million tonnes CO[2]e)w |  |  |  |  |  |  | C2/C3 |
| Upstream (million tonnes CO[2]e) | 1 | 1 | 1 | 1 | 1 |  |  |
| Midstream (million tonnes CO[2]e) | <1 | <1 | <1 | <1 | <1 |  |  |
| Downstream (million tonnes CO[2]e)<8> | O[2 | 1 | 1 | 1 | 1 |  |  |
| Chemicals (million tonnes CO[2]e)<9> | <1 | <1 | <1 | <1 | 1 |  |  |
| Other (million tonnes CO[2]e)<10> | e)<1 | e)<1 | e)<1 | e)<1 | <1 |  |  |
| CO[2] sales, storage, purchase or injection |  |  |  |  |  |  | CCE3: A6 |
| (million tonnes CO[2]e) |  |  |  |  |  |  |  |
| Sales or storage of company CO[2] (million tonnes CO[2]e)<14> | e)<1 | e)<1 | e)<1 | )<1 | 2 |  |  |
| Purchase or injection of third-party CO[2] (million tonnes CO[2]e)<15> | )<1 | )<1 | )<1 | )<1 | 1 |  |  |
| offsets |  |  |  |  |  |  |  |
| Offsets purchased/developed outside the inventory boundary |  |  |  |  |  |  |  |
|  | 4 | 4 | 3 | 1 | 2 |  |  |
| and retired by company (million tonnes CO[2]e)<16> |  |  |  |  |  |  |  |
| Offsets developed within the inventory boundary and |  |  |  |  |  |  |  |
|  | <1 | <1 | <1 | <1 | -- |  |  |
| sold/transferred to third parties (million tonnes CO[2]e)<17> |  |  |  |  |  |  |  |
| indirect GHG emissions -- all other (Scope 3)<18> |  |  |  |  |  |  | CCE4: A2 |
| Use of sold products -- production method |  |  |  |  |  |  |  |
|  | 364 | 377 | 396 | 412 | 412 |  |  |
| (million tonnes CO[2]e) |  |  |  |  |  |  |  |
| Use of sold products -- throughput method |  |  |  |  |  |  |  |
|  | 355 | 365 | 380 | 382 | 372 |  |  |
| (million tonnes CO[2]e) |  |  |  |  |  |  |  |
| Use of sold products -- sales method (million tonnes CO[2]e) | 598 | 613 | 628 | 639 | 583 |  |  |
| third-party verification<19> |  |  |  |  |  |  |  |
|  |  |  |  |  | Anticipated |  |  |
| Assurance level | Limited | Limited | Limited | Limited | to be |  |  |
|  |  |  |  |  | limited 20 |  |  |
| Assurance provider | ERM CVS | ERM CVS | ERM CVS | ERM CVS | ERM CVS |  |  |

| **operated emissions<a,1>** |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
|  | **2016** | **2017** | **2018** | **2019** | **2020** | **SASB<b>** | **IPIECA<c>** |
| direct GHG emissions (Scope 1)<d,w,3> |  |  |  |  |  |  |  |
| direct GHG emissions (Scope 1) | 66 | 67 | 68 | 63 | 56 |  | CCE4: |
| (million tonnes CO[2]e) |  |  |  |  |  |  | C1/A1 |
| Upstream (million tonnes CO[2]e) | 46 | 47 | 49 | 45 | 40 | EM-EP-110a.1 | CCE4: C3 |
| CO[2] (million tonnes) | 39 | 42 | 44 | 42 | 37 |  |  |
| CH[4] (million tonnes CH[4])<7> | 0.24 | 0.19 | 0.17 | 0.14 | 0.12 |  |  |
| CH[4] (million tonnes CO[2]e)<7> | 6.1 | 4.8 | 4.2 | 3.4 | 3.0 |  |  |
| Other GHG (million tonnes CO[2]e) | 0.1 | 0.2 | 0.1 | 0.1 | 0.1 |  |  |
| Midstream (million tonnes CO[2]e) | O[2 | O[2 | O[2 | 1 | 1 | EM-MD-110a.1 | CCE4: C3 |
| CO[2] (million tonnes) | 1 | O[2 | O[2 | 1 | 1 |  |  |
| CH[4] (million tonnes CH[4])<7> | <0.01 | <0.01 | <0.01 | <0.01 | <0.01 |  |  |
| CH[4] (million tonnes CO[2]e)<7> | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 |  |  |
| Other GHG (million tonnes CO[2]e) | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 |  |  |
| Downstream (million tonnes CO[2]e)<8> | 16 | 16 | 15 | 14 | 14 | EM-RM-110a.1 | CCE4: C3 |
| CO[2] (million tonnes) | 16 | 16 | 15 | 14 | 14 |  |  |
| CH[4] and other GHG (million tonnes CO[2]e) | 0.1 | 0.1 | 0.1 | 0.1 | 0.1 |  |  |
| Chemicals (million tonnes CO[2]e)<9> | <1 | <1 | <1 | <1 | <1 |  | CCE4: C3 |
| CO[2] (million tonnes) | <1 | <1 | <1 | <1 | <1 |  |  |
| CH[4] and other GHG (million tonnes CO[2]e) | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 |  |  |
| Other (million tonnes CO[2]e)<10> | O[2 | )<1 | O[2 | )<1 | )<1 |  | CCE4: C3 |
| CO[2] (million tonnes) | O[2 | 1 | O[2 | 1 | 1 |  |  |
| CH[4] and other GHG (million tonnes CO[2]e) | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 |  |  |
| select breakdowns of GHG emissions |  |  |  |  |  |  |  |
| Upstream flaring (million tonnes CO[2]e)<11> | 15 | 13 | )<11 | 9 | 7 | EM-EP-110a.2 | CCE7: C4 |
| CO[2] (million metric tons) | 13 | 12 | 10 | 8 | 6 |  |  |
| CH[4] (million tonnes CH[4])<7> | 0.06 | 0.04 | 0.04 | 0.03 | 0.02 |  |  |
| CH[4] (million tonnes CO[2]e)<7> | 1.6 | 1.1 | 0.9 | 0.7 | 0.5 |  |  |
| Other GHG (million tonnes CO[2]e) | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 |  |  |
| Volume of flares (MMSCF) | 230,000 | 200,000 | 170,000 | 130,000 | 110,000 |  | CCE7: A1 |

| **operated emissions<a,1>** |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
|  | **2016** | **2017** | **2018** | **2019** | **2020** | **SASB<b>** | **IPIECA<c>** |
| Emissions associated with exported electricity | 1 | 1 | 1 | 1 | 1 | CCE4: |  |
| and steam (million tonnes CO[2]e)<w,12> |  |  |  |  |  | C3/A6 |  |
| Upstream (million tonnes CO[2]e) | <1 | <1 | <1 | <1 | <1 |  |  |
| Midstream (million tonnes CO[2]e) | 0 | 0 | 0 | 0 | 0 |  |  |
| Downstream (million tonnes CO[2]e)<8> | <1 | <1 | <1 | <1 | <1 |  |  |
| Chemicals (million tonnes CO[2]e)<9> | 0 | 0 | 0 | 0 | 0 |  |  |
| Other (million tonnes CO[2]e)<10> | )<1 | )<1 | )<1 | )<1 | <1 |  |  |
| indirect GHG emissions (Scope 2)<d,w,13> |  |  |  |  |  |  |  |
| indirect GHG emissions (Scope 2) | e 2 | e 2 | e 2 | 1 | 1 | CCE4: |  |
| (million tonnes CO[2]e) |  |  |  |  |  | C2/C3 |  |
| Upstream (million tonnes CO[2]e) | 1 | 1 | 1 | 1 | 1 |  |  |
| Midstream (million tonnes CO[2]e) | <1 | <1 | <1 | <1 | <1 |  |  |
| Downstream (million tonnes CO[2]e)<8> | 1 | 1 | 1 | <1 | <1 |  |  |
| Chemicals (million tonnes CO[2]e)<9> | <1 | <1 | <1 | <1 | <1 |  |  |
| Other (million tonnes CO[2]e)<10> | e)<1 | e)<1 | e)<1 | e)<1 | <1 |  |  |
| CO[2] sales, storage, purchase or injection |  |  |  |  |  | CCE3: A6 |  |
| Sales or storage of company CO[2] (million tonnes CO[2]e)<14> | -- | e)<1 | e)<1 | )<1 | 3 |  |  |
| Purchase or injection of third-party CO[2] (million tonnes CO[2]e)<15> | )<1 | )<1 | )<1 | )<1 | 1 |  |  |
| offsets |  |  |  |  |  |  |  |
| Offsets purchased/developed outside the inventory boundary | 4 | 4 | 3 | 1 | 2 |  |  |
| and retired by company (million tonnes CO[2]e)<16> |  |  |  |  |  |  |  |
| Offsets developed within the inventory boundary and | 0 | 0 | 0 | 0 | 0 |  |  |
| sold/transferred to third parties (million tonnes CO[2]e)<17> |  |  |  |  |  |  |  |
| indirect GHG emissions - all other (Scope 3)<18> |  |  |  |  |  | CCE4: A2 |  |
| Use of sold products - production method | 539 | 608 | 617 | 622 | 588 |  |  |
| (million tonnes CO[2]e) |  |  |  |  |  |  |  |
| Use of sold products - throughput method | 341 | 386 | 406 | 411 | 392 |  |  |
| (million tonnes CO[2]e) |  |  |  |  |  |  |  |

| **environmental performance<a,e>** |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
|  | **2016** | **2017** | **2018** | **2019** | **2020** | **SASB<b>** | **IPIECA<c>** |
| **energy efficiency** |  |  |  |  |  |  | **CCE6** |
| Total energy consumption, operated assets and nonoperated | 830 | 833 | 928 | 910 | 851 |  | CCE6: C1 |
| joint-venture refineries (trillion BTUs) |  |  |  |  |  |  |  |
| Total energy consumption, operated assets and nonoperated | 876 | 879 | 980 | 960 | 898 |  | CCE6: C1 |
| joint-venture refineries (million gigajoules) |  |  |  |  |  |  |  |
| Total energy consumption, operated assets (trillion BTUs) | 671 | 677 | 766 | 752 | 700 |  | CCE6: C1 |
| Total energy consumption, operated assets | 708 | 715 | 808 | 794 | 739 |  | CCE6: C1 |
| (million gigajoules) |  |  |  |  |  |  |  |
| Manufacturing Energy Index (Refining)<21> | 85 | 85 | 85 | 85 | 88 |  | CCE6: A4 |
| Upstream Energy Intensity (thousand BTUs per barrel of | 312 | 315 | 358 | 362 | 340 |  | CCE6: A2 |
| ***oil***-equivalent) |  |  |  |  |  |  |  |
| Pipeline Energy Intensity (BTUs per barrel of | 20 | 13 | 10 | 8 | 10 |  | CCE6: A2 |
| ***oil***-equivalent-mile)<22> |  |  |  |  |  |  |  |
| Shipping Energy Intensity (BTUs per metric ton-mile) | 43 | 70 | 75 | 70 | 69 |  | CCE6: A2 |
| Non-Manufacturing Energy Index<23> | 75 | 75 | 74 | 67 | 71 |  | CCE6: A3 |
| air quality<24> |  |  |  |  |  |  | ENV5 |
|  |  |  |  |  |  | EM-EP-120a.1 |  |
| Total volatile organic compounds (VOCs) emitted | 150 | 142 | 115 | 102 | 81 | EM-MD-120a.1 | ENV5: C1 |
| (thousand metric tons) |  |  |  |  |  | EM-RM-120a.1 |  |
|  |  |  |  |  |  | EM-EP-120a.1 |  |
| Total sulfur oxides (SO[X]) emitted (thousand metric tons) | 66 | 52 | 40 | 36 | 41 | EM-MD-120a.1 | ENV5: C1 |
|  |  |  |  |  |  | EM-RM-120a.1 |  |
|  |  |  |  |  |  | EM-EP-120a.1 |  |
| Total nitrogen oxides (NO[X]) emitted (thousand metric tons) | 148 | 147 | 141 | 130 | 112 | EM-MD-120a.1 | ENV5: C1 |
|  |  |  |  |  |  | EM-RM-120a.1 |  |
| water management |  |  |  |  |  |  |  |
| water withdrawn<25> |  |  |  |  |  |  | ENV1 |
| Fresh water withdrawn (million cubic meters) | 80 | 72 | 71 | 70 | 63 |  | ENV1: C1 |
| Upstream | 35 | 33 | 31 | 33 | 28 | EM-EP-140a.1 |  |
| Refining<26> | 42 | 36 | 37 | 34 | 33 | EM-RM-140a.1 |  |
| Other<27> | 3 | 3 | 3 | 3 | 2 |  |  |
| Nonfresh water withdrawn (million cubic meters) | 36 | 41 | 39 | 45 | 34 |  | ENV1: A4 |
| Upstream | 15 | 22 | 21 | 27 | 17 |  |  |
| Refining<26> | 18 | 18 | 16 | 17 | 17 |  |  |
| Other<27> | 3 | 1 | r<2 | 1 | <1 |  |  |

| **environmental performance, <a, e>** |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
|  | **2016** | **2017** | **2018** | **2019** | **2020** | **SASB<b>** | **IPIECA<c>** |
| water withdrawn,<25> |  |  |  |  |  |  | ENV1 |
| Fresh water withdrawn intensity |  |  |  |  |  |  | ENV1: A2 |
| Upstream (barrel of water per barrel of ***oil***-equivalent)<28> | -- | 0.14 | 0.12 | 0.14 | 0.11 |  | ENV1: A2 |
| Refining (barrel of water per barrel of ***oil***-equivalent |  |  |  |  |  |  |  |
|  | -- | 0.52 | 0.55 | 0.53 | 0.57 |  | ENV1: A2 |
| as feedstock)<29> |  |  |  |  |  |  |  |
| Fresh water consumed (million cubic meters) | 79 | 71 | 70 | 69 | 62 | EM-EP-140a.1 | ENV1: C2 |
| wastewater<30> |  |  |  |  |  |  | ENV2 |
| Average ***oil*** concentration in discharges to surface water |  |  |  |  |  |  |  |
|  |  |  |  |  |  | EM-EP-140a.2 |  |
| (parts per million) |  |  |  |  |  |  |  |
| Upstream | 9 | 8 | 7 | 8 | 7 |  | ENV2: C1 |
| Refining<26> | 1 | 1 | 1 | 1 | 1 |  | ENV2: C2 |
| Total amount of ***oil*** discharged to surface water |  |  |  |  |  |  |  |
|  |  |  |  |  |  | EM-EP-140a.1 |  |
| (thousand metric tons) |  |  |  |  |  |  |  |
| Upstream | 1.2 | 0.9 | 0.7 | 0.7 | 0.5 |  | ENV2: C1 |
| Refining 26 | 0.04 | 0.04 | 0.03 | 0.03 | 0.03 |  | ENV2: C2 |
| accidental release prevention and response<31> |  |  |  |  |  |  | ENV6 |
| Petroleum spills to land and water (volume in |  |  |  |  |  | EM-EP-160a.2 |  |
|  | 0.36 | 1.46 | 1.02 | 0.79 | 0.94 |  | ENV6: C2 |
| thousand barrels) |  |  |  |  |  | EM-MP-160a.4 |  |
|  |  |  |  |  |  | EM-EP-160a.2 |  |
| Total volume recovered | 0.20 | 1.15 | 0.84 | 0.64 | 0.60 |  | ENV6: A1 |
|  |  |  |  |  |  | EM-MP-160a.4 |  |
|  |  |  |  |  |  | EM-EP-160a.2 |  |
| Petroleum spills to land and water (number of spills) | 49 | 56 | 60 | 51 | 45 |  | ENV6: C2 |
|  |  |  |  |  |  | EM-MP-160a.4 |  |
| waste<32> |  |  |  |  |  |  | ENV7 |
| Hazardous waste generated (million metric tons) | 0.6 | 0.4 | 0.4 | 0.4 | 0.2 | EM-EP-150a.1 | ENV7: C3 |
| Hazardous waste disposed of (million metric tons) | 0.4 | 0.3 | 0.3 | 0.2 | 0.1 |  | ENV7: C3 |
| Hazardous waste recycled, reused or recovered |  |  |  |  |  |  |  |
|  | 0.3 | 0.1 | 0.2 | 0.2 | 0.1 | EM-EP-150a.1 | ENV7: C3 |
| (million metric tons) |  |  |  |  |  |  |  |
| fines and settlements<33> |  |  |  |  |  |  |  |
| Number of environmental, health and safety fines paid and |  |  |  |  |  |  |  |
|  | 82 | 89 | 64 | 104 | 45 |  |  |
| settlements entered into, equity basis |  |  |  |  |  |  |  |
| Cost of environmental, health and safety fines paid and |  |  |  |  |  |  |  |
|  | $ 6.8 | $ 40.5 | $ 9.1 | $ 16.1 | $ 3.0 |  |  |
| settlements entered into, equity basis (millions of dollars) |  |  |  |  |  |  |  |
| Indicates restatement of data. |  |  |  |  |  |  |  |

| **U.S. equal employment opportunity commission statistics <d, w, 34>** |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
|  | **2016** | **2017** | **2018** | **2019** | **2020** | **SASB<b>** | **IPIECA<c>** |
| Total employees: women (%) | 30 | 30 | 31 | 30 | 30 |  | SOC5: C2 |
| Total employees: ethnic minorities (%) | 38 | 39 | 41 | 41 | 41 |  | SOC5: C2 |
| Caucasian | 62 | 61 | 59 | 59 | 59 |  | SOC5: C2 |
| Women | 15 | 15 | 15 | 14 | 14 |  | SOC5: C2 |
| Men | 47 | 46 | 45 | 45 | 45 |  | SOC5: C2 |
| Asian | 13 | 13 | 14 | 14 | 14 |  | SOC5: C2 |
| Women | 5 | 5 | 5 | 5 | 5 |  | SOC5: C2 |
| Men | 8 | 8 | 9 | 9 | 9 |  | SOC5: C2 |
| Latino | 14 | 15 | 16 | 16 | 16 |  | SOC5: C2 |
| Women | 6 | 6 | 6 | 6 | 6 |  | SOC5: C2 |
| Men | 8 | 9 | 9 | 10 | 10 |  | SOC5: C2 |
| Black | 8 | 8 | 8 | 8 | 8 |  | SOC5: C2 |
| Women | 3 | 4 | 4 | 4 | 3 |  | SOC5: C2 |
| Men | 5 | 5 | 5 | 5 | 5 |  | SOC5: C2 |
| Other Ethnicities<35> | s<3 | s<3 | s<3 | s<3 | s<3 |  | SOC5: C2 |
| Women | 1 | 1 | 1 | 1 | 1 |  | SOC5: C2 |
| Men | 2 | 2 | 2 | 2 | 2 |  | SOC5: C2 |
| Executives and senior managers: women (%) | 18 | 19 | 22 | 24 | 26 |  | SOC5: C2 |
| Executives and senior managers: ethnic minorities (%) | 13 | 16 | 19 | 22 | 24 |  | SOC5: C2 |
| Caucasian | 87 | 84 | 81 | 78 | 76 |  | SOC5: C2 |
| Women | 14 | 15 | 16 | 17 | 19 |  | SOC5: C2 |
| Men | 72 | 69 | 65 | 61 | 57 |  | SOC5: C2 |
| Asian | 6 | 7 | 9 | 10 | 12 |  | SOC5: C2 |
| Women | 2 | 2 | 3 | 3 | 4 |  | SOC5: C2 |
| Men | 4 | 5 | 6 | 7 | 8 |  | SOC5: C2 |
| Latino | 4 | 5 | 6 | 6 | 8 |  | SOC5: C2 |
| Women | 1 | 1 | 1 | 2 | 2 |  | SOC5: C2 |
| Men | 3 | 4 | 5 | 4 | 6 |  | SOC5: C2 |
| Black | 3 | 3 | 3 | 4 | 4 |  | SOC5: C2 |
| Women | 1 | 1 | 1 | 2 | 2 |  | SOC5: C2 |
| Men | 2 | 2 | 2 | 2 | 2 |  | SOC5: C2 |

| **U.S. equal employment opportunity commission statistics <d, w, 34>** |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
|  | **2016** | **2017** | **2018** | **2019** | **2020** | **SASB<a>** | **IPIECA<b>** |
| Executives and senior managers: ethnic minorities (%), | 13 | 16 | 19 | 22 | 24 |  | SOC5: C2 |
| Other Ethnicities<35> | 0 | 1 | 1 | 1 | 1 |  | SOC5: C2 |
| Women | 0 | 0 | 0 | 0 | 0 |  | SOC5: C2 |
| Men | 0 | 0 | 1 | 1 | 0 |  | SOC5: C2 |
| First- and mid-level managers: women (%) | 29 | 29 | 30 | 31 | 30 |  | SOC5: C2 |
| First- and mid-level managers: ethnic minorities (%) | 30 | 32 | 33 | 34 | 35 |  | SOC5: C2 |
| Caucasian | 70 | 68 | 67 | 66 | 65 |  | SOC5: C2 |
| Women | 17 | 16 | 16 | 16 | 16 |  | SOC5: C2 |
| Men | 52 | 52 | 50 | 50 | 50 |  | SOC5: C2 |
| Asian | 12 | 12 | 12 | 12 | 12 |  | SOC5: C2 |
| Women | 4 | 5 | 5 | 5 | 5 |  | SOC5: C2 |
| Men | 7 | 7 | 8 | 7 | 7 |  | SOC5: C2 |
| Latino | 11 | 12 | 12 | 12 | 14 |  | SOC5: C2 |
| Women | 4 | 5 | 6 | 6 | 6 |  | SOC5: C2 |
| Men | 7 | 7 | 7 | 7 | 8 |  | SOC5: C2 |
| Black | 6 | 7 | 7 | 8 | 7 |  | SOC5: C2 |
| Women | 2 | 3 | 3 | 3 | 3 |  | SOC5: C2 |
| Men | 4 | 4 | 4 | 4 | 4 |  | SOC5: C2 |
| Other Ethnicities<35> | 2 | 1 | 1 | 2 | 2 |  | SOC5: C2 |
| Women | 0 | 0 | 1 | 1 | 1 |  | SOC5: C2 |
| Men | 1 | 1 | 1 | 1 | 1 |  | SOC5: C2 |
| Professionals: women (%) | 33 | 33 | 33 | 33 | 34 |  | SOC5: C2 |
| Professionals: ethnic minorities (%) | 35 | 35 | 36 | 38 | 39 |  | SOC5: C2 |
| Caucasian | 65 | 65 | 64 | 62 | 61 |  | SOC5: C2 |
| Women | 18 | 18 | 18 | 18 | 18 |  | SOC5: C2 |
| Men | 47 | 47 | 46 | 45 | 43 |  | SOC5: C2 |
| Asian | 16 | 16 | 16 | 16 | 17 |  | SOC5: C2 |
| Women | 6 | 7 | 7 | 7 | 7 |  | SOC5: C2 |
| Men | 9 | 9 | 9 | 9 | 10 |  | SOC5: C2 |
| Latino | 10 | 11 | 11 | 12 | 12 |  | SOC5: C2 |
| Women | 4 | 4 | 4 | 4 | 4 |  | SOC5: C2 |
| Men | 6 | 7 | 7 | 8 | 8 |  | SOC5: C2 |

|  | **2016** | **2017** | **2018** | **2019** | **2020** | **SASB<b>** | **IPIECA<c>** |
| --- | --- | --- | --- | --- | --- | --- | --- |
| Professionals: ethnic minorities (%), cont. | 35 | 35 | 36 | 38 | 39 |  | SOC5: C2 |
| Black | 7 | 7 | 7 | 7 | 7 |  | SOC5: C2 |
| Women | 4 | 4 | 4 | 4 | 4 |  | SOC5: C2 |
| Men | 4 | 4 | 4 | 4 | 4 |  | SOC5: C2 |
| Other Ethnicities n35 | 2 | 2 | 2 | 2 | n3 |  | SOC5: C2 |
| Women | 1 | 1 | 1 | 1 | 1 |  | SOC5: C2 |
| Men | 1 | 1 | 1 | 2 | 2 |  | SOC5: C2 |

global employee diversity<w>, n34 n36

|  | **2016** | **2017** | **2018** | **2019** | **2020** | **SASB<b>** | **IPIECA<c>** |
| --- | --- | --- | --- | --- | --- | --- | --- |
| Regular employees | 51,953 | 48,456 | 45,047 | 44,679 | 42,628 |  |  |
| Service station employees | 3,248 | 3,298 | 3,591 | 3,476 | 5,108 |  | SOC5: C2 |
| U.S. employees | 23,418 | 22,048 | 21,465 | 22,165 | 20,814 |  | SOC5: C2 |
| Union-represented U.S. employees (%) n37 | 11 | 11 | 11 | 11 | 12 |  | SOC5: C2 |
| Total regular employees - women (%) | 24 | 25 | 25 | 25 | 25 |  | SOC5: C2 |
| Mid-level management - women (%)<37> | 18 | 19 | 19 | 20 | 22 |  | SOC5: C3 |
| Senior leadership - women (%)<37> | 16 | 18 | 19 | 19 | 20 |  | SOC5: C3 |
| Executive leadership - women (%)<37> | 14 | 14 | 16 | 15 | 16 |  | SOC5: C3 |
| Senior and executive leadership - women and | 31 | 34 | 36 | 38 | 40 |  | SOC5: C3 |
| minority men (%)<37> |  |  |  |  |  |  |  |

supply chain<w> n38

|  | **2016** | **2017** | **2018** | **2019** | **2020** | **SASB<b>** | **IPIECA<c>** |
| --- | --- | --- | --- | --- | --- | --- | --- |
| Total goods and services spending (billions of dollars) | $ 27.3 | $ 24.8 | $ 25.1 | $ 27.1 | $ 20.9 |  |  |
| Total goods and services spending with U.S.-based businesses |  |  |  |  |  |  |  |
| (billions of dollars) | $ 10.7 | $ 11.2 | $ 11.6 | $ 13.2 | $ 11.0 |  | SOC14: A1 |
| Total goods and services spending with U.S.-based small |  |  |  |  |  |  |  |
| businesses (billions of dollars) | $ 1.7 | $ 1.6 | $ 1.7 | $ 1.7 | $ 1.3 |  | SOC14: A1 |
| Total goods and services spending with U.S.-based woman- |  |  |  |  |  |  |  |
| and minority-owned businesses (billions of dollars) | $ 0.5 | $ 0.6 | $ 0.7 | $ 0.6 | $ 0.4 |  | SOC14: A1 |

workforce health and safety<a> n39

|  | **2016** | **2017** | **2018** | **2019** | **2020** | **SASB<b>** | **IPIECA<c>** |
| --- | --- | --- | --- | --- | --- | --- | --- |
| Total Recordable Incident Rate |  |  |  |  |  | EM-EP-320a.2 | SHS3: C1 |
| (incidents per 200,000 work-hours)<w> |  |  |  |  |  | EM-RM-320a.2 |  |
| Workforce (excluding COVID-19) | 0.14 | 0.13 | 0.13 | 0.15 | 0.13 |  |  |
| Employees (excluding COVID-19) | 0.10 | 0.09 | 0.07 | 0.13 | 0.11 | EM-EP-320a.2 |  |
|  |  |  |  |  |  | EM-RM-320a.2 |  |
| Contractors (excluding COVID-19) | 0.16 | 0.15 | 0.15 | 0.16 | 0.14 | EM-EP-320a.2 |  |
|  |  |  |  |  |  | EM-RM-320a.2 |  |
|  | not | not | not | not |  |  |  |
| Workforce (including COVID-19) | applicable | applicable | applicable | applicable | 0.37 |  |  |
|  | not | not | not | not |  |  |  |
| Employees (including COVID-19) | applicable | applicable | applicable | applicable | 0.42 |  |  |
|  | not | not | not | not |  |  |  |
| Contractors (including COVID-19) | applicable | applicable | applicable | applicable | 0.35 |  |  |
| Lost-Time Incident Frequency (Days Away From Work |  |  |  |  |  |  | SHS3: C1 |
| incidents and fatalities per million work-hours) |  |  |  |  |  |  |  |
| Workforce (excluding COVID-19) | 0.10 | 0.09 | 0.08 | 0.10 | 0.13 |  |  |
| Employees (excluding COVID-19) | 0.10 | 0.08 | 0.07 | 0.17 | 0.13 |  |  |
| Contractors (excluding COVID-19) | 0.11 | 0.10 | 0.08 | 0.08 | 0.13 |  |  |
|  | not | not | not | not |  |  |  |
| Workforce (including COVID-19) | applicable | applicable | applicable | applicable | 1.26 |  |  |
|  | not | not | not | not |  |  |  |
| Employees (including COVID-19) | applicable | applicable | applicable | applicable | 1.65 |  |  |
|  | not | not | not | not |  |  |  |
| Contractors (including COVID-19) | applicable | applicable | applicable | applicable | 1.11 |  |  |
| Days Away From Work Rate |  |  |  |  |  |  | SHS3: C1 |
| (incidents per 200,000 work-hours) |  |  |  |  |  |  |  |
| Workforce (excluding COVID-19) | 0.017 | 0.016 | 0.016 | 0.019 | 0.025 |  |  |
| Employees (excluding COVID-19) | 0.018 | 0.012 | 0.013 | 0.033 | 0.023 |  |  |
| Contractors (excluding COVID-19) | 0.016 | 0.017 | 0.017 | 0.014 | 0.026 |  |  |
|  | not | not | not | not |  |  |  |
| Workforce (including COVID-19) | applicable | applicable | applicable | applicable | 0.252 |  |  |
|  | not | not | not | not |  |  |  |
| Employees (including COVID-19) | applicable | applicable | applicable | applicable | 0.328 |  |  |
|  | not | not | not | not |  |  |  |
| Contractors (including COVID-19) | applicable | applicable | applicable | applicable | 0.223 |  |  |
| Number of serious injuries n40 |  |  |  |  |  |  |  |
| Workforce | 20 | 26 | 35 | 13 | 13 |  |  |
| Employees | 3 | 2 | 3 | 2 | 3 |  |  |
| Contractors | 17 | 24 | 32 | 11 | 10 |  |  |
|  |  |  |  |  |  | EM-EP-320a.2 |  |
| Number of work-related fatalities<w> |  |  |  |  |  | EM-RM-320a.2 | SHS3: C1 |
| Workforce | 10 | 6 | H10 | 2 | 1 |  |  |
|  |  |  |  |  |  | EM-EP-320a.2 |  |
| Employees | 1 | 2 | 0 | 0 | 1 | EM-RM-320a.2 |  |
|  |  |  |  |  |  | EM-EP-320a.2 |  |
| Contractors | 9 | 4 | 0 | 2 | 0 | EM-RM-320a.2 |  |

|  | **2016** | **2017** | **2018** | **2019** | **2020** | **SASB<b>** | **IPIECA<c>** |
| --- | --- | --- | --- | --- | --- | --- | --- |
| Work-related fatal accident rate (work-related employee or |  |  |  |  |  | EM-EP-320a.2 | SHS3: C1 |
| contractor fatalities per 100 million work-hours)<w> |  |  |  |  |  | EM-RM-320a.2 |  |
| Workforce | 2.03 | 1.32 | 0.00 | 0.43 | 0.29 |  |  |
| Employees | 0.82 | 1.77 | 0.00 | 0.00 | 1.04 | EM-EP-320a.2 |  |
|  |  |  |  |  |  | EM-RM-320a.2 |  |
| Contractors | 2.44 | 1.17 | 0.00 | 0.56 | 0.00 | EM-EP-320a.2 |  |
|  |  |  |  |  |  | EM-RM-320a.2 |  |
| Work-related fatal incident rate (work-related incidents with |  |  |  |  |  | EM-EP-320a.2 | SHS3: C1 |
| employee or contractor fatalities per 100 million work-hours)<w> | 0.81 | 1.32 | 0.00 | 0.43 | 0.29 | EM-RM-320a.2 |  |
| Motor Vehicle Crash Rate (workforce vehicle incidents |  |  |  |  |  |  |  |
| per million miles driven) n41 | 0.03 | 0.04 | 0.02 | 0.02 | 0.02 |  |  |
| Number of Process Safety Tier 1 events |  |  |  |  |  |  |  |
| (ANSI/API Recommended Practice 754 guidance) n42 | 22 | 22 | 16 | 15 | 15 | EM-EP-540a.1 | SHS6: C1 |
| Upstream | 16 | 14 | 9 | 10 | 7 |  |  |
| Downstream & Chemicals | 6 | 7 | 6 | 4 | 7 |  |  |
| Midstream | 0 | 1 | 1 | 1 | 1 |  |  |

ESG qualitative metrics

| **environment** | **chevron resources** | **SASB<b>** | **IPIECA<c>** |
| --- | --- | --- | --- |
| greenhouse gas emissions |  |  |  |
| Discuss the company's GHG emissions strategy, | chevron.com/climatechangeresilience2021 | EM-EP-110a.3 | CC1: C1 |
| performance and capital allocation related to |  | EM-MD-110a.2 | CC1: C2 |
| addressing GHG emissions, including methane |  | EM-RM-110a.2 | CC1: C3 |
| and flaring.<w> |  |  | CC1: C4 |
|  |  |  | CC2: C1 |
|  |  |  | CC2: C2 |
|  |  |  | CC2: C3 |
|  |  |  | CC5: C2 |
|  |  |  | CC7: C3 |
| biodiversity |  |  |  |
| Description of environmental management policies | chevron.com/biodiversity | EM-EP-160a.1 |  |
| and practices for active sites. |  | EM-MD-160a.1 |  |
| emergency preparedness |  |  |  |
| Describe strategies and policies for preventing | chevron.com/oemsoverview |  | ENV6: C1 |
| accidental releases of hydrocarbons and other | chevron.com/emergencypreparedness |  | ENV6: C4 |
| materials to the environment. |  |  |  |

| **social** | **chevron resources** | **SAS<B>b** | **IPIECA<c>** |
| --- | --- | --- | --- |
| safety and health |  |  |  |
| Describe the company's approach to health and | chevron.com/oemsoverview | EM-EP-320a.2 | SHS1: C2 |
| safety for employees and contractors, and systems |  | EM-EP-540a.2 | SHS1: C3 |
| to incorporate a culture of safety throughout |  | EM-MD-540a.4 |  |
| the company. <w> |  | EM-RM-320a.2 |  |
| human rights |  |  |  |
| Discussion of engagement processes, due | chevron.com/humanrights | EM-EP-210a.3 | SOC1: C1 |
| diligence practices, remedy mechanisms and | chevron.com/supplierletter |  | SOC1: C2 |
| supplier communications, with respect to human |  |  | SOC2: C1 |
| rights, indigenous rights and security. <w> |  |  | SOC3: C1 |
| diversity and inclusion |  |  |  |
| Describe policies, programs and procedures | chevron.com/diversityandinclusion |  | SOC5: C1 |
| related to Human Capital Management | chevron.com/proxy2021 |  |  |
| and to promoting diversity, inclusion and |  |  |  |
| nondiscrimination. <w> |  |  |  |
| community relations |  |  |  |
| Describe the company's social investment | chevron.com/sustainability/social | EM-EP-210b.1 | SOC8: C1 |
| strategies, programs, community and stakeholder | chevron.com/grievancemechanism |  | SOC12: C1 |
| Grievance Mechanisms, and policies for addressing |  |  | SOC13: C1 |
| nonretaliation and nondiscrimination when |  |  |  |
| regarding grievances. |  |  |  |
| governance | chevron resources | SASB<b> | IPIECA<c> |
| governance strategy |  |  |  |
| Discussion of the company's purpose, governance | chevron.com/proxy2021 |  | GOV1: C1 |
| policies, the Board of Directors' oversight of | chevron.com/2020AR |  | GOV1: C3 |
| ESG issues, and how ESG risks and opportunities | chevron.com/thechevronway |  | GOV1: C5 |
| are identified and assessed. <w> | chevron.com/investors/corporate-governance |  |  |
| business conduct |  |  |  |
| Description of the company's Code of Conduct, | chevron.com/businessconductethicscode | EM-EP-510a.2 | GOV3: C1 |
| values, principles, and anticorruption and bribery |  |  | GOV3: C3 |
| polices for the company and its suppliers, |  |  |  |
| and processes for reporting unethical or |  |  |  |
| unlawful behavior. <w> |  |  |  |
| lobbying and political contributions |  |  |  |
| Description of the company's approach to | chevron.com/politicaloutreach | EM-EP-530a.1 | GOV5: C1 |
| advocacy and lobbying, political contributions | chevron.com/climatelobbying | EM-RM-530a.1 | GOV5: C2 |
| reporting, and discussion of positions related |  |  |  |
| to ESG issues. <w> |  |  |  |

**notes to pages 47 through 59**

**global notes**

**a** All restatements for greenhouse gas (GHG) emissions, associated emissions intensities, the category of energy efficiency and the category of water withdrawn are restated against the March 2021 release of the *Climate Change Resilience: Advancing a Lower-Carbon Future* report. All other restatements are restated against the May 2020 release of the 2019 *Corporate Sustainability Report*.

**b** We used the general SASB topics to organize Chevron's table and provide an index column to identify common reporting elements between our current reporting data and the related SASB standards. The SASB index is based solely on Chevron's interpretation and judgment. The inclusion of the SASB index does not indicate the application of definitions, metrics, measurements, standards or approaches set forth in the SASB framework. Please refer to the relevant footnotes for information about Chevron's data-reporting basis. As reflected in the table, Chevron currently discloses data on a number of issues recommended in the SASB ***Oil*** and Gas Exploration and Production, Midstream, and Refining and Marketing standards. Further, there are many topics on which Chevron discloses data beyond the SASB framework.

SASB recommendations not addressed in the data table are being studied by Chevron for potential future inclusion. Chevron could determine that some SASB recommendations do not reflect useful sustainability performance information or would be overly burdensome to implement on a global basis; such disclosures will not be included in a future data table. We strive to continually improve our dataperformance reporting, and we believe that our SASB index is a positive step in further aligning our ESG reporting to SASB framework recommendations. We also continue to assess alignment with other emerging frameworks.

**c** Our performance data table includes an index column that maps Chevron's data to the corresponding relevant 2020 IPIECA standards.

**d** Numbers in table may not sum due to rounding.

**e** Unless otherwise noted, this section reflects 2020 data collected as of May 6, 2021. All data are reported on an operated basis unless otherwise noted.

**w** The "w" identifies common reporting elements between our current reporting data and the related September 2020 World Economic Forum (WEF) sustainability metrics. The WEF indictor symbol is based solely on Chevron's interpretation and judgment. The inclusion of the WEF indicator symbol does not indicate the application of definitions, metrics, measurements, standards or approaches set forth in the WEF sustainability metrics.

**1** The World Resources Institute/World Business Council for Sustainable Development *Greenhouse Gas Protocol: A Corporate Accounting and Reporting Standard* defines three "scopes" that Chevron uses to report GHG emissions.

**2** Emissions reported are net (Scope 1 and Scope 2). The emissions included in the metrics generally represent Chevron's equity share of emissions, which are emissions from operated and nonoperated joint-venture (NOJV) assets based on Chevron's financial interest. The scope may include sources outside traditional scoping of equity emissions, including captive emissions from processes like drilling and completions, and tolling agreements up to the point of third-party custody transfer of the ***oil*** or gas product. For ***oil*** and gas production intensity metrics, production is aligned with net production values reported in the *Chevron Corporation Supplement to the Annual Report*, which represent the company's equity share of total production after deducting both royalties paid to landowners and a government's agreed-upon share of production under a Production Sharing Agreement. Chevron's equity-share emissions include emissions associated with these excluded royalty barrels in accordance with IPIECA guidance. Also in accordance with IPIECA guidance, Chevron's equity-share emissions do not include emissions associated with royalty payments received by the company. Allocation of emissions between ***oil*** and gas is based on the fraction of production represented by liquids or gas. Flaring and methane intensities use the total of liquids and gas production. ***Oil*** and gas production intensities use liquids production and natural gas production, respectively.

**3** Scope 1 includes direct emissions. Direct GHG emissions related to production of energy in the form of electricity or steam exported or sold to a third party are included in the reported Scope 1 emissions to align with IPIECA's *Sustainability Reporting Guidance for the* ***Oil*** *and Gas Industry* (2020). Chevron's Scope 1 includes emissions of six Kyoto GHGs--carbon dioxide (CO2), methane (CH4), nitrous oxide (N2O), sulfur hexafluoride, perfluorocarbons and hydrofluorocarbons. Calculation methods are based on API's *Compendium of Greenhouse Gas Emissions Methodologies for the* ***Oil*** *and Natural Gas Industry* (2009) or, where relevant, local regulatory reporting methodologies.

**4** Where limited emissions information is available for NOJVs, Chevron's equity share of total CO2-equivalent (CO2e) emissions is allocated to Scope 1 CO2 emissions.

**5** Restated 2016-2019 Scope 1 equity emissions include Chevron's equity-share emissions for Chevron Phillips Chemical Company LLC (CPChem) and reporting improvements. Additionally, restated 2019 Scope 1 equity emissions include Chevron's equity-share emissions for NOJVs in which Chevron has less than a 16 percent equity share (where previously excluded).

**6** Chevron's equity-share emissions for Loma Campana concession excluded for 2016-2018 and included for 2019-2020. Restated 2018 and 2019 numbers include Chevron's equity-share emissions for Clair Ridge NOJV. Chevron's equity-share emissions for CalBioGas LLC and Brightmark RNG Holdings LLC NOJVs excluded for 2020.

**7** As governments update their Global Warming Potentials (GWPs), we anticipate updating methane data reporting in our environmental tables and the associated performance evaluation. For transparency, and to enable stakeholders to make their own calculations based on their preferred timeline and GWPs, we provide methane emissions data and intensity performance as a mass of methane as well as its conversion under the AR4 100-year GWP to a CO2-equivalent. Although we strive to provide consistent data from our operated and nonoperated assets, some nonoperated assets may provide their data only on a CO2e basis. Given the common industry practice of using the AR4 100-year GWP, we have assumed that those nonoperated assets that did not provide methane mass data use a 100-year GWP of 25. We continue to work with our joint-venture partners to provide information on a standardized basis to increase transparency.

**8** Downstream includes emissions from refineries and terminals. Chemical and base ***oil*** facilities located within refineries are included in refinery emissions.

**9** Chemicals includes emissions from stand-alone chemical, additive and lubricant facilities.

**10** Other emissions include GHG emissions from Chevron Power and Energy Management, Corporate Aviation, Chevron Environmental Management and Real Estate Company, and North American Data Center.

**11** Upstream flaring emissions closely represent the contribution of flaring to Chevron's total GHG emissions.

**12** Exported emissions are direct GHG emissions related to production of energy in the form of electricity or steam that are exported or sold to a third party.

**13** Scope 2 includes indirect emissions from imported electricity and steam. CO2, CH4 and N2O are accounted for in Chevron's Scope 2 emissions. Scope 2 emissions are accounted for using the market-based approach as described in the World Resources Institute's *GHG Protocol Scope 2 Guidance* (2015).

**14** For equity reporting, sales or storage of company CO2 (Chevron and NOJV) includes both CO2 sold to third parties and CO2 (and other gas) injected for carbon storage. Credits generated from CO2 injection by NOJV partners may be sold. For operated reporting, sales or storage of company CO2 (Chevron) includes both CO2 sold to third parties and CO2 (and other gas) injected for carbon storage.

**15** For equity reporting, purchase or injection includes third-party CO2 purchased and injected for enhanced ***oil*** recovery, excluding equity-share NOJV data. For operated reporting, purchase or injection includes third-party CO2 purchased and injected for enhanced ***oil*** recovery.

**16** Includes offsets retired in compliance programs. For programs with multiyear compliance periods, offsets are apportioned according to the compliance obligation for each year.

**17** Excludes offsets sold as part of a divestiture. Offsets are reported for the year in which the offset was generated (vintage year) only if subsequently sold.

**18** Chevron calculates emissions from third-party use of our products in alignment with methods in Category 11 of IPIECA's *Estimating Petroleum Industry Value Chain (Scope 3) Greenhouse Gas Emissions* (2016). Emissions are based on aggregate production, throughput and sales numbers that include renewable fuels.

**19** Annual third-party verification covers Scope 1 and Scope 2 equity emissions, as first reported in Chevron's *Corporate Sustainability Report* for each reporting year, but generally does not cover subsequent restatements and does not include Chevron equity-share emissions for CPChem.

**20** In the course of normal business processes, Chevron seeks limited assurance of prior-year GHG emissions data for publication in its *Corporate Sustainability Report*.

**21** Manufacturing Energy Index (Refining) is an analysis of Chevron's refining energy performance based on the Solomon Energy Intensity Index methodology. Chevron's MEI includes the refining assets at Chevron's operated and nonoperated joint-venture refineries.

**22** Pipeline Energy Intensity for 2020 does not include Noble Midstream Partners LP.

**23** Chevron's Non-Manufacturing Energy Index includes Chevron's terminals, chemical, additives and lubricant facilities. It reflects the energy required to produce Chevron products compared with the energy that would have been required to produce the same products in 1992 (the index's base year).

**24** For compiling and reporting air emissions data, Chevron follows regulatory definitions of VOC. SOX emissions include SO2 and SO3, reported as SO2-? equivalent. NOX emissions include NO and NO2 (reported as NO2????-equivalent) and exclude N2O.

**25** Fresh water withdrawn from the environment is defined per local legal definitions. If no local definition exists, fresh water is defined as water extracted, directly or indirectly, from surface water, groundwater or rainwater that has a total dissolvedsolids concentration of less than or equal to 2,000 mg/L. Fresh water withdrawn does not include effluent or recycled/reclaimed water from municipal or other industrial wastewater treatment systems, as this water is reported under nonfresh water withdrawn. Nonfresh water withdrawn could include: seawater; brackish groundwater or surface water; reclaimed wastewater from another municipal or industrial facility; desalinated water; or remediated groundwater used for industrial purposes. Produced water is excluded from fresh water withdrawn, fresh water consumed and nonfresh water withdrawn. Water quantities may be determined using direct measurement techniques or engineering estimation methods. Fresh water and nonfresh water withdrawn totals decreased in 2020 in part due to decreased activity across operations.

**26** Refining includes data from refineries, including chemical and base ***oil*** facilities located within refineries.

**27** Other includes, but is not limited to, chemical and lubricant facilities, as well as Chevron Environmental Management and Real Estate Company.

**28** Chevron calculates fresh water withdrawn intensity for Upstream using gross operated production.

**29** Chevron calculates fresh water withdrawn intensity for refining using total refinery inputs, which comprise all feeds into the refinery. This includes purchased crudes for crude units and third-party feeds for other processing units.

**30** ***Oil*** concentration is determined by the sampling of effluent streams, using methods required or recommended by regulatory agencies or authorities, where applicable. Chevron reports the total cumulative amount of ***oil*** discharged to surface water excluding spills, which are reported separately.

**31** Chevron reports petroleum spills to land and water to conform to the 2020 IPIECA *Reporting Guidance*. Spills to land and water that are greater than or equal to one barrel are included. Spills to secondary containment, chemical spills and spills due to sabotage are excluded. Accidental release prevention and response data for 2020 do not include data for the former Noble Energy, Inc. assets.

**32** To conform to the 2015 and 2020 IPIECA *Reporting Guidances*, and where appropriate information and data exist, our hazardous waste numbers starting in 2015 exclude remediation waste generated; disposed of; and recycled, reused or recovered. Hazardous waste amounts are quantified using methods required or recommended by regulatory agencies or authorities, where applicable. In other instances, similar methods are used, including direct measurement onsite or at the point of shipping, engineering estimates and process knowledge. Chevron follows the regulatory definitions of hazardous waste applicable to the jurisdictions in which we operate, including *de minimis* specifications (below which hazardous waste quantities do not need to be reported).

**33** The 2020 data are based on information received from government entities and recorded internally as of April 14, 2021.

**34** Global employee diversity and U.S. Equal Employment Opportunity Commission percentages have been rounded to the nearest whole percentage. Global data are as of December of the year identified. Although gender is not binary, gender is currently reported in binary (men, women) terms to align with U.S. government reporting regulations. Our most recently filed Federal Employer Information Report EEO-1 is available for download at chevron.com/eeo-1. EEO-1 gender and ethnicity counts may vary from other methodologies.

**35** Ethnicities with representation less than 2 percent such as, but not limited to, Native Americans, Pacific Islanders, and Two or More Races.

**36** Unless otherwise indicated, 2020 data include employees from 2020 acquisitions of Puma Energy (Australia) Holdings Pty Ltd and Noble Energy, Inc., where applicable. Data for all years do not include service station employees unless specifically stated.

**37** Excludes data from 2020 acquisitions of Puma Energy (Australia) Holdings Pty Ltd and Noble Energy, Inc., pending integration of HR information systems. **38** For years 2016-2018, data collected as of February 20, 2019. For year 2019, data collected as of January 23, 2020. For year 2020, data collected as of February 24, 2021.

**39** This section reflects Chevron data collected as of March 12, 2021, and excludes data from the 2020 acquisition of Noble Energy, Inc., pending integration of safety data systems. Health and safety performance rates include both injuryand illness-related incidents. API's *Benchmarking Survey of Occupational Injuries, Illnesses and Fatalities in the Petroleum Industry* data, used in previous years as industry benchmarks, are no longer provided by API as of 2020.

**40** Serious injuries are injuries that result in significant disfigurement, or typically result in permanent or long-term impairment of an internal organ, body function or body part.

**41** Data include catastrophic and major incidents only.

**42** Process Safety Tier 1 loss-of-primary-containment (LOPC) events are unplanned or uncontrolled releases resulting in consequences equivalent to those specified by American National Standards Institute/American Petroleum Institute (ANSI/API) Recommended Practice (RP) 754 and *IOGP Report 456: Process Safety Recommended Practice on Key Performance Indicators*.

**performance and data**

**our operational excellence management system**

It enables us to assess risks, identify safeguards and implement programs to assure the effectiveness of those safeguards. OEMS provides the framework for our adherence to Operational Excellence (OE), which puts into action our Chevron Way value of protecting people and the environment.

OEMS systematically manages workforce safety and health, process safety, reliability and integrity, environment, efficiency, security, and stakeholders to meet our OE objectives:

- Eliminate fatalities, serious injuries and illnesses

- Eliminate high-consequence process safety incidents and operate with industry-leading reliability

- Assess and manage significant environmental risks

- Use energy and resources efficiently

- Prevent high-consequence security and cybersecurity incidents

- Address OE business risks through stakeholder engagement and issues management

Since its launch in 2004, OEMS has helped the company make dramatic improvements in important measures of personal and process safety, reliability, and environmental performance.

In 2018, our leadership recognized our progress toward our commitment to protect people and the environment, while still targeting areas for improvement, particularly in the objective to eliminate high-consequence personal and process safety events. This means no fatalities or serious injuries and no fires, spills or explosions that can affect people or communities. To further progress toward this objective, we updated OEMS in 2018, retaining many of the core elements of the original but making it simpler in structure and easier to understand.

Under the updated OEMS, we all have a role in achieving our OE objectives, and leaders are accountable for performance and are expected to apply increased focus on three key areas with the workforce: understanding the high-consequence risks that we and our contractors manage every day; clearly identifying the safeguards that mitigate these risks; and assuring that the safeguards are in place and functioning as intended.

**LR Independent Assurance Statement**

2020 ISO 14001 and ISO 45001 Attestation Statement for Chevron Corporation

**Terms of Engagement**

Lloyd's Register Quality Assurance, Inc. (LR) was commissioned on behalf of Chevron corporation (Chevron), to review its Operational Excellence Management System (OEMS), as published on chevron.com/OEMS.

Our engagement was to review the OEMS against the requirements of the international standard for environmental management systems, ISO 14001, and the internationally recognized specification for occupational health and safety management systems, ISO 45001.

The objectives of the review were to confirm that the design of OEMS was aligned with ISO 14001 and ISO 45001, to confirm that OEMS was in place across the corporation, and to assess the role of OEMS in driving continual improvement. This statement covers 2020, during which we continued to monitor the status of Chevron's OEMS as a continuation of similar reviews undertaken by LR for Chevron since 2004.

**Management Responsibility**

Chevron's management was responsible for designing and maintaining the OEMS. LR's responsibility was to carry out an assurance engagement on the OEMS in accordance with our contract with Chevron. Ultimately, the OEMS remains the responsibility of Chevron.

**LR's Approach**

To form our conclusions, the assurance was undertaken as a sampling exercise and covered the following activities:

- Confirmation that the OEMS continues to embrace the intent of the requirements and is maintained across the corporation.

- Annual reviews with Chevron's Operating Company Operational Excellence (OE) leaders from Corporate in San Ramon, California, to verify OEMS implementation status and review future plans.

- Annual reviews with OE leaders from Chevron Upstream, and Downstream & Chemicals, offices in San Ramon, California, and Houston, Texas, to review OE progress and metrics.

- Observation of Chevron's remote corporate OE audits at Upstream and Downstream business units, and Chevron Shipping, covering operations at three locations in the United States.

**LR's Opinion**

Based on LR's approach, it is our opinion that:

- The design of OEMS is aligned with the requirements of ISO 14001:2015 and ISO 45001:2018 and has addressed each of the individual management system elements.

- The scope of OEMS goes beyond the respective scopes of ISO 14001 and ISO 45001 by establishing additional expectations, including the implementation of processes related to security, reliability and efficiency, legislative and regulatory advocacy, community and stakeholder engagement, and product stewardship.

- OEMS is in place throughout the corporation.

- Implementation of the OEMS has coincided with continual improvement in Chevron's reported health, safety and environmental performance indicators.

- The Management System Process at the Corporate, Operating Company and Business Unit organizational levels is a key driver of continual improvement. The process follows a risk-based approach and is most mature for those processes determined by Chevron to be of highest risk.

- The strengths of OEMS include leadership engagement and accountability, aligned governance across the corporation, and a standardized Management System Process that provided evidence of sustainability and continual improvement.

The opinion expressed is formed on the basis of a reasonable level of assurance.

**LR's Recommendations**

Observations and areas for potential improvement were provided in a report to Chevron Management. These observations do not affect the opinions expressed in this assurance statement.

**Andrea M. Bockrath**

LR Lead Assessor

On behalf of Lloyd's Register Quality Assurance, Inc.

1330 Enclave Parkway, Suite 200

Houston, TX 77077

January 1, 2021

LR Reference: UQA0110889

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**LR Independent Assurance Statement**

Relating to Chevron Corporation's *Corporate Sustainability Report* for Calendar Year 2020

This Assurance Statement has been prepared for Chevron U.S.A. Inc. in accordance with our contract, but is intended for the readers of this report.

**Terms of Engagement**

Lloyd's Register Quality Assurance, Inc. (LR) was commissioned by Chevron U.S.A. Inc. on behalf of Chevron Corporation (Chevron) to provide independent assurance on its processes used in the creation of the *Corporate Sustainability Report* (CSR) for calendar year 2020 to a reasonable level using LR's verification approach.

Our assurance engagement covered Chevron's operations and activities worldwide and specifically covered the following requirements:

- Reviewing the effectiveness of the processes for reporting health, environment and safety (HES) IPIECA performance indicators.

- Confirming consistency with the *IPIECA/API/IOGP* ***oil*** *and gas industry guidance on voluntary sustainability reporting* (2020) industry indicators that were identified by Chevron.

- Confirming consistency with *Sustainability Accounting Standards Board (SASB)* ***Oil*** *& Gas--Exploration & Production, SASB* ***Oil*** *& Gas--Midstream* and *SASB* ***Oil*** *& Gas--Refining & Marketing* October 2018 Sustainability Accounting Standards metrics that were identified by Chevron.

Our assurance engagement did not include verifying the accuracy of data and information reported in the CSR, nor did it include metrics beyond HES.

LR's responsibility is only to Chevron. LR disclaims any liability or responsibility to others, as explained in the end footnote. Chevron's management is for collecting, aggregating, analyzing and presenting all the data and information within the CSR and for maintaining effective internal controls over the systems from which the CSR is derived. Ultimately, the report has been approved by, and remains the responsibility of, Chevron.

**LR's Opinion**

Based on LR's approach, we believe that Chevron's reporting processes were effective in delivering HES indicators that are useful for assessing corporate performance and reporting information consistent with core and additional reporting elements in the *IPIECA/API/IOGP* ***oil*** *and gas industry guidance on voluntary sustainability reporting* (2020) and *SASB* ***Oil*** *and Gas--Exploration and Production, Midstream, Refining & Marketing* accounting metrics referenced in the Performance Data Table. In some cases, IPIECA elements and SASB metrics referenced are partially reported.

The opinion expressed is formed on the basis of a reasonable level of assurance and at the materiality of the professional judgment of the verifier.

**LR's Approach**

LR's assurance engagements are carried out in accordance with our verification procedure. The following tasks, though, were undertaken as part of the evidencegathering process for this assurance engagement:

- Virtually visiting Chevron in San Ramon, California, to review data collection and checking processes. Reviewing Chevron Upstream, Chevron Midstream, and Chevron Downstream & Chemicals to assess business-unit understanding and implementation of Chevron's HES reporting requirements.

- Virtually visiting the Chevron Salt Lake Refinery, Chevron Gulf of Mexico business unit and Chevron Shipping Company to assess local understanding and implementation of Chevron's HES reporting requirements.

- Interviewing key personnel to identify and gain an understanding of Chevron's reporting requirements, including key persons responsible for drafting the CSR.

- Reviewing Chevron's documented reporting requirements to validate consistency of scope, definition and reporting requirements for each of the HES performance indicators.

- Reviewing Chevron's primary data collection tools to assess use in the reporting processes.

- Evaluating consistency with the *IPIECA/API/IOGP* ***oil*** *and gas industry guidance on voluntary sustainability reporting* (2020) and *SASB* ***Oil*** *and Gas--Exploration and Production, Midstream, Refining & Marketing* (2018).

**Observations**

Further observations and findings, made during the assurance engagement, are:

- Processes were in place to ensure that personnel contributing to HES metrics understood corporate reporting procedures and requirements.

- Methods used for calculating each HES performance metric were clearly defined and communicated.

- Chevron's reporting requirements for HES metrics were understood and carried out. Data collected at the site/local and business-unit levels were checked and aggregated into corporationwide metrics.

- Responsibility for annually reviewing and updating reporting guidelines was clear, with improvement in methodology regularly undertaken.

**LR's Standards, Competence and Independence**

LR ensures the selection of appropriately qualified individuals based on their qualifications, training and experience. The outcome of all verification and certification assessments is then internally reviewed by senior management to ensure that the approach applied is rigorous and transparent.

LR is one of Chevron's certification bodies for ISO 9001, ISO/TS 16949 and greenhouse gas emissions verification. The certification assessments and verification are the only work undertaken by LR for Chevron and as such do not compromise our independence or impartiality.

**Andrea M. Bockrath**

LR Lead Verifier

On behalf of Lloyds Register Business Assurance, Inc.

1330 Enclave Pkwy, Suite 200

Houston, TX 77077

April 27, 2021

LR Reference: UQA4000679

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**about this report**

This report contains forward-looking statements relating to Chevron's operations that are based on management's current expectations, estimates and projections about the petroleum, chemicals and other energy-related industries. These statements are not guarantees of future conduct or policy and are subject to certain risks, uncertainties and other factors, many of which are beyond the company's control, including government regulation and ***oil*** and gas prices. See Forward-Looking Statements Warning at the end of this report.

This report covers our owned and operated businesses and does not address the performance or operations of our suppliers, contractors and partners unless otherwise noted. In the case of certain joint ventures for which Chevron is the operator, we exercise influence but not control. Thus, the governance, processes, management, and strategy for those joint ventures are known to differ from those detailed in this report. On October 5, 2020, we announced the completion of the acquisition of Noble Energy, Inc. (Noble). This report does not speak to Noble's historic governance, risk management, or strategy approaches unless specifically referenced. All financial information is presented in U.S. dollars unless otherwise noted.

Therefore, the actual conduct of our activities, including the development, implementation or continuation of any program, policy or initiative discussed or forecasted in this report, may differ materially in the future. As with any projections or estimates, actual results or numbers may vary. Many of the standards and metrics used in preparing this report continue to evolve and are based on management assumptions believed to be reasonable at the time of preparation but should not be considered guarantees. The statements of intention in this report speak only as of the date of this report. Chevron undertakes no obligation to update publicly any statements in this report.

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As used in this report, the term "Chevron" and such terms as "the company," "the corporation," "our," "its," "we" and "us" may refer to one or more of Chevron's consolidated subsidiaries or affiliates or to all of them taken as a whole, but unless stated otherwise they do not include "affiliates" of Chevron--i.e., those companies generally owned 50 percent or less. All of these terms are used for convenience only and are not intended as a precise description of any of the separate companies, each of which manages its own affairs.

**forward-looking statements warning**

CAUTIONARY STATEMENTS RELEVANT TO FORWARD-LOOKING INFORMATION FOR THE PURPOSE OF "SAFE HARBOR" PROVISIONS OF THE PRIVATE SECURITIES LITIGATION REFORM ACT OF 1995

This report of Chevron Corporation contains forward-looking statements relating to Chevron's operations that are based on management's current expectations, estimates and projections about the petroleum, chemicals and other energy-related industries. Words or phrases such as "anticipates," "expects," "intends," "plans," "targets," "advances," "commits," "designs," "drives," "aims," "forecasts," "projects," "believes," "seeks," "schedules," "estimates," "positions," "pursues," "may," "could," "should," "will," "budgets," "outlook," "trends," "guidance," "focus," "on schedule," "on track," "is slated," "goals," "objectives," "strategies," "opportunities," "poised," "potential," and similar expressions are intended to identify such forward-looking statements.

These statements are not guarantees of future performance and are subject to certain risks, uncertainties and other factors, many of which are beyond the company's control and are difficult to predict. Therefore, actual outcomes and results may differ materially from what is expressed or forecasted in such forward-looking statements. The reader should not place undue reliance on these forward-looking statements, which speak only as of the date of this report. Unless legally required, Chevron undertakes no obligation to update publicly any forward-looking statements, whether as a result of new information, future events or otherwise.

Among the important factors that could cause actual results to differ materially from those in the forward-looking statements are: changing crude ***oil*** and natural gas prices and demand for our products, and production curtailments due to market conditions; crude ***oil*** production quotas or other actions that might be imposed by the Organization of Petroleum Exporting Countries (OPEC) and other producing countries; public health crises, such as pandemics (including coronavirus (COVID-19)) and epidemics, and any related government policies and actions; changing economic, regulatory and political environments in the various countries in which the company operates; general domestic and international economic and political conditions; changing refining, marketing and chemicals margins; the company's ability to realize anticipated cost savings, expenditure reductions and efficiencies associated with enterprise transformation initiatives; actions of competitors or regulators; timing of exploration expenses; timing of crude ***oil*** liftings; the competitiveness of alternate-energy sources or product substitutes; technological developments; the results of operations and financial condition of the company's suppliers, vendors, partners and equity affiliates, particularly during extended periods of low prices for crude ***oil*** and natural gas during the COVID-19 pandemic; the inability or failure of the company's joint-venture partners to fund their share of operations and development activities; the potential failure to achieve expected net production from existing and future crude ***oil*** and natural gas development projects; potential delays in the development, construction or start-up of planned projects; the potential disruption or interruption of the company's operations due to war, accidents, political events, civil unrest, severe weather, cyber threats, terrorist acts or other natural or human causes beyond the company's control; the potential liability for remedial actions or assessments under existing or future environmental regulations and litigation; significant operational, investment or product changes required by existing or future environmental statutes and regulations, including international agreements and national or regional legislation and regulatory measures to limit or reduce greenhouse gas emissions; the potential liability resulting from pending or future litigation; the company's ability to achieve the anticipated benefits from the acquisition of Noble Energy, Inc.; the company's future acquisitions or dispositions of assets or shares or the delay or failure of such transactions to close based on required closing conditions; the potential for gains and losses from asset dispositions or impairments; government-mandated sales, divestitures, recapitalizations, industry-specific taxes, tariffs, sanctions, changes in fiscal terms or restrictions on scope of company operations; foreign currency movements compared with the U.S. dollar; material reductions in corporate liquidity and access to debt markets; the receipt of required Board authorizations to pay future dividends; the effects of changed accounting rules under generally accepted accounting principles promulgated by rule-setting bodies; the company's ability to identify and mitigate the risks and hazards inherent in operating in the global energy industry; and the factors set forth under the heading "Risk Factors" on pages 18 through 23 of the company's 2020 Annual Report on Form 10-K and in subsequent filings with the U.S. Securities and Exchange Commission. Other unpredictable or unknown factors not discussed in this report could also have material adverse effects on forward-looking statements.

**If you have questions about this report, please contact**:

ESG and Sustainability

Chevron Corporation

6001 Bollinger Canyon Road, Building A

San Ramon, CA 94583-2324 USA

Produced by Corporate Affairs and Strategy and Sustainability, Chevron Corporation

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n42 Process Safety Tier 1 loss-of-primary-containment (LOPC) events are unplanned or uncontrolled releases resulting in consequences equivalent to those specified by American National Standards Institute/American Petroleum Institute (ANSI/API) Recommended Practice (RP) 754 and *IOGP Report 456: Process Safety Recommended Practice on Key Performance Indicators*.

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n38 For years 2016-2018, data collected as of February 20, 2019. For year 2019, data collected as of January 23, 2020. For year 2020, data collected as of February 24, 2021.

n37 Excludes data from 2020 acquisitions of Puma Energy (Australia) Holdings Pty Ltd and Noble Energy, Inc., pending integration of HR information systems.

n36 Unless otherwise indicated, 2020 data include employees from 2020 acquisitions of Puma Energy (Australia) Holdings Pty Ltd and Noble Energy, Inc., where applicable. Data for all years do not include service station employees unless specifically stated.

n34 Global employee diversity and U.S. Equal Employment Opportunity Commission percentages have been rounded to the nearest whole percentage. Global data are as of December of the year identified. Although gender is not binary, gender is currently reported in binary (men, women) terms to align with U.S. government reporting regulations. Our most recently filed Federal Employer Information Report EEO-1 is available for download at chevron.com/eeo-1. EEO-1 gender and ethnicity counts may vary from other methodologies.

n35 Ethnicities with representation less than 2 percent such as, but not limited to, Native Americans, Pacific Islanders, and Two or More Races.

n2 2020 Colorado activities include 2020 activities of Noble Energy, Inc. prior to acquisition.

n1 Noble Energy's report ran from January 2020 to May 2020 prior to the hold that was placed on the program in advance of the acquisition. Chevron numbers are representative of all 2020 volunteer hours and giving related to our 2020 program, which ran from January 1, 2020, to January 31, 2021.

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n35 Our Corporate Audit Department, which performs the internal audit function at Chevron, conducted an independent review of the reporting processes related to the SDS scenario test. This review was conducted in accordance with the principles espoused by the Institute of Internal Auditors. The Corporate Audit Department found that, in developing the SDS scenario disclosures, our reporting processes were reasonably performed in accordance with the reporting process for the IEA's SDS. Moreover, our Corporate Audit Department verified that our procedures in developing the NZE2050 scenario statements followed applicable procedure to the extent developed to date by the IEA.

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n28 IHS Markit, *Global Fundamentals Refining and Marketing Short-Term Outlook*, October 2020, ihsmarkit.com/products/refining-and-marketing.html.

n27 As part of the IPCC review process, climate change scientists regularly review the Global Warming Potential (GWP) of different greenhouses gases and update their perspective on the current scientific consensus of the GWPs. Governments and industry then often use these GWPs in the development of their greenhouse gas inventories. Global warming is considered to be a long-term issue by the IPCC, and it is common practice to use a GWP time horizon consistent with that of the scenario analysis done by the IPCC. The AR4 100-year Global Warming Potential (GWP-100) assigns a GWP of 25 to convert the mass of methane to its carbon dioxide-equivalent value. AR5, released in 2014, assumes a GWP-100 of 30 for fossil sources of methane. AR6 is currently under development and scheduled for release in 2022.

n26 International Petroleum Industry Environmental Conservation Association (IPIECA), *IPIECA Sustainability Reporting Guidance for the* ***oil*** *and gas industry*, ipieca.org/our-work/sustainability-reporting/sustainability-reporting-guidance/.

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n21 Rystad Energy, rystadenergy.com/, as analyzed by Chevron.

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n11 Kenneth Gillingham, "Carbon Calculus," *IMF Finance & Development*, December 2019, mf.org/external/pubs/ft/fandd/2019/12/pdf/the-true-cost-of-reducing-greenhouse-gas-emissions-gillingham.pdf; Kenneth Gillingham & James H. Stock, "The Cost of Reducing Greenhouse Gas Emissions," *Journal of Economic Perspectives*, Vol. 32 (4), Fall 2018, *aeaweb.org/issues/529*; Goldman Sachs Research, *Carbonomics: Innovation, Deflation, and Affordable Decarbonization*, October 2020, goldmansachs.com/insights/pages/carbonomics-innovation-deflation-and-affordable-de-carbonization.html; Taskforce on Scaling Voluntary Carbon Markets, November 2020, iif.com/tsvcm/.

n10 Construction of a MACC requires detailed understanding of a wide range of technologies and mitigation options across the various sectors of the economy. Numerous decisions are also necessary, such as the grouping of technologies and the choice of discount rate, which can affect both the volume and cost calculations. MACCs should be taken as qualitative, rather than quantitative, representations of the costs and potential magnitudes of mitigation options unless done with facility- and project-specific information.

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\* As part of the IPCC review process, climate change scientists regularly review the global warming potential (GWP) of different greenhouse gases and update their perspective on the current scientific consensus of the GWPs. Governments and industry then often use these GWPs in the development of their greenhouse gas inventories. Global warming is considered to be a long-term issue by the IPCC, and it is common practice to use a GWP time horizon consistent with that of the scenario analysis done by the IPCC. The AR4 100-year Global Warming Potential (GWP-100) assigns a GWP of 25 to convert the mass of methane to its carbon dioxide-equivalent value. AR5, released in 2014, assumes a GWP-100 of 30 for fossil sources of methane. AR6 was released in August 2021, but it is currently undergoing a final copy-editing process. The scenario analysis described in this report was completed under IPCC AR4.

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\* *Italics* indicates a policy is under development.

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