



Energy security
for a sustainable world

About this report

Our approach to sustainability reporting

In this inaugural Sustainability Report, we present our approach to: integrating sustainability within our corporate strategy and operations; the material sustainability issues that impact our business; and our ambition, initiatives and performance, with a particular focus on our 2021 performance and highlights.

This Report has been approved by the executive management and Board of Directors of Aramco.

Reporting standards

The following sections of this Report have been prepared with reference to and guidance from the following frameworks, standards and guidelines:

- Reporting guidelines for our ESG disclosures: **International Petroleum Industry Environmental Conservation Association (IPIECA)**;
- For developing and reporting our materiality matrix: **Global Reporting Initiative (GRI) Sustainability Reporting Principles**;
- For measuring and reporting on our carbon emissions: **World Business Council for Sustainable Development and World Resources Institute's Greenhouse Gas Protocols**; and
- For developing and reporting our health and safety performance metrics: **Occupational Safety and Health Administration (OSHA) Standards and the American Petroleum Institute Recommended Practices**.

We have applied to become a participant of the UN Global Compact and support the 10 principles on human rights, labor, environment and anti-corruption.

Reporting boundaries, scope and basis of preparation

This Report contains data for the full-year 2021 (January 1 — December 31). Where available, we have compared 2021 performance with 2020 and 2019 data.

We have followed industry guidance on defining the boundary scope for performance data. For clarity and transparency, the specific reporting boundaries of each KPI for 2021, 2020 and 2019 have been noted in detail on page 88.

Where appropriate, we will expand the boundaries against which we report as our controls mature around ESG data measurement monitoring and reporting.

Our basis of preparation on how we measure and report on the sustainability performance metrics undergoing external independent assurance can be found [online here](#).

For the avoidance of doubt, SABIC and S-Oil's non-financial performance data are not in scope of this Report. Both subsidiaries are publicly listed and issue separate annual sustainability reports.

Internal controls and data validation

All figures in this Report represent the latest available internally validated data, unless specifically referenced in the narrative. Some of the totals presented may reflect the rounding down or up of subtotals.

Aramco's internal reporting systems capture and record the data used in this Report. All data are subject to internal validation, including data reviews by the reporting businesses and subject matter experts.

Independent assurance

Third-party independent assurance has been sought against six prioritized performance metrics in accordance with the revised International Standard on Assurance Engagements 3000 (ISAE 3000 revised).

For 2021, EY has provided assurance over our data on the number of Fatalities, Female employees (%) of total employees and Energy Intensity (ratio of total net energy consumption and total production, thousand Btu per boe), whilst KPMG has provided assurance over our 2021 data on Scope 1 emissions (million metric tons of CO₂e), Scope 2 emission (million metric tons of CO₂e) and Upstream Carbon Intensity (Ratio of total upstream GHG emissions (Scope 1 and Scope 2) to production sold, kg of CO₂e/boe).

More information on assured data and assurance statements can be found from page 88 onwards and [online here](#).

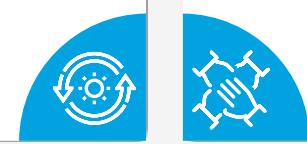
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Positioning Aramco for the future

The Company's strategy is driven by our belief that the world's need for affordable, reliable and sustainably produced energy will continue to grow, and that a broad mix of energy solutions will be required to meet this demand, including oil and gas.

Positioning Aramco for the future

As events in early 2022 have shown, a smooth energy transition is dependent on energy security, and until such a time as alternative low-carbon sources of energy are able to shoulder the burden of energy demand, global energy security will continue to be dependent upon a reliable supply of fossil fuels.

Even under the most aggressive climate models, demand for hydrocarbons, though declining, will continue to play an important role in the energy mix for many years to come. And at a more granular level it is clear that the energy transition is moving at a different pace across different markets. In many growing markets there will be a need for hydrocarbons well beyond 2050.



Overview	Climate change and the energy transition	Safe operations and people development	Minimizing environmental impact	Growing societal value	Data
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Aramco has demonstrated its ability to produce hydrocarbons at low cost and with one of the lowest carbon intensity footprints. This positions us to have a critical role to play in meeting the need for affordable energy whilst responding to the climate challenge.

Our vision is to be the world's pre-eminent integrated energy and chemicals company, operating in a safe, sustainable and reliable manner.

The global reach and diversification of Aramco uniquely advantages us to meet the world's energy needs, whilst both bringing one of the lowest carbon intensity hydrocarbons to market and investing in new energies.

To achieve this, we will grow the business, increasing production and delivering energy and petrochemical materials to support economic and social growth, while leveraging technology and innovation to lower emissions and reduce our climate impact.

Aramco recognizes the need to maintain its position as a leader in upstream carbon intensity, with one of the lowest carbon footprints per unit of hydrocarbons produced and ultimately decarbonize our own operations by 2050. This is an important part of our focus on long-term shareholder value creation.

Our commitment to this goal was reinforced in October 2021, with the announcement of our ambition to achieve net-zero Scope 1 and Scope 2 greenhouse gas emissions across wholly-owned operated assets by 2050. This complements the Kingdom of Saudi Arabia's aim to reach net-zero emissions by 2060, announced as part of the Saudi Green Initiative (SGI).

The corporate strategy is built around four strategic themes:

- Upstream pre-eminence
- Downstream integration
- Low carbon
- Localization and national champions

We recognize that a successful energy transition will require collaboration with a wide-range of business and technology partners to be able to develop the technical solutions needed. Our track record of innovation and technology development positions us well to leverage technology to support our four strategic themes.

Scenario planning has been used to inform the development of these and stress-test the resilience of the corporate strategy and investment plan against a range of possible futures (see the "Energy transition Scenarios", pages 24-25).



Corporate strategy

Upstream pre-eminence

At the core of our upstream business lies a commitment to be a responsible custodian of Saudi Arabia's vast energy resources. Our many decades of careful long-term reservoir management have required balancing production between maturing areas and newer production sources, tapping into new reservoirs when required to optimize the depletion rate of fields, and repeatedly raising targets for ultimate recovery of hydrocarbons.

Deployment of advanced sub-surface technologies that reduce energy consumption have led to industry-leading positions and practices in cost and efficiency, supporting the Company's aim of preserving our low upstream carbon intensity. This depth of knowledge of our geology positions us strongly to develop carbon capture opportunities.

Aramco plans to expand our gas business, including accelerated development of our unconventional gas resources. This gas is expected to meet a growing domestic demand for low-cost, cleaner energy, and is expected to contribute to lower greenhouse gas emissions in domestic power generation supporting the Kingdom's Nationally Determined Contributions by displacing the use of higher emitting liquids.

We are also looking to monetize part of this growing domestic gas production through the production of blue hydrogen and ammonia. We believe hydrogen will play a significant role in providing low-carbon energy.

Downstream integration

The Company has a dedicated system of domestic and international refineries and chemical plants. Continued strategic integration across these facilities, together with investments in marketing and lubricants, enables us to capture additional value along the hydrocarbon chain.

Changing patterns of demand, including growth in chemicals demand and the long-term risk of decline in fuels demand, are driving us to direct more oil into chemicals through highly-integrated liquids-to-chemicals facilities.

Leveraging technology

Aramco's technology program continues to develop new solutions for our Upstream and Downstream businesses, and to help in diversifying our product portfolio and growing the business sustainably. An increasing share of investment in technology and research and development addresses sustainability challenges.

This requires large-scale deployment of existing solutions, such as renewable energy and carbon capture, utilization, and storage, and the creation and advancement of new low-carbon solutions that have both environmental and commercial potential. Examples of the new solutions that Aramco believes will positively impact its business sustainability, and which are being actively pursued, include:

- Directly converting liquids-to-chemicals;
- Producing hydrogen carbon capture, utilization, and storage;
- Expanding nonmetallic applications;

Overview	Climate change and the energy transition	Safe operations and people development	Minimizing environmental impact	Growing societal value	Data
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Low carbon

The Company aims to de-risk our business portfolio and maintain competitiveness and differentiation under carbon-constrained scenarios. There are two main dimensions to achieving this: lowering the net carbon emissions of our operations, and developing low-carbon products and solutions across energy, chemicals and materials.

Lowering the Company's operational carbon emissions leverages measures that span energy efficiency gains, renewable power, carbon capture, utilization, and storage, and offset initiatives.

Developing low-carbon products and solutions helps to sustain and diversify demand for oil and gas through competitive technologies. These include blue hydrogen and ammonia, low-carbon fuels, and gas to complement renewables in the domestic energy mix and to reduce liquids-burning in power generation. These initiatives will help the Company capture opportunities in a growing market for low-carbon products and solutions.

Localization and national champions

In addition to our core businesses, we are seeking to foster new businesses that will localize the Company's supply chain and promoting national champions in the Kingdom of Saudi Arabia. This helps increase the long-term cost and productivity leadership, competitiveness and resilience of our domestic value chains, as well as contributing to the Kingdom's economic development.

In March 2021, the Government of Saudi Arabia announced the Shareek program. Shareek offers a framework to accelerate investments aligned with our strategy and is relevant for our plans for domestic liquids-to-chemicals, blue hydrogen and ammonia. In September 2021, the Company announced a major expansion of its industrial investment program, Aramco Namaat, that will leverage a range of incentives offered by Shareek.

- Accelerating large-scale deployment of carbon capture, utilization, and storage;
- Enabling sustainable transport through more efficient engines and low-carbon fuels; and
- Accelerating technology-based offsetting solutions such as direct air capture.

We believe that the span, concentration and integration of our operations position us well to develop, test and deploy new technologies such as carbon capture, utilization, and storage (CCUS) at speed and scale.

We are a large investor in technology and one of the leading authors of patents in the oil and gas industry. Application of such technology can provide sustainable competitive advantage in core and new businesses and add commercial value by creating or extending future markets for oil, such as crude oil-to-chemicals, crude oil to hydrogen and nonmetallic materials. Technology will also be essential for delivering emissions reductions at the scale needed. Our goal is to deploy technologies at scale and with a high degree of integration across our value chain. Due to the size of our business, even small advances can have globally significant impacts.

A unique position with unique responsibilities



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Reducing emissions from energy production and use, while at the same time satisfying the world’s growing energy requirements, is the biggest dual challenge facing our industry.”

Aramco occupies a unique position in the global energy industry. We are the world’s largest exporter of crude oil, and we have the lowest upstream carbon intensity of any major producer. We are proudly Saudi and committed to developing the Kingdom’s vast economic and human potential, but our outlook and ambitions are global. We combine disciplined day-to-day performance with a generations-spanning view of the future, born of our role as careful stewards of the Kingdom’s immense energy resources.

This unique position means we have a unique responsibility: to the communities in which we operate, the customers who rely on us, and the shareholders we serve.

Long-term thinking

The COVID-19 pandemic has underlined the importance of long-term thinking. Now, more than ever, people want companies like ours to plan ahead, to be transparent about risk, and to have the courage and foresight to tackle emerging problems long before they become existential crises. That, for us, is the meaning of sustainability. It’s the steps we are taking today, across our business, to ensure that Aramco can thrive and create value for all of our stakeholders long into the future.

Our first sustainability report

This Report — the first of its kind in our company’s history — sets out the actions we are taking and the standards against which our performance may be judged. A significant part of this work concerns climate change because this is the biggest long-term challenge that Aramco, or indeed any business, faces. So, let me state the Company’s position unequivocally on this issue. Climate change is a serious risk to humanity’s future and restoring the world to a better carbon balance requires us to reduce the greenhouse gas emissions associated with both oil and gas production and use. We are already an industry leader in minimizing emissions at the point of production. To strengthen that position we have set our ambition to achieve net-zero Scope 1 and Scope 2 greenhouse gas emissions across our wholly-owned operated assets by 2050. But we recognize that as long as demand for oil and gas exists, emissions also have to be tackled at the point of combustion too. We cannot do this alone — no one company can — but we are committed to working towards a lower-emissions future with our customers and partners around the world.

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Moving at the speed of science

Technology will be vital to this endeavour, and this Report outlines how our global research network is moving at the speed of science to drive progress everything from cleaner fuels to low-carbon hydrogen to carbon capture, utilization and storage. We are clear that we intend to be a leading player in these new markets and transition technologies.

The Report also highlights how we plan to use more of our primary product to make the petrochemicals that are the building blocks of modern life. Advanced plastics for instance, are created from carbon molecules, yet can serve as a lower-carbon alternative to traditional materials like steel and glass. They also happen to be crucial elements in the fabrication of renewable energy infrastructure.

This circular carbon economy approach, championed by Saudi Arabia and endorsed by the G20, is part of a broader shift away from a linear economy based on "make, take, and throw away" to an economy designed around reducing waste and reusing and recycling finite materials. In the case of carbon, we can add a fourth 'R': removing it from the cycle altogether through carbon capture and storage.

Sustainability is not only about climate and the environment however. Our responsibilities also encompass the communities in which we operate, the markets we supply, the many thousands of contractors who form our global supply chain, and of course our 68,000 employees: the men and women who work day-in, day-out to keep the world supplied with affordable, reliable energy.

Citizenship — a core value

In this Report, you will also read about the many ways in which we are enacting our core values of citizenship, accountability, safety, excellence, and integrity. This includes our work to foster a safe, inclusive and rewarding workplace, our support for education and skills, and our programs to localize supply chains and create skilled jobs in our communities.

Committed to a stable and inclusive energy transition

As a signatory to the Paris Agreement, Saudi Arabia is committed to a stable and inclusive energy transition that meets the needs of a growing global population. And work is well underway. The Kingdom's Saudi Green Initiative and the Kingdom-led Middle East Green Initiative — two massive programs of reforestation and clean energy deployment — have the potential to transform our region, while Saudi Arabia's historic commitment to net-zero by 2060 is guiding work at the national level. Aramco's own sustainability plan complements these ambitious goals, and we intend to play our full part in helping the Kingdom deliver on them.

For their tireless leadership on this agenda, I wish to take this opportunity to thank The Custodian of the Two Holy Mosques, King Salman bin Abdulaziz Al-Saud, and His Royal Highness Prince Mohammed bin Salman bin Abdulaziz Al-Saud, Crown Prince, Deputy Prime Minister and Minister of Defense of the Kingdom of Saudi Arabia.

As a company, we have always taken a long-term view of the future. We have made these commitments and established this reporting process because we intend to be in business — responsibly producing energy and creating value for our shareholders — for a great many decades to come.

I hope you will join us on this journey.

Sincerely,

His Excellency Yasir O. Al-Rumayyan

Chairman of the Board of Directors

Opportunity rests on our ability to operate sustainably



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As one of the world’s leading integrated energy and chemicals companies, our scale is truly unique, as is our capacity to make a difference to the world.”

As a second generation Aramcon — the son of a man who, like me, spent his career with this Company — I hold a natural appreciation for how Aramco’s success is not measured in quarters or business cycles, but across generations. While this is a source of tremendous, unique, and enduring strength, it is also a constant reminder of our capacity to make a difference to the world, and our responsibility to do so.

I am deeply conscious that the global energy system is at an inflection point, with potentially dire consequences for the world if the global community fails to take the right approach backed by action that matters. Of particular concern to our industry is the chronic underinvestment in oil and gas production in recent years which has created a supply shortfall. If left unchecked, this could create energy insecurity, rampant inflation, and social unrest. The Ukraine crisis has exacerbated the challenge, while underscoring the extent to which renewable alternatives are nowhere near ready to bridge the gap.

The situation is unsustainable. To effectively address climate change, a new way of thinking is needed. This starts with acknowledging three facts.

Fact 1: even in the most aggressive climate models — some of which we discuss in this Report — the reality is that hydrocarbons will continue to play a vital role in the global energy system for the next several decades.

Fact 2: the future is unevenly distributed. In some markets there will still be a need for hydrocarbons beyond 2050.

Fact 3: when it comes to oil and gas, the future now clearly belongs to the lowest cost, least-carbon intensive producers.

We intend to be one of those producers. This Report sets out how.

Significant advantages

As a company, we have significant advantages: a world-class operation that combines upstream low-carbon intensity, near zero methane emissions and gas flaring, and a relatively low cost of production. This is all underpinned by a 90-year track record of reliability and resilience. We are extremely proud that even in times of market dislocation and volatility — even when our own operations were attacked — we have never missed a single customer shipment for operational reasons.

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It is a fine legacy. Indeed, I like to remind people that Aramco was born in the face of challenge. A century ago, as oil was replacing coal as the fuel of choice for development and progress, we found opportunity in delivering energy safely and reliably to the world. Our Company's strength was forged from a unity of purpose and an unrelenting determination to succeed.

But looking ahead, our greatest opportunities now hinge on our ability to operate sustainably. This means ensuring the sustainability of our business, the environment in which we operate and where our products are used, and helping of the societies that are touched by Aramco to grow and prosper. It's a tall order. We don't have all the answers and we don't have all the technologies in place. No one does. But we're working hard at it, as you'll see in the following pages.

In our inaugural Sustainability Report, we provide greater detail around the ambition we set out to achieve net-zero Scope 1 and Scope 2 greenhouse gas emissions across our wholly-owned operated assets by 2050, as well as the work and planning we are doing to further protect and enhance lives, progress society's development, and reduce our environmental footprint.

Four impact areas

We have identified four impact areas where we believe we can make the most difference:

To more effectively combat climate change and play our part in a successful energy transition, we are embracing energy efficiency and increasing use of renewable energy for our operations, while advancing the science of carbon capture, including both natural and technology-led solutions. We are also working with international partners to develop more sustainable engines and fuels, and playing a leading role in growing the emerging hydrogen economy.

To improve safety and well-being, we are working to make a positive impact on local, national, and global communities in a number of ways, from providing world-class skills and training, to becoming the number one choice in the Kingdom for Saudi female talent.

Despite improvements to our safety performance, I am deeply saddened by the loss of one life at one of our sites during the year. It is unacceptable that any person loses their life as a result of a work-related incident. We continue our efforts to eliminate fatalities and reduce injuries as far as possible across our business.

To minimize the environmental impact of our business, we are not only working to limit our environmental footprint, but to create a legacy of projects that improve both natural habitats and shared resources, while incorporating circular economy principles across our business activities.

To grow social value and our value chain, we are developing a diverse, sustainable and globally competitive energy sector in Saudi Arabia and beyond, while adding robustness and efficiency to our in-Kingdom total value add (iktva) supply chain efficiency program, striving to increase job creation and the amount of goods and services we procure from within the Kingdom to 70%.

Vision 2030 and UN SDGs

In the following pages, you will also read how our activities align with and support various aspects of both the United Nations' Sustainable Development Goals (UN SDG) and the Kingdom's Vision 2030. The support of and collaboration with the Government, particularly the Ministry of Energy, is valuable and critical to our success in doing this.

What is more difficult to capture in a report like this is the resolve I see in the men and women of Aramco who are working day-in and day-out to leverage the talent, technology, and resources of our Company to make a positive difference to the world we all live in. But, through this process, we hope to capture that inspirational resolve in our actions with ever greater transparency, accountability, and responsibility, and relentless action that play a major role in determining the future of our planet and the generations to follow.

These are the standards by which our performance will be measured, and working together, I am determined that we will be judged a success.

Sincerely,

Amin H. Nasser
President & CEO

Our performance in 2021

Climate change and the energy transition

 For more details
see page 20

We provide reliable energy to the world while maintaining leadership as one of the lowest cost and lowest carbon intensity producers of hydrocarbons, supporting the Kingdom's and our customers' transition to a lower carbon future.

Scope 1 ¹	Scope 2 ¹	Upstream carbon intensity ¹
MMtCO ₂ e	MMtCO ₂ e	kg CO ₂ e/boe
52.3	15.5	10.7

- Ambition to achieve net-zero Scope 1 and Scope 2 greenhouse gas emissions by 2050 from wholly-owned operated assets
- Zero routine flaring program
- Flaring intensity in 2021: 5.51 scf/boe
- Upstream methane intensity in 2021: 0.05%
- Aiming for near zero methane emissions by 2030
- Leveraging technology to significantly lower emissions
- 12 GW of renewable energy by 2030



Growing societal value

 For more details
see page 76

We invest in the Kingdom's domestic oil and gas ecosystem to enhance the reliability of our supply chain and optimize operational costs and inventories, providing employment and economic opportunities to thousands of Saudi nationals.

Iktva spend	Saudization	In-Kingdom Capex
% (in-Kingdom)	%	Billion USD
59.0	90.5	29.0

- Long-standing commitment to create employment opportunities for Saudi Arabian nationals
- Stimulated billions of dollars in national economic activity
- Established National Champions organization
- Iktva localization program has attracted more than 540 investments to Saudi Arabia
- Social investment of over USD 360 million in a range of community initiatives in 2021



1. This figure has undergone external limited assurance in accordance to the ISAE 3000 (revised) by KPMG. The assurance report can be found [online here](#).

 For more details
see page 48

- Proactive approach to incident prevention
- Females were 31% of all our direct hires
- 24% increase (versus 2020) in female employees in leadership positions
- More employees living with disabilities were hired in 2021 than the past three years combined
- Continuous and effective COVID-19 support with vaccinations made available to all employees

Safe operations and people development

Safety is a core value of Aramco and an integral part of Aramco's culture. We are committed to providing a safe and respectful working environment for all with the appropriate safety procedures, policies and resources in place on-site and within the community. And we are committed to supporting and empowering our workforce.

Tier 1 Process Safety Events	Fatalities ²	Female employees ²
Number	Number	%
11	1	5.6

 For more details
see page 62

- Incorporating circular economy principles
- Ambition to deliver net positive biodiversity impact
- Investments in tail gas treatment facilities
- Implementing a sustainable plastic waste management model
- Comprehensive water conservation
- Using alternative sources of water such as seawater and treated sewage effluent to support our operations

Minimizing environmental impact

We strive to conserve natural resources and minimize the negative impact of our business activities on the environment. We aspire to not only limit our environmental footprint, but to have a legacy of projects that improve both natural habitats and shared resources.

Freshwater consumption	Hydrocarbon spills	Mangroves (planted in Saudi Arabia)
MMm ³	Number	Million
33.8	13	7

2. This figure has undergone external limited assurance in accordance to the ISAE 3000 (revised) by EY. The assurance report can be found [online here](#).

Global operations

Americas

Argentina, Brazil, Canada,
Mexico



United States of America



- █ Countries of operation
- Aramco headquarters
- Subsidiary* offices
- Crude oil and natural gas production facilities
- Refining, petrochemical and manufacturing facilities
- Terminals and distribution hubs
- Aramco retail fuels network
- Technology and innovation centers

* Subsidiaries are separate legal entities from the Company.



Overview

Climate change
and the energy
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Safe operations
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Data



Asia and Australia

Australia, Indonesia, Pakistan, Philippines	○
Vietnam	○●
Malaysia, Singapore, Thailand	○●●
India	○●●●
China, Japan, South Korea	○●●●●

Europe

Armenia, Azerbaijan, Czech Republic, Finland, Georgia, Hungary, Portugal	○
Estonia	●
Austria	○●
Denmark, Greece, Poland, Sweden	○●
Russia	○●
Belgium, Germany, Italy, Turkey	○●●
France	○●●●
Netherlands, Spain, United Kingdom	○●●●●

Middle East and Africa

Bahrain	●
Egypt, Ethiopia, Iraq, Jordan, Kenya, Tunisia	○
Morocco, South Africa, United Arab Emirates	○●
Saudi Arabia	●○●●●●●



Building on strong foundations

The birth of Arabian oil

1933-1944

- 1933** **The beginning:** unlocking the Kingdom's vast oil resources with the original concession
- 1934** **Recruiting locals:** hiring our first Saudi nationals to build a pier to enable oil exports by sea
- 1940** **Beyond employment:** providing additional educational opportunities for Saudis
- 1941** **Boosting agriculture:** surveying land and drilling wells to provide valuable water for farmers
- 1943** **Public health:** helping local communities eradicate malaria

Expansion

1945-1965

- 1946** **Developing local supply chains:** providing technical and financial assistance to Saudi entrepreneurs
- 1949** **In-house training:** investing in on-the-job technical and administrative training
- 1950s** **Building leaders:** offering scholarships to study in the US to top-performing Saudis
- 1960s** **Female education:** building elementary schools for girls in the Eastern Province
- 1963** **Industry knowledge:** helping build the King Fahd University of Petroleum and Mineral Resources in Dhahran
The Company's first environmental protection plan
- 1964** **First female professional:** hiring the first Saudi female university graduate Najat Al-Husseini

Making a name for ourselves

1966-1988

- 1970s** **Connecting communities:** bringing electricity to remote areas of the Kingdom via a unified power grid
- 1975** **Reducing flaring and emissions:** launching our Master Gas System and capturing millions of scf of associated gas that would otherwise have been flared
- 1977** **Biological baseline:** publishing a comprehensive five-year environmental study
- 1978** **Groundwater protection:** establishing the Qurayyah Sea Water Plant to support our operations
- 1980s** **Emissions reduction:** pioneering installation of a modified safety flare system in Abqaiq
Water conservation: Riyadh Refinery started using treated municipal wastewater
- 1980s** **Saudi ownership:** 100% owned by the Saudi Arabian Government



- 1990s** **Cleaner fuels:** halved the lead content of produced gasoline, and ceased production of leaded gasoline (by the end of 2001)
- 1991** **Protecting ecosystems:** responding swiftly to Gulf War oil spills
- 1993** **Mangrove restoration:** first of millions of mangrove trees planted
- 2001** **Recycling and reuse:** devising innovative applications for Aramco's wastewater
- 2006** **Knowledge base:** building the King Abdullah University of Science & Technology
- 2009** **Flare minimization system:** new system driving industry leading flare reduction
- 2012** **Carbon capture at scale:** initiation of CO₂ Enhanced Oil Recovery demonstration project with a capture capacity of 800,000 tons per annum
- 2014** **Industry partnership:** founding member of the Oil and Gas Climate Initiative

- 2015** **Nurturing biodiversity:** first batch of artificial reefs
- Domestic value creation:** launch of iktva
- 2016** **Shaybah Wildlife Sanctuary:** inauguration and the reintroduction of oryx and gazelle
- 2017** **Using alternatives:** installing the Kingdom's first wind turbine
- 2018** **Cultural enrichment:** opening of Ithra — the King Abdulaziz Center for World Culture
- Transparency:** first independent certification of reserves
- 2019** **Cleaner alternatives:** inaugurating Saudi Arabia's first hydrogen fueling station
- Commitments:** joined World Bank 'Zero Routine Flaring by 2030' initiative
- Initial Public Offering:** listing on the Saudi Stock Exchange, the Tadawul
- 2020** **World first:** shipping blue ammonia to Japan

- 2021** **Net-zero:** announced our ambition to achieve net-zero Scope 1 and Scope 2 greenhouse gas emissions from our wholly owned operated assets
- Gas development:** commenced the development of the vast Jafurah gas field
- Investing in solar:** invested in the 1.5 GW Sudair Solar PV project
- Net-positive biodiversity:** announced ambition to deliver a net-positive impact, building on our work in over 750 km² of protected areas
- Driving economic development:** launch of National Champions program

Our sustainability framework

Our sustainability framework is helping us plan for the future and navigate the route ahead. It has been created in the context of where we are as a business today and the global concerns we intend to address. It sets out the focus areas that hold the greatest potential for long-term positive impact.

Our position of strength and our approach for making this contribution are laid out in our sustainability framework and aligns with the Kingdom's own aspirations encapsulated in the Saudi Green Initiative and its Vision 2030.



Sustainability governance

We have implemented a governance model for sustainability that strives to align sustainability aspirations with our corporate business strategy and goals. This involves the Board of Saudi Aramco and its Committees, our Management Committee, and the teams and individuals who work across our operations.

Overall accountability for sustainability within Aramco lies with the Chief Executive Officer and the Management Committee. They are supported by the Sustainability, Risk, Health, Safety and Environment Committee (SR&HSE) and the Sustainability Steering Committee (SSC).

Sustainability, Risk and HSE Committee

The Sustainability, Risk and HSE Committee provides oversight and review and advises on our sustainability, risk and HSE policies and practices to ensure that these are discussed, understood, owned and promoted at Board level. This includes advising on the Company's response to climate change.

Sustainability Steering Committee

The SSC reports to both the Strategy Council and Management Committee. It is led by the senior vice president for Technical Services and is comprised of Company vice presidents representing our key Business Lines and Administrative Areas.

The SSC is responsible for identifying sustainability issues and their impact on long-term value creation for the business and our stakeholders. It informs how sustainability impacts corporate strategy and investment decisions, and provides a platform for management of cross-business issues.

Specifically for climate change: the SSC reviews and advises management on the corporate risk assessment, climate strategy, decarbonization plans and investment levers. The Management Committee approves these plans for review by the Board.

Sustainability governance management framework



Mapping our material ESG issues

In preparing this Report, we consider which topics our stakeholders identify as material ESG issues¹ in our strategy, in our operations, through our key performance indicators (KPIs), and in our public reporting.

In 2020, we conducted focused “materiality assessments” in partnership with a number of independent external consultancies and stakeholders. This included a review of a range of reporting standards including the UN SDGs and the IPIECA guidelines. In addition to this exercise, we monitor internal and external stakeholders to understand what is important to them.

From our benchmarking, research, and internal engagement, we identified and evaluated over 150 topics across the areas of Environment, Social, and Governance. The outcomes of these assessments were tested with external and internal stakeholders, in over 25 separate engagements. The goal was to evaluate the relative importance of multiple topics to our key stakeholders — as well as their respective impacts on our business and stakeholders. From this, 13 material issues were highlighted, and were allocated under four focus areas:

- Climate change and the energy transition;
- Safe operations and people development;
- Minimizing environmental impact; and
- Growing societal value.

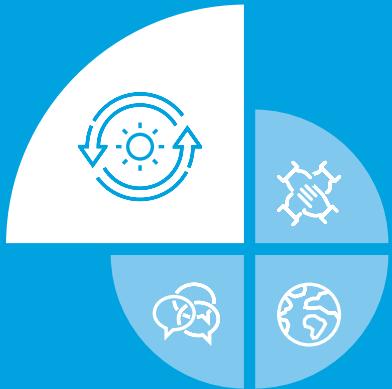
Prioritizing issues enables us to focus on where we can make the biggest difference. This wide-ranging review included peer benchmarking and detailed analysis of stakeholders’ requirements, perceptions, and expectations of Aramco.

Whilst we contribute directly or indirectly to all 17 UN SDGs, we identify 10 UN SDGs which we feel are most relevant to our operations, our products and our business and this is what we present in the adjacent materiality matrix table.

1. The concept of “materiality” refers to the guidance on external reporting from the Global Reporting Initiative, and does not necessarily correspond to the concept of materiality used in connection with Aramco’s financial reports.
2. Human rights and biodiversity are material issues that have a broad relationship with various KPIs and have a strong impact on our day-to-day business and operations, thus we are applying a deliberately phased approach to ensure the quality and integrity of our data capture and target-setting processes, therefore for 2021, there are no publicly reported KPIs for these two material issues.

Focus area and relevant UN SDGs	Material issues	Impact on our business
Climate change and the energy transition 	1. Climate change (including GHG emissions)	
 For more details see page 20	2. Process safety and asset integrity 3. Workforce protection 4a. Labor practices 5. Ethics, bribery and corruption (compliance) 6a. Human rights ²	    
Safe operations and people development  For more details see page 48	7. Biodiversity and ecosystems ² 8. Water 9. Waste management 10. Local environmental impact	   
Growing societal value  For more details see page 76	4b. Labor practices 6b. Human rights ² 11. Community and society 12. Economic contribution 13. National content	    
Impact on our business		 Very high  High  Moderate

Overview	Climate change and the energy transition	Safe operations and people development	Minimizing environmental impact	Growing societal value	Data
Relevant metric to monitor performance against each material issue					
Contribution to UN SDGs					
<p>1. Energy intensity (thousand Btu per boe) – pg 36.</p> <p>1. Scope 1 emissions (million metric tons CO₂e) – pg 32.</p> <p>1. Scope 2 emissions (million metric tons CO₂e) – pg 32.</p> <p>1. Upstream carbon intensity (kg of CO₂e/boe) – pg 33.</p> <p>1. Upstream methane emissions (metric tons CO₂e) – pg 89.</p> <p>1. Upstream methane intensity (%) – pg 35.</p> <p>1. Flared gas (mmscf) – pg 34.</p> <p>1. Flaring intensity (scf/boe) – pg 34.</p> <p>2. Number of Tier 1 process safety events – pg 50.</p> <p>3. Number of fatalities – pg 50.</p> <p>3. Lost time incident (LTI) rate – pg 50.</p> <p>3. Total recordable case (TRC) frequency – pg 50.</p> <p>4a. Female (%) of total employees – pg 57.</p> <p>4a. Employees (% of total employees) receiving regular Performance Reviews – pg 90.</p> <p>4a. Female employees (%) in leadership position – pg 57.</p> <p>4a. Number of graduates – pg 58.</p> <p>4a. Number of apprentices – pg 58.</p> <p>4a. Number of interns – pg 58.</p> <p>5. Number of allegations – pg 55.</p> <p>8. Freshwater consumption/withdrawal (million m³) – pg 69.</p> <p>8. Hydrocarbon content discharged to water (HC2W) (barrels) – pg 70.</p> <p>9. Industrial waste generated (metric tons) – pg 66.</p> <p>10. SOx emissions (kilo tons) – pg 65.</p> <p>10. Number of hydrocarbon spills – pg 71.</p> <p>10. Volume of hydrocarbon spills (barrels) – pg 71.</p> <p>4b. Saudization (%) – pg 78.</p> <p>11. Social investment (SAR) – pg 84.</p> <p>12. Payments to Government (USD) – pg 86.</p> <p>12. Total R&D expenses (USD) – pg 44.</p> <p>12. Direct economic value generated and distributed (SAR) – pg 92.</p> <p>13. Iktva score (%) – pg 79.</p> <p>13. Saudization of service contracts (%) – pg 79.</p> <p>13. Saudization of construction contracts (%) – pg 79.</p>					
<ul style="list-style-type: none"> • SDG7: Investing more than 12 GW in alternative energy by 2035, and expand CO₂ storage capacity to support clean and affordable energy production. • SDG8: Given the material impact climate change can have on human life and economic opportunities, as Aramco continuously invests in lower carbon energy and alternative energy sources, this will create jobs and contribute to economic growth. • SDG13: Being one of the world's lowest upstream carbon intensity major producers in the world and in line with the Kingdom of Saudi Arabia's Vision 2030 toward cleaner energy, having an ambition to reach net-zero emissions by 2050 from wholly-owned operated assets, and also leveraging our influence in non-operated assets, within the timeframe set by the Paris Agreement. • SDG15: Committed to delivering Biodiversity Net gain (in-Kingdom) in support of the SDG15, 2030 Vision and the Saudi Green Initiative. <p>• SDG3: Aramco has various H&S and well-being initiatives for our employees (mental health initiatives, and uses technology to minimize exposing our workers to unnecessary risk). In 2021 the Company launched the Work Life Support program as a response to COVID 19.</p> <p>• SDG5: Aramco is improving the gender balance of our workforce via a range of female empowerment initiatives. For our community, Aramco funds the STEMania program for school-age girls, offering university scholarships for science, technology, engineering and mathematical degrees.</p> <p>• SDG8: Supporting economic development of our employees and communities where we operate via various home ownership and Aramco initiatives to seed micro industries (e.g. Roseyar, beekeeping in al-Baha, fisheries in Yanbu' and Baish, olive products in al-Jouf, coffee cultivation in Jazan).</p> <p>• SDG8: We have strong policies and processes to manage our ethics, bribery and corruption risks to ensure a decent working environment for our workforce.</p> <p>• SDG9: We seek to develop, innovate and invest wherever we operate — our 2021 payment to Saudi Arabian Government was 557,033 (SAR millions).</p>					
<p>• SDG6: Given water scarcity in KSA, the Company has a large seawater treatment and injection network of facilities. Seawater is used as the primary source of water for oil production and to ensure clean water is available for our workforce and local communities.</p> <p>• SDG12: Embracing circular economy (reduce, reuse and recycle) principles and business models across our operations and activities.</p> <p>• SDG14: Aramco has systems in place to manage all discharged water to the sea, meeting Government requirements by investing in maintenance and monitoring systems while proactively managing operations to avoid hydrocarbon leaks and spills by maintaining asset integrity throughout their life cycle.</p> <p>• SDG15: See above.</p>					
<p>• SDG3: See above.</p> <p>• SDG8: Our iktva program where we have built local businesses' capacity and capability, the Aramco Namaat Investment Acceleration program and our National Champions program. Globally, spending in various socio-economic programs.</p> <p>• SDG9:</p> <ul style="list-style-type: none"> – Industry: creating a world-class supply chain to serve the needs of the Company and its partners, facilitating the development of a diverse, sustainable, and a globally competitive energy sector in the Kingdom. – Infrastructure: The Kingdom's Master Gas System delivers natural gas to industry across Saudi Arabia; while, we've built various roads, education facilities, cultural centers (e.g. Ithra) and numerous other facilities across the Kingdom. – Innovation: At the heart of our business lies a commitment to innovate and maximize production from our resources, to deliver energy as efficiently as possible from the wellhead to customers. <p>• SDG12: See above.</p>					



Climate change and the energy transition

The world's population is predicted to reach 9.7 billion by 2050¹ and communities across the globe are seeking economic growth and a better quality of life, which is driving underlying demand for energy and materials.

At the same time, the impacts of climate change on ecosystems, economies, societies and businesses are already clear and are predicted to increase.

As an energy company, our role is critical to balancing these two aims. As the world's largest integrated energy and chemicals company, we have the ability to lead and shape the response.

1. UN Department of Economic and Social Affairs (DESA) "World Population Prospects" 2019.

Overview	Climate change and the energy transition	Safe operations and people development	Minimizing environmental impact	Growing societal value	Data
Why it is important	Climate change is one of the most important global issues impacting business and society. It is the interrelationships between environmental and social health and economic wealth, and the trade-offs that will be required to balance these that make it so important to the development of the global energy system.				
Our ambition	We have a unique role to play in helping the world navigate the energy transition. We intend to be part of the solution to the global energy challenge, supporting a smooth energy transition and continuing to deliver the economic benefits of oil and gas while reducing emissions on the path to net-zero emissions by 2050.				
Our approach	The transition toward a low emissions future will need both new and existing energy sources for some time to come, and will necessitate continued investment to maintain reliable oil and gas supply. A multi-track approach is needed, reflecting the fact that developing countries and developed countries will not be able to transition at the same speed.				
Our plans	The scale and integrated nature of our operations provide us with a cost advantage that positions us better than others in the industry to reduce our operational emissions further, become a net-zero carbon producer by mid-century and be the pre-eminent integrated energy and chemicals company, supporting the Kingdom and our customers to transition to a low-carbon future.				
Material topics	Relevant UN SDG	Relevant metric			
Climate Change (including GHG emissions)		Energy intensity (thousand Btu per boe) – pg 36. Scope 1 emissions (million metric tons CO ₂ e) – pg 32. Scope 2 emissions (million metric tons CO ₂ e) – pg 32. Upstream carbon intensity (kg of CO ₂ e/boe) – pg 33. Upstream methane emissions (metric tons CO ₂ e) – pg 89. Upstream methane intensity (%) – pg 35. Flared gas (mmscf) – pg 34. Flaring intensity (scf/boe) – pg 34.			

For more details on relevant metrics
see page 88

The climate challenge

Aramco supports the aims of the Paris Agreement and the Glasgow Climate Pact. These international agreements summarize the challenge for all of us to decouple economic growth from greenhouse gas emissions, recognizing the importance of international cooperation in addressing climate change and its impacts, in the context of sustainable development and efforts to eradicate poverty.

As an energy company, our role is critical to balancing these aims. As the world's largest integrated energy and chemicals company, we have the ability and responsibility to lead and shape the response.

We believe that the dominant public narrative around the energy transition, that focuses heavily on emissions and is characterized as a shift away from hydrocarbons, risks downplaying the importance of ensuring a stable and efficient energy supply and deprioritizes the social and economic needs of billions of consumers.

Events over the last two years including COVID-19 and conflict in Europe have highlighted an under-investment in energy sources that has left a supply shortage and underlined importance of energy security, and have caused a fundamental reappraisal of social needs. But they have also reinforced how critical energy access and security is. These events provide a reminder that the transition of the global economy and energy system towards a lower carbon future is complex, multi-dimensional and will be decadal.

Alternatives to traditional hydrocarbon-based energy sources are progressing, but on their own they are not yet ready to meet the world's energy demands and ensure a smooth energy transition.

Many developing economies depend upon the low cost and reliability of hydrocarbons to avoid energy shortages and cost inflation, with the resulting negative social and economic consequences.

We acknowledge that, as the world's largest commercial oil producer, we have an important role to play along our value chains to support our customers' journey to lower emissions.

Existing oil and gas technologies are reliable and efficient, and we aim to build on this strength with investment in new technologies to reduce and remove hydrocarbon-based emissions. The strategic challenge is to develop and deploy technology solutions at speed and scale, to allow continued delivery of the benefits of oil and gas for future generations while minimizing their emissions impacts.

This is a challenge that plays to Aramco's strengths.

Overview	Climate change and the energy transition	Safe operations and people development	Minimizing environmental impact	Growing societal value	Data
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Net-zero ambition

In October 2021, Aramco announced its ambition to achieve net-zero Scope 1 and Scope 2 greenhouse gas emissions across its wholly-owned operated assets by 2050.

This ambition is fundamental to our ability to maintain our position over the decades ahead as the lowest cost and lowest carbon intensity producer amongst our peers. This commitment complements the Kingdom's aim to reach net-zero emissions by 2060, announced as part of the Saudi Green Initiative.

Circular carbon economy

In 2020, the G20 group of leading economies endorsed the concept of a circular carbon economy that was proposed by the Kingdom of Saudi Arabia.

The model extends the principles of circularity — reduce, reuse and recycle — to carbon emissions, and adds an important fourth 'R' — removal of carbon from the atmosphere. These principles provide an effective framework to achieve significant reduction in global emissions, while recognizing the valuable role of carbon products in supporting economic growth. It provides an alternative to the current linear model of the carbon economy which extracts hydrocarbon resources to supply energy and, in the process, emits carbon into the atmosphere.

The circular carbon economy is the basis for Aramco's approach to addressing the challenges and opportunities presented by the energy transition.

Energy transition scenarios

As part of the Company's strategic planning and risk mitigation process, we use scenario planning to stress-test the resilience of our corporate strategy and investment plan against possible futures.

Rapid advancements in technology accompanied by underlying trends in demography and global economy, a heightened awareness by consumers and recognition by policy makers towards a common goal to tackle climate change related issues, and a shift in geopolitical powers pose huge uncertainties on the future of global energy mix.

On the one hand, advancements in lifestyle and economic uplift of a larger portion of global citizens generate increasing demand on energy, while on the other, concerns over climate change and its related impacts are driving demands for a rapid energy transition away from hydrocarbons.

To understand these forces on economic and energy trends, often with conflicting positions and wide-ranging interests, we believe scenarios should consider different assumptions related to the speed of energy transition. They need to be looked through four lenses:

Economic growth — the ability of alternative energy sources to competitively meet future energy (and materials) demand that will drive ongoing demand for hydrocarbons.

Policy cohesion and execution — the speed at which governments are able to develop and implement climate-related policies in line with both domestic and international pressures.

Societal readiness — the extent to which pressure for GHG action is balanced by the need for a smooth and equitable energy transition.

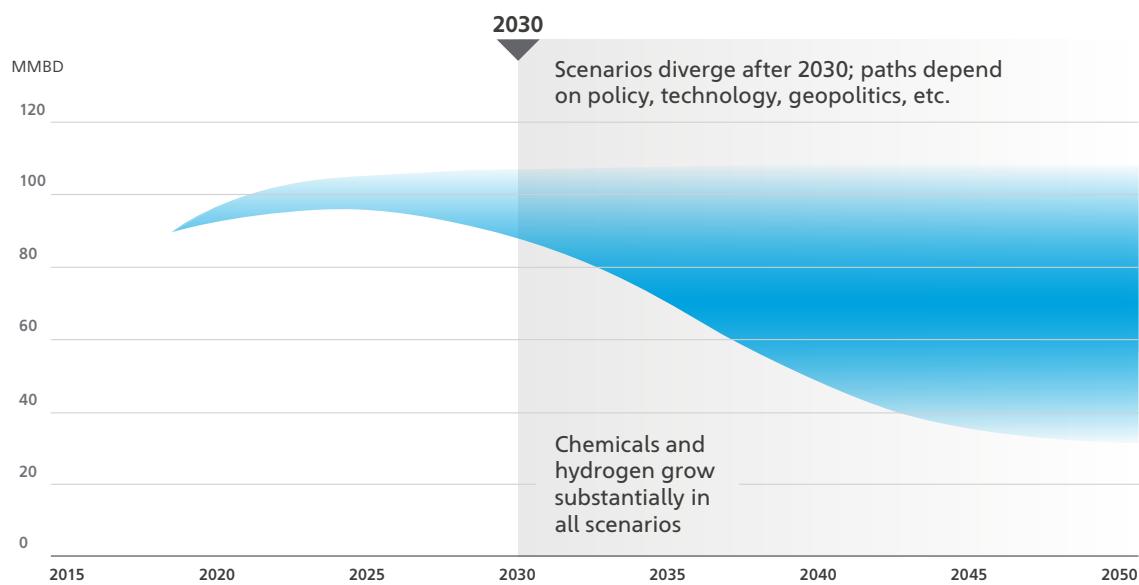
Technology — the rate at which low-emissions/low-energy intensity technologies (e.g. CCS and Hydrogen) and associated policy mechanisms can be developed and commercialized.

Accordingly, we developed three scenarios encompassing two alternative pathways to meet Paris Accord goals and a challenging pathway where energy affordability issues and global supply chain bottlenecks lead to a slower transition. In all of these scenarios, global energy related emissions peak imminently. The range of uncertainties portrayed in these scenarios is consistent with those published by the International Energy Agency (IEA) or IHS Markit scenarios. We update our scenarios periodically with available updated information reflecting changes in global economic and energy landscapes.



Overview	Climate change and the energy transition	Safe operations and people development	Minimizing environmental impact	Growing societal value	Data
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Long-term oil demand scenarios and key assumptions¹



1. Source: IEA World Outlook and IHS Markit.

Our climate change and energy transition framework

Our corporate strategy is based upon our ability to produce the lowest cost and lowest carbon oil and our intent to work with customers along the value chain to offer products that support their ambitions for low-carbon fuels.

We have four areas of focus that provide the framework for our climate change initiatives and investments:

Differentiate	Sustain	Diversify
<p>Leading in low-carbon intensity operations</p> <p>Decades of stewardship 30 GHG emissions management 31 Operational emissions 32 Low upstream carbon intensity 33 Flaring and methane 33 Energy management 36</p>	<p>Supporting the transitions to low-impact energy pathways</p> <p>Low-carbon fuels and transport technologies 38 Hydrogen 40</p>	<p>Developing and growing low-impact value-chains</p> <p>Liquids-to-chemicals 42 Nonmetallics 42 Renewable energy investments 43</p>



Enable
<p>Collaborating with partners to develop and deploy technologies and infrastructure at speed and scale</p> <p>Leveraging technology 44 Carbon capture, utilization, and storage 46 Offsets and carbon credits 47</p>

Overview	Climate change and the energy transition	Safe operations and people development	Minimizing environmental impact	Growing societal value	Data
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Targets and emissions trajectory

Aramco's ambition is to decarbonize our operations and achieve a net zero footprint by 2050 across our wholly-owned operated assets.

Having undertaken analysis to support this corporate ambition, we know that achieving net zero operational emissions whilst we grow our business to meet global energy demand will be a huge challenge.

It requires internal targets to be set for our businesses and assets, and for these targets to be embedded into our business planning, to ensure capital expenditure and resource requirements are in place. Aramco is currently developing marginal abatement cost curves for each of its assets to define these targets and requirements.

Supporting this planning, we have set ourselves initial, interim targets for 2035.

Upstream carbon intensity

In support of the corporate strategy to maintain an industry-leading position as a lowest carbon intensity major producer of oil and gas, we have set a target to reduce our upstream carbon intensity by at least 15% by 2035, against our 2018 baseline. This will entail reducing our upstream carbon intensity from 10.2 kg CO₂e/boe (2018) to at least 8.7 kg CO₂e/boe by 2035.

This target accounts for anticipated increases in oil production and Maximum Sustainable Capacity, and the expansion of our gas business.

Scope 1 and Scope 2 GHG reductions

In parallel with our intensity target we are aiming to reduce our net Scope 1 and Scope 2 GHG emissions from both the Upstream and Downstream businesses by 52 MMtCO₂e from our business as usual 2035 forecast emissions.

By 2035, consistent with the corporate growth strategy in oil and gas production and development of new businesses, particularly hydrogen and liquids-to-chemicals, we forecast our business as usual Scope 1 and Scope 2 GHG emissions for our wholly-owned operated assets to increase to 119 MMtCO₂e. Our goal is to mitigate this growth in emissions and reduce our absolute emissions to 67 MMtCO₂e by 2035.

Decarbonization targets

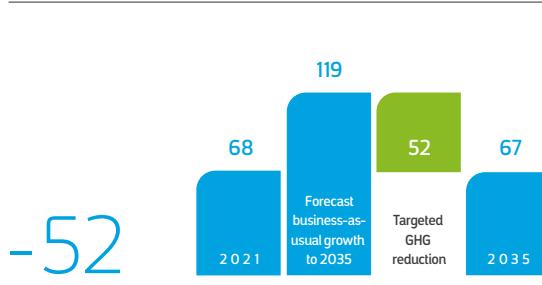
Scope 1 and Scope 2 emissions upstream intensity – 15% reduction by 2035

kg CO₂e/boe



Scope 1 and Scope 2 emissions GHG reduction targeted by 2035

MMtCO₂e



1. 2018 was the first year our GHG inventory was independently assured.

GHG reduction initiatives to 2035

Levers to achieve interim targets

To achieve these reductions in GHG emissions we are focusing on five key levers: energy efficiency across our Upstream and Downstream assets; further reductions in methane and flaring; increased use of renewable energy sources; CCUS; and development or purchase of offsets to help address hard-to-abate emissions.

1. Energy efficiency

Implementation status & plans

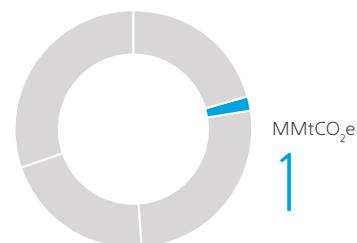
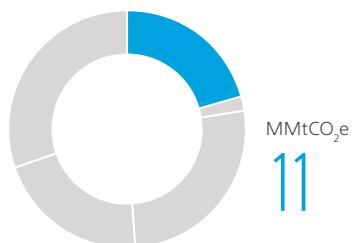
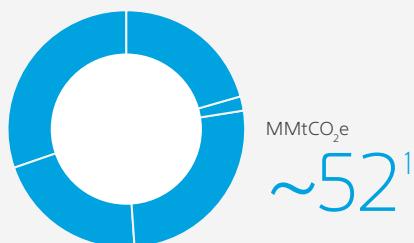
- Lowest energy intensity among IOCs as measured by Solomon Associates
- In 2021:
 - 308 energy initiatives implemented
 - Supplying 11.85 mboed energy savings
 - Equivalent to 1.26 MMtCO₂ reduction
- Initiatives include gas turbine upgrades, boiler and fired heater efficiency improvements

2. Methane & flaring

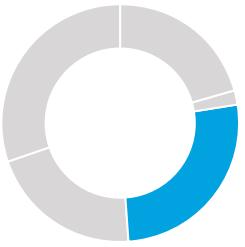
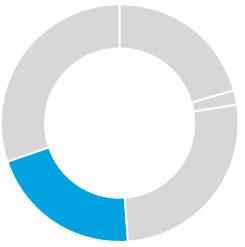
Implementation status & plans

- Current upstream methane intensity of 0.05%
- Commitment to OGCI near zero upstream methane intensity by 2030
- 2019 commitment to World Bank Zero Routine Flaring by 2030
- LDAR (Leak Detection and Repair) Program
- UAV and satellite methane detection

GHG reduction targeted by 2035



1. This figure may not match up due to rounding.

Overview	Climate change and the energy transition	Safe operations and people development	Minimizing environmental impact	Growing societal value	Data
3. Renewables	4. CCUS	5. Offsets			
Implementation status & plans <ul style="list-style-type: none"> Investment in 12 GW of solar PV and wind projects in support of KSA National Renewable Program Affiliate investments in renewables (Motiva, Arlanxeo, SASREF) Purchase of Renewable Energy Certificates (REC) 2021 30% share in 1.5 GW Sudair solar PV project 2022 evaluation of share in 2.3 GW of new projects 	Implementation status & plans <ul style="list-style-type: none"> Key assets and storage capacity identified: Wasit, Fadhili & Khursaniyah Joint feasibility studies conducted MOUs in place with international partners 	Implementation status & plans <p>In-Kingdom:</p> <ul style="list-style-type: none"> 13.3 MM mangroves planted to date Target: 300 MM mangroves by 2035 <p>Rest of the world:</p> <ul style="list-style-type: none"> Target: 350 MM mangroves outside KSA by 2035 Supported by purchased offsets through voluntary markets 			
 14 MMtCO ₂ e	 11 MMtCO ₂ e	 16 MMtCO ₂ e			

Leading in low carbon intensity operations

Differentiate

Over the past four decades, Aramco's approach to reservoir management and investments in operational efficiency, flare gas and methane emissions reduction, and greenhouse gas management have helped us to achieve industry-leading low-carbon intensity crude production.

Decades of stewardship

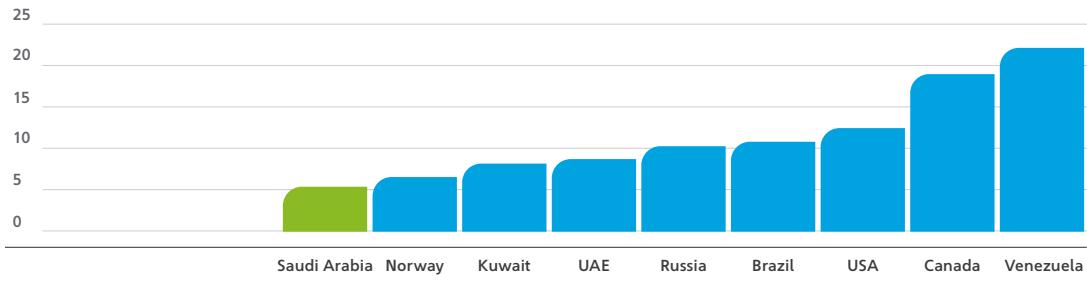
A study of oil producing countries, conducted by Stanford University and published in Science Magazine¹ reported that Saudi Arabia had one of the lowest upstream carbon footprints globally for each barrel of oil produced. In the report, the intensity of Saudi Arabia's volume weighted crude oil upstream GHG emissions was the lowest among major producers, based on an analysis of nearly 9,000 actively producing fields in 90 countries.

Why Saudi Arabia's carbon emissions intensity is so low:

- Decades of investment in emissions management and efficiency.
- Leveraging economies of scale with extremely large and productive reservoirs.
- Advanced reservoir management practices.
- Low water production ("water cut"), resulting in less mass lifted per unit of oil produced and less energy used for fluid separation, handling, treatment and reinjection.
- Low per barrel gas flaring rates.
- Leveraging technologies to reduce energy intensity and emissions from subsurface to surface production.
- Multi-year investments in advanced methane leak detection and repair program.

The Kingdom's average carbon intensity compared to other major hydrocarbon producing countries²

Gram CO₂ equivalent/Mega Joule



1. Two of the twenty-four authors received funding from a Company subsidiary and other authors received funding from other sources.

2. As of 31 August 2018 edition of Science Magazine.

Overview	Climate change and the energy transition	Safe operations and people development	Minimizing environmental impact	Growing societal value	Data
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GHG emissions management

We recognize the need to reduce our GHG emissions footprint and have a clear ambition to reduce carbon emissions associated with our operations.

Our emissions reduction strategy includes investing in low-emission technologies, including CCUS, energy efficiency programs and energy mix diversification. We are committed to developing and deploying innovative solutions, optimizing operations, and adopting efficient project designs.

For example, we have one of the highest oil recovery rates in the world — reaching up to 70%. This is achieved by using technology and data analytics that play a major part in helping us accurately place wells. These technologies enhance well placement, reducing water production and energy required for processing, treating and disposing, associated water. This enhances energy efficiency and decreases the number of wells needed, thus reducing our carbon footprint.

Our focus is on leading in low-carbon intensity technologies, supporting the development of non-fuel applications for crude oil and targeting the highest impact solutions across the oil and gas value chain.

We are leveraging our R&D and technology leadership to develop, demonstrate and, ultimately, implement, innovative approaches that significantly lower emissions across the oil and gas industry. Some of these will have application in other emission-intensive industries.

What are we doing?

The Master Gas System

Built in the 1970s, to capture associated gas which would have otherwise been flared, the Master Gas System (MGS) has reduced flaring and greenhouse gas emissions while powering in-Kingdom economic growth.

The MGS was one of the biggest energy projects in Aramco's history, enabling one of the world's largest gas markets and transforming the national energy mix toward cleaner fuel.

We have continued to expand the MGS. Hawiyah Gas Plant, completed in 2001, was the first plant to be built exclusively to capture non-associated gas from a gas reservoir rather than produced alongside oil.



Differentiate – continued

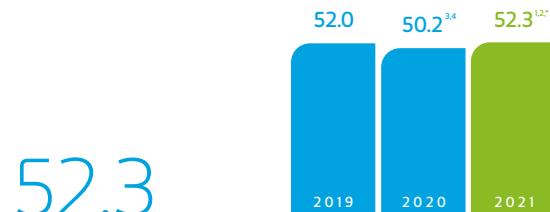
Operational emissions

Our current focus is on GHG intensity from our upstream operations, which reflects the performance of the largest segment of Aramco's emissions (Scope 1 and Scope 2) and is a good indicator of company performance. However, we continue to mature and refine management systems for GHG accounting and reporting, we will continue to evaluate additional GHG performance measures reflecting other business segments that currently have a lesser contribution to the Company's overall emissions profile.

The Company's GHG emissions management program monitors direct (Scope 1) and indirect (Scope 2) emissions from wholly-owned operated assets, consistent with the GHG Protocol. In 2021, Scope 1 emissions increased by 4% following the start up of the Fadhili Gas plant. We saw a decrease of 14% in Scope 2 emissions due to a shift in consumption of electricity from third-party to company-owned power generation.

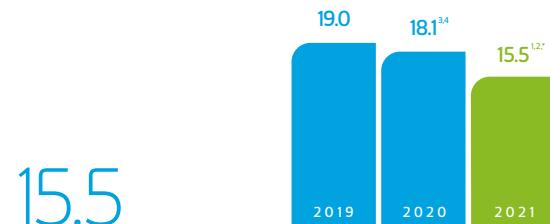
Scope 1 emissions

million tons of CO₂e



Scope 2 emissions

million tons of CO₂e



1. This figure has undergone external limited assurance in accordance to the ISAE 3000 (revised) by KPMG. The assurance report can be found [online here](#).
 2. Jazan Refinery excluded from 2021 GHG emissions inventory.
 3. This figure has undergone external limited assurance in accordance to the ISAE 3000 (revised) by EY. The assurance report can be found [online here](#).
 4. Fadhili Gas Plant and Jazan Refinery excluded from 2020 GHG emissions inventory.
- * Our 2021 GHG data is different from our 2021 Annual Report as a result of completion of our internal validation and external assurance. As disclosed in our 2021 Annual Report, our 2021 Scope 1 emissions (55.0), 2021 Scope 2 emissions (17.1) and 2021 Upstream carbon intensity (11.2) were estimates and subject to change upon completion of internal and external validation.

Overview	Climate change and the energy transition	Safe operations and people development	Minimizing environmental impact	Growing societal value	Data
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Upstream carbon intensity*

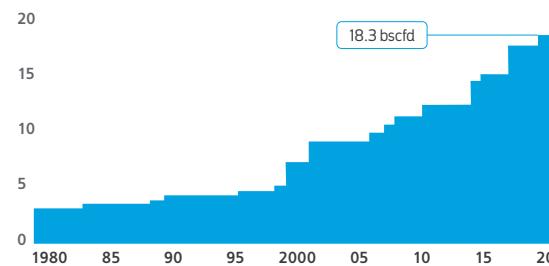
kg of CO₂e/boe



10.7

Raw gas processing capacity

bscfd



Upstream carbon intensity

Aramco aims to maintain an industry-leading position in upstream carbon intensity and share best practices to expand the impact of our expertise globally.

Managing our carbon footprint starts at the subsurface. Rather than maximizing short-term production, we manage our reservoirs in a sustainable manner, where the long-term health of reservoirs is a priority. Upstream operations in Saudi Arabia include a number of large and productive oil reservoirs which are managed using technologies and best practices to decrease water production, resulting in less mass lifted per unit of oil produced and less energy used for fluid, handling, treatment and reinjection. This not only yields ultimate recovery and higher return on investment in the long-run, but has many environmental benefits, including reducing our carbon footprint.

The Company's 2021 upstream carbon intensity figure was among the lowest globally of major oil and gas producers at 10.7 kg of CO₂ equivalent per barrel of oil equivalent (boe). This small increase versus 2020 was the result of an increase in the share of gas in our total production, and the higher carbon intensity footprint of gas production relative to oil production.

Flaring and methane

Flaring of waste and fugitive gases has long been recognized as one of the most significant contributors to greenhouse gas emissions in the oil and gas sector. Aramco has been a pioneer in gas flaring reduction since the 1970s, initially driven as much by capturing the economic value of the gas as by reducing the environmental impact.

The success of our program is such that we can proudly point to a large growth in our oil and gas production while achieving industry-leading levels of low methane intensity and gas flaring reduction.

1. This figure has undergone external limited assurance in accordance to the ISAE 3000 (revised) by KPMG. The assurance report can be found [online here](#).

2. Jazan Refinery excluded from 2021 GHG emissions inventory.

3. Fadhili Gas Plant and Jazan Refinery excluded from 2020 GHG emissions inventory.

* Our 2021 GHG data is different from our 2021 Annual Report as a result of completion of our internal validation and external assurance. As disclosed in our 2021 Annual Report, our 2021 Scope 1 emissions (55.0), 2021 Scope 2 emissions (17.1) and 2021 Upstream carbon intensity (11.2) were estimates and subject to change upon completion of internal and external validation.

Differentiate – continued

Minimizing flaring

Aramco is committed to achieving zero routine flaring and sharing best practices with industry partners to accelerate global flaring reduction. We employ a variety of technology solutions to achieve one of the lowest flaring intensities in the industry.

The Kingdom's Master Gas System, developed in the 1970s to capture and reuse gas, has all but eliminated associated gas flaring.

A Flaring Minimization Roadmap has identified priorities across Aramco operations, with every operating facility having a flare minimization plan and targets. Our focus is on continual improvement in performance and investing in technologies, such as: Innovative flare gas recovery systems; high integrity pressure protection systems; and zero discharge technology to reduce intermittent flaring. And we are deploying advanced technologies to monitor Aramco's operations in real-time at our 4th Industrial Revolution Center in Dhahran.

This has enabled us to achieve near zero flaring already. We have maintained a flare volume of < 1% of total raw gas production since 2012.

In 2021, the Company's flaring intensity decreased in relation to the 2020 performance due to our ongoing focus on reducing leaks and emissions. The volume of flared gas decreased from 26,995¹ mmscf in 2020 to 25,825² mmscf in 2021. This figure amounts to less than 1% of raw gas production.

We are active and influential in the OGCI, which endorses and supports the World Bank Zero Routine Flaring by 2030 initiative and tracks flaring performance data aggregated from member companies. OGCI flaring performance data has demonstrated considerable progress on flaring across its members. The combined upstream flaring intensity of member companies fell by 21% in 2020, and has declined by 33% since 2017.

What are we doing?

Zero routine flaring

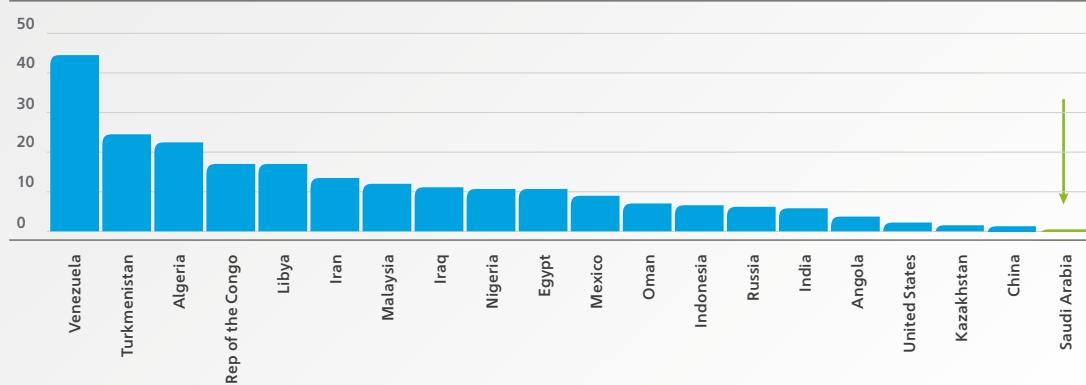
Launched in 2012, our near zero routine flaring program has delivered a leading position in flaring intensity for the Company.

In November 2019, Aramco endorsed the World Bank Zero Routine Flaring by 2030 initiative.

The initiative brings together over 100 governments, oil companies, and development institutions, which have agreed to cooperate to eliminate routine flaring no later than 2030 and to report progress annually.

2020 Flaring Intensity³

M³ per barrel oil produced



1. Fadhli Gas plant and Jazan Refinery are excluded from 2020 GHG emission inventory.
2. Jazan Refinery is excluded from 2021 GHG emissions inventory.
3. Source: World Bank.

Overview	Climate change and the energy transition	Safe operations and people development	Minimizing environmental impact	Growing societal value	Data
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Methane

Methane gas is a considerably more potent greenhouse gas than CO₂. Although methane emitted today only lasts about a decade on average in the atmosphere, it absorbs more energy and consequently has a global warming potential 25 times greater than CO₂. That is why addressing methane emissions is one of the fastest, most effective ways to slow the rate of global temperature rise.

Aramco has invested carefully in the design of its plants and well-resourced and maintained operating assets translate into environmental protection and better operational efficiency. We use drones to monitor and measure methane emissions from our operating facilities' equipment. An enhanced leak detection and repair (LDAR) program for the Company's methane emissions in the Kingdom prioritizes actions at operating facilities. Thousands of points are surveyed in each plant annually to minimize potential methane leaks.

In 2018, the OGCI announced a collective average methane intensity ambition, setting a target of achieving an upstream methane intensity of 0.20% by 2025. By 2020, OGCI member companies had achieved this target some five years ahead of schedule.

In response to this, and following the COP 26 call to achieve a worldwide reduction of 30% of methane emissions from all sources by 2030, the members of OGCI have set a new goal aiming to eliminate virtually all methane emissions from the industry. The OGCI companies have committed to aim for near zero methane emissions from operated assets by 2030, supported by transparent, annual measurement, reporting and verification.

Aramco's upstream methane intensity, the ratio of our upstream methane emissions for operated assets to the quantity of marketed natural gas, fell to 0.05%. This compares with an OGCI average of 0.20%, as at 2020, which includes the positive effect of our Company's leading performance.

0.05%

2021 Upstream methane intensity¹



1. Jazan Refinery is excluded from 2021 GHG emissions inventory.

Differentiate – continued

Energy management

Co-generation

Powering our communities with reliable and efficient energy lies at the center of all we do. Highly efficient co-generation plants enable us to produce electricity as a natural byproduct of our operations and are enabling self-sufficiency in electrical power generation for our own operating plants.

In line with our objective to reduce our climate impact and embrace circular carbon economy principles, we are harnessing what would otherwise be waste energy by maximizing the conversion of energy released from the combustion of fuel into power and steam to achieve improved thermal energy efficiency and reduce overall GHG emissions. As of 2021, we achieved an average thermal efficiency of 70.8% in our interconnected co-generation facilities.

Energy efficiency

The Company's energy efficiency efforts seek to reduce energy consumption at Company facilities, design new facilities to be energy efficient, increase overall energy efficiency, and influence and promote energy efficiency at the national level.

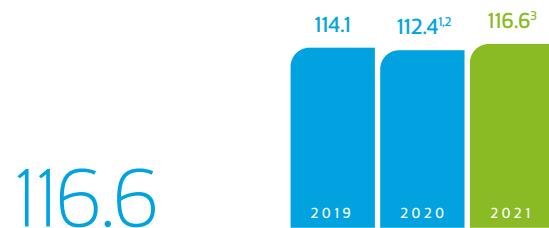
Aramco started its energy management program in 2000. Throughout the years, the Energy Intensity KPI has been improving steadily. The program was driven by implementing energy saving initiatives by operational departments. The Combined Heat and Power (CHP) program, and several other energy optimization initiatives and studies, have steadily reduced energy intensity at Company facilities in Saudi Arabia.

In 2021, the Company implemented more than 300 energy initiatives at its in-Kingdom facilities, resulting in 11.85 mboed of energy savings, equivalent to 1.26 million tons of CO₂ emission reduction.

In 2021, we experienced a year-on-year increase in our Energy Intensity (EI) KPI. This increase, relative to 2020, is because of Aramco's expansion projects in its facilities and inclusion of Fadhili Gas Plant for KPI reporting. Over the last 10 years, we reduced our energy intensity by over 20%.

Energy intensity

Thousand Btu per boe



1. Fadhili Gas plant and Jazan Refinery are excluded from 2020 Energy Intensity KPI boundary.
2. This figure has undergone external limited assurance in accordance to the ISAE 3000 (revised) by EY. The assurance report can be found [online here](#).
3. Jazan Refinery is excluded from 2021 Energy Intensity KPI boundary.

Overview	Climate change and the energy transition	Safe operations and people development	Minimizing environmental impact	Growing societal value	Data
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What are we doing?

In-Company renewable energy

In the recent past, our investments in cogeneration facilities have contributed to significant improvements in energy efficiency. Going forward, renewable energy, including power from solar and wind, will be an important source of low-carbon energy for our operations.

Opportunities for in-Company renewable applications include office buildings, pipeline cathodic protection and valve stations, production wells, and bulk plants. These applications are a mixture of off-grid and grid-connected solutions.



Supporting the transition to low-impact energy pathways

Sustain

We recognize the need to reduce absolute emissions and the need to work closely with our suppliers and customers to reduce emissions along the entire value chain of our products.

Low-carbon fuels and transport technologies

Achieving sustainable mobility requires collaboration across the entire value chain to meet consumer demand for affordable, low emitting and efficient transport in the different sectors and regions globally. Electric vehicles are fast growing and they will play an important role in mitigating climate change when integrated with renewable electricity. In the near-term, transport electrification alone is unlikely to be adequate to meet the global CO₂ mitigation goals.

This has to be complemented by advanced combustion engines, fuel-cell vehicles, and low-carbon fuels, including renewable fuels and clean hydrogen.

Aramco is approaching the CO₂ challenge by redesigning internal combustion engines, and the fuels that power them. Through our extensive global network, we are engineering breakthrough solutions to unlock new frontiers in efficiency technologies including advanced combustion systems, novel engine architectures, and innovative after treatment systems. At the same time, our two flagship projects aim to advance the development of low-carbon synthetic fuels, one in Spain and another in Saudi Arabia.

Aramco's low-carbon synthetic fuels aim to combine CO₂ captured from industrial processes or directly from the air with green hydrogen, and targeting a CO₂ reduction potential of at least 80%. This will be pivotal as we work towards a more circular carbon economy based on reducing, reusing, recycling and removing CO₂ emissions.

What are we doing?

Engines and fuel

Gasoline Compression Ignition (GCI) engines — the use of a gasoline fuel in an efficient compression ignition engine, can enable lower fuel consumption and vehicle emissions. Our engine prototypes demonstrated that GCI could reduce CO₂ emissions by at least 25% compared to conventional gasoline vehicles on a well-to-wheel basis.

We recently partnered with Repsol to explore the production of 2.6 million liters per year of low-carbon synthetic diesel and jet fuel in Bilbao, Spain, for automobiles and aircrafts. We are also assessing the feasibility of producing 1.8 million liters per year of low-carbon synthetic gasoline in NEOM, Saudi Arabia, jointly with NEOM Energy and Water Company (ENOWA), for light-duty passenger vehicles.

Aramco's mobile carbon capture technology can avoid up to 40 percent of CO₂ emissions from a vehicle by preventing it from being released from the exhaust, demonstrating a promising outlook particularly in the shipping industry. The captured CO₂ can be stored onboard the ocean vessel and then offloaded at port for use in various industrial and commercial applications, including synthetic fuel manufacturing.



Overview	Climate change and the energy transition	Safe operations and people development	Minimizing environmental impact	Growing societal value	Data
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What are we doing?

Corporate value chain emissions — Scope 3

Our focus is on measurement, reporting, and management of those emissions within our direct span of control. To date, we have not reported Scope 3 emissions from our supply chain or from customers' use of our products.

We are positioning our Company to support our customers' own journeys to low impact energy pathways, and working with suppliers to integrate ESG performance measures through our iktva program.

Our investment in hydrogen, chemicals and renewable energy sources and our increasing share of gas in our production provide products that will support customers and consumers to access lower carbon energy with reduced carbon emissions from its use. We continue to invest in a number of product stewardship partnerships and technologies to reduce emissions in the value chain, including research and development into low emissions transport solutions.



Sustain – continued

Hydrogen

Hydrogen is a primary element in oil and gas, and has significant potential as a clean, affordable energy that could support significant emissions reductions in hard-to-decarbonize sectors such as heavy-duty transport, heating, and industrial applications. We believe hydrogen has significant potential to provide a material reduction in greenhouse gases, as a global market develops over the next decade.

Hydrocarbons importance to the development of a global hydrogen business

Despite the interest and possibility of producing hydrogen from multiple energy sources, in the short- and medium-term, hydrocarbons will remain the primary feedstock for the production of hydrogen.

Hydrogen has the potential to become a tradable commodity, which opens commercial opportunities for our business over the medium- to long-term.

At the same time, investments in hydrogen can help foster new technological and industrial development in economies around the world, while also creating skilled jobs.

Natural gas and hydrogen

We are seeing interest from potential customers for blue hydrogen. Our Company has a promising role to play, utilizing our own hydrocarbons, infrastructure, and technology.

In much the same way that gas, as a hydrocarbon-based fuel, has helped reduce energy-related emissions, natural gas has the potential to be a viable, cost-effective feedstock for blue hydrogen production. Natural gas-based hydrogen is the most used feedstock for hydrogen production today. It is also a preferred feedstock to produce blue hydrogen where CO₂ emitted during the conversion process is captured. Natural gas-based hydrogen production technology is well established and blue ammonia created from natural gas is expected to be a major form of transportable hydrogen.

What's in a color?

Hydrogen emits only water when burned. However, the carbon intensity of the hydrogen produced will vary depending on the source of the hydrogen molecules and the process of production. The most relevant criteria to measure is the reduction in life cycle emissions from each process rather than the source.

There are many "colors" of hydrogen that differentiate the sources and production methods. The most commonly used terminology is for black/brown, grey, blue and green hydrogen, though other colors have also been used.

- Grey hydrogen is the most common form and is generated from natural gas, or methane, through steam reforming.
- Black or brown hydrogen uses black (bituminous) or brown (lignite) coal in the hydrogen-making process and is the most environmentally damaging as the CO₂ and carbon monoxide generated during the process are not captured.
- Blue hydrogen uses natural gas and involves capturing and storing the carbon generated from the steam reforming through industrial carbon capture and storage.
- Green hydrogen is produced by using energy from renewable energy sources, such as solar or wind power, to split water into two hydrogen atoms and one oxygen atom through a process called electrolysis.

Aramco is a steering member of The Hydrogen Council, a CEO-led organization that promotes collaboration between governments, industry and investors to provide guidance on accelerating the deployment of hydrogen solutions globally.

**Hydrogen
Council**

What are we doing?

World's first blue ammonia shipment

Aramco has committed to develop a hydrogen business. The Company is targeting the production of up to 11 million tons per annum (MMTPA) of blue ammonia by 2030. We are undertaking work to analyze market potential, demand, and future volumes, leveraging the capacity of our hydrogen and ammonia plants in Jubail.

Although additional infrastructure and policy support will be needed to create a more active market for hydrogen, we estimate that Japan and South Korea will be where the first hydrogen trading markets will emerge, over the next decade. It is a natural progression for our business to take on the responsibility for the anticipated demand for hydrogen.

CCUS technologies are fundamental to the acceleration of hydrogen growth. In 2021, this led us to sign a memorandum of understanding with Japan's largest refiner, ENEOS, to consider development of a CO₂-free hydrogen and ammonia supply chain through a year-long feasibility study.

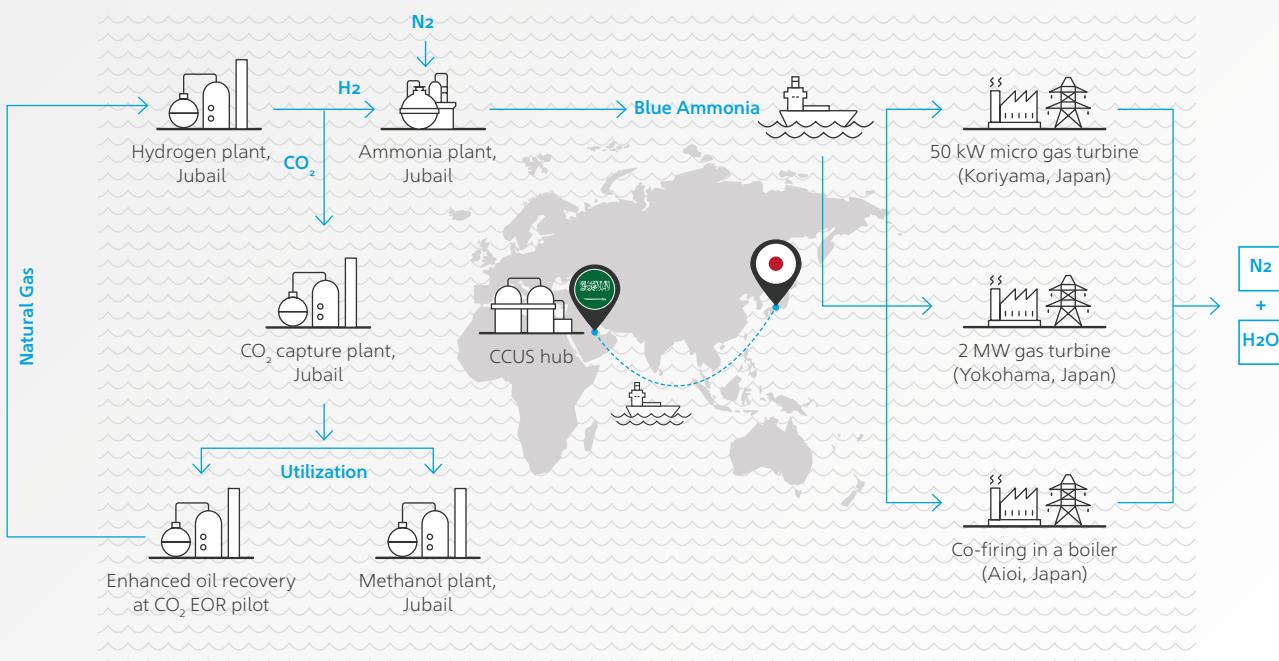
In 2020, Aramco produced and delivered the world's first shipment of blue ammonia, a carrier for blue hydrogen, from Saudi Arabia to Japan. Forty tons of high-grade blue ammonia were dispatched for use in low-carbon power generation.

The project was supported by the Japanese think-tank, Institute of Energy Economics, and the Japanese Ministry of Economy, Trade, and Industry, reflecting a growing focus on hydrogen in the country.

The Saudi-Japan blue ammonia supply network demonstration spanned the full value chain — from the conversion of hydrocarbons to hydrogen and then to ammonia, as well as the capture of associated CO₂ emissions. CO₂ captured during the process was used in methanol production at SABIC's Ibn-Sina facility, and at our Enhanced Oil Recovery demonstration project.

Conceptual flow diagram of "Blue Ammonia" supply chain demonstration

(Duration: August 2020 — October 2020)



Developing and growing low-impact value-chains

Diversify

As we navigate the energy transition, we are vigilant to opportunities to diversify our portfolio into new, lower impact value chains. This includes using oil and gas in non-combustion uses, such as chemicals and nonmetallic materials applications, as well as investment in renewable projects. We see these as providing commercial opportunities and providing resilience for our business to demand shifts caused by the energy transition.

Liquids-to-chemicals

Our 2020 acquisition of a 70% stake in SABIC brought together two global companies committed to growth and value creation in petrochemicals.

Petrochemicals is expected to be the fastest growing sector for oil and gas demand in the years ahead, and will remove significant volumes of hydrocarbons from the combustion cycle.

Our chemicals business spans from production of basic chemicals such as aromatics, olefins, and polyolefins to more complex products such as polyols, isocyanates, and synthetic rubber.

Our crude oil-to-chemicals technologies have the potential to deliver higher chemical yields from our crude oil. By converting crude oil directly to chemicals, we will optimize or eliminate several energy-intensive industrial processes, creating cost and operational efficiencies that result in high value chemical product streams.

Nonmetallics

Nonmetallics describes materials, such as plastics and other such applications that can replace traditional materials and minerals. They can provide improved performance and lower maintenance costs, as well as having the potential to have lower life cycle costs, with greater resistance to corrosion, and a lower carbon footprint than like-for-like alternatives.

In the oil and gas industry, nonmetallics, such as plastics, are already being used for various applications, such as in pipelines where future, carbon-fiber reinforced plastics will be used to manufacture large diameter pipelines with greater strength and operating efficiency than legacy steel-based pipelines.

Nonmetallic products are increasingly being deployed in a variety of industries from the automotive sector to building and construction, packaging, and renewables. The use of polymers and composites is an example of how nonmetallic applications can add value to a project, allowing engineers to create unique, flexible designs that are impossible to make with traditional materials.

Overview	Climate change and the energy transition	Safe operations and people development	Minimizing environmental impact	Growing societal value	Data
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We are promoting research and development and maximizing nonmetallic deployment. Our investment in local Saudi companies aims to build manufacturing capacity through our iktva program.

Within the automotive sector, we are working with stakeholders to influence design of new vehicles, developing innovative carbon fiber technology to replace steel and aluminum, and aiming for increased efficiency across the design and assembly processes.

Renewable energy investments

Renewable energy, including power from solar and wind, is an energy source under any energy transition. With more than 320 sunny days per year and ample wind, Saudi Arabia's geography and climate hold great potential for harnessing these renewable energy sources. Deployment of renewable resources within the Kingdom could reduce GHG emissions and support long-term prosperity.

The Saudi Arabian Government has established a National Renewable Program with an aim of increasing the generation capacity of renewable energy sources to over 58 gigawatts (GW) by 2030. 40 GW is planned to be from solar, 16 GW from wind energy and the balance coming from other renewable energy sources.

Aramco is supporting the Kingdom on this journey and has committed to investing in 12 GW of renewable energy by 2030. We will use the allocation of renewable energy credits from these investments towards decarbonizing the power supplied to our operations.

In 2021, Aramco, via its subsidiary, Saudi Aramco Power Company, joined a consortium led by ACWA Power to develop the 1.5 GW Sudair solar plant, a key project in Saudi Arabia's renewable energy push. Aramco's investment in Sudair marks its first participation in the Kingdom's renewable energy program. The first phase of the project is expected to begin producing electricity during the second half of 2022. The site, which is anticipated to be the world's largest single-contracted solar photovoltaic plant, will be located in Sudair Industrial City, North of the Saudi capital, Riyadh.

What are we doing?

Innovation Centre

We partnered with TWI ltd and Abu Dhabi National Oil Company to establish the Non-metallic Innovation Centre in Cambridge, UK. The Non-metallic Innovation Centre brings together academics, technology organizations, material suppliers, pipe manufacturers and leading Oil and Gas companies to expand the operational envelope of non-metallic materials and ensure cost effective operation and maintenance.



Collaboration with partners to develop and deploy technologies and infrastructure at speed and at scale

Enable

Aramco recognizes that the reduction of emissions from production and the removal of CO₂ from the atmosphere are the biggest contributors to emissions reduction across our industry.

Scaling up solutions to do this is not unique to Aramco, or even distinct for the oil and gas sector. Working with other companies, whether direct contractors, peers or companies in our product value chains, and with academia and research institutes offers an opportunity to share risk and magnify the impact of investment.

In 2021, sustainability-related R&D was USD315MM¹ which equated to 52% of total 2021 R&D spend of USD607MM²

R&D Focus Areas – Sustainability	2021 Spend (\$MM)
CCUS	\$24.7
Renewable Energy	\$9.3
Energy Efficiency	\$55.9
Waste Management and Recycling	\$31.1
Water Management	\$29.7
Gas Treatment	\$21.4
Low-carbon Hydrogen	\$25.6
Sustainable Mobility	\$94.0
Liquids to Chemicals	\$7.8
Nonmetallic Applications	\$15.5
Total	\$315.1

Leveraging technology

We have a track record of innovation and technology development and we recognize that a successful energy transition will require collaboration with a wide range of business and technology partners to be able to develop the solutions needed.

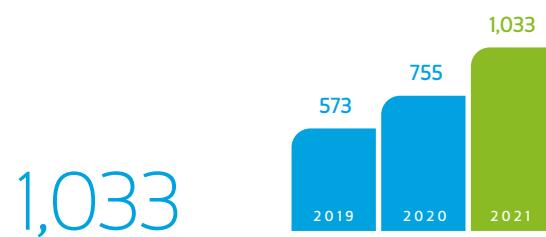
We believe that the span, concentration and integration of our operations position us well to develop, test and deploy new technologies such as carbon capture, utilization, and storage, at speed and scale.

We are a large investor in technology and one of the leading authors of patents in the oil and gas industry. Application of such technology can provide sustainable competitive advantage in core and new businesses and add commercial value by creating or extending future markets for oil, such as crude oil-to-chemicals, crude oil to hydrogen and nonmetallic materials. Technology will also be essential to delivering emissions reductions at the scale needed. Our goal is to deploy technologies at scale and with a high degree of integration across our value chain. Due to the size of our business, even small advances can have globally significant impacts.

With 864 granted US patents in 2021, Aramco now ranks in the top 50 of all companies and universities receiving US patents in 2021.

Group R&D expenses³

USD millions



1. Includes direct R&D program costs plus estimated overheads.
2. Does not include SABIC R&D expenses.
3. 2021 Total Group R&D including SABIC.

Overview	Climate change and the energy transition	Safe operations and people development	Minimizing environmental impact	Growing societal value	Data
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What are we doing?

OGCI commitments

We are a founding and active member of the Oil and Gas Climate Initiative (OGCI), a collaboration between 12 major national and international oil and gas companies whose shared mission, since its formation in 2014, is to act collectively in combating the climate challenge and to accelerate the global response to the risk of climate change.

Representing almost 30% of global oil and gas production, OGCI member companies work to reduce GHG emissions from their operations and leverage their collective strength to support the transition to a low-carbon future. OGCI supports the temperature goals of the Paris Agreement, including limiting global warming to well below 2°C, pursuing efforts to limit it to 1.5°C.

An imperative for all OGCI members is identifying and implementing the best business cases, portfolios and approaches to support the need for the world to move to a net-zero carbon emission future.

As a founding member of OGCI, we reiterate our continued efforts and pledge to:

- Accelerate our emissions reduction efforts to reach net-zero Scope 1 and Scope 2 GHG emissions from wholly-owned operated assets by 2050 and aiming to reach near zero methane emissions by 2030.
- Take action to sustain investments and technology development in low-carbon solutions so that we can continue to meet OGCI's collective climate commitments.
- Continue to support the development, implementation, and scale up of innovative low-carbon solutions in oil and gas, other industries, and commercial transportation through OGCI Climate Investments, a \$1 billion-plus climate investments fund.
- Advance opportunities to scale up commercially viable, environmentally responsible, and safe carbon capture, utilization, and storage, to decarbonize multiple industrial sectors, and through OGCI Climate Investments.
- Continue to support governments as they design efficient policies that can accelerate energy transitions while stimulating economic growth, working in particular with our partners such as the International Energy Agency, the Clean Energy Ministry, and the Global Methane Alliance.



Enable – continued

Carbon capture, utilization, and storage

We believe capturing and storing or reusing CO₂ has the potential to significantly reduce global emissions. It is a central element to support the decarbonization of our own business and operations. It is also an essential element of an integrated blue ammonia and hydrogen program, and there is potential to partner with others to develop commercial solutions for CCUS in the Kingdom.

Aramco is working on developing long-term sequestration goals and a roadmap to achieve these goals. In addition to supporting emissions reduction goals, CCUS has the potential to contribute to the Saudi Green Initiative's greenhouse gas emissions reduction goals, support economic diversification, job creation, and sustainable development of the country's economy.

Aramco has set a goal of developing CCUS capacity to capture up to 11 MMtCO₂e by 2035. The ability to grow our CCUS capacity is critical to our efforts to decarbonize, and is dependent on financial support from the Government.

In parallel we are developing opportunities to use captured CO₂ for conversion into other materials or products with higher economic value and where either combustion is avoided or lower levels of CO₂ are emitted, for example, plastics, concrete and biofuels.

CO₂ has been shown to be a useful feedstock for a variety of industrial products. From fuels to concrete, CO₂ is a primary building block, a valuable commodity, which can be used both directly and as a feedstock. Current advanced CO₂ utilization takes place in chemicals production, mineralization processes, and plastics and polymer production. We are also exploring direct air capture, an immature technology, with technology partners.

What are we doing?

Aramco's enhanced oil recovery demonstration project

Aramco CO₂ EOR Demonstration Project has a capture capacity of 800,000 tons of CO₂ per year; the CO₂ is captured at one of our NGL plants. The captured CO₂ is piped 85 kilometers and pumped into a mature area of an oil field to enhance oil recovery (EOR) and sequester CO₂.

Capability to capture

CO₂ per year

800,000 tons

CCUS & concrete

After water, concrete is the most widely used material on earth. Concrete manufacturing is responsible for around 7% of annual global CO₂ emissions. If the global precast concrete industry implemented CO₂ curing technology, we estimate it could recycle at least 63 million tons of CO₂ every year — the equivalent of taking around 14 million cars off the road.

In partnership with the Korea Advanced Institute of Science and Technology, Aramco is developing a CO₂ curing technology for precast concrete materials that can store up to 20% of the CO₂ in the concrete, while delivering superior mechanical strength and reducing curing time by a third. By using CO₂ instead of air to cure the concrete, the carbon footprint is one-third of the footprint of conventional concrete. We are field-testing this technology in collaboration with a local cement company.

Overview	Climate change and the energy transition	Safe operations and people development	Minimizing environmental impact	Growing societal value	Data
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Offsets and carbon credits

Carbon offsets are units of greenhouse gas credits that Aramco seeks to earn by undertaking greenhouse gas reduction projects. The use of offsets is an important part of Aramco's net-zero planning as they enable the mitigation of hard to abate emissions, by offsetting actions we have taken elsewhere, or credits we might have purchased in a carbon market. They also allow us to accelerate emissions reduction action, particularly where alternatives, such as CCUS, are nascent.

Natural climate solutions

Natural climate solutions are conservation, restoration and improved land management actions that increase carbon storage or avoid greenhouse gas emissions in landscapes and wetlands across the globe. Combined with innovations in clean energy and other efforts to decarbonize the world's economies, natural climate solutions offer some of our best options in the response to climate change.

Aramco is exploring the use of natural climate solutions to generate offsets and credits. Aramco has planted 13.3 million mangrove trees, along the Arabian Gulf and Red Sea coastlines and over one million terrestrial native trees and we aim to plant millions more. As well as restoring habitats that encourage biodiversity and act as a natural barrier to coastal erosion, mangroves also form a natural sink for CO₂.

To develop useable, and potentially tradable, offsets Aramco plans to develop baselines, confirm methodologies and establish third-party measurement and verification of carbon stored in mangroves and other trees being planted in Saudi Arabia and internationally with partners.

Carbon markets

Putting a price on carbon would be a key enabler for motivating investment in emerging technologies that are currently not cost-effective, such as CCUS. Aramco favors and supports efficient and cost-effective ways to set a carbon price. We believe market mechanisms that address climate change and sustainable development, and take the economic circumstances of developing countries into account, offer a good balance between driving emissions reductions and supporting economic growth.

To be effective, any framework or market-based mechanism should cover all emitting sectors and all types of GHG emissions, recognize carbon intensity differentiation, equity, and revenue neutrality, as well as transferability of potential credits.

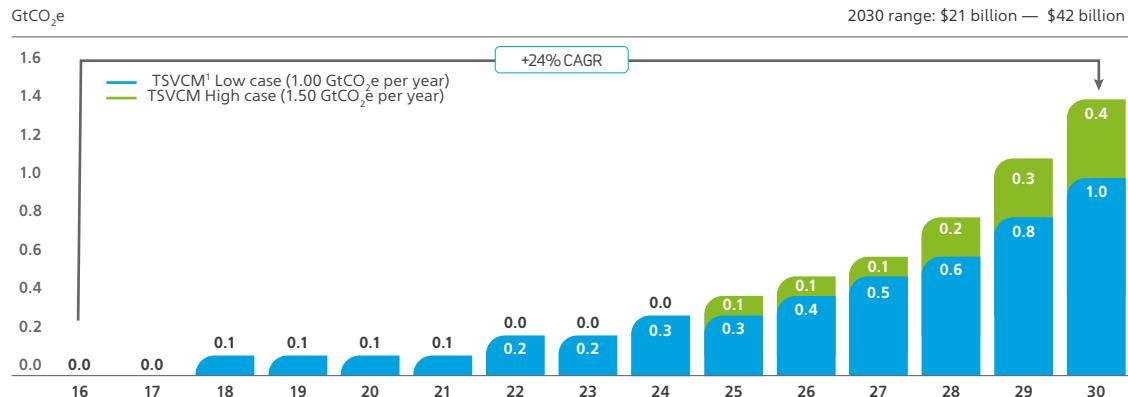
Voluntary markets enable private investors, governments, non-governmental organizations, and businesses to purchase carbon offsets to offset their emissions.

The Riyadh Voluntary Exchange Platform

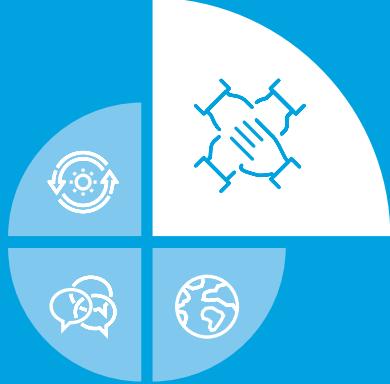
Ahead of COP 26, Saudi Arabia committed to develop a trading platform for carbon offsets and credits produced in the Middle East and North Africa. The Riyadh Voluntary Exchange Platform is aimed at helping countries and companies within the region support Paris Agreement climate goals.

Aramco is actively engaged in supporting the Platform's development and has signed an MoU with Saudi Arabia's PIF to become an inaugural member of the first carbon market in the Middle East.

Carbon offsets voluntary market demand — global



1. TSVCM — Taskforce on Scaling Voluntary Carbon Markets.



Safe operations and people development

Safety is a core value of Aramco and an integral part of Aramco's culture. We are committed to providing a safe and respectful working environment for all with the appropriate safety procedures and policies in place on-site and within the community. And we are committed to supporting and empowering our workforce.

Overview	Climate change and the energy transition	Safe operations and people development	Minimizing environmental impact	Growing societal value	Data
Why it is important				Alongside delivering a healthy, safe, and rewarding career for our employees, our ability to maximize value is dependent on developing our own workforce and the next generation of skilled workers.	
Our ambition				Our goal is to provide a safe environment and provide our employees with fulfilling careers through best-in-class training and education opportunities to equip them with skills to prepare for the future.	
Our approach				We focus our efforts on promoting safety, diversity and inclusion, occupational health and mental well-being, and upholding strong safety standards, human rights and labor principles.	
Our plans				<p>There are three key dimensions to prepare the workforce of the future and to support the Company's growth ambitions;</p> <ul style="list-style-type: none"> • continuous improvement in safety in the working environment and around our operations by investing in technological solutions; • recruiting a diverse workforce to embrace cultural dexterity in an increasingly globalized world; and • advancing our workforce's technical and professional skills via best-in-class education and training opportunities. 	
Material topics		Relevant UN SDG		Relevant metric	
Process safety and asset integrity				Number of Tier 1 process safety events – pg 50.	
Workforce protection				<p>Number of fatalities – pg 50. Lost time incident (LTI) rate ((Number of LTI cases x 200,000)/total work hours) – pg 50. Total recordable case (TRC) frequency (Total recordable incidents x 200,000/total work hours) – pg 50.</p>	
Labor practices				<p>Female (%) of total employees – pg 57. Employees (%) of total employees) receiving regular Performance Reviews – pg 90. Female employees (%) in leadership position – pg 57. Number of graduates – pg 58. Number of apprentices – pg 58. Number of interns – pg 58.</p>	
Ethics, bribery and corruption (Compliance)				Number of allegations – pg 55.	
Human rights (our people)				<p>Human rights is a material issue that has a broad relationship with various KPIs and has a strong impact on our day-to-day business and operations, therefore we are applying a deliberately phased approach to ensure the quality and integrity of our data capture and target-setting processes, thus for 2021, there are no publicly reported KPIs.</p>	

For more details on relevant metrics
see page 88

Workforce health and safety (H&S)

Safety is a corporate value and drives us to proactively identify and mitigate hazards to ensure the safety of operations, avoid business interruptions, and most importantly, to ensure the safety of our workforce and communities.

Operating in harsh environments comes with inherent risks, which is why our commitment to the safety of our people is a core value.

Our proactive approach to safety is supported by world-class technical engineering and operating standards, and technological innovation. Crucially, we learn from the past by rigorously investigating any incidents and swiftly implementing appropriate corrective actions. Complementing this is our Global safety policy and management system that builds awareness and capacity for our workforce and contractors.

During 2021, we continued to improve our H&S processes and culture launching a year-long and multilingual Company-wide safety campaign focused on the Company's Lifesaving Rules — a set of eight rules to prevent situations or events that accounted for over 90% of all injury-causing incidents over the past decade.

The governance of our H&S is provided by the Board Sustainability, Risk and HSE Committee, which provides strategic direction and monitoring on health and safety matters. Please refer to page 119 in our 2021 Annual Report for more information on this committee.

Safety performance

The Company benchmarks its safety performance using industry recognized performance metrics against industry peers, with performance targets set in line with industry practices. Safety performance is measured and tracked through KPIs established by the HSSE Committee and reported to the Sustainability, Risk and HSE Committee. We monitor our total recordable case (TRC) frequency, which includes occupational injuries and illnesses resulting in medical treatment, restricted duty, lost time, and fatalities.

Safety performance	2021 ¹	2020 ²	2019 ²
Tier 1 process safety events	11	9	4
Total recordable case frequency	0.054	0.044	0.059
Lost time incident rate	0.017	0.011	0.016
Number of fatalities	1³	1 ³	6

The Company has a target of zero fatalities. Regrettably, one contractor died when he was struck by an unsecured beam during a lifting activity at a non-industrial housing construction site. We regret this loss and offer our condolences to the contractor's family. We are determined to learn from this incident. As with all of our major safety incidents, we undertook a full investigation to identify root causes, spread the lessons throughout our organization and developed action plans to do everything possible to avoid reoccurrence of such incidents.

Hazard analysis

In 2021, our wholly-owned, US-based refinery business Motiva Terminals & Pipelines process safety team initiated a comprehensive hazard analysis at its 26 equity terminal locations designed to identify and correct potentially hazardous site conditions.

- As part of ongoing improvements in our ESG data controls, consolidation and validation processes, for all the 2021 performance data in this table, the reporting boundary is extended to now include entities in our operational control. Please refer to page 90 for more details on our reporting boundaries.
- For 2019 and 2020, the reporting boundary was Company in-Kingdom only. Please refer to page 90 for more details on our reporting boundaries.
- This figure has undergone external limited assurance in accordance to the ISAE 3000 (revised) by EY. The assurance report can be found [online here](#).

Overview	Climate change and the energy transition	Safe operations and people development	Minimizing environmental impact	Growing societal value	Data

We had 11 Tier 1 process safety incidents during 2021 compared to 9 in 2020. Our reporting boundary was expanded from in-Kingdom wholly-owned operated assets in 2020, to include entities under Saudi Aramco operational control in 2021.

Out of the 11 incidents, 8 incidents were in-Kingdom wholly-owned operated assets and 3 incidents were in entities under Saudi Aramco's operational control. None of the Tier 1 incidents in 2021 resulted in operational interruption or loss of life and most of them were minor in nature with 3 resulting in injuries.

Aramco has a comprehensive lessons learned system that disseminates the learnings across all business lines and operations. The system was enhanced in 2021 with a brand-new provision to deep-dive into process safety incidents. This provision "Learning from Incidents Series" is structured to highlight incident failure mechanisms, timelines, causal factors, root causes and major recommendations to prevent reoccurrence.

Safety management system

Our Safety Management System (SMS) is the driver of our commitment to safely manage our Company business, from complex offshore operations to research facilities. It provides a framework to help organizations fulfil their safety and loss prevention expectations.

The SMS was developed based on a comprehensive benchmarking exercise with industry peers and recognized international safety management frameworks. The SMS was further evaluated by an independent third-party and found to be comprehensive, mature, and composed of a broad-based set of expectations governing how safety is managed. By addressing each expectation, we can help achieve Aramco's commitment to being an industry leader in safety. In following this approach, we define and set direction for loss prevention activities, forecast and allocate resources, and consistently deliver improved safety performance.

Insurance asset risk analysis

Each year, a selection of Aramco's facilities are risk assessed by senior engineers from the Company's insurance broker to develop marketing report utilized by the insurance market. These surveys focus on physical conditions and operational practices, and allow insurers to understand the overall risk quality of our assets.

The 2021 survey commended company practices relating to site spacing and layout; facility inspections; preventive maintenance programs; and Safety Management System implementation, monitoring, and performance KPIs; and rated the surveyed facilities as 'Above Standard', which is the highest rating achieved by peer company facilities.

Safety management assurance

We believe our Safety Assessment protocols effectively measure how our business organizations, JVs and affiliates manage their safety. These corporate safety assessments — internally referred to as Loss Prevention Compliance Reviews (LPCRs) — are conducted on a predetermined frequency following a risk-based criteria that considers several safety factors such as the risk profile and safety performance. In 2021, 52 LPCRs were carried out.

Under the LPCR process, the Company deploys its in-house subject matter experts to independently assess the SMS and compliance programs, including in-depth field reviews to verify the system's effectiveness and the level of implementation.

At year-end, we conduct an in-depth analysis on the data gathered from these safety assessments generating compliance trends, focus areas, lessons learned, and action plans. The results are presented to the Company's HSSE Committee to review and further improve our safety performance within their areas of operation.

Safety excellence

In 2021, our wholly-owned, US-based refinery business Motiva was recognized by the International Liquid Terminals Association (ILTA) with the organization's 2021 Safety Excellence Award. It is the seventh consecutive year that Motiva's Terminals & Pipelines team has received a safety award from ILTA.

Emergency preparedness

We are committed to the prevention of incidents, while also remaining ready to respond to emergencies, business continuity, and crisis events when required. Our Global Company Safety Policy addresses emergency preparedness and is placed into action under the corporate SMS. Implementation of preparedness expectations is achieved via corporate requirements documentation. These requirements include assigning roles and responsibilities, risk assessments, equipment and facility assurance, pre-incident planning, emergency response plans, stakeholder notification protocols (internal and external), emergency reporting mechanisms, personnel training, organizational exercises and drills, and continuous improvement, including after action reviews and investigations.

Contractor Safety

We have a comprehensive Contractor Safety Management Program, which includes a contractor screening process, contractor evaluation, selection, continuous effective site supervision, safety communication, and field assessments of, and improvements to, contractors' own safety programs. We document contractual safety requirements for all our contractors in the Contractor Safety Administrative Requirements section of the Construction Safety Manual (CSM). Our fundamental goal is that contractors perform their tasks at a safety level consistent to that of our employees.

Our contractor safety strategy comprises four foundational elements:

- Improving engagement and communication with contractors;
- Carrying out in-depth assessments;
- Providing credible safety performance metrics; and
- Evaluating contractor safety governing processes and procedures.

Overview	Climate change and the energy transition	Safe operations and people development	Minimizing environmental impact	Growing societal value	Data
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In 2021, we spent significant time and effort to develop what we believe is a world-class well-being program for the Aramco contractor workforce, building on our ongoing Contractor Camp Environmental Health Inspection Program. The new program encompasses four key elements:

- 24/7 Hotline and counselling;
- Well-being assessments;
- An online platform, including educational content; and
- A well-being awareness program.

The adjacent platforms were created to better support our contractors, who come from many different countries and are often working without the support that families normally provide. Focused initially on mental health, we conducted mental health training sessions and well-being awareness materials in seven languages. We anticipate the full program will be in place by year-end 2022, and we will report on its progress in our future Sustainability Report.

The Contractor Camp Environmental Health Inspection (CCEHI) program has been operational since 2012 and focuses on the continuous improvement of health and well-being conditions in company contractor accommodation in the Kingdom.

The program uses a risk-based approach and monitors camp conditions quarterly. Major findings are highlighted in the company tracking system and are monitored until closure.

What are we doing?

SafeLife Solution

SafeLife Solution (SLS) provides contractors with the ability to manage their own safety while providing the Company's representatives with full oversight and monitoring capabilities. SLS is fully mobile-compliant on both iOS and Android devices, enabling real-time access from the Company's and contractor work sites. The system has been successfully deployed in the field and will be the hub for all safety processes in a single corporate application that fully serves the Company's safety needs for both employees and contractors, and enables accurate benchmarking against international oil and gas companies.



The future of safety

Digital transformation in safety

As the Company has embarked on digital transformation, a number of high-impact and proven technologies were adopted to drive safety performance.

We continue to seek out new and innovative ways to improve the safety of our people, while also promoting recognition of those leading the way with implementing new and sustainable safety solutions. Examples piloted include:

- **Auto Well Space Out** initiative, a smart well solution that safely shuts down and shuts in a well in the event of an uncontrolled flow to the surface. Its goal is to eliminate human error in well control situations, providing additional protection to rig employees, nearby communities, and to the wider environment.
- **Well Tubular Safety Program** applies machine learning and predictive solutions that prevent tubular failures and hydrocarbon emissions to the surface or underground aquifers. Not only does this enable well casing leaks to be predicted, but it also forecasts the safe lifespan of wells to prevent tubular failures.
- **Portable, Exposure-free Multiphase Flow Meter (MPFM)** liquid referencing initiative minimizes personnel interaction with sweet and sour crude production, while also reducing their exposure to potentially toxic material. The meter has allowed logistics and transportation needs to be streamlined, leading to cost avoidance and a reduction in overall risk, and has proven to be so successful that it is currently being implemented across the Company.

Safe operations

At Motiva, our wholly-owned refinery business Motiva based in the United States, more than 900 employees are represented by two US trade unions. These represented employees work together with management and contractors to ensure Motiva's operations run safely. Working with union leadership at both the national and local level, Motiva successfully executed a new three-year union agreement for its refinery personnel in early 2022.

Human rights and labor principles in the workplace

We believe all people deserve to be treated with dignity and respect, and we recognize our role as a prominent corporate citizen in promoting a positive culture around recognizing and upholding human rights in the workplace.

We respect internationally recognized human rights standards everywhere we operate, in particular the Universal Declaration of Human Rights, the Fundamental Conventions of the International Labor Organization, the UN Guiding Principles on Business and Human Rights, and the human rights and labor principles of the UN Global Compact.

We are committed to respecting and upholding employees' rights and ensuring that our employees are not subject to abusive or inhumane practices. We are opposed to all forms of slavery and exploitation, and child labor across our supply chains.

Our Code of Business Conduct sets out the rules for responsible behavior and ethical conduct. Employees are free to voice their concerns free from any forms of retaliation. Just like our own performance continues to evolve, we expect and support our suppliers to advance their human rights efforts. In these efforts, we expect and support our suppliers to engage their respective supply chains.

Our Company has a global privacy and data protection policy to protect the "personal data" of our employees, contractors, and certain other third-parties. Many countries where we operate have specific laws and rules on how to treat personal data. We seek to comply with these laws and rules wherever they apply to our business.

Specific topics related to human rights are overseen by committees headed by executive management, such as our HSSE Committee, Sustainability Steering Committee, HR and Corporate Services Committee, and the Citizenship Executive Committee.

Overview	Climate change and the energy transition	Safe operations and people development	Minimizing environmental impact	Growing societal value	Data
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Employee relations

Employee relations are governed by local labor laws, corporate policies, Code of Business Conduct and Company values. To promote business ethics and transparency, Aramco operates a Workers Committee, managed by a voluntary team of elected employees; an Employee Grievance Mechanism; and conducts regular employee engagement surveys.

The grievance process for employees is a channel to raise issues and voice concerns, where we ensure all items raised are fairly and objectively resolved. Speaking up is an employee right and will not result in disciplinary action or adversely impact an employee's career.

Employee engagement

We measure employee engagement through corporate-wide biannual census surveys launched to all Company employees. The survey consists of fifty benchmarked questions, which are categorized by dimensions that influence employee engagement; as well as one open-ended question.

Our last employee-wide engagement survey was in 2020, with the ongoing challenges the pandemic presented, Aramco conducted a survey focused on both "Well-being and Engagement" to understand the impact of COVID-19 on the employee's emotional health. Results released in early 2021 found strong employee engagement at 85%, with a 95% participation rate.

As an outcome of an analysis of the results of the survey, a Company-wide "Emotional Health and Well-being Program" was implemented. The related roadshow brought leading well-being experts to industrial remote locations, to create awareness about emotional health and to introduce techniques and resources for effective self-management and resiliency.

Ethics and compliance

Aramco has and continues to maintain zero tolerance for unethical conduct, including but not limited to bribery or corruption in any form; and expects our employees and associated third parties to comply with all internal policies, procedures and applicable laws prohibiting bribery and corruption.

Our Code of Business Conduct is the foundation of our Compliance program which includes specific principles regulating Anti-Bribery and Corruption. Aramco has introduced an electronic training program for our Code of Conduct enterprise-wide and is mandatory training for all employees. The Code is supported by a suite of compliance policies and implementing procedures and guidelines. The suite of compliance policies includes our corporate Anti-Bribery and Anti-Corruption Policy, as approved by Aramco's Board of Directors, which expressly prohibits bribery and corruption in all its forms. Several supporting procedures have been developed to operationalize and support the Anti-Bribery and Anti-Corruption Policy, including but not limited to procedures for third-party due diligence, gifts, meals, entertainment and travel.

We also maintain an anonymous 24-hour hotline (our "General Auditor Hotline") that is open to all our stakeholders (ranging from our employees to our suppliers) to report any suspected misconduct, including allegations related to bribery or corruption. Information about the hotline is available on Aramco's publicly accessible webpage, which enables reporting via email, telephone, facsimile, or via the Company's intranet site. Aramco has zero tolerance for retaliation, in any form, for good faith reporting of suspected misconduct. As part of our continued enhancements to our compliance program, we maintain committees to review findings of misconduct committed by personnel or third parties to ensure timely implementation of appropriate and consistent remedial measures.

In 2021, we received 539 allegations (2020: 619), 33 of these cases were investigated for breach of the Aramco Code of Conduct. Allegations had spiked in 2020 due to concerns over health and safety, timekeeping and supply chain concerns that were impacted by COVID-19. The overall trend points to a consistent increase (versus 2019: 507) in the allegations received through the hotline. This has been partly driven by management's message of zero tolerance for unethical behavior and insistence for all to report on incidents, which is supported by effective whistle-blower protection, anti-retaliation policies, ongoing fraud prevention and ethics awareness campaigns.

Diversity & Inclusion

We employ thousands of staff from all over the world, across more than 85 nationalities, and are proud of our strong mix of cultures. A diverse workforce not only encourages a global perspective; it fosters innovation, collaboration, and respect. We are committed to nurturing a welcoming, respectful and genuinely inclusive culture. Attracting and cultivating the best talent is a priority, and we regard individual differences as opportunities for creativity and growth.

Diversity has been a major focus area for Aramco over the past few years with particular attention paid to increasing the number of female employees and employees living with disabilities in our workforce. In support of the Kingdom's ambitions to increase the number of women in the workplace, we have set a target to more than double the number of Saudi Aramco's female employees in-Kingdom by 2030, and with 10% of in-Kingdom leadership positions to be held by women.

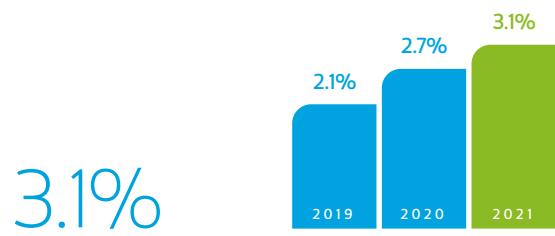
In 2021, we achieved the following:

- Benchmarked best practices across the industry through partnerships with Catalyst, Business Disability Forum, and committed to the Valuable 500 pledge; a commitment to putting disability inclusion on the business leadership agenda.
- Hired more people living with disabilities than the past three years combined.

- Partnered with an international school to establish an in-Kingdom center to provide therapeutic and educational services for individuals with special needs (children and adults). These programs help to increase access to work and live independently.
- Enhanced our D&I operating model through the creation of the Project Management Office (PMO) and a Corporate HR Working Committee with a focus on D&I. In addition, launched the D&I Strategy 2021 Roadshow to accelerate implementation across the Company.
- Signed the G20 Alliance pledge as an advocate, which enabled a D&I external playbook to be published to share the best practice of Saudi Aramco.
- Increased the levels of our females direct hires to 31%.
- Reached female students representation and participation of 50% for the Summer Enrichment & Tomooh programs, 44% in our Internship Programs and 48% in our College Preparatory Program (CPP).
- Continued our support for the STEMania program for school-age girls, offering university scholarships and sponsoring young Saudi women to pursue degrees in science, technology, engineering, and mathematics.

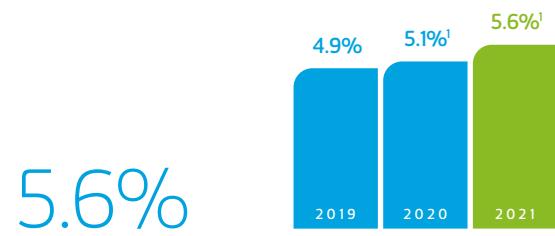
Investing in our workforce

Female employees in leadership position



3.1%

Female employees

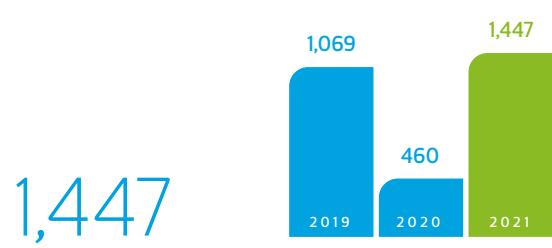


5.6%

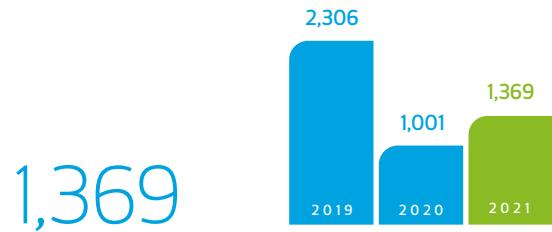


1. This figure has undergone external limited assurance in accordance to the ISAE 3000 (revised) by EY. The assurance report can be found [online here](#).

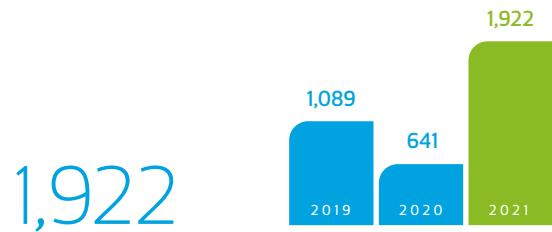
Number of graduates



Number of apprentices



Number of interns



Education and training

We invest heavily in talent development. Employees at all levels are encouraged to improve their sector-specific knowledge and competencies through our professional, industrial, and national workforce development programs.

To attract and nurture young Saudi talent, Aramco runs a variety of programs:

- Apprenticeship Program for Non-Employees (APNE), introduced in 1988, is designed to provide training to Saudi high school graduates to prepare them for entry-level jobs within Aramco. The program participants have the skills necessary to be successful in their future jobs. The training and development of high school graduates has always been a high priority at Aramco.
- College Degree Program for Non-Employees (CDPNE) is a four/five year training assignment offered to non-employees at academic institutions leading to a college degree.
- Professional Development Program (PDP), established in 1974, is a graduate program to provide a strong foundation for young professionals to realize their potential and deliver real business value. It highlights Saudi Aramco's core business values and ethics, expands graduates' knowledge of the different organizations within the Company via secondments to rotate across different departments, and illustrates the complex inter-relationships of the Company's vast operations.
- Construction Safety Diploma Program, accredited by TÜV Rheinland, and administered by National Industrial Training Institute, is a two-year program designed for men and women seeking a professional role as safety officers/inspectors. Aligned with Saudi Aramco's Construction Safety Manual, this customized program that equips our young graduates with the skills and tools necessary to become successful safety practitioners.

Overview	Climate change and the energy transition	Safe operations and people development	Minimizing environmental impact	Growing societal value	Data
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What are we doing?

Unlocking the promise of youth

Saudi Arabia, and the wider Middle East, has one of the youngest populations in the world. Meeting the career expectations of so many young people is a challenge. We welcome this challenge and see it as an exciting opportunity for us to deliver the workforce of the future. This is why we invest in training academies, academic sponsorships, and a multifaceted outreach program.

Within Aramco, our Young Leaders Advisory Board (YLAB) program serves as a bridge between the youth of Aramco and executive management.

Through a wide-range of engagement and advisory strategies, our YLAB team of young people have the opportunity to unlock their potential, voice their concerns, and provide solutions to complex corporate issues.

YLAB's reach extends beyond the Kingdom, with engagement events at our international offices, such as the Boston Research Center and the Aramco Overseas Company office in London.



- Aramco participated in establishing 16 National Training Centers (NTCs) across 10 cities, with more than 34,500 graduates since 2008, as part of an initiative that serves the Company's corporate objective to "contribute to the development of the Kingdom's economy.". The NTCs provide a competent Saudi workforce covering a wide range of industries, including petroleum services, drilling and workover, construction, aviation, hospitality and facility management and finance, with a clear focus on the future role of Saudi women. Altamayyuz Academy is the initiative's latest initiative in 2021 (for more information, please refer to page 79).

Due to the lockdown and requirement for partial remote working as a result of COVID-19 in 2020, there was a fall in number of interns, apprentice and graduates.

In 2021, as we adjusted our ways of working to cope with the risks of COVID-19 and with the positive impact of the aforementioned initiatives, we had an increase in our intake of young workers and welcomed 1,447 graduates, 1,369 apprentices and 1,922 interns.

Workforce well-being

A good working environment is essential to employee health, operational safety, and employee engagement. We provide high quality medical care across our locations, proactively managing risks to minimize harmful exposures to our workforce and ensure that health is an integral part of our approach to employee well-being.

The occupational health and well-being of our workforce is outlined in our Health Protection Policy, and applies the same standards and similar programs across our supply chain. We expect our suppliers to maintain high standards for occupational health in ways similar to our approach, and throughout their value chain when performing work for us.

Our Work Life Support Program provides comprehensive services to support the emotional well-being of our employees and their families, featuring 24-7 access to a global network of clinical counsellors, phone-based mindfulness and life coaching programs, and a digital behavioral health coaching program for self-paced support. In addition to our offering of retirement and savings benefits, we support the financial literacy of all employees by providing access to financial well-being courses and onsite financial advisors. Additional work-life balance support includes childcare, fitness and leisure facilities, nutrition and fitness coaching. Facilities are designed to be accessible for our employees living with disabilities.

Mental health

The Company's semi-annual engagement survey, which in 2020 was developed in partnership with John Hopkins Aramco Healthcare (JAH), to address impacts of COVID-19, informed the rapid implementation of an "Emotional Well-Being Program."

A Mental Health Toolkit has been established to help people normalize their experience during COVID-19 by teaching strategies, techniques, and interventions to maintain emotional well-being and mental health. Furthermore, the Emotional First Aid e-learning course has been developed by JAH experts in partnership with our e-learning specialists to help employees to:

- Learn strategies and techniques to strengthen emotional resilience;
- Discover interventions to help manage stress or feelings of depression; and
- Gain emotional first aid skills to help others such as children or elderly parents.

COVID-19

Aramco's resilience and ability to overcome a range of infectious diseases over the years gave our business a critical advantage: perspective. We persevered through the Severe Acute Respiratory Syndrome (SARS) in 2003, H1N1, the "swine flu," in 2009, and the Middle East Respiratory Syndrome (MERS) in 2012.

Having captured lessons from the previous health crises, we had some perspective and were positioned better to build on our previous experience to tackle the novel coronavirus (COVID-19) pandemic. Regrettably, a number of the Company's employees and contractors died as a result of contracting COVID-19 over the past two years.

Aramco proactively supported the welfare of our employees, their families and our wider communities throughout the pandemic. 2021 witnessed the launch of a rapid vaccine rollout program, which included employees, employee dependents, and students engaged in our sponsored training and development programs.

Our Company's partnership with JAH has been an invaluable contribution to our response, and instrumental in ensuring safety and well-being, and enabling sustained business operations.

We made two doses of the COVID-19 vaccination available to all employees who chose to get vaccinated and as at early 2022, vaccination amongst eligible employees reached 100%.

Overview	Climate change and the energy transition	Safe operations and people development	Minimizing environmental impact	Growing societal value	Data
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Living with COVID-19

We continue to keep the safety and well-being of our employees and their families, contractors and their communities as priority while ensuring business continuity.

Comprehensive pandemic plans have been developed that capture lessons learned from the subsequent waves of COVID. These include:

- Company-wide task force led at the most senior level;
- Business continuity plans and agility to adapt as the situation evolves;

- Contingency response plans which are focused on mitigation, and continuity in six areas: people, facilities and services, systems, supply chain, projects and customers; and
- We stress-test financials, supply chains, and our contingency response plans.

We want COVID-19 to not only be a part of Aramco's pandemic playbook, but serve as a testament to the reliability and resilience of our Company's people.



Minimizing environmental impact

We strive to conserve natural resources and minimize the environmental footprint of our businesses' activities by leveraging technology and promoting industry best practice.

Overview	Climate change and the energy transition	Safe operations and people development	Minimizing environmental impact	Growing societal value	Data
Why it is important					
Our ambition					
Our approach					
Our plans					
Material topics	Relevant UN SDG	Relevant metric			
Biodiversity and ecosystems		Biodiversity is a material issue that has a broad relationship with various KPIs and has a strong impact on our day-to-day business and operations, therefore we are applying a deliberately phased approach to ensure the quality and integrity of our data capture and target-setting processes, thus for 2021, there are no publicly reported KPIs.			
Water		Freshwater consumption/withdrawal (million m³) – pg 69. Hydrocarbon content discharged to water (HC2W) (barrels) – pg 71.			
Waste management		Industrial waste generated (metric tons) – pg 66.			
Local environmental impact		SOx emissions (kilo tons) – pg 65. Number of hydrocarbon spills – pg 71. Volume of hydrocarbon spills (barrels) – pg 71.			

For more details on relevant metrics
[see page 88](#)

Environmental standards and regulations

Before commencing a project, we strive to conduct environmental impact assessments in accordance with the relevant environmental regulations, standards and Company requirements, including comprehensive biodiversity surveys in ecologically sensitive areas, with the fundamental objective of minimizing impacts. These studies identify potential environmental impacts, the appropriate actions and means to prevent or minimize negative effects, or appropriate actions to increase the project's positive returns to the environment.

For any project that requires international funding, we conduct Environmental, Social and Health Impact Assessments, in compliance with the International Finance Corporation's (IFC) Performance Standards. We follow international best practices and local environmental regulations to develop project site closure and rehabilitation plans to minimize the environmental and health impacts associated with out-of-service plants and affected sites. These best practices include mitigation and monitoring plans that focus on effective site closure, rehabilitation, and restoration. We ensure that final asset disposal and remedial obligations comply with relevant environmental legislation, regularly updating closure plans to restore land use for the community.

\$800 million

We are planning to invest \$800 million over the next two years for two major projects installing Vapor Recovery Units and Vapor Handling Facilities.

Corporate circular economy roll out program

In January 2021, we commenced the roll out of a corporate execution plan of Circular Economy. To facilitate an accelerated and systematic implementation across Company departments, its seven principle strategies have been linked to the Company Operational Excellence system. Multiple Departments have collectively developed potential circular opportunities and incorporated them in their business plan. Moreover, the taskforce team have developed a comprehensive circularity assessment methodology to measure Departments' level of circularity in terms of key enabling elements as well as performance measures.

SOx, NOx, and VOCs

We have set design and operational emission thresholds for sulfur oxide (SOx), nitrogen oxides (NOx), and volatile organic compounds (VOCs) emissions and have a system in place to monitor those emissions and ensure that the applicable Government and Company standards are complied with across our activities.

The monitoring system includes a network of Air Quality and Meteorology Monitoring Network (AMMNET) stations that track ambient air quality. We plan to include air emissions monitoring in our newly deployed Emissions Monitoring Solution, which currently tracks GHG emissions across the Company, and is linked with the 4th Industrial Revolution Center.

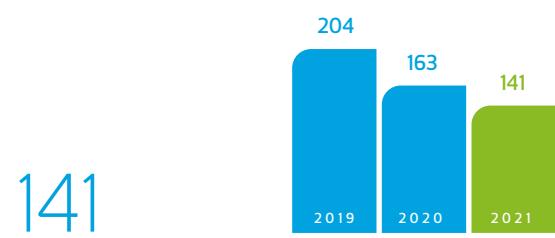
As our operations utilize sales gas¹ as a primary fuel to fire the combustion units, we are replacing old NOx burners with low NOx and ultra-low NOx burners to further reduce NOx emissions.

1. Natural gas after processing to remove condensates, CO₂, and liquefied petroleum gas.

Overview	Climate change and the energy transition	Safe operations and people development	Minimizing environmental impact	Growing societal value	Data
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SOx emissions

Kilo tons



With respect to VOCs, we are implementing a vapor recovery system (VRS) project to minimize emissions of VOCs from our bulk loading operations, including new and old refined product distribution depots.

Aramco manages SO₂ emissions as part of its air quality strategy which is covered under the environmental master plan. The Company's internal design and operational practices are consistent with international standards and emissions are monitored to ensure compliance with regulatory standards. There is further work required at some of our facilities to ensure compliance, which we are undertaking.

We have begun making investments to further reduce SO_x emissions by enhancing sulfur recovery, for example with sulfur recovery units in refining and gas plants, in tail gas treatment facilities (TGTU) at Fadhili Gas Plant and Jazan Refinery. Sulfur recovery with TGTU is capable of achieving recovery efficiencies above 99.9% to minimize SO₂ emissions. Performance is forecast to improve further as we roll out TGTU across additional Company assets.

Waste management

We employ the waste management hierarchy to manage Company-generated waste. The waste hierarchy ranks waste management options in a manner that minimizes environmental impacts and supports circular economy objectives, which minimizes our resource utilization and environmental footprint. Waste is categorized into three management streams: hazardous, non-hazardous (including municipal), and inert.

Management options are ranked by their potential environmental impact, with the highest priority accorded to waste prevention and reduction, followed by reuse, recycling, recovery, and proper treatment and disposal.

Aramco is establishing a joint venture with an international partner to develop a waste management project in the Kingdom. The project is intended to treat all Aramco municipal and industrial waste generated in the Kingdom, and to be expanded to other wastes in the Kingdom and the region in the future.

Industrial waste

To minimize the generation of industrial waste at the source, we conduct a waste minimization assessment study as part of a projects' Environmental Impact Assessment. The study identifies, at the preliminary design stage, opportunities to eliminate or minimize waste generation. As for operating facilities, Aramco performs waste minimization opportunity assessments three to five years post commissioning.

In-Company waste management is guided by the Saudi Aramco Hazardous Waste Code (HWC) which has been prepared to define consistent requirements and best practices for the management of Company waste materials that are considered hazardous to human health or the environment due to their ignitability, reactivity, corrosivity, or toxicity.

Similarly, the Solid Waste Landfill Requirements Engineering Standard prescribes the minimum requirements for the design, site selection, operation, monitoring, and closure of Class II and Class III solid waste landfills to meet Governmental landfill design and operation requirements. In 2021, Aramco generated 158,000 tons of industrial waste (2020: 231,000 tons)

In the fourth quarter of 2021, Aramco developed and endorsed a Corporate Waste Management initiative that can be used to develop short-, mid-, and long-term sustainable waste management programs. The strategy includes sustainable industrial waste management programs incorporating targets for minimizing waste generation and disposal to landfills, maximizing industrial waste recycling and energy recovery opportunities.

Plastic waste management

Plastic materials have contributed to global economic growth thanks to their low cost, versatility, durability, strength, hygiene, and light weight.

Across 2020 and 2021, plastics' essential benefits to human health were vividly illustrated through the masks, gloves, and medical personal protective equipment, which were essential to combating the spread of COVID-19.

Simply put, without plastics, the world could not combat the virus' spread, including delivering ventilators and the myriad other medical products required, such as vaccine syringes and the refrigerators needed to store and protect the vaccine, without significant additional cost and effort.

What are we doing?

Waste monitoring

Aramco has started deploying online analyzers to enhance monitoring and reporting of our waste KPI. The analyzers are linked to the Hydrocarbon Discharge to Water (HC2W) corporate dashboard, supported by our IT infrastructure, to monitor real-time data and enable facilities to take immediate corrective actions when non-compliance or process upsets are observed.



Overview	Climate change and the energy transition	Safe operations and people development	Minimizing environmental impact	Growing societal value	Data
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What are we doing?

A circular economy for used plastics

Through SABIC's TRUCIRCLE™ initiative, we continue to challenge open-ended value chains, driving forward a circular economy for used plastics.

In 2021, Frost & Sullivan, a leading business consultancy, named SABIC "Global Company of the Year" for sustainability practices and circular economy. SABIC is a founding member of the Alliance to End Plastic Waste, and it remains committed to finding innovative solutions to help transform industry from a linear economy to a circular one and serving as best-practice examples that raise the standards of the chemicals industry as a whole.



Plastics offer a unique combination of durability, versatility, and low cost, which made them the material of choice for many everyday materials. However, with the wide use of plastic, particularly single-use plastic, the world urgently needs to address the resulting mishandled waste.

Addressing plastic waste in the environment requires the participation and long-term commitment of all members of society, including government, civil society, consumers, manufacturers, technology developers, and the finance community. No one country, company, or community can solve this problem on their own.

Our approach and actions

Our vision is to have an impactful role in eliminating plastic waste and leakage to the environment.

With our acquisition of a 70% equity interest in SABIC, Aramco incorporated into its business one of the world's largest petrochemicals manufacturers. For our Company, this ushers in a new era of innovation to enhance competitiveness and benefit customers, employees, and shareholders.

Through SABIC, we are progressively implementing a sustainable plastic waste management model, which we expect will result in a greater net positive impact on business, society, and the environment.

With innovation as a core capability, Aramco and SABIC are developing novel solutions and alternative uses for plastic waste. Together we are partnering in research, development, and deploying a wide range of technology solutions for plastic waste, ranging from mechanical to chemical recycling and new material design to produce circular plastics: turning plastic waste into a resource through aggregation, processing, and recycling through advanced and innovative technologies.

SABIC launched the TRUCIRCLE™ framework to help close the loop on plastic recycling. TRUCIRCLE™ encompasses the company's circular materials and technologies, including certified circular polymers from the chemical recycling of mixed plastic waste.

Aramco has developed technology to repurpose plastic waste for use in construction applications such as road paving. For example, we turn local waste plastic into recycled plastic asphalt for use in the Kingdom's road pavement construction and maintenance. We are also exploring opportunities to convert mixed plastic waste into fuels, synthesize gas, hydrogen, and power.

In addition to our individual efforts to address the problem, we support involvement with collective prevention efforts directly or via our subsidiaries. We partner or engage with a range of industry associations, regulators, and non-government bodies.

Water management

With our roots in Saudi Arabia's desert climate, Aramco has long recognized the importance of preserving water. From an early stage, water management has been a key pillar in the Company's long-term strategy.

The Company's comprehensive water conservation efforts entail supplementing water supply with alternative sources, implementing water efficient practices, maximizing wastewater reuse, and minimizing water losses. One of the ways in which we avoid the waste of this precious resource is by using seawater as Aramco's primary source of water for pressure support and "sweep" of oil reservoirs. Our commitment to sustainable use of water resources is assured through implementation of the Company Water Conservation Policy, which has been in place since 2011 and is overseen by HSSE Committee at the Company-level.

We seek to reduce our dependence on non-renewable groundwater by using alternative water sources like seawater, treated sewage effluent, and treated reject streams, including significant investment in desalination. A testimony to this strategy is our large seawater treatment and injection network of facilities. For example, in late 2020, on the western border of Ghawar, what we believe to be the world's largest oil and gas field, five newly constructed giant sulfate removal units went into operation, allowing us to treat and utilize seawater instead of groundwater to support oil production. This 100,000 m² facility pumps pre-treated high-pressure Gulf waters supplied from Aramco's Qurayyah Sea Water Plant across the sulfate removal membrane systems prior to injection into Ghawar's 'Ain Dar and Fazran fields.

At Khurais, we commissioned a 60,000-barrel-per-day seawater reverse osmosis facility, ending the use of groundwater in plant processes. Developing unconventional fields can be water intensive, one of the latest innovative approaches for conserving groundwater is the use of Treated Sewage Effluent (TSE) for operations at Aramco's Jafurah unconventional gas field, the largest non-associated gas field in Saudi Arabia. To support future developments of the field, our aim is to build a dedicated seawater treatment facility to supply all water needed for stimulation operations, avoiding the need to deplete fresh groundwater supplies.

Overview	Climate change and the energy transition	Safe operations and people development	Minimizing environmental impact	Growing societal value	Data
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What are we doing?

Sustainable water management for oil production

The Qurayyah Sea Water Plant (QSWP) is the largest operation of its type in the world with an expansive network of facilities across the Company's fields. It treats seawater and transports it to many fields for pressure maintenance, thus preserving valuable groundwater and helping protect marine life. Its scale is unparalleled: its annual maximum capacity of groundwater savings is equivalent to the entire industrial sector's annual groundwater demand in Saudi Arabia.



Company water conservation performance is monitored through reviewing water conservation data and key performance metrics, conducting water optimization studies on capital projects and assessing Company operating facilities for compliance. In 2021, the Company's freshwater¹ consumption (FWC) was 33.8 million cubic meters compared to 32.9 in 2020. The increase in FWC performance in 2021 was mainly due to inclusion of water use by well completion activities in upstream operations.

We embed water conservation in our business approach and operate multiple programs focused on protecting our water resources, including:

- Conserving water resources and maximizing their availability to future generations, including the use of desalinated water at our operating fields.

- Establishing and implementing a groundwater protection program which applies strict measures that prevent company operations from impacting groundwater.
- Establishing procedures for compliance with discharge standards and regulations.
- Ensuring the safety of drinking water supply for our own and our host communities by following our Water Safety Plan.
- A value for groundwater is assigned in projects to incentivize the use of alternative sources.

1. The total dissolved solids (TDS) concentration of this type of water is up to 2000 mg/L.

Wastewater and discharges to water

Our goal is to avoid and minimize generation of wastewater from operations through project design and reservoir management. State-of-the-art simulation models that allow optimal placements of wells and advanced well completion technologies minimize water production, reducing the energy required to process wastewater, thereby lowering GHG emissions.

We recognize the need for responsibly managing and treating water prior to returning it to the environment. In order to address the challenges of continually expanding Company operations and meet stringent environmental regulations, a comprehensive wastewater effluents management program is in place with the aim of protecting the environment and public health.

The Hydrocarbon content discharged to water (HC2W) KPI is used to continually reduce the level of hydrocarbons discharged through wastewater effluents by maintaining a vigilant wastewater discharges monitoring program. The KPI measures the total amount of hydrocarbons released to the surface water through the Company's industrial wastewater discharges and excludes hydrocarbon releases from accidental oil spill, which are tracked separately.

Performance over the years shows an overall positive hydrocarbon volume trend (reduction) and sustained performance while maintaining figures within target. In 2021, this was 5.4 barrels. This is as a result of actions implemented by the Company, including:

- Pro-active measures to avoid any incidental discharge in their processes.
- Preventive maintenance of aging equipment.
- Enhanced monitoring and tracking of the KPI through the HC2W Corporate dashboard.

What are we doing?

Preserving groundwater

We plan to develop the Jafurah unconventional gas field, a gigantic, 17,000 km² basin with an estimated 200 trillion standard cubic feet of gas in place, by combining innovative technologies with the field's unique properties.

Jafurah wells are drilled with long horizontal lateral lengths to maximize hydrocarbon recovery, optimizing the well's productivity in the long-run. In the arid climate of Saudi Arabia, we will circumvent the need to draw on precious groundwater and instead build a dedicated seawater treatment facility to supply enough water for the process.

The treated seawater will be distributed throughout the field via a 180 km pipeline network, which will significantly reduce water-hauling truck traffic and result in a lower environmental impact and the overall carbon footprint.



Overview	Climate change and the energy transition	Safe operations and people development	Minimizing environmental impact	Growing societal value	Data
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Spills to the environment

We proactively manage operations to avoid hydrocarbon leaks and spills by maintaining asset integrity throughout their life cycle. This approach includes prevention, preparedness, and incident response.

In 2021, oil spills had a total volume of 14,447 bbl, including one major oil spill estimated to have a total volume of 14,000 bbl; one moderate oil spill with a total volume of 300 bbl; and eleven minor oil spill incidents greater than 1 bbl.

The major spill was at Safaniya-Khursaniya pipeline corridor that occurred on April 17th, 2021. This was caused by the burst of an oil pipeline. Around 95% of the spilled oil was recovered for re-processing through Safaniyah and Manifa facilities. Proper cleanup, disposal and restoration was undertaken to mitigate the spill's impact and restore the affected areas.

	2021	2020	2019
Number of Hydrocarbon Spills	13	6	11
Volume of Hydrocarbon Spills (barrels (bbl))	14,447	134	38

Biodiversity

Biodiversity encompasses the variability among living organisms including:

- terrestrial, marine and other aquatic ecosystems;
- ecological complexes, and
- diversity within species (e.g. genetic variability), between species, and of ecosystems.

In Saudi Arabia, there is a rich diversity of wild animals and plants. There have been 499 species of birds recorded in the Kingdom, along with 117 mammal species, 107 reptile species, 266 coral reef species, 1,230 fish species, eight amphibian species, and over 2,400 flowering plant species.

In March 2021, the Company's first Biodiversity Protection Policy was approved, with the objective of achieving a net positive impact on biodiversity and ecosystem services.

The Company's commitment to delivering positive impact biodiversity and ecosystem services in its operational areas supports the Saudi Green Initiative and is informed by IPIECA's guidance and UN SDGs. We are updating procedural operating instructions and guidance as well as capacity building, embedding biodiversity project delivery milestones and conducting research with experts in the field.

Biodiversity protection hierarchy

To achieve a net positive impact on biodiversity we are using the hierarchical approach to mitigation and compensation (where required) for the Company's impacts by:

- Seeking;
- Avoiding;
- Minimizing;
- Restoring; and where necessary
- Offsetting any loss to biodiversity or ecosystem.

Marine protection

Aramco welcomes the UN drawing attention to the vital importance of marine environments and recognizes the need for action on multiple fronts to protect life and livelihoods. The projects Aramco has launched to protect marine ecosystems are global in scope, with a focus on coral-reef regeneration and mangrove restoration, particularly in the Red Sea and the Arabian Gulf.

Our scientists and experts have been collecting valuable information regarding wave height, currents, dissolved oxygen, water temperature, clarity, salinity and the concentration of chlorophyll, the pigment that provides energy for photosynthesis. Aramco is helping the global scientific community by giving free access to this data to support other environmental projects, and we are already partnering with several international organizations, such as the C4IR Ocean and its Ocean Data Platform, to further this aim.

Regenerating coral reefs

In terms of our projects, we have supported the regeneration of endangered coral reefs. Around the world, these precious and fragile ecosystems — which provide a habitat for hundreds of marine species while also forming a natural barrier against coastal erosion — have become degraded. This damage has multiple causes, including coastal and offshore development, illegal fishing practices, pollution, and the rise in sea temperatures caused by climate change.

In the Arabian Gulf, for example, most coral communities are in the vicinity of offshore islands, and we realized one of the factors preventing damaged reefs from regenerating was a lack of hard ground on which the coral could reform. We therefore designed and built a series of strong and stable artificial reef structures on the seabed, which the coral could then recolonize, providing a new habitat for a wide variety of marine organisms. Our scientists closely monitor these regenerated reefs, which we believe have been a great success: fish are thriving and the variety of marine life has increased, while the reefs are more resilient.

The Saudi Green Initiative



The Saudi Green initiative encompasses the following ambitious targets:

- Increase the share of renewables in the Kingdom's energy mix from 0.3% to 50% by 2030.
- Reduce carbon emissions by more than 4% of global contributions, building on an existing commitment to avoid more than 278 MT of CO₂ by 2030.
- Plant 10 billion trees over the coming decades — this addresses desertification, which is a country and regional economic risk to the Kingdom with an estimate that billions of Saudi Riyals are currently lost due to dust storms in the region every year. This tree planting is equivalent to rehabilitating roughly 40 million hectares of degraded lands, translating to a twelvefold increase from current tree cover and meets 1% of UNEP's global target to plant 1 trillion trees.
- Increase the percentage of protected areas to more than 30% of Saudi land area, representing roughly 600,000 km², in addition to launching a number of ambitious initiatives to protect marine and coastal environments.

We fully endorse and support the Saudi Green Initiative.

Overview	Climate change and the energy transition	Safe operations and people development	Minimizing environmental impact	Growing societal value	Data
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What are we doing?

Mangroves

In January 2021, we opened our Mangrove Eco-Park — the first facility in Saudi Arabia dedicated to the preservation of old growth mangrove forests.

The 63 km² Mangrove Eco-Park protects one of the last naturally occurring mangrove forests in the Eastern Province of Saudi Arabia and features the longest mangrove boardwalk in the country.

The park has also been designed to educate the community — from school-children to families and visiting tourists — about mangroves and their environmental benefits.

In 2021 alone, we planted 7 million mangrove seedlings.



Nature-based solutions

Nature-based solutions are actions to “protect, sustainably manage and restore natural and modified ecosystems in ways that address societal challenges effectively and adaptively, to provide both human well-being and biodiversity benefits”¹. Over the last decade, Aramco has embraced this concept, initially planting two million mangrove plants along the shores of the Arabian Gulf coast to restore the coastline. Aramco is now accelerating efforts in planting mangroves and have increased the number of planted mangroves in the Kingdom to over 13.3 million plants along the shores of the Arabian Gulf and Red Sea.

In 2018, the Company launched an initiative to plant one million native trees throughout the Kingdom. This goal was reached in 2021. 26 types of native tree have been planted and are sustained with excess treated sewage water.

In addition to benefits for biodiversity, combatting desertification and restoring coastlines, these projects also create natural sinks for CO₂. Mangrove forests, particularly, are one of nature’s most powerful ecosystems, living in conditions that no other tree thrives and connecting the land and the sea. They are an important nature-climate solution towards mitigating climate change and contribute to our decarbonization actions. See also the section on Natural Climate Solutions (page 47), on this topic.

1. IUCN — International Union for Conservation of Nature.

What are we doing?

Biodiversity protection

- **We reserve high quality habitat:** Aramco has designated ten sites as Biodiversity Protection Areas covering over 950 km². Together, these sites protect more than 500 species of plants and animals, including at least 55 species or subspecies that are unique to Arabia. Each of these sites contains regionally or internationally significant biodiversity, such as the presence of threatened, migratory, or endemic species. From Shaybah in the south, to Tanajib in the north, and from Abu Ali in the east to Abha in the west, these ten protected areas cover a diverse array of the Kingdom's unique ecosystems.
- **We reduce negative impacts:** The Company is continually improving its operations to ensure our activities minimize impacts on biodiversity wherever possible and the new Company guideline on biodiversity protection provides governance and further protective measures for biodiversity.
- **We restore degraded habitat:** We have reintroduced locally extinct species at Shaybah Wildlife Sanctuary, and restored degraded wetlands at Abqaiq.
- **We create new habitat:** Over the past two years, the Company developed nature reserves at Abqaiq and Haradh.
- **We map and monitor key species:** We have created digital habitat models that identify important biodiversity areas. These habitat models will ultimately be used to enable us to identify, prioritize, and reserve high quality habitat on Company land and reduce Company impacts on biodiversity.
- **We invest in biodiversity education and awareness:** In 2021 we opened educational visitor centers at the Mangrove Eco-Park in Tarut Bay and the Shaybah Wildlife Sanctuary in the Rub' al-Khali.
- **We conduct applied research:** We continue to conduct applied research aimed at ensuring Company activities do not cause undue impacts on biodiversity. For example, we continued our collaborative research partnerships with King Fahad University of Petroleum and Minerals (KFUPM) and King Abdullah University of Science and Technology (KAUST).

Shaybah Wildlife Sanctuary

The Shaybah Wildlife Sanctuary consists of a 637 km² fenced area of near pristine habitat in the Rub' al-Khali desert located 11 km west of our Shaybah Residential and Industrial Complex, which supports internationally significant wildlife. The perimeter fence helps eliminate key threats at the site, such as unregulated vehicle access, grazing, littering, and hunting but is designed to be permeable to wildlife.

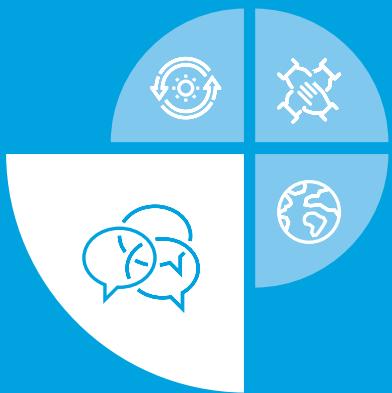
Abqaiq wetlands

The Abqaiq wetlands of restored wetlands and dune habitat, which supports native wildlife and migratory birds. Biodiversity surveys have identified more than 49 bird species, 34 plant species, four mammal species, and six reptile species that take refuge at the site.

The wetlands were previously impacted by disposal of unregulated solid waste. Commencing in 2016, we removed the waste material, fenced the area to prevent additional dumping, invasive species and installed the Kingdom's first two birdwatching hides. The area now consists of reedy wetlands, sand dunes, and a planted tree belt to the west of our Abqaiq community.







Growing societal value

Our early efforts between the 1930s and 1970s focused on the Kingdom's infrastructure and industrial development, including building schools, highways, providing water and electricity, and eradicating diseases such as malaria. Over the years, we have gradually shifted our focus to voluntary citizenship activities, while continuing to deliver new infrastructure to our communities.

Through the iktva and National Champions programs, we are facilitating the development of a diverse, sustainable, and a globally competitive energy sector in the Kingdom.

Overview	Climate change and the energy transition	Safe operations and people development	Minimizing environmental impact	Growing societal value	Data
Why it is important					
Our ambition					
Our approach					
Our plans					
Material topics	Relevant UN SDG	Relevant metric			
Labor practices		Saudization (%) – pg 78.			
Human rights (local communities)		Human rights is a material issue that has a broad relationship with various KPIs and has a strong impact on our day-to-day business and operations, therefore we are applying a deliberately phased approach to ensure the quality and integrity of our data capture and target-setting processes, thus for 2021, there are no publicly reported KPIs.			
Community and society		Social investment (SAR millions) – pg 84.			
Economic contribution		Payments to Government (USD millions) – pg 86. Total R&D expenses (USD millions) – pg 44. Direct economic value generated and distributed (SAR millions) – pg 92.			
National content		Iktva score (%) – pg 79. Saudization of service contracts (%) – pg 79. Saudization of construction contracts (%) – pg 79.			

For more details on relevant metrics
[see page 88](#)

Supporting the local economy

Saudization — nurturing local talent where we operate

With our headquarters and energy resources found predominantly in Saudi Arabia, we have a long-standing commitment to create employment opportunities for Saudi Arabian nationals, both directly and indirectly through our local sourcing strategy (see page 79).

Under the Nitaqat program, Aramco has been classified under the “High Green” (Platinum) category, which means that Aramco complies with the current Saudization requirements.¹

Our Local Workforce Development Department team is engaged in multiple activities across the Company and actively measures compliance and provides consultation and support to improve Saudization.

Building capabilities in Saudi Arabia

Beyond boosting local employment in Saudi Arabia, we have the iktva (in-Kingdom total value add) program, which provides tangible benefits to the Company and Kingdom, including during the recent global pandemic. Localized supply chains enable us to maintain operations with minimal disruption.

Many of Aramco’s supply chain partners continued to build and start-up facilities in-Kingdom despite the economic downturn, ensuring the provision of supplies and services to the Company and retention of Saudis in the workforce. Billions of dollars in economic activity that historically would have left the Kingdom instead remained to serve the interests of the Company and support the local economy.

In 2021, the iktva program achieved 59% local content in our supply chain, marking a significant increase on the 35 percent when iktva was launched in 2015.

Since the launch of the iktva program in 2015, the Kingdom’s local supply chain has experienced significant improvements including:

- 300% increase in the local purchases of goods and services by the Company’s suppliers;
- Twenty-fold increase in investment by the Company’s main suppliers in developing local partners;
- 300% increase in our suppliers’ investments in research and development inside Saudi Arabia;
- Average growth of 20% in Saudi compensation and 30% growth in local workforce training and development;
- 50% increase in Saudization rate accompanied by more than double the percentage of Saudi females in Aramco’s supply chain;
- 50% annual growth in SME development by suppliers; and
- Helping create a competitive industrial base in the Kingdom that is now exporting to more than 40 countries with a 70% increase from Aramco suppliers.

90.5%

At December 31, 2021, 90.5% of the Company’s employees were Saudi nationals (89.6% in 2020, 88.5% in 2019).

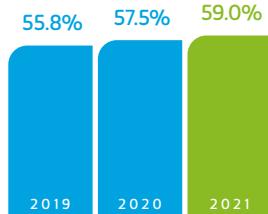
1. A series of governmental controls (incentives and restrictions) on private companies in the Kingdom that began in 2011 designed to have them employ Saudi workers.

Overview	Climate change and the energy transition	Safe operations and people development	Minimizing environmental impact	Growing societal value	Data
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Iktva

Percentage of procurement spend within Saudi Arabia

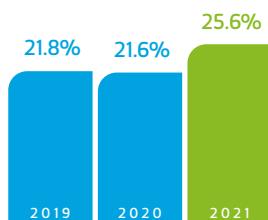
59.0%



Saudization of construction contracts

Percentage of construction Saudi contractors relative to the total construction contractors workforce in Saudi Arabia

25.6%



Saudization of service contracts

Percentage of service Saudi contractors relative to the total service contractors workforce in Saudi Arabia

56.6%



In 2021, we announced a major expansion of the iktva and National Champions programs. The Aramco Namaat Industrial Development Program is focused on capacity building in four key sectors:

- Sustainability;
- Technology;
- Industrial and energy services; and
- Advanced materials.

Namaat means collective growth in Arabic and the program aims to tap into the vast opportunities available in Saudi Arabia to create new value, and drive economic expansion and diversification with local and global partners.

By leveraging a range of finance, funding, tax and regulatory incentives available through the government's Shareek program, with Namaat, Aramco aims to drive competitive advantage and achieve benefits for the environment, our Company, our partners and for the wider energy and chemicals sector.

\$100 billion

To date, iktva has contributed an estimated \$100 billion to Saudi Arabia's economy.

What are we doing?

Altamayyuz Academy

Altamayyuz Academy, founded in 2021, is an initiative of Aramco to partner with the world's leading investment banks, accounting firms and the Technical & Vocational Training Corporation to create an academy to educate the Kingdom's future finance leaders.

What are we doing?

Local and global partnerships

Iktva has created a vibrant business-friendly model, establishing partnerships between local businesses and leading global companies.

To further enhance iktva, during 2021, we established the National Champions organization with the aim to create a world-class cluster of innovation that drives business and job creation, and national economic growth. This organization builds on the historical success of one of our major ecosystem development initiatives that is Aramco's entrepreneurship arm, Wa'ed, which was established in 2011 as a pioneer in developing a thriving SME ecosystem in the Kingdom.



Supporting economies outside Saudi Arabia

Beyond Saudi Arabia and the iktva program, Aramco also invests in other places where it operates. Saudi Aramco Energy Ventures (SAEV) invests in companies developing technologies with strategic importance to our business, to accelerate their development and deployment in our operations. Since inception in 2012, SAEV has invested over \$450MM in over 50 start-up technology companies.

SAEV has a major focus on sustainability, including CCUS, hydrogen and renewable energy. The current portfolio includes companies Nexwafe (energy efficient and low-cost wastewater aeration), InflowControl (specializing in downhole control valves eliminating unwanted water production in oil wells, significantly reducing upstream energy requirements) and Utility Global Inc (specializing in hydrogen generation reactors, fuel cells and electrolyzers).

Responsible supply chain

We expect and support our suppliers and contractors to adhere to the responsible business standards and principles stipulated by the Company Supplier Code of Conduct and Company supplier contractual agreement terms. These serve as the foundation of the robust and transparent relationships we strive to forge with our suppliers.

Our Supplier Code of Conduct establishes zero tolerance for bribery and corruption by suppliers, contractors, and third-party consultants with whom the Company conducts business. We regularly train many of these third parties in Anti-Bribery and Corruption (ABAC) and require recurring certification of their compliance with our Supplier Code of Conduct. The Supplier Code, third-party training, and the recurring certification all instruct third parties to report any known or suspected misconduct relating to Company business.

Overview	Climate change and the energy transition	Safe operations and people development	Minimizing environmental impact	Growing societal value	Data
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In accordance with local labor laws, our Supplier Code of Conduct and Company supplier contractual agreement terms also set out the commitments we expect from our suppliers in upholding the labor rights of their workforce and prohibiting all forms of forced labor and child labor.

From the outset of any business relationship, we strive to uphold and embed the principles of being a responsible business with all parties that wish to work with us. On occasion, we have experienced business interruptions caused by supplier non-compliance to Company standards and by performance gaps in our own Company policies and practices. This is why we

are operating initiatives and programs to screen for and monitor contractor compliance with corporate security, safety, environment, health, and labor requirements, and to support improvements to contractor employees' working conditions, well-being, and timely payment of salaries.

Our suppliers have access to a hotline to report any concerns and their concerns are reviewed seriously by us. For more information, please refer to page 55.

What are we doing?

Building industrial ecosystems

King Salman Energy Park (SPARK) will be an anchor of industrial vibrancy in the Kingdom, helping create an ecosystem of integrated value chains by providing a global industrial hub for energy-related manufacturing services and is expected to attract some of the world's biggest and most innovative energy industry names.

Close to Abqaiq in eastern Saudi Arabia, Aramco is investing in a 50 km² development for energy-related facilities, expanding the kingdom's industrial base. The city is expected to add \$6 billion to the Gross Domestic Product (GDP) and create thousands of jobs.



Impact assessments

We address the potential impacts of our operations on local communities, in particular ensuring access to clean water; that the security of our people and facilities is managed in a responsible way; and providing access to remedy for unavoidable adverse impacts related to our operations.

Aramco's Stakeholder Protection Policy regulates our interactions with local communities, and our Environmental Health Code and Environmental Management System, aligned with ISO 14001, and our policies relating to land acquisition include principles dedicated to community issues such as environmental impact assessment, handling of land claims, and access to clean water.

Recognizing that different countries have different procedures and routines for involving local community stakeholders, we work to comply with national requirements. Anyone adversely affected by our business activities has access to Aramco's General Auditor Hotline where they can report any complaint about our operations, without discrimination or fear of repercussion.

Land rights

We submit requests to the Saudi Government, represented by the Ministry of Energy, to assist us in securing, protecting, and enforcing land rights to facilitate the orderly conduct of the Company's operations in accordance with the Concession and relevant laws, regulations and orders. All filed petitions are evaluated and addressed with fairness and timeliness.

Optimizing land use near operating facilities

Aramco has demonstrated its social responsibility and contribution to the social development and well-being of its hosting communities through the proactive development of an approach to allow for more land release for development purposes. The Company implemented a unique approach to manage land release around its facilities in a manner that maintains the safety of its facilities and the public. Land planning and release around the Company facilities is now being managed through the "hybrid approach," which is a combination of prescriptive-based, consequence-based and risk-based approaches reflecting the nature of facilities operations and land use purposes when deciding on land release.

Overview	Climate change and the energy transition	Safe operations and people development	Minimizing environmental impact	Growing societal value	Data
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Safety campaigns and communications

Our Company is keen to play a positive role in ensuring road safety by not only upskilling our workforce's driving skills but also helping our communities.

Recent road safety initiatives

- Conducted "Traffic Safety Gardens" to entrench a traffic safety culture at a very early age through an edu-tainment approach. To date over 200,000 students have received training.
- Introduced the Traffic Safety School Kit and trained more than 6,000 teachers on train-the-trainer courses. To date more than 1.8 million students have undergone training.
- As the Government of Saudi Arabia reformed driving laws to allow women to drive, we have taken the initiative to train female employees and dependents on safe driving behaviors, and established our own female driving school.
- We have provided traffic safety awareness programs to promote safe driving culture among company and contractors' employees in addition to local communities. These programs included more than 230 traffic safety awareness sessions targeting more than 24,000 individuals.

- Under our Traffic Safety Signature Program, we introduced a "Safety Corridor" initiative to reduce serious accidents on an 80 km stretch of Dhahran — Al Hassa Highway, and in 30 in-city and 26 out of city accident blackspots. The objective is to lower fatalities and serious injuries and foster safety culture and safe driving behavior. The program provides engineering and enforcement recommendations. It has been supported by HRH Governor of the Eastern Province.

As of 2021, the number of serious accidents in blackspots decreased by 68% as a result of implementing these recommendations.



Community investment and support

As part of our commitment to grow value wherever we operate, the section following shows our monetary contribution to boost economies and support communities.

In 2021, we made community investments of over SAR 1,350 million (USD 360 million) in Saudi Arabia and abroad. Along with engaging with our communities via business activities and investments, we encourage our management and employees to engage with communities proactively and positively.

Saudi Arabia



Wa'ed

Established in 2011 as a fully-owned venture of Aramco, it makes venture capital investments, offers incubation and mentoring services to Saudi-based start-ups.

Since its founding, Wa'ed has disbursed more than \$100 million to 100+ start-ups whose unique products and services are transforming the Saudi economy. Some notable examples include Red Sea Farms (a Saudi Agtech start-up that uses saltwater-based agriculture systems) and a biofuels company that is developing energy solutions with zero carbon footprint.

Matched Giving

The Matched Employees Online Donation program was launched in 2002 during the holy month of Ramadan to promote the engagement of employees in community giving by facilitating their donations and providing matching funds to make significant philanthropic contributions.

In 2021, our employees' donations marked a new record in terms of donated amount and level of engagement in a single campaign. Some 14,000 employees donated circa SAR 6 million with the Company matching employees' donations; it resulted in over 12 million SARs donated to 22 charities benefiting approximately 50,000 people across 17 cities in the Kingdom to mobilize support to underprivileged people.

Recent examples include providing home renovations and appliances to families in need, diabetes monitoring and treatment, kidney dialysis treatment, and providing support to cancer patients.

Volunteering days

In December 2021, we also launched a structured year-round volunteering portal to help identify volunteering activities that match Company employees' talents.



Micro-industries

Within our micro-industries development portfolio that spans across the Kingdom, we are transforming hundreds of socially disadvantaged beneficiaries from being charity dependent into financially independent individuals through structural training, job opportunities, and sustainable financial income. Our recent initiatives include a honey industry development project in four regions (Baha, Taif Asir and Al-Madinah) with plans for further expansion, a coffee plantation and production project in Jazan and rose oil body care products production in Al Taif. To date, over 2,700 individuals have directly benefited from these initiatives.

King Abdulaziz Center for World Culture (Ithra)

Built by Aramco, Ithra is a multidimensional cultural destination in the Eastern Province of Saudi Arabia providing interactive workshops, shows and events, which are designed to enrich society among all age groups. These are all included within five main pillars: art, knowledge, creativity, culture, and society.

In 2021, Ithra continues to make a substantial impact in the areas of art, culture, and knowledge across the Kingdom and abroad. It re-opened to the public, welcoming hundreds of thousands of visitors. A special Digital Wellbeing program, "SYNC", was created with a vision of a world where we are all in control of our digital lives. The program is guided by global research to understand how technology is affecting our lives, and translate the knowledge into awareness campaigns, educational content and programs aiming to raise global awareness around the topic.



Overview	Climate change and the energy transition	Safe operations and people development	Minimizing environmental impact	Growing societal value	Data
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Global



Hand-in-Hand Waste Sorting

Promoting recycling to some 20,000 primary school students and local community members from Huli District, Xiamen.

Livestock

Assist local households with livestock as part of a poverty reduction program in Panlong Village (Gansu Province).

Project Hope

Educational support for over 3,500 underprivileged students in Fujian, Liaoning, Zhejiang and Yunnan Provinces.



Aramco Coding School

Helping underprivileged elementary and middle school students to learn from over 20 tailored programming classes to close the technology education gap in Ulsan Province.



Plant-A-Coral-Seed-A-Reef

Support the installation and development of a purpose-built artificial reef at the Sisters' Island Marine Park, the country's largest reef garden project.



Meal Distribution

Benefit over 680,000 underprivileged, COVID-19 impacted individuals with nutritious cooked meals.



STEM Program

Free STEM tuition programs for underprivileged secondary school children.



STEM Program

Support for STEM Learning, the largest provider of education and careers support in science, technology, engineering and mathematics in the UK.



National Fish & Wildlife Foundation

Distributed 18 grants that improved the resiliency of 10 coral reefs.



Trees for Houston

Supporting the City of Houston's comprehensive "Resilient Houston" plan to mitigate flooding risks and improve climate readiness by planting, distributing, and reforesting 70,000 trees.

Galveston Bay Foundation

Lead sponsor of the 2021 Marsh Mania event, a marsh-planting effort to plant 40,000 stalks of marsh grass along the Texas Gulf Coast region.

Earth Echo International

The OurEcho challenge equips individuals and groups to identify and address local environmental issues, specifically targeting biodiversity conservation.

Hurricane Ida & Winter Storm Uri

Monetary and in-kind donations to local non-profit organizations to assist with immediate and long-term needs such as food, home repairs and furnishings.

Aramco's relationship with the Government of Saudi Arabia

The interests of Aramco and the Government are aligned in terms of maximizing long-term shareholder value, which encompasses acting responsibly for the benefit of not only today, but for the many generations that are to follow us.

We have four key touch points with the Government of Saudi Arabia, as formalized in Aramco's Concession agreement with the Kingdom (the Concession) and the Income Tax Law: maximum production level, maximum sustainable capacity, royalties, and taxes, which are all Government prerogatives.

With respect to those units of the Government that act in a different capacity, for example, as a regulator or as commercial counterpart, we provide information appropriate for those relationships and circumstances in accordance with applicable laws and regulations.

The Concession requires that all Saudi Aramco contracts with any government agency or any arrangement for the furnishing of hydrocarbons, services or otherwise shall be on a commercial basis. Within these parameters, Aramco participates in the following activities with the Government of Saudi Arabia:

- **Projects to support the communities and environment in which we operate.** Ithra is a prime example of this, which helps promote a creative, knowledge-based economy. Ithra's flagship creativity and innovation season has been transformed into a conference to support the professional community. The first two editions drew more than 165,000 visitors.
- **Government-directed projects, which are done on an arm's length basis, including terms for reimbursement.** For example, the Jasara Joint Venture between the Saudi Aramco Development Company (SADCO), Jacobs Engineering and the Public Investment Fund (PIF) to provide professional program and construction management services on an arm's length basis for social infrastructure projects, including Government projects within the Kingdom.

Tax, royalty, zakat, dividend and revenue transparency

During 2020 and 2021, the world experienced a global pandemic which had significant social impacts. This highlights the critical contribution that companies make to long-term value creation and a healthy, diverse, prosperous society. Like most companies, Aramco contributes resources that can and should support the social fabric and vitality of the communities in which they operate. These contributions are made directly in the case of investment in communities, and indirectly through taxes paid to help finance Government services for those communities, as well as royalty, zakat and dividend payments within the Kingdom.

\$149 billion

Payments to the Government consisting of income taxes, royalties and dividends in 2021.

What are we doing?

Ithra

Aramco has two types of key activities with the Government of Saudi Arabia — a range of projects to support the communities and environment in which we operate and Government-directed projects, which are done on an arm's length basis, including terms for reimbursement.

Built by Aramco, Ithra is a prime example of the former. A multidimensional cultural destination in the Eastern Province of Saudi Arabia, Ithra delivers interactive workshops, shows and events, which are designed to enrich society among all age groups.



Data

The following table presents Aramco's ESG KPIs for the years 2021, 2020 and 2019. Reporting boundaries for each KPI and for each year is shown for transparency and, where possible, comparability.

There are three common terms used in reference to KPIs' reporting boundaries and the definitions of the commonly used terms are:

Company in-Kingdom — Saudi Arabian Oil Company in-Kingdom wholly-owned operated assets.

Saudi Aramco Operational Control — Saudi Arabian Oil Company in-Kingdom wholly-owned operated assets, SASREF, Motiva, ARLANXEO, Aramco Trading Company (ATC), Aramco Services Company (ASC), Aramco Overseas Company B.V. (AOC) and Saudi Aramco Asia Company Ltd. (SAAC).

Group — Saudi Arabian Oil Company, together with its consolidated subsidiaries, and where the context requires, its joint operations, joint ventures and associates.

Overview	Climate change and the energy transition	Safe operations and people development	Minimizing environmental impact	Growing societal value	Data
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Key performance indicators

Material issue	Metric (Definition, unit of measure)	2021 actual	2021 boundaries	2020 actual	2020 boundaries	2019 actual	2019 boundaries
Climate change and the energy transition							
Climate change	Scope 1 emissions (million metric tons of CO ₂ e)	52.3 ^{1,3}	Saudi Aramco Operational Control excluding Aramco Trading Company, ASC, AOC and SAAC	50.2 ^{1,2,3}	Saudi Aramco Operational Control excluding Aramco Trading Company, ASC, AOC and SAAC	52.0 ³	Saudi Aramco Operational Control excluding Aramco Trading Company, ASC, AOC and SAAC
Climate change	Scope 2 emissions (million metric tons of CO ₂ e)	15.5 ^{1,3}	Saudi Aramco Operational Control excluding Aramco Trading Company, ASC, AOC and SAAC	18.1 ^{1,2,3}	Saudi Aramco Operational Control excluding Aramco Trading Company, ASC, AOC and SAAC	19.0 ³	Saudi Aramco Operational Control excluding Aramco Trading Company, ASC, AOC and SAAC
Climate change	Upstream carbon intensity (Ratio of total upstream GHG emissions (Scope 1 and Scope 2) to production sold, kg of CO ₂ e/boe)	10.7 ^{1,3}	Company in-Kingdom	10.6 ^{1,2}	Company in-Kingdom	10.4	Company in-Kingdom
Climate change	Upstream methane emissions (metric tons of CH ₄)	26,754 ¹	Company in-Kingdom	26,424 ^{1,2}	Company in-Kingdom	29,444	Company in-Kingdom
Climate change	Upstream methane intensity (Methane emissions from upstream operations per volume of marketed natural gas, %)	0.05 ¹	Company in-Kingdom	0.06 ^{1,2}	Company in-Kingdom	0.06	Company in-Kingdom
Climate change	Flaring intensity (Volume of hydrocarbon gas flared per barrel of oil equivalent produced, scf/boe)	5.51 ¹	Saudi Aramco Operational Control excluding Aramco Trading Company, ASC, AOC and SAAC	5.97 ^{1,2}	Saudi Aramco Operational Control excluding Aramco Trading Company, ASC, AOC and SAAC	5.88	Saudi Aramco Operational Control excluding Aramco Trading Company, ASC, AOC and SAAC
Climate change	Flared gas (mmscf)	25,825 ¹	Saudi Aramco Operational Control excluding Aramco Trading Company, ASC, AOC and SAAC	26,995 ^{1,2}	Saudi Aramco Operational Control excluding Aramco Trading Company, ASC, AOC and SAAC	28,205	Saudi Aramco Operational Control excluding Aramco Trading Company, ASC, AOC and SAAC
Climate change	Energy intensity (ratio of total net energy consumption and total production, thousand Btu per boe)	116.6 ^{1,3}	Company in-Kingdom	112.4 ^{1,2,3}	Company in-Kingdom	114.1	Company in-Kingdom

1. Jazan Refinery is excluded from 2021 and 2020 GHG emissions inventory and Energy Intensity KPI boundary.

2. Fadhl Gas Plant is excluded from 2020 GHG emissions inventory and Energy Intensity KPI boundary.

3. This figure has undergone external limited assurance in accordance to the ISAE 3000 (revised). The assurance report can be found [online here](#).

Key performance indicators continued

Material issue	Metric (Definition, unit of measure)	2021 actual	2021 boundaries	2020 actual	2020 boundaries	2019 actual	2019 boundaries
Safe operations and people development							
Process safety and asset integrity	Number of Tier 1 process safety events	11	Saudi Aramco Operational Control	9	Company in-Kingdom	4	Company in-Kingdom
Workforce protection	Lost time incident rate ((Number of LTI cases x 200,000)/total work hours)	0.017	Saudi Aramco Operational Control	0.011	Company in-Kingdom	0.016	Company in-Kingdom
Workforce protection	Number of fatalities	1 ¹	Saudi Aramco Operational Control	1 ¹	Company in-Kingdom	6	Company in-Kingdom
Workforce protection	Total recordable case frequency (Total recordable incidents x 200,000/total work hours)	0.054	Saudi Aramco Operational Control	0.044	Company in-Kingdom	0.059	Company in-Kingdom
Labor practices	Female (%) of total employees	5.6 ¹	Company in-Kingdom	5.1 ¹	Company in-Kingdom	4.9	Company in-Kingdom
Labor practices	Female employees (%) in leadership position	3.1	Company in-Kingdom	2.7	Company in-Kingdom	2.1	Company in-Kingdom
Labor practices	Number of graduates	1,447	Company in-Kingdom	460	Company in-Kingdom	1,069	Company in-Kingdom
Labor practices	Number of apprentices	1,369	Company in-Kingdom	1,001	Company in-Kingdom	2,306	Company in-Kingdom
Labor practices	Number of interns	1,922	Company in-Kingdom	641	Company in-Kingdom	1,089	Company in-Kingdom
Labor practices	Company employees (number)	68,493	Company in-Kingdom	66,800	Company in-Kingdom	69,867	Company in-Kingdom
Labor practices	Employees receiving regular performance reviews (%)	96.8	Company in-Kingdom	98.4	Company in-Kingdom	94.0	Company in-Kingdom
Minimizing environmental impact							
Water	Freshwater consumption (The difference between the volume of freshwater removed from the environment, incl. surface water, groundwater, for use in operations, and freshwater returned to the source. The total dissolved solids (TDS) concentration of this type of water is up to 2,000 mg/l) (million cubic meters)	33.8	Company in-Kingdom	32.9	Company in-Kingdom	36.2	Company in-Kingdom

1. This figure has undergone external limited assurance in accordance to the ISAE 3000 (revised). The assurance report can be found [online here](#).

Overview	Climate change and the energy transition	Safe operations and people development	Minimizing environmental impact	Growing societal value	Data		
Material issue	Metric (Definition, unit of measure)	2021 actual	2021 boundaries	2020 actual	2020 boundaries	2019 actual	2019 boundaries
Minimizing environmental impact continued							
Water	Freshwater withdrawal (million cubic meters) Please note, the amount of Freshwater Withdrawn is the same as the amount of Freshwater Consumed.	33.8	Company in-Kingdom	32.9	Company in-Kingdom	36.2	Company in-Kingdom
Water	Hydrocarbon discharge to water (total amount of hydrocarbons that are systematically released to surface water through regulated industrial wastewater discharges, barrels)	5.4	Company in-Kingdom	4.7	Company in-Kingdom	14.9	Company in-Kingdom
Local environmental impact	Number of hydrocarbon spills (Total number of accidental release events of liquid petroleum hydrocarbon into the environment, where the spill incident is > 1 bbl, number)	13	Saudi Aramco Operational Control	6	Saudi Aramco Operational Control	11	Saudi Aramco Operational Control
Local environmental impact	Volume of hydrocarbon spills (Total volume of liquid petroleum hydrocarbon accidentally released into the environment, where the spill incident is > 1 bbl, bbl)	14,447	Saudi Aramco Operational Control	134	Saudi Aramco Operational Control	38	Saudi Aramco Operational Control
Local environmental impact	SOx emissions (Quantity of Sulphur Oxides including Sulphur Dioxide (SO ₂) and Sulphur Trioxide (SO ₃) expressed as SO ₂ equivalent, kilotons)	141	Saudi Aramco Operational Control excluding Aramco Trading Company, ASC, AOC and SAAC	163	Saudi Aramco Operational Control excluding Aramco Trading Company, ASC, AOC and SAAC	204	Saudi Aramco Operational Control excluding Aramco Trading Company, ASC, AOC and SAAC
Waste management	Industrial waste generated (The total amount of industrial waste, hazardous and non-hazardous, generated from operating facilities, not including waste recycling, re-using, and recovery, metric tons)	158,000	Company in-Kingdom	231,000	Company in-Kingdom	232,000	Company in-Kingdom

Key performance indicators continued

Material issue	Metric (Definition, unit of measure)	2021 actual	2021 boundaries	2020 actual	2020 boundaries	2019 actual	2019 boundaries
Growing societal value							
Economic contribution	Direct economic value generated and distributed:		Group		Group		Group
	– Revenues (million SAR)	1,346,930		768,109		1,105,696	
	– Other income related to sales (million SAR)	154,828		93,982		131,089	
	– Operating costs (million SAR)	729,840		478,731		561,914	
	– Employee wages and benefits (million SAR)	52,748		51,264		41,595	
	– Dividends paid (million SAR) ¹	288,417		261,902		274,424	
	– Payments to government (million SAR)	557,033		412,786		594,424	
Economic contribution	Total R&D expenses (million SAR)	3,873	Group	2,830	Group	2,150	Group
Labor practices	Saudization (%)	90.5%	Company in-Kingdom	89.6%	Company in-Kingdom	88.5%	Company in-Kingdom
National content	Percentage of Saudi construction contractors relative to the total construction contractors workforce in Saudi Arabia	25.6%	Company in-Kingdom	21.6%	Company in-Kingdom	21.8%	Company in-Kingdom
National content	Percentage of Saudi service contractors relative to the total service contractors workforce in Saudi Arabia	56.6%	Company in-Kingdom	51.0%	Company in-Kingdom	51.4%	Company in-Kingdom
National content	Iktva procurement spend within the Kingdom (%)	59.0%	Company in-Kingdom	57.5%	Company in-Kingdom	55.8%	Company in-Kingdom

1. Dividends paid to shareholders of the Company and dividends paid to non-controlling interests in subsidiaries

Overview	Climate change and the energy transition	Safe operations and people development	Minimizing environmental impact	Growing societal value	Data		
Material issue	Metric (Definition, unit of measure)	2021 actual	2021 boundaries	2020 actual	2020 boundaries	2019 actual	2019 boundaries
Corporate governance							
Ethics, bribery, and corruption (Compliance)	Number of allegations	539	Company in-Kingdom	619	Company in-Kingdom	507	Company in-Kingdom
Ethics, bribery, and corruption (Compliance)	Anti-bribery and corruption training (Attendees)	7,300	Company in-Kingdom			Not disclosed previously	
Corporate governance	Board composition by average age	62	Group	61	Group	Not disclosed previously	
Corporate governance	Board composition by average tenure	5.0	Group	5.6	Group	Not disclosed previously	

Abbreviations, terms and glossary

Currencies

Currency conversion

All financial amounts in SAR and USD in this Report are reported in line with the exchange rates reported in [Saudi Aramco's 2021 Annual Report](#).

SAR/Saudi Riyal

Saudi Arabian riyal, the lawful currency of the Kingdom

\$/USD/US\$/Dollar

US dollar

Units of measurement

Barrel (bbl)

Barrels of crude oil, condensate or refined products

boe

Barrels of oil equivalent

bscf

Billion standard cubic feet

bscfd

Billion standard cubic feet per day

BTU

British thermal unit

GW

Gigawatts

mboed

Thousand barrels of oil-equivalent per day

mmboed

Million barrels of oil-equivalent per day

mmscf

Million standard cubic feet

mmtpa

Million metric tons per annum

per day

Volumes are converted into a daily basis using a calendar year (Gregorian)

scf

Standard cubic feet

tscf

Trillion standard cubic feet

Terms and glossary

Affiliate

With respect to financial information, the term Affiliate is defined by IFRS, meaning the Company's subsidiaries, joint arrangements and associates.

Aramco Namaat

Aramco's industrial investment program.

ARLANXEO

ARLANXEO Holding B.V., a wholly-owned specialty chemicals subsidiary.

ATC

Aramco Trading Company, a wholly-owned subsidiary of Aramco.

Carbon credit

A carbon credit is a tradable instrument that represents either; a permit to emit one tonne of CO₂ or equivalent GHG (tCO₂e) into the atmosphere or; a certificate that represents the avoidance or removal of one tonne of CO₂ or equivalent GHG (tCO₂e) from the atmosphere.

Carbon dioxide (CO₂)

A naturally occurring gas, and also a byproduct of burning fossil fuels and biomass, as well as land-use changes and other industrial processes. It is the principal human-caused greenhouse gas that affects the Earth's radiative balance. It is the reference gas against which other greenhouse gases are measured and therefore has a Global Warming Potential of 1.

Carbon capture, utilization, and storage (CCUS)

A set of technologies that can reduce CO₂ emissions from new and existing coal- and gas-fired power plants, industrial processes, and other stationary sources of CO₂. It is a three-step process that includes capture of CO₂ from power plants or industrial sources; transport of the captured and compressed CO₂ (usually in pipelines); and underground injection and geologic sequestration, or permanent storage, of that CO₂ in rock formations that contain tiny openings or pores that trap and hold the CO₂.

Sequestration and Storage are often used interchangeably. Utilization is where CO₂ is reused in other applications e.g. food preparation, carbonated drinks manufacturing etc.

Overview	Climate change and the energy transition	Safe operations and people development	Minimizing environmental impact	Growing societal value	Data
<p>Carbon dioxide equivalent (CO₂e) A metric measure used to compare the emissions from various greenhouse gases based upon their global warming potential (GWP). Carbon dioxide equivalents are commonly expressed as "million metric tonnes of carbon dioxide equivalents (MMtCO₂ Eq)." The carbon dioxide equivalent for a gas is derived by multiplying the tonnes of the gas by the associated GWP. MMtCO₂Eq = (million metric tonnes of a gas) * (GWP of the gas).</p> <p>Carbon intensity A measure of greenhouse gas emissions in carbon dioxide (CO₂) equivalent per barrel of oil equivalent.</p> <p>Carbon markets Two types of carbon market exist:</p> <ul style="list-style-type: none"> (1) Regulatory compliance markets — used by companies and governments that by law have to account for their GHG emissions. It is regulated by mandatory national, regional or international carbon reduction regimes. (2) Voluntary markets — the trade of carbon credits is on a voluntarily basis. In Q42021 the KSA Government announced plans to create a voluntary carbon market. <p>Carbon Offset Reduction credits generated in one location that are transferred to another location or entity, and are usually denominated in metric tonnes of a reduced emission or megawatt hours of renewable energy produced.</p> <p>CHP Combined Heat and Power.</p> <p>Circular carbon economy A circular carbon economy is a framework for managing and reducing emissions. It is a closed loop system involving 4Rs: reduce, reuse, recycle, and remove.</p> <p>Circular economy A circular economy is an economic system of closed loops in which raw materials, components and products lose their value as little as possible, renewable energy sources are used and systems thinking is at the core.</p>	<p>Climate Usually defined as the "average weather", or more rigorously, in terms of the mean and variability of relevant quantities over a period of time ranging from months to thousands of years.</p> <p>Climate change Any significant change in the measures of climate lasting for an extended period of time. Climate change includes major changes in temperature, precipitation, or wind patterns, among others, that occur over several decades or longer.</p> <p>Company/Aramco/Saudi Aramco As used herein, and unless the context or additional text suggests otherwise, the terms "Aramco", "Saudi Aramco", "Company", "we", "us" or "ours" refer to Saudi Arabian Oil Co. and its consolidated subsidiaries.</p> <p>Concession As defined and discussed on page 143 of Saudi Aramco Annual Report 2021.</p> <p>CO₂ Carbon dioxide.</p> <p>CO₂e Carbon dioxide equivalent.</p> <p>Condensate Light hydrocarbon substances produced with raw gas which condenses into liquid at normal temperatures and pressures associated with surface production equipment.</p> <p>Decarbonization The process of reducing CO₂ (GHG) emissions from the Company's operations.</p> <p>Direct Air Capture (DAC) Technologies and processes that extract CO₂ directly from the atmosphere. The CO₂ can be permanently stored in geological formations or used as a feedstock in the production of fuels, chemicals, building materials and other products containing CO₂.</p>				

Domestic

Refers to the Kingdom of Saudi Arabia.

Emissions

The release of a substance (usually a gas when referring to the subject of climate change) into the atmosphere.

Emissions reduction

Carbon reduction projects result in a net reduction in absolute CO₂/GHG emissions relative to current emissions levels or relative to an historical baseline.

Energy efficiency

Using less energy to provide the same service. Energy efficiency is one of the core strategies for reducing greenhouse gas emissions from fossil fuels.

Energy intensity

An index for measuring the total energy consumed to generate a unit of product, represented in thousand BTUs per total production in barrel of oil equivalent.

Energy transition

A significant structural change in an energy system.

Environment

The natural world, as a whole or in a particular geographical area, especially as affected by human activity.

ESG

Environmental, social and governance.

Flaring intensity

Volume of gas flared per barrel of oil equivalent produced (scf/boe).

Freshwater

Non-brackish water with total dissolved solids (TDS) concentration up to 2,000 mg/l.

G20

Group of Twenty is an intergovernmental forum comprising 19 countries and the European Union (EU).

GDP

Gross domestic product. The broadest quantitative measure of a nation's total economic activity, representing the monetary value of all goods and services produced within a nation's geographic borders over a specified period of time.

Greenhouse gas (GHG)

Any gas that absorbs infrared radiation in the atmosphere rather than allowing it to radiate into space. Greenhouse gases include CO₂, methane, nitrous oxide, ozone, chlorofluorocarbons, hydrochlorofluorocarbons, hydrofluorocarbons, perfluorocarbons, and sulfur hexafluoride.

GHG avoidance

The avoidance of GHG emissions that would otherwise occur without the protective actions implemented by an offset project.

GHG reduction

Quantified absolute decrease in GHG emissions specifically related to/arising from an activity. (ISO)

GHG removal

Withdrawal of a GHG and/or a precursor from the atmosphere by a GHG sink or GHG removal technology.

Government

The Government of the Kingdom of Saudi Arabia (and "Governmental" shall be interpreted accordingly).

Greenhouse gas (GHG) emissions

Any gaseous compound in the atmosphere that is capable of absorbing infrared radiation. Generally, consists of water vapor, CO₂, methane, nitrous oxide, hydro fluorocarbons, perfluorocarbons and sulfur hexafluoride. Aramco's inventory includes CO₂, methane and nitrous oxide.

HSSE

Health, Safety, Security and Environment.

Overview	Climate change and the energy transition	Safe operations and people development	Minimizing environmental impact	Growing societal value	Data
<p>Hydrocarbons Substances containing only hydrogen and carbon. Fossil fuels are made up of hydrocarbons.</p> <p>Hydrocarbons law Law governing hydrocarbons, hydrocarbon resources, and hydrocarbon operations existing within the territory of the Kingdom, enacted by Royal Decree No. M/37, dated 2/4/1439H (corresponding to December 20, 2017), as amended.</p> <p>IFRS International Financial Reporting Standard(s) that are endorsed in the Kingdom and other standards and pronouncements endorsed by SOCPA.</p> <p>iktva In-Kingdom total value add. The Company's program to promote the development of a localized energy/industrial eco-system.</p> <p>Income tax law/tax law Income Tax Law issued under Royal Decree No. M/1 dated 15/1/1425H (corresponding to March 6, 2004) and its Implementing Regulations issued under Ministerial Resolution No. 1535 dated 11/6/1425H (corresponding to August 11, 2004), as amended from time to time.</p> <p>IPIECA International Petroleum Industry Environmental Conservation Association.</p> <p>IPO The initial public offering.</p> <p>ISO International Organization for Standardization.</p> <p>Joint venture/JV The term joint venture, as defined by IFRS, means a type of joint arrangement whereby the parties that have joint control of the arrangement have rights to the net assets of the joint arrangement.</p>	<p>KAUST King Abdullah University of Science and Technology.</p> <p>KFUPM King Fahd University of Petroleum and Minerals.</p> <p>Kingdom Kingdom of Saudi Arabia.</p> <p>KPIs Key Performance Indicators.</p> <p>LTI Lost time injuries.</p> <p>Master Gas System (MGS) An extensive network of pipelines that connects Aramco's key gas production and processing sites throughout the Kingdom.</p> <p>Ministry of Energy Ministry of Energy of the Kingdom. Successor to MEIM.</p> <p>Methane (CH_4) A hydrocarbon that is a greenhouse gas with a global warming potential most recently estimated at 25 times that of carbon dioxide (CO_2). Methane is produced through anaerobic decomposition of waste in landfills, animal digestion, decomposition of animal wastes, production and distribution of natural gas and petroleum, coal production, and incomplete fossil fuel combustion.</p> <p>Motiva Motiva Enterprises LLC — located in the US</p> <p>National Refers to the Kingdom of Saudi Arabia.</p> <p>Natural gas Underground deposits of gases consisting of 50–90% methane (CH_4) and small amounts of heavier gaseous hydrocarbon compounds such as propane (C_3H_8) and butane (C_4H_{10}).</p>				

Net-zero Emissions

This is achieved when anthropogenic GHG emissions to the atmosphere are balanced by anthropogenic removals.

NGL

Natural gas liquids, which are liquid or liquefied hydrocarbons produced in the manufacture, purification and stabilization of natural gas. For purposes of reserves, ethane is included in NGL. For purposes of production, ethane is reported separately and excluded from NGL.

Nitrogen oxides (NOx)

Gases consisting of one molecule of nitrogen and varying numbers of oxygen molecules. Nitrogen oxides are produced in the emissions of vehicle exhausts and from power stations. In the atmosphere, nitrogen oxides can contribute to formation of photochemical ozone (smog), can impair visibility, and have health consequences; they are thus considered pollutants.

Original concession

See definition to 'Concession'.

Paris Agreement

The United Nations Framework Convention on Climate Change Paris Agreement.

PIF

Public Investment Fund of Saudi Arabia.

Production costs

The sum of operating costs and depreciation, reflecting both the erosion of asset value over time on an accounting basis and the cost of operating the business.

R&D

Research and development.

Reserves

Those quantities of liquids and gas, which, by analysis of geoscience and engineering data, can be estimated with reasonable certainty to be economically producible — from a given date forward, from known reservoirs, and under existing economic conditions, operating methods and government regulations — prior to the time at which contracts providing the right to operate expire, unless evidence indicates that renewal is reasonably certain, regardless of whether deterministic or probabilistic methods are used for the estimation. The project to extract the hydrocarbons must have commenced or the operator must be reasonably certain that it will commence the project within a reasonable time.

Reliability

Total products volume shipped/delivered within 24 hours of the scheduled time, divided by the total products volume committed. Any delays caused by factors that are under the Company's control (e.g. terminal, pipeline, stabilization, or production) negatively affect the score, whereas delays caused by conditions that are beyond the Company's control, such as adverse weather, are not considered. A score of less than 100 percent indicates there were issues that negatively impacted reliability.

SABIC

Saudi Basic Industries Corporation.

SASREF

Saudi Aramco Jubail Refinery Company, a subsidiary of Aramco, formerly known as Saudi Aramco Shell Refinery Company.

Saudi Aramco/Aramco

Saudi Arabian Oil Company, together with its consolidated subsidiaries, and where the context requires, its joint operations, joint ventures and associates.

Any reference to "us", "we" or "our" refers to Aramco except where otherwise stated.

Unless otherwise stated, the text does not distinguish between the activities and operations of the Company and those of its subsidiaries.

Overview	Climate change and the energy transition	Safe operations and people development	Minimizing environmental impact	Growing societal value	Data
<p>Saudi Green Initiative (SGI) A national initiative for the Kingdom that aims to increase the Kingdom's reliance on clean energy, offset the impact of fossil fuels and combat climate change.</p> <p>Scope 1 GHG emissions Direct emissions, which include GHG emissions from onsite fuel combustion, flaring, venting and fugitive emissions.</p> <p>Scope 2 GHG emissions Indirect emissions, which account for GHG emissions from offsite power generation including electricity and steam.</p> <p>Scope 3 GHG emissions All indirect emissions (not included in Scope 2) that occur in the value chain, including both upstream and downstream emissions.</p> <p>Senior Executives/Management Committee The members of the Senior Management of Aramco holding the title of President (CEO) or Senior Vice President.</p> <p>Senior Management The Senior Management and other officers of Aramco who, while subordinate to the Senior Executives, are still involved in the management of Aramco and participate in driving its strategies, decisions or operations.</p> <p>Shareholder Any holder of shares.</p> <p>Shareek program A cooperative Government program that is designed to provide support via various pillars including financial, monetary, operational and regulatory cooperation and asset investment, aiming to enhance the development and resilience of the Saudi economy by increasing the gross domestic product, providing job opportunities, diversifying the economy and strengthening cooperation between public and private sectors.</p>	<p>SOCPA Saudi Organization for Chartered and Professional Accountants.</p> <p>S-Oil S-Oil Corporation.</p> <p>SSC Sustainability Steering Committee.</p> <p>Subsidiaries Except with respect to financial information, the term subsidiaries means the companies that Aramco controls through its ability to influence the actions or decisions of another person through, whether directly or indirectly, alone or with a relative or affiliate (i) holding 30% or more of the voting rights in a company or (ii) having the right to appoint 30% or more of the Board of a company.</p> <p>With respect to financial information, the term subsidiaries is defined by IFRS, meaning entities over which the Company has control.</p> <p>Tier 1 Process Safety Event An unplanned or uncontrolled release of any material, including non-toxic and non-flammable materials, from a process that results in one or more of the consequences listed in API Recommended Practice-754.</p> <p>Total recordable case (TRC) frequency Sum of recordable cases that occurred in the workplace per 200,000 work hours.</p> <p>UN SDGs United Nations Sustainable Development Goals.</p> <p>US/United States/USA United States of America.</p> <p>Zero Carbon Applies only to energy sources, processes, products, projects etc. that emit zero GHG emissions.</p>				

Forward-looking statements

This Sustainability Report (the "Report") may contain certain forward-looking statements with respect to Aramco's financial position, results of operations and business and certain of Aramco's plans, intentions, expectations, assumptions, goals and beliefs regarding such items. These statements include all matters that are not historical fact and generally, but not always, may be identified by the use of words such as "believes", "expects", "are expected to", "anticipates", "intends", "estimates", "should", "strive", "will", "shall", "may", "is likely to", "plans", "targets", "goals", "outlook" or similar expressions, including variations and the negatives thereof or comparable terminology. These statements include, among other things, statements about expectations in connection with the Company's environmental, social and governance ("ESG") initiatives, including the targets and goals set forth in this Report.

The Company cautions that its forward-looking statements are subject to risks and uncertainties that could cause actual results to differ materially from those expressed in, or implied or projected by, the forward-looking information and statements. Our ability to reach our goals, including our goals related to ESG and minimizing our environmental impact, safe operations and people development and growing societal value within the Kingdom could be affected by factors including, but not limited to: the inability to successfully meet the targets set forth in this Report including through the management GHG emissions; the inability to meet our plastic waste and water management targets or successfully protect biodiversity; the inability to develop and deploy technology solutions to allow us to deliver the benefits of oil and gas hydrocarbons for future generations; the success of our partnerships with local and global organizations; the inability to ensure a healthy and safe environment for employees; natural disasters and public health pandemics or epidemics (such as COVID-19); competition in the industries in which Aramco operates; conditions affecting the transportation of products; operational risk and hazards common in the oil and gas, refining and petrochemicals industries, including with respect to the ikta program; the cyclical nature of the oil and gas, refining and petrochemicals industries; weather conditions; political and social instability and

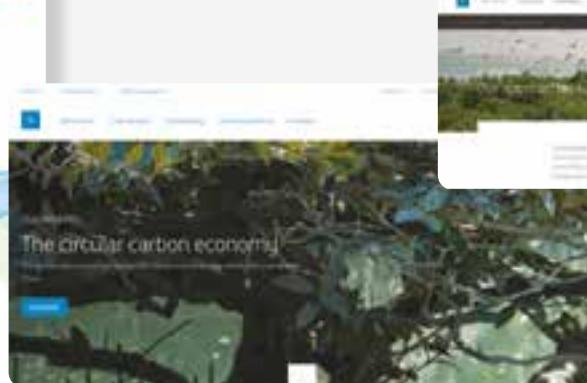
unrest and actual or potential armed conflicts; managing Aramco's growth; risks in connection with projects under development and recent and future acquisitions and joint ventures, including with respect to SABIC; managing Aramco's subsidiaries, joint operations, joint ventures, associates and entities in which it holds a minority interest, including their performance with respect to ESG initiatives; risks related to operating in a regulated industry and changes to oil, gas, environmental or other regulations that impact the industries in which Aramco operates; and international trade litigation, disputes or agreements.

In light of these and other risks, uncertainties and assumptions, the forward-looking events described in this Report may not occur. The forward-looking statements speak only as of the date of this Report. We undertake no obligation to update or revise any forward-looking statement, whether as a result of new information, future events or otherwise. All subsequent written and oral forward-looking statements attributable to us or to persons acting on our behalf are expressly qualified in their entirety by the cautionary statements referred to above and contained elsewhere in this Report.

Except where noted, the information covered in this Report highlights the Company's performance and initiatives in fiscal year 2021. The inclusion of information in this Report should not be construed as a characterization regarding the materiality or financial impact of that information.

This Report may contain links to or information from other internet sites. Such links and information are not endorsements of any products or services in such sites, and no information in such site has been endorsed or approved by Aramco.

This document should be read together with Aramco's public reporting, including our Annual Report, our website and our policies.



Please visit www.aramco.com for more information

Please visit www.aramco.com/sustainability for more information on our approach to sustainability, our basis of preparation and our independent assurance statements

Please see our 2021 Annual Report at www.aramco.com/en/investors/reports-and-presentations

Contact us

We hope you find this Report engaging and informative, and we continue to welcome your input and views:



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Social media

We are also active on the below social media platforms, so please follow us to learn more about Aramco and our sustainability journey:



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