



Carnegie Mellon University

Wilton E. Scott Institute
for Energy Innovation

Energy Dialogues: Pittsburgh City Series 2019 Summary Report

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I. Executive Summary

On December 11, 2019, Energy Dialogues LLC and the Wilton E. Scott Institute for Energy Innovation (“Scott Institute”) at Carnegie Mellon University (“CMU”) hosted the Pittsburgh Energy Dialogues City Series. The one-day event convened energy representatives from industry, government, and academia to engage in an open, comprehensive, and constructive dialogue about topics of relevance to the region’s current energy landscape. The event was held in partnership with Boston Consulting Group, Schlumberger, and Davies Public Affairs, who were instrumental to the success of the event and helped facilitate conversations between energy experts and thought leaders that were able to participate.

The event presented an innovative opportunity to discuss energy topics of critical importance to the current global and regional energy scenario. While a wide variety of unique perspectives and ideas were shared, three themes were particularly noteworthy:

- The role of natural gas in Pennsylvania’s pathways to decarbonization
- Consumer behavior and sustainability in a dynamic energy landscape
- Energy transition in a global context

Discussions began with exploring multiple points of view on the role of natural gas in the decarbonization narrative. Further, participants explored the complexities associated with the radical replacement of natural gas and the importance of having safe, reliable, and resilient energy sources to support and accelerate the transition to renewables. They acknowledged the position of natural gas as a bridge fuel and offered recommendations to protect existing natural gas infrastructure.

Participants analyzed the key drivers of consumer attitudes and choice-making in a rapidly evolving energy landscape. There were discussions on the role of social media, data, and digital marketing capabilities to analyze and predict consumer behavior. Participants explored the perspectives of millennials on the future of the oil and gas industry. As the largest generational cohort of the U.S. population, participants acknowledged the impact of millennial consumers on the energy economy and their ability to transform global energy consumption.

In closing, discussions were focused on the global energy transition and the unique contexts of developed and developing countries as they work towards their climate goals. In the journey to a zero-carbon future, participants agreed that fossil fuels would continue to be a part of the global energy mix to ensure that the transition is smooth and with reliable alternatives in place.

The day began with welcome remarks from Monika Simoes, Founder and CEO of Energy Dialogues LLC, and from Anna J. Siefken, Executive Director of the Wilton E. Scott Institute for Energy Innovation at Carnegie Mellon University. The event convened approximately 50 participants with representation from industry, government, nonprofits, academia, and students of Carnegie Mellon University. The day was comprised of two moderated panel discussions, three roundtable working sessions, and a presentation by John Davies, Chief Executive Officer and Chairman of Davies Public Affairs. The event concluded with each group presenting a summary of key takeaways, highlights and reflections from the day. This report aims to provide a detailed overview of the main ideas and recommendations presented during the event.

II. Emerging Themes and Key Ideas

A spectrum of themes and ideas of relevance to the current regional and local energy landscape surfaced panel discussions and conversations during the Energy Dialogues event at CMU. This section of the report will explore in detail the most prominent themes and key takeaways across sessions and discussions.

1. The Role of Natural Gas in Pennsylvania's Pathways to Decarbonization

The opening panel began with participants exploring Pittsburgh's Climate Action Plan 3.0 and the city's progress in transitioning to 100% renewable energy by 2035. Talks in this panel were set against the backdrop of Pennsylvania's abundant natural gas reserves and the role of natural gas in shaping the state's path to a low-carbon energy future. Among the U.S. states, Pennsylvania is the third-largest energy producer overall and the second-largest producer of natural gas. The state produces enough natural gas each year to meet the entire country's residential demand.

Conversations echoed the uncertainty surrounding the position of natural gas as a transient energy source. While to some, it is a promising candidate in the shift to renewable energy with a significant economic advantage over other renewable energy alternatives, to others, natural gas is a temporary solution and ultimately a carbon-emitting source that should be phased out quickly. Participants acknowledged Pennsylvania's unique set of opportunities and challenges in leveraging its resources to maximize both its short-term and long-term economic, social, and environmental impact.

Discussants acknowledged the difficulty associated with the radical replacement of natural gas as an energy source. The costs and uses of natural gas vary significantly across different markets. Lower gas prices and gas price fluctuations in different regions add to the complex economics of renewables in Pittsburgh. Further, the importance of reliable alternative energy sources was emphasized in conversations. The existing reliability, accessibility, and resilience of the global natural gas supply networks and accompanying infrastructure makes replacing natural gas more difficult.

Finally, participants analyzed the role of natural gas as a bridge fuel while pursuing renewable energy generation in parallel as an effective strategy to leverage the region's existing energy resources while simultaneously working to achieve Pennsylvania's GHG reduction goals. In this regard, it is critical to protect the region's natural gas infrastructure. Participants discussed the need to address problems such as leakage and methane emissions from gas operations, aging gas pipelines, lack of policy incentives, and the need for a coordinated government-level effort for pipeline expansion as necessary steps to increase the overall efficiency of the natural gas supply chain. Overall, it was established that natural gas is essential to sustain the pace of current efforts to achieve a zero-carbon energy mix in the near future.

2. Consumer Behavior and Sustainability in a Dynamic Energy Landscape

This session began with exploring the rapid transformation that the energy sector is undergoing with consumers gradually taking a more active role in their overall energy procurement and consumption. The affordability of energy sources and their ability to adapt to current living standards were considered vital to shaping consumer behavior. Attendees discussed the potential of the growing role of digital technology, decentralized power generation, and electric vehicles to ultimately reorganize the energy value chain and lead to the emergence of new business models.

Participants also acknowledged the power of social media on consumers' decision processes and behavior, particularly that of the youth population. The abundance of data and the current capabilities of marketing analytics platforms go beyond merely describing consumer behavior to being able to predict future behavior. Discussions also focused on how consumer preferences continue to shift towards sustainability and the impact of transparent supply chains on consumer behavior.

In examining the future of consumer behavior, the opinions of the millennial population cannot be overlooked. Participants discussed the general perception of millennials towards the oil and gas industry and their concerns about the industry's longevity. Millennials in the room voiced the importance of the industry's ability to adapt quickly to changing times and highlight its technological depth as a pathway to actively engage the younger generation who are central to the future of the industry. Participants acknowledged the influential role that millennials have in impacting the future of the U.S. energy economy and the myriad opportunities available to them to make smarter choices with respect to energy consumption and adopting sustainable lifestyles.

Participants analyzed the role of governments, businesses, and sustainable investments in impacting consumer decision-making. In recent years, there has been a sharp rise in companies that are modifying their business practices to reduce their carbon footprint. Governments are also strengthening their focus on investing in renewable energy and fostering green building opportunities. Attendees explored the capability of governments to affect consumer behavior through public policy and incentives. It was noted that substantive research on consumers' choice behavior should serve as inputs to the creation of public policy. This is a vital step in ensuring that systems are effective, robust, and have the potential to systematically guide the public in achieving regional sustainability goals.

There was a discussion on the need to increase consumer awareness on the ROI on green purchasing and deepen consumer understanding of sustainability terms. With terms such as "eco-friendly" and "energy-efficient" becoming increasingly overused, consumers are starting to exhibit skepticism towards sustainable marketers. The dynamic nature of consumer preferences and behaviors are rapidly changing the energy market landscape. Participants agreed that ultimately money and incentives are among the most important drivers of consumer behavior with the potential to influence change in companies, enforce laws, and shape public opinion towards a sustainable lifestyle.

3. Energy Transition in a Global Context

The event concluded with a discussion on the global perspective of energy transition. Participants acknowledged that the journey from fossil-based to zero-carbon is unique to each country working to achieve its climate and energy goals. It depends on a thorough understanding of the country's current energy status quo concerning the availability of energy resources, future energy needs, economic levels, and development plans.

Discussions reinforced the vital role that regions play in global energy transformation. Several areas, states, and cities have made considerable progress by setting ambitious renewable energy targets, investing in cleantech infrastructure, advancing cutting-edge energy technology innovations, accelerating the growth of cleantech startups. Participants acknowledged the difference in energy transition contexts for developed and developing regions as a necessary step to ensure the successful deployment of advanced technologies. Further, they collectively explored the importance of customized frameworks and incentives in boosting regional cleantech activity.

Participants acknowledged that renewable energy and energy efficiency are central to the global dialogue around energy transition. They reinforced that in this transition phase, it is paramount to ensure the safety, reliability, and resilience of electricity generation. In this regard, they explored the integration of renewable energy systems with battery storage and smart grid technologies as possible solutions to address energy security issues and increase the safety of the electric system. Although renewables represent more than a quarter of the global electricity produced, the path to achieving global climate targets appears long and convoluted. Participants analyzed the need for policies to amplify the role of renewables in other sectors that are run mostly on oil and gas, such as heating, cooling, and transportation.

While evident from conversations that renewables are the way forward in the global transition to clean energy, participants agreed that fossil fuels would continue to have a role to play. Discussants noted the significant potential of gas to serve as an intermittency solution to renewables and, overall, a promising low-carbon alternative. They explored the rising interest in integrated gas-renewables projects as a strategic initiative in managing natural gas production as a complement to renewables. Participants agreed that oil and gas are essential to the existing global energy mix in the extended transition to a low-carbon energy future.

The dialogue around energy transition is incomplete without exploring the role of electrification. Participants acknowledged the critical importance of electrification in achieving global climate targets through increased energy efficiency and reduced GHG emissions. Further, they explored the rising partnerships between power utilities and electric vehicle manufacturers or large fleet owners. They noted that these partnerships will help create an ecosystem to manage EV demand, compete effectively in the charging-infrastructure space, and increase offerings in areas such as energy storage, EV charging, and vehicle-to-grid services.

III. Conclusion

The Pittsburgh Energy Dialogues provided a conducive platform for participants to explore the future of energy from multiple vantage points. The event facilitated interactions between experts and leaders deeply engaged in the energy sector that are vital to achieving global climate targets. In an increasingly carbon-conscious world, the role of natural gas as an energy source is widely debated. During this event, participants reinforced the need for a diversified energy mix in Pennsylvania's pathway to decarbonization.

The global energy landscape is transforming at a scale and pace that calls for attention to consumers' evolving energy consumption and procurement patterns. Participants agreed that the successful deployment of future energy initiatives would depend on increasing consumer awareness around their energy usage. In this regard, the need for well-informed public policy, aligned frameworks, and customized incentives were highlighted. Conversations reflected the importance of amplifying the voice of the 18-35-year-old demographic in the ongoing energy dialogue. Participants acknowledged that as a segment of the human population that will face most of the adverse impacts of climate change, millennials would be forerunners in revolutionizing global attitudes towards sustainability.

Energy transition around the world is fueled by the imperative to minimize global climate change drastically. Discussions on the global energy scenario were reflective of decreasing renewable energy costs, increasing cleantech and green investing, data-driven policymaking, and widespread electrification initiatives. Participants concluded discussions by reinforcing the need for stronger synergies between socio-economic systems and future energy initiatives to accelerate energy transition worldwide.

IV. Acknowledgements

We are grateful to Energy Dialogues LLC for giving us the opportunity to host the Energy Dialogues City Series in Pittsburgh. We are thankful to Monika Simoes, Founder and CEO of Energy Dialogues LLC, and the entire Energy Dialogues team, who were instrumental to providing the structure, framework, and support to design a comprehensive program that engaged all attendees and encouraged lively discussions from all perspectives.

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