

National Petroleum Council

1625 K Street, NW, Washington DC

April 23, 2024

Secretary of Energy
Washington, DC 20589

Dear Madam Secretary,

In response to your April 22, 2022, request, the National Petroleum Council (Council) conducted a comprehensive study on options to reduce greenhouse gas (GHG) emissions along the U.S. natural gas supply chain (NGSC). As you noted in your request, U.S.-produced natural gas is an abundant resource that plays an essential role in energy security. Its use has had a significant role in reducing U.S. carbon emissions over the last twenty years and provides reliable electric power generation to support renewable energy sources, aiding in further overall reduction of GHG emissions. Innovations such as the combination of horizontal drilling and hydraulic fracturing have increased the supply of natural gas, leading to a reduction in its price and an increase in its use over more emission-intensive fuels, making natural gas an affordable and lower-emitting energy source in the United States.

Understanding, quantifying, and tracking GHG emissions is an essential component of measuring our progress in meeting emissions reduction targets. The oil and natural gas industry, policymakers, regulators, and technology providers must work together to continue to deliver natural gas safely, efficiently, and with a reduced GHG emissions footprint. This study, *Charting the Course – Reducing Greenhouse Gas Emissions from the Natural Gas Supply Chain*, maps out pathways to achieve those common goals.

This study focuses on six primary areas: GHG emissions characterization, high-emitting segments identification, emissions detection and estimation options, life cycle emissions analysis, potential trade-offs, and approaches to reduce GHG emissions. The study covers the entire U.S. NGSC, excluding end-user emissions, and emphasizes the need for investments, infrastructure changes, and regulatory advancements to reduce emissions. To evaluate the potential for GHG emissions reductions, the Council examined three emission reduction pathways, including a future pathway defined as the Technology, Innovation, and Policy (TIP) Pathway, where wider adoption of policies and regulations, deeper voluntary actions, advanced detection and monitoring technology, and expanded market mechanisms are employed. With this TIP Pathway, methane emissions are estimated to decrease by 70% and carbon dioxide emissions decrease by 33% from the NGSC between 2020 and 2050.

The Council introduced three unique aspects to enhance the study's value. First, this study provides a dedicated, stand-alone societal considerations and impacts (SCI) discussion to evaluate and integrate community and societal considerations into GHG reduction efforts. Focus groups and associated polls were commissioned in six regions impacted by the NGSC to deepen understanding of community engagement concerns and best practices. The SCI effort underscores that, while developing and implementing GHG emissions reduction projects, activities, and policies, industry and government avoid or mitigate adverse impacts on communities, particularly the disadvantaged, while maximizing the effectiveness of community


benefits that can flow from these actions. Second, workshops were held with “less capitalized operators” to better understand the challenges of implementing GHG emissions reductions projects across all company types and sizes. Third, the council developed a streamlined life cycle assessment (LCA) model of the carbon intensity of natural gas along a specific supply chain. The LCA tool will be available to a wide spectrum of policy makers, researchers, and industry companies to democratize and mainstream what otherwise can be a complex analysis.

To convert the Study findings into action, multiple recommendations are detailed in the Study for multiple stakeholders. The recommendations fall into the following major themes:

- *Energy and Economic Security*: Leveraging consequential analysis and recognizing the low GHG intensity of US-produced natural gas and LNG through climate and energy diplomatic efforts. Harmonizing methane policy across federal and state governments through the White House Methane Task Force adopting policy that utilizes durable market mechanisms to drive economically efficient GHG emissions reductions.
- *Promote SCI Awareness*: Committing investments to address social, environmental, and public health impacts and benefits of NGSC projects and activities and pursuing research based on SCI best practices and community engagement.
- *Incorporate More Measurement in Emissions Management*: Incorporating advanced technology measurements into measurement, monitoring, reporting, and verification (MMRV) programs and leveraging this study for development of a common MMRV global framework.
- *Technology Advancement to Further Emission Reductions*: Prioritizing research, development, demonstration, and deployment (RDD&D) of technologies for reducing and monitoring the GHG intensity of the NGSC.
- *Leverage Life Cycle Assessments (LCAs)*: Leveraging LCAs to quantify supply chain carbon intensities and develop measurement-informed geospatial LCA tools.
- *Employ Enablers for Change*: Revitalizing an organization like the Petroleum Technology Transfer Council for efficiently socializing best practices and technology adoption throughout industry.

In this study, the Council recommends actions that industry and government can undertake to maximize the value of our current infrastructure while further reducing GHG emissions from the NGSC and reducing the carbon intensity of natural gas to advance the U.S. toward meeting climate goals for the benefit of the public. The Council looks forward to sharing additional details with you, your colleagues, and broader government and public audiences about the pathways and prioritized options for reducing GHG emissions across the U.S. NGSC.

Respectfully submitted,



Alan S. Armstrong
Chair, National Petroleum Council