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U.S. Department of Energy
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VIA Email

On behalf of our members, the Natural Gas Supply Association (NGSA) and the Center for LNG (CLNG) would like to offer feedback to the Department of Energy (DOE) on its effort to develop a consistent global framework for the measurement, monitoring, reporting, and verification (MMRV) of methane, carbon dioxide, and other greenhouse gas (GHG) emissions that can be applied across the natural gas supply chain.

NGSA and CLNG understand that DOE has commenced the practical work of formulating a potential framework through working groups comprised of technical experts from the participating countries. NGSA and CLNG members would like to serve as a resource and hope to provide a helpful industry perspective as DOE and the working groups continue their efforts.

NGSA and CLNG members are keenly focused on reducing emissions along their value chains and many have been or are in the process of having their natural gas production, transfer and liquefaction verified by independent third-party certifiers, while others are using their own certification processes. Through this development, member companies have gained a unique perspective and some potentially helpful lessons learned. Most importantly, consistency and standardization should be the goal, as it is the best way to evaluate and compare performance across all entities throughout the value chain in a manner that is thorough and reliable.

NGSA and CLNG's members appreciate that DOE has committed to international coordination. Coordination among countries to provide consistent standards globally is wise given the strong role of the United States in the global LNG and natural gas market. Rather than promoting

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The Natural Gas Supply Association (NGSA) represents integrated and independent companies that supply natural gas. Founded in 1965, NGSA is the only national trade association that solely focuses on producer-marketer issues related to the downstream natural gas industry. NGSA advocates for well-functioning markets that foster a growing, competitive market for natural gas.

NGSA is dedicated to achieving a cleaner future through strong partnerships with renewables and supporting innovative technologies and market solutions that reduce emissions.

The Center for LNG (CLNG) is a trade association that promotes public policies advancing the use of liquefied natural gas (LNG) in the United States and its export internationally. A committee of the Natural Gas Supply Association, CLNG represents the full value chain, including LNG producers, shippers, terminal operators, and developers. This broad representation endows CLNG with a distinct vantage point on how LNG—this abundant, versatile, and *clean* fuel—can help meet the world's energy needs while simultaneously reducing emissions and supporting domestic economic growth.

For more information, please visit www.ngsa.org.

multiple frameworks, which might create confusion in the global and domestic markets, DOE should consider establishing the minimum content for a framework that would allow for the incorporation or use of similar frameworks that meet DOE's criteria. In the near term, this would likely encourage wider global participation, while still respecting countries that already have a robust regulatory system in place. In those cases, DOE might consider an approach that recognizes compliance with existing, appropriately scoped agency regulations as sufficient for the purposes of DOE's exercise, provided that widespread alignment in those regulations is identified. (Example: U.S. EPA regulations).

NGSA and CLNG understand that DOE and the DOE working group are currently working in three areas: criteria, data transparency and dissemination tools, and accreditation. As this work progresses, DOE might consider some of the below suggestions and lessons learned from our member companies' experiences working to verify emissions along their own value chains.

Criteria:

Intensities can be calculated on various scales, from an entire supply chain to individual companies or assets, and may be based on all or individual GHGs, such as methane. Company-level throughputs are simpler in the segments of the natural gas supply chain where the molecules of gas are measured once - either going into or out of the system. Throughput-based metrics are clear in the upstream production sector, where gas is initially introduced into the system and measured at each producing facility. Throughput is also clear for the distribution sector, where gas is delivered to end user meters. In those sectors, the net amount of gas produced or delivered is only counted once, and only counted by a single company.

In contrast, for midstream transmission and storage operations, determining throughput is more complex. In these areas, molecules of natural gas are often transported from one transmission pipeline entity to another. This change of custody can also happen within the same parent company multiple times, meaning that the same molecules of gas could be counted more than once within the same company. Therefore, recognizing the limitations on accurate measurement across the entire system and to avoid double counting, company specific measurements are essential using a divisor that fully accounts for all the natural gas transported by each company's transmission pipelines, while also capturing a consistent accounting of the company-level natural gas throughput. Gathering and boosting operations may have similar situations.

These are important factors to consider when assessing the direct throughput options. Consistent boundaries between emissions reporting and throughput data help with the calculation of intensities. And placing consistent and transparent requirements on feedstock suppliers is important since the reported supply chain intensity from midstream and downstream users can only be as reliable and consistent as the information received from upstream operators.

Finally, co-product allocation between natural gas, oil, and natural gas liquids (NGLs) will need to be part of the MMRV framework, particularly for upstream segments of the natural gas value chain. Currently, not all methane intensity frameworks include co-product allocation. NGSA and CLNG recommend the use of kilograms of CO₂e per Barrel of Oil equivalent (BOE) as the

standard unit of intensity. This metric treats associated gas reasonably and equitably, reflecting the total economic value. While there is a need for simple value chains as models in the MMRV program, there must be flexibility in implementation to account for the diversity of value-chain designs across the global gas industry.

Transparency and Tools:

Some amount of data, including the framework and supporting documentation, must be publicly available to market participants at large in order to understand the landscape of what is feasible within the framework, what is driving the underlying value of the products, and the additional costs to maintain and verify the most rigorous standards. The underlying data is generally already reported in different aggregations for both corporate sustainability reporting, EPA reporting, and European Commission reporting. DOE should prioritize the use of existing data sets and existing requirements rather than creating a separate reporting process as part of the framework. Rolled-up or aggregated data could be publicly available, but detailed, entity-level data should only be available to customers and regulators and, perhaps, for third party attestation. Proprietary or market-sensitive data should always be confidential.

Transparency is likely to mean different things to different stakeholders globally. Stakeholders in some countries will be familiar with publicly available aggregate data from regulatory reporting programs. However, instigating public-reporting requirements, versus requirements to report to customer/regulators, may lead to less adoption in the near term for a voluntary MMRV framework. In particular, some international contractual agreements may require certain partner or governmental permissions before such information can be shared with third parties.

DOE should consider the potential benefits of beginning with an MMRV program that has a simplified value chain GHG intensity model (with default values) as a starting point tool (i.e. substitution of more asset-specific or value-chain specific data). A tool such as a simplified version of a full lifecycle analysis model (e.g., Argonne National Laboratory's GREET model) could be a good conceptual starting point, because it could enable consistent selection of default data where actual data is not yet available. It might also enable consistent boundary conditions between segments. Such a tool should be paired with guidance on how to substitute primary data (and associated data requirements for such a substitution) and how to report the results in a standardized manner.

Likewise, with a global framework, stakeholders will be at very different places in their journeys to verification, making a single data-quality indicator challenging. Further, with current technologies there is a limitation to the accuracy of emissions measurement. Therefore, a framework that allows for continuous improvement over time will be needed if the goals of the MMRV framework are to both increase the extent of measurement-informed methane emissions used and to provide more granular GHG emission data across the value chain. DOE might consider a data quality indicator related to the percent of primary measured data used to calculate the result, as compared to the proportion of secondary or default data from a model used to generate the result.

Accreditation/Validation/Assurance:

It is imperative that DOE's validation and assurance process include defined requirements for each value chain segment, so that non-vertically integrated participants can produce, share, and obtain certified emissions data and intensity metrics that share a standardized format; align on scope; and follow consistent methodologies of emissions calculation. In addition, specifying minimum certification criteria and frequency of certification will be key to ensure accuracy in the reported data and, ultimately, supply chain emissions calculation.

Further, there are several third-party GHG verification firms that offer emission inventory verification for clients. With proper training, a number of these firms would be able to add assurance against an MMRV framework as part of the service offerings. DOE should be careful against recommending an assurance option where there are limited options or potentially only one option for assurance.

There are a number of MMRV programs, approaches, and protocols that are advancing. Many of NGSAs and CLNG's members are participating in these programs, and their experiences can offer insights on how DOE might structure its own MMRV framework.

Oil and Gas Methane Partnership 2.0 (OGMP)

When looking at OGMP as a model for a potential framework DOE should consider:

- OGMP has established various levels of rigor, which allow industry players to gain experience with measurement technology as they plan for subsequent investments.
- OGMP methods are flexible for operators, enabling solutions that are based on positive outcomes, without a prescriptive checklist. OGMP methods are already being referenced in regulations in Europe and have become globally recognized with participation in the partnership now spanning across 70 countries.
- OGMP technical methods for methane measurement and reporting are based upon robust Technical Guidance Documents that have been built in collaboration with a vast array of stakeholders, including segments across the Oil and Gas industry), Environmental Defense Fund, UNEP, EU Commission, etc.
- OGMP requires that data be submitted to the International Methane Emissions Observatory at the United Nations Environmental Program (UNEP) annually. The DOE's MMRV program would need to consider whether the whole OGMP process is required for using data under the program or the reporting methodologies only.
- It is a positive that OGMP publishes emission reporting methodologies (through Level 4) that are available for free online. Data disclosures under the program are not as clear as the Environmental Protection Agency's Greenhouse Gas Reporting Program, which could influence a data quality score. DOE would need to reconcile assurance options outside the OGMP program that may be needed for the MMRV protocol.

- OGMP did not include midstream operations from its inception, and thus solutions to unique midstream challenges may be less mature compared to those for other segments included in reporting under the OGMP partnership (e.g. the unique issues facing midstream operations with respect to ownership of the commodity, bi-directional flow, interconnects, etc.) DOE may need to compare the midstream components to other protocols and seek consistency across programs.
- When considering that OGMP does not create a lifecycle assessment of a particular delivery of gas to a customer, DOE should keep in mind that gas is fungible in the United States and multiple gas flow paths exist between wellhead and LNG plant. There should be a way to correlate the contractual supply chain of gas from production to LNG loading and document the methane emissions in that contractual (rather than physical) supply chain.
- The DOE's MMRV program will likely need asset-specific data for value chains, but asset-specific information is not disclosed under OGMP publicly. Company-level information may not be meaningful to the value chain output that MMRV is targeting.

Veritas

When looking at Veritas as a model for a potential framework DOE should consider:

- Veritas protocols provide relatively detailed technical guidance to natural gas operators on how to develop measurement-based inventories and emission reconciliation, which can be helpful for less technically sophisticated operators who may lack experience deploying measurement technologies and performing complex analyses.
- Veritas has protocols by value chain segment (production, gathering and boosting, processing, LNG plant, transmission) that incorporate detections from advanced methane technologies and traditional emissions reporting. Further, Veritas already includes assurance options and how to link value chain segments together.
- Veritas is focused on using the latest detection and quantification approaches with advanced technology as the basis for the program. Veritas is a U.S.-specific initiative, and the advanced methane detection and measurement technologies it relies on may not be globally available yet.
- Veritas includes a reconciliation protocol that renders the underlying score more comparable, despite differences in measurement technology and frequency. Veritas adopts a useful approach of categorizing emission sources - those that are best calculated verses those that are best measured. This approach is useful because it could help reduce the burden on operators and ensure that measurement technologies are deployed for the most material emission sources.

U.S. Environmental Protection Agency's Greenhouse Gas Reporting Program:

When looking at the GHGRP as a model for a potential framework DOE should consider:

- Emissions reporting under the GHGRP requires the use of specific emission calculation methods and factors that are the same for all reporters in the segment: this is essential for comparability.
- Nearly all reported GHG emissions are publicly accessible through EPA's websites.
 - DOE could consider modification of this tool or a subset of the tool to incorporate the additional information required for MMRV. This might be an efficient way to facilitate annual reporting. Further, DOE should work to streamline requirements and not create duplicate reporting.
- Most segments under the GHGRP include source level information for specific assets. This allows for the direct comparison of emission-intensity performance across similar types of assets and provides granular emission information for interested stakeholders at the asset or facility level.
- GHGRP has the benefit of covering all primary GHGs. It is important to consider all GHG emissions across the natural gas value chain in DOE's MMRV program in order to get an accurate representation of the emissions associated with the commodity.
- DOE should support and harmonize GHGRP data as an option in the MMRV program. Otherwise, this could lead to mis-aligned requirements between a U.S. regulatory program and a voluntary emissions reporting framework globally, which would not be aligned with Biden Administration goals around cross-agency cooperation on methane and leveraging domestic action to raise global ambition. However, the MMRV program is intended to be international, therefore DOE will need to work to align these programs and eliminate overlaps in reporting requirements.
- Methane reporting under the GHGRP could be improved by moving toward the use of empirical data for measurement-informed reporting, including the use of available advanced quantitative technologies. This shift would require the use of advanced technologies for direct measurement of methane that work at-scale across dispersed assets in the U.S. gas sector and data processing. It would also require reporting protocols for consistent incorporation of data from advanced technologies into emission inventories.
- EPA has proposed significant changes to the GHGRP that will take effect Jan 1, 2025. The proposed changes importantly require the use of empirical data in estimating emissions, as well as the capture of large release events. These changes could make GHGRP a basis for the MMRV framework.
- GHGRP allows the use of site-specific or default emissions factors. A major aspect of OGMP 2.0/Veritas is that an operator can use measurement-informed inventories and correlation between top-down and bottom-up measurement to report methane emissions, thus creating emission factors suitable for an operator's specific operation and equipment.
- GHGRP reports both granular data (counts of leak sources on site) and a roll-up total number. Distinguishing by CFR subparts helps to create a picture of total emissions for each aspect of the operations. However, subpart reporting of activities does not necessarily deal with physical, causal, or economic allocation to co-products produced at the same site.

NGSA and CLNG appreciate the opportunity to be part of the process as DOE works to develop an MMRV framework. The MMRV program is tackling two complex challenges: increasing methane measurement and piecing together GHG emissions data across complex value chains, potentially with multiple operators. Understanding that complex value chains, like those in the United States, will require time to gather primary data facilitates greater participation by countries that have a robust regulatory system. Incorporating consistency and harmonization remains the best way to truly evaluate and compare performance across all entities throughout the value chain.

Thank you for the opportunity to provide feedback.

Sincerely,

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