Xpansiv

Digital Fuels Program

Market Stakeholder Committee: Advisory Report

Last Updated Apr 21, 2022

Purpose

In accordance with the Digital Fuels (DF) Program Governance Framework, Xpansiv convened and facilitated a Market Stakeholder Committee (the "Committee") for a series of discussions, which included experts and representatives from natural gas companies and utilities, environmental standards bodies, and energy commodity traders.

The mission of the Committee is to recommend best practices for digital fuels development fostering integrity and interoperability with environmental standards and methodologies.

The objective of the initial meetings held by the Committee was to begin to provide market stakeholders – those companies interested in producing, selling and/or procuring and retiring the environmental attributes associated with differentiated gas (certified natural gas or responsibly-sourced natural gas) - with an active role in helping define and monitor aspects of the market, including:

- Standards and benchmarks
- Decision-useful attributes to be certified and registered
- Data inputs
- Digital MRV requirements needed to ensure that Digital Fuel assets meet best practices for veracity and market trust
- Greenhouse Gas (GHG) accounting and claims

The Committee met five times between October 2021 and April 2022, each with presentations from Xpansiv and partners on various aspects of recording, registering and transacting differentiated gas attributes.

This document summarizes feedback from the Committee members during these meetings as well as recommendations received via an online survey of key issues. The Committee intends to continue to convene periodically for further consultations.

Scope: Initial Focus on Digital Natural Gas

The DF Program is designed to allow producers to deliver to customers market-grade information on the provenance and ESG (environmental, social, governance) performance of their energy fuels, via a new class of digital assets.

The first asset introduced under the DF Program --Digital Natural Gas® (DNG™) -- captures, records and verifies empirical data and associated environmental attributes of produced natural gas, traceable back to individual well pads.

Producers register DNGs which are immutable, auditable "digital twins" of specific MMBtus starting with independently verified primary data onboarded directly from production meters.

DNGs can convey third party certifications of "responsibly-sourced" natural gas (e.g., Project Canary TrustWell™, Equitable Origin, MIQ), quantified methane emission intensities[1], Methane Performance Certificates (MPCs)[2], and other key indicators that downstream users can claim as part of "net-zero" or other sustainable strategies.

Committee Recommendations

Standards and Certifications

- On-site monitoring and use of standard emission factors should be supplemented with facility-level inspections and audits.
- Digital Natural Gas and associated certifications should seek consistency and integration with established and emerging protocols/standards related to methane emissions quantification and reporting, e.g.,
  - ONE Future
  - Natural Gas Sustainability Initiative (NGSI),
  - Oil and Gas Climate Initiative (OGCI)
  - UN Oil & Gas Methane Partnership 2.0 (OGMP)
  - GTI/Veritas
  - State/Provincial and Federal regulations

Methane Emissions Measurement

- Baseline monitoring of the environmental attributes of natural gas should include continuous, on-site methane monitoring tied to specific units of production.
- Periodic satellite methane measurements should be included to calibrate and control for 'out of range' flaring or leaks.
- Methane's 20-year Global Warming Potential (GWP) should be used in communicating the potential climate impacts associated with MPCs; the more commonly referenced 100-year GWP is too long to be credible for near-term climate goals and climate mitigation programs.

Environmental Claims and GHG Accounting

- DNGs tagged to upstream production could be combined with GHG impacts from mid-stream/downstream segments so that a "burner to tip" assessment could be part of a "full lifecycle" certification.

[1]Methane emission intensities can be calculated and/or validated from on-site monitoring systems (e.g., Project Canary), satellite measurements, compliance or voluntary reporting (e.g., EPA Subpart W, OGMP 2.0), modeling computations (e.g., Clearstone ClearTracker™).

[2]MPCs™ are derived from DNGs each representing one MMBtu with zero upstream methane emissions relative to the industry average (estimated from the most current U.S. Greenhouse Gas Inventory). The program started with an aggressive initial target using a methane emissions intensity threshold for MPCs established by S&P Global Platts and Xpansiv of 0.1%.

- Reporting and claims associated with DNGs should be consistent with principles in established sustainability reporting/GHG disclosures including CDP (formerly the Carbon Disclosure Project), OGMP, and the Global Reporting Initiative (GRI).
  - Encourage clarifications from regulatory and reporting entities
- DNG should include other environmental "attributes" such as emissions of nitrogen and sulfur oxides.

Policy Implications

- Concurrence that the DNG concept and operation of a Digital Fuels Registry can provide regulators with potentially valuable tools to promote the digitization of the energy sector and development of certified, responsible natural gas, for example:
  - FERC approval of pipeline operators to pool and deliver ESG attributes in synch with natural gas scheduling and deliveries
  - North American Energy Standards Board in revising standard contracts to allow shipper and buyer to pair digital natural gas ESG-certificates with physical natural gas.
  - Cost recovery of premiums for responsibly-produced gas, verified through a registry (e.g., state of Virginia proposed legislation)

Next Steps

Since the introduction of DNGs to the market, Xpansiv has begun to make or has completed a number of advances consistent with several of the Committee's recommendations, for example:

- The assessment boundary for the initial version of DNG is upstream production, from extraction to point of sale. Xpansiv is expanding the DNG assessment boundary to include mid-stream (e.g., transportation) and downstream (e.g., LNG) segments.
- Integrating methane emissions data from on-site sensor platforms (e.g., Canary), and satellites.
- Publication of use-cases for producers and buyers that provides guidance on how claims associated with DNGs/MPCs can be applied to Scope 1 and Scope 3 GHG emission inventories and other sustainability reporting.
- Confirmation that participation in the Digital Fuels Program with detailed, on-site, bottom-up monitoring combined with top-down direct measurements of methane emissions – would qualify a producer as achieving "Gold Standard" Level 4 or Level 5 reporting under the OGMP 2.0 framework.
- Clarifying guidelines pertaining to DNG vintage determinations.

- Reviewing the viability of including other environmental, social, governance (ESG) performance metrics associated with natural gas production including emissions of conventional pollutants and VOCs, and impacts on water quality, and land use.
- Evaluating options for third party review of program operations and market utility.

The DNG program is designed to incentivize continuous improvement in responsibly sourced fuels, including meeting the highest possible standards for methane-emission controls in the production of natural gas. Looking ahead to the next 12 months, Xpansiv will be focused on empowering energy producers and buyers to enable price transparency to support responsibly sourced natural gas and demonstrate quantifiable progress in meeting methane emission reduction commitments.

More broadly, for all energy fuels that will be part of the DF Program, Xpansiv will continue to work with a growing ecosystem of market stakeholders and partners to support a transition in energy and commodity markets that reflects ESG criteria based on verified, auditable data.

APPENDIX A

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APPENDIX B

GOVERNMENT AND VOLUNTARY PROGRAMS FOR CONTROLLING EMISSIONS FROM NATURAL GAS PRODUCTION

Program (Inception Date)	Goals/Commitments	Partners to Date	Alignment with Digital Fuels Program
COP26 Global Methane Pledge (2021)	Goal: cut methane emissions by 30% • Emphasis on fixing leaking wells, pipelines, and other fossil fuel infrastructure. • Additional cuts possible in livestock farming and waste in landfills	Led by US and EU, signed by 100+ countries	✓
Natural Gas STAR (1993), Natural Gas STAR International (2006), Natural Gas Star Methane Challenge (2016)	• Information sharing • Report/track reductions • Companies set reduction goals and milestones • Technology BMPs or ONE Future goals	U.S. EPA & dozens of companies	✓
Global Methane Initiative (2004)	• Advance CH4 recovery in agriculture, coal mining, landfills, wastewater, oil and gas • Technical assessments of emission reduction opportunities • Info sharing/capacity building	45 countries (including US)	✓
Sustainability Accounting Standard: Oil and Gas – Exploration and Production Industry (revised 2018)	Guidelines for oil and gas producers for disclosure of material sustainability topics in filings to the Security and Exchange Commission including CH4 emissions	SASB standards intended for public companies and those that issue securities.	✓
CCAC Guiding Principles on Reducing Methane Emissions Across Natural Gas Value Chain (2017)	• Continual reductions • Improve data • Advocate sound policy • Increase transparency	8 companies, EDF, IEA, UNEP	✓
Our Nation's Energy Future Coalition (ONE Future) (2014)	• Goal is loss of 1% or less of total production across entire value chain • Segment intensity targets • Company-wide methane intensity • Company decides BMPs to meet 2025 goals • EPA emission factors & ONE Future protocol	50 companies	MPC threshold of 0.1% consistent with ONE Future goal

Program (Inception Date)	Goals/Commitments	Partners to Date	Alignment with Digital Fuels Program
MIQ (2020)	• Grades for emission performance based on self-attestations and annual audits • GCC will issue MIQ certificates	RMI/Systemiq	DF program set to register MIQ certifications
Natural Gas Sustainability Initiative: Methane Emissions Intensity Protocol	• Methodology to estimate CH4 emissions intensity at different segments of natural gas supply chain • Support voluntary reporting and establish consistent metrics across different operations	EEI, AGA, and their members	Same mathematical and engineering conversion factors in deriving baseline emission rate in QF
Project Canary/ Independent Energy Standards: Trustwell Responsible Gas	• Independent ratings and analytics for risk and responsibility in oil and gas sector • Performance scoring of environmental risks and operational processes, including well integrity and emissions controls • Site inspections and detailed analyses of representative set of companies' wells and facilities	Oklahoma Secretary of Energy & Environment, Colorado Oil & Gas Conservation Commission, Pennsylvania Envl Council, EDF, Ground Water Protection Council	DNG can include TrustWell certification asattribute; MPCs can incorporate Canary data
Equitable Origin	EO100 standard includes performance standards and metrics on environmental and social impacts for energy development projects, including oil and gas production.	EO works with many organizations around the world to promote indigenous rights and other ESG goals in natural resource development.	DNG can include EO certification as attribute

Regulatory Program	Requirements	Alignment with Digital Fuels Program
U.S. EPA GHGRP	Annual Report by facilities >25,000 tCO2e/yr of GHG emissions (“Subpart W”)	Baseline methane leak rate in QF derived from US GHGI which includes Subpart W data
U.S. EPA 2021 NSPS	Proposed CH4 and VOC standards for new facilities now include: compressors at centralized tank batteries, liquids unloading for well sites, associated gas from oil wells, pneumatic bumps for NG gathering and transmission/storage, fugitive emissions from NG processing	
Colorado	• 2014: require oil and gas companies to find and fix CH4 leaks, and, where necessary, install technologies to limit or prevent emissions • 2020 update includes ban on routine flaring or venting	
Canada	• Track and repair fugitive CH4 leaks and to limit emissions from compressors and fracked gas well completions • Facility-wide venting limits and pneumatic equipment standards	

XPANSIV DOCUMENTATION:

Operating Rulebook:
CBL Operating Rules - Xpansiv
(contract spec, listed here, in the back)

Operating Procedures:
CBL Operating Procedures
(settlement)

Standard Instrument Program:
CBL - Standard Instruments Program
(Criteria for MPC)

Quantification Framework:
Quantification Framework for DNG and MPCs

Digital Fuels Program:
Xpansiv - Digital Fuels Program

DF Registry Rulebook:
Xpansiv - DF Registry Rulebook

Digital Natural Gas Units and Methane Performance Certificates:
Use Cases