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DOE Releases Two New Reports on the Environmental Impacts of LNG Exports

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Based upon a review of existing literature, the Addendum offers the following conclusions:

- ***Water***. Unconventional natural gas production, when conforming to regulatory requirements, implementing best management practices, and administering pollution prevention concepts, may have temporary, minor impacts to water resources. Conversely, like many other industries, improper techniques, irresponsible management, inadequately trained staff, or site-specific events outside of an operator's control could lead to significant impacts on local water resources.[5]
- ***Air***. Natural gas development leads to both short- and long-term increases in local and regional air emissions, especially methane, volatile organic compounds and hazardous air pollutants. Air emissions from natural gas development may create new or expanded ozone non-attainment areas and possibly complicate state implementation plans for bringing current ozone nonattainment areas into compliance and maintenance. Many of the mobile and stationary emissions during well development activities are short-term, essentially ending after well completion. New emissions sources emerge as additional wells are drilled and completed, and gathering and transmission pipelines are developed. The dynamic nature of emissions sources, including the locations, timing, and numbers of sources, make a comprehensive impact analysis difficult, if not impossible. As more data become available to regulators and researchers, and new analyses are completed, a better understanding of trends in local and regional air quality and potential impacts will emerge.[6]
- ***Greenhouse Gas Emissions***. Increased unconventional natural gas production will increase greenhouse gas (GHG) emissions if other, more GHG-intensive source are not

displaced. GHG emissions may contribute to climate change. The net change in global emissions is dependent on the fuels that may be replaced by increased natural gas production. To the extent that unconventional natural gas production replaces the use of other carbon-based energy sources, there may be a net positive impact in terms of climate change.[7]

- ***Induced Seismicity***. As the number of wells increases, so will the chance of wells being in close proximity to susceptible faults. Risks also increase from the cumulative effect on fluid pressures of having multiple wells injecting large volumes of fluid into a single stratum or a small region. Most of the economic risk relates to the potential for damage to buildings and infrastructure if a larger earthquake is triggered. Structural damage can occur but very rarely does. Generally, the potential for harm to people is very low.[8]

Life Cycle Greenhouse Gas Perspective on Exporting Liquefied Natural Gas from the United States

The second report, titled Life Cycle Greenhouse Gas Perspectives on Exporting Liquefied Natural Gas from the United States (Life Cycle GHG), addresses two primary research questions:

- How does exported LNG from the United States compare with regional coal (or other LNG sources) for electric power generation in Europe and Asia, from a life cycle GHG perspective?
- How do those results compare with natural gas sourced from Russia and delivered to the same European and Asian markets via pipeline?

The report concludes that the use of United States LNG exports for power production in European and Asian markets will not increase GHG emissions, on a life cycle perspective, when compared to regional coal extraction and consumption for power production. Differences between the United States LNG, regional LNG, and Russian natural gas options are indeterminate due to the underlying uncertainty in the modeling data; therefore no significant increase or decrease in net climate impact is anticipated from any of these scenarios.[9]

Analysis

Both of the studies signal a supportive regulatory environment for LNG exports, subject to environmental concerns that may be addressed on a local or regional basis.

[1] While the study makes broad projections about the types of resources from which additional production may come, DOE emphasizes that it "cannot meaningfully estimate where, when, or by what method any additional natural gas would be produced," and therefore "cannot meaningfully analyze the specific environmental impacts of such production," or "meaningfully consider alternatives or mitigation measures as they relate to natural gas production." Addendum at page 2. Lacking an understanding of where and when additional gas production will arise, "the environmental impacts resulting from production activity induced by LNG exports to [countries that do not have a free trade agreement with the United States requiring national treatment of natural gas] are not 'reasonably foreseeable' within the meaning of the Council on Environmental Quality's NEPA regulations." *Id*. (citing *Sabine Pass Liquefaction, LLC*, DOE/FE Order No. 2961-A (Aug. 7, 2012) and 40 CFR § 1508.7).

[2] Addendum at page 2.

[3] Addendum at page 3.

[4] Addendum at pages 2-3.

[5] Addendum at page 19.

[6] Addendum at page 32.

[7] Addendum at page 43.

[8] Addendum at page 54.

[9] Life Cycle GHG at pages 9, 18.

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