



December 4, 2013

Russ Brauksieck
New York Department of Environmental Conservation
Division of Environmental Remediation
625 Broadway
Albany, NY 12233-7020

Dear Mr. Brauksieck and Department staff:

Thank you for the opportunity to submit written comments on Proposed 6 NYCRR Part 570, Regulation of Liquefied Natural Gas Facilities.

Earthworks is a nonprofit organization dedicated to protecting communities and the environment from the impacts of irresponsible mineral and energy development while seeking sustainable solutions. For over two decades, we have worked nationwide to advance policy reforms, improve corporate practices, and safeguard land and public health. The Oil & Gas Accountability Project (OGAP) of Earthworks works with local communities, landowners, organizations, agencies, and elected officials to advance these goals.

We recognize the effort that the Department of Environmental Conservation has made to update the state's regulations for Liquefied Natural Gas (LNG) facilities in light of the current shale gas boom and the potential lifting of the moratorium on facilities that has been in place since 1973. We also understand that there is growing interest on the part of the natural gas industry and energy providers to expand LNG operations in New York.

However, Earthworks views the proposed draft regulations as far too narrow and vague to protect public health, air quality, and the climate from the environmental impacts of LNG facilities. Below we provide information regarding several aspects of the draft regulations that the DEC must address before it promulgates final rules.

Lack of scientific analysis

In Section 570.2, Permit Requirements and Application Procedures, DEC refers to a 2011 study supporting rule promulgation by the New York State Energy Research and Development Authority (NYSERDA) as the basis for DEC's understanding of LNG facilities and the development of related regulations. According to that report (p. 2), "Natural Gas in any form (compressed as CNG or liquefied as LNG) is one of the cleanest burning hydrocarbon fuels, producing lower levels of carbon dioxide (CO₂), oxides of nitrogen (NO_x), and particulate matter than heavier hydrocarbon fuels such as diesel." And in the overview of legislative objectives for the proposed regulations, DEC states that, "Use of LNG in heavy-duty trucks has environmental advantages over the use of diesel fuel because of reduced greenhouse gas and other emissions."

However, this presumption of benefit is unsubstantiated, as neither NYSERDA nor DEC provides any scientific references or analyses to support such unequivocal statements. In the absence of such

information, the agencies seem to have adopted a claim made by drilling industry proponents that natural gas is a cleaner fuel simply because it is cleaner *burning*.

The singular aspect of end-use of gas for heating, transportation, or electricity generation is an inappropriate way to judge environmental impact because it ignores the many sources of greenhouse gas (GHG) and air emissions during phases of extraction, production, transportation, and application. As an agency tasked with making decisions to prevent environmental harm, it would be more appropriate for DEC to base its proposed regulations and permitting decisions on an analysis of the full impact of an energy or fuel source.

Recent research indicates that a lifecycle or footprint approach can significantly change the balance of environmental costs and benefits associated with natural gas.^{1 2} Some work has been done to apply this type of research to the context of LNG facility development, for example through a “well to wheel” or “well to pump” analysis that takes into consideration the processes and energy sources used to produce the fuel.³

In 2008, one such lifecycle study concluded that gas-to-liquid (GTL) fuels based on imported natural gas would lead to significant increases in GHG emissions, while even the most optimistic scenario based on high levels of domestic supply and fuel efficiency would provide only a slight reduction.⁴ Another more recent study examining methane leakage throughout stages of gas extraction, production, and use indicated that in a 100 year timeframe, there is no statistical difference in greenhouse gas emissions from vehicles fueled by petroleum or compressed natural gas (CNG), while over a 20-year timeframe, emissions from CNG vehicles are higher.⁵

It is also critical that any consideration of LNG and other fuels reflect the fact that the Intergovernmental Panel on Climate Change (IPCC) recently adjusted the Global Warming Potential (GWP) of methane, the key component of natural gas. On a 100-year time scale, the IPCC increased methane’s GWP from 25 times more potent than carbon dioxide to 34 times more powerful; over the course of a 20-year timeframe, IPCC now measures methane as 86 times more potent than carbon dioxide.⁶ Neither New York nor any other state has analyzed potential new energy and fuel sources to reflect the growing scientific consensus on the climate change danger posed by methane.

Finally, the proposed regulations completely ignore the way that expanded production and use of LNG in New York would cause environmental impacts because it both relies on and helps promote natural gas development nationwide. A growing body of scientific research and community-based evidence identifies significant adverse impacts from this development, in particular toxic air emissions,⁷ water contamination,⁸ and health problems.⁹ The DEC should critically review existing studies of the environmental and health impacts of LNG and natural gas production. The agency should also incorporate current science into its analysis, including the latest figures on the GWP of methane.

Limited regulatory scope

In the overview of legislative objectives, DEC cites Article 23, Title 17 of New York’s Environmental Conservation Law (ECL), which requires the agency to develop regulations and a permitting process for the siting of LNG. The statutory requirements focus on ensuring safety from LNG as “an extremely volatile, highly flammable, and dangerous substance.”

This premise underpins the limited regulatory approach that DEC has taken with the draft regulations. Both the National Fire Protection Association (NFPA) standards (52 and 59A) and federal transportation standards (Code of Federal Regulations Title 49, Part 193) on which the draft regulations rely focus solely on the reduction of risks such as flammable vapors, fires, and explosions. DEC specifically states (502(d)(4)) that “When determining whether to issue a permit under this Part, the Department shall consider the physical, flammability, and explosivity characteristics of LNG.”

These risks are real and considerable, and the DEC is right to ensure that regulations are in place to address them. However, such a narrow definition of risks, which may have seemed reasonable when the LNG Statute was added to the ECL in 1976, is anachronistic and inappropriate today. By adhering so strictly to its statutory mandate, DEC has effectively ignored critical environmental and public health concerns related to living, working, and going to school near LNG facilities.

Like all industrial operations, these facilities can pose continuous hazards through air emissions, drinking water contamination, noise, and light—aspects that are left unaddressed in the draft regulations. In particular, DEC bases its regulatory criteria for siting and operation of facilities (570.2 (d)) on NFPA 59A standards, which only consider containment of LNG and radiant heat and flammability distances.

In addition, the draft regulations fail to consider broader air quality and climate concerns faced by New York State. Some researchers have attempted to analyze the comparative emissions of LNG and other energy sources. For example, a 2007 study of various fuels used for electricity generation reveals that the lifecycle nitrogen oxide (NOx) of imported LNG could be higher than that of coal when production processes such as liquefaction and regasification are considered; while the study apparently did not examine domestically produced LNG, it did note that domestically-produced, non-liquefied natural gas has NOx emissions comparable to those from coal.¹⁰

Furthermore, the liquefaction process itself requires energy (e.g., for cooling and pressurization) and constitutes a major source of GHG emissions.¹¹ Operators have available to them various methods to reduce emissions from liquefaction, for example methane vent re-injection and co-generation systems. However, no such techniques are addressed in DEC’s proposed regulations. Nor does it appear that DEC has considered any climate change implications other than what is released from the tail pipe—an oversight that undercuts New York’s obligations under the Regional Greenhouse Gas Initiative to reduce GHG emissions and expand clean energy infrastructure.

Vague permit requirements and procedures

In the State Environmental Quality Review (SEQR) Notice of Determination of Non-Significance (Negative Declaration) that accompanies the draft regulations, DEC states that, “At the time of each application, DEC will review and make a determination on individual permitting requirements.” However, the permit application requirements in the draft regulations (570.2(b)) include only a list of minimum contents that is far too general and vague to ensure that applicants will provide information useful to the DEC.

DEC appears to be relying on applicants to decide what constitutes the evidence on which the agency will base determinations. For example, would a statement of “need” relate to local, state, or regional LNG consumption goals, financial savings, convenience for the operator, or other factors? Would a “description of reasonable alternative locations” include co-location with pipelines or vehicle depots or proximity to homes, school, or other industrial facilities? Would a “record of compliance” be based on violations by the applicant only in New York, or other states as well?

This lack of specificity is particularly concerning with regard to “a description of the possible environmental impacts of the proposed facility and the facility features or procedures to mitigate those impacts” (570.2(b)(7)). It is completely unclear how the DEC would define impact or mitigation—and subsequently impossible to know whether the agency would deny a permit on the basis of environmental risk or operator inadequacy. For DEC to uphold the purpose of regulation and the role of a regulatory agency, it must *require* applicants to develop and submit specific types of documents and measurements.

In addition, haphazard permitting guidelines can over time result in inconsistent information and recordkeeping, and therefore spotty tracking of whether permit conditions are being met. In turn, this would make it more difficult for the DEC—as well as the public—to identify violations and problems that inevitably occur at industrial facilities (e.g., uncontrolled emissions, spills, or property encroachment). The ultimate outcome may be weak oversight and enforcement by the DEC and a lack of accountability by operators for the environmental damage they cause.

The NYSERDA report (p. 7) states that, “In the context of zoning controls, LNG facilities fit within a list of defined ‘uses’... Generally, such uses are allowed in ‘industrial’ or ‘manufacturing’ districts or in certain ‘automotive’ commercial districts...Such uses are almost always prohibited from locating in residential zones or in districts that permit community facilities, such as schools and hospitals.” Yet the draft regulations neglect to *specifically prohibit* facilities in such areas. Simply asking permit applicants to submit a statement of zoning classification and land use (570.2 (b)(12)), as the draft regulations do, does nothing to ensure protection of residential and vulnerable populations.

Further, the NYSERDA report (p. 7) indicates that when siting LNG facilities, it is important to consider that “The ‘edges’ between industrial/manufacturing districts and residential and community facility districts most often include ‘buffers.’ Buffering techniques might include specific yard and setback requirements...” Unfortunately, the criteria for siting and operation (570.2(d)) facilities in the draft regulations do not define edges or buffers or provide any distance requirements—making it unlikely that DEC will have a clear basis for enforcing permits.

Finally, the SEQR Negative Declaration includes the statement that, “Permit applicants will need to demonstrate, on a case by case basis, whether a proposed project meets promulgated siting criteria which are designed to ensure the safety of the public. Permit applicants must also demonstrate to DEC that the project is needed and is in the public interest.” However, as detailed above, such a finding is predicated on insufficient scientific analysis, a limited regulatory approach, and vague permitting requirements.

In order to substantiate this finding, DEC should explicitly address the concerns detailed above and provide additional information for public review and comment. In the absence of such action, the proposed regulations must be considered incomplete. At this time, DEC has failed to demonstrate that the promulgation of final rules and permitting of LNG facilities will not cause harm to New York’s environment and its residents.

Thank you for your consideration.

Sincerely,



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- ² S.M. Miller, S.C. Wofsy, A.M. Michalak, et al. “Anthropogenic emissions of methane in the United States.” *Proceedings of the National Academy of Sciences*, 2013.
- ³ See, for example, the work of Michael Wang and colleagues at the Argonne National Laboratory, including H. Huo, Y. Wu, and M. Wang. “Total versus Urban: Well-to-Wheels Assessment of Criteria Pollutant Emissions from Various Vehicle/Fuel Systems.” *Atmospheric Environment*, 2009.
- ⁴ P. Jaramillo, W.M. Griffin, and H.S. Matthews. “Comparative analysis of the production costs and life-cycle GHG emissions of FT liquid fuels from coal and natural gas.” *Environmental Science and Technology*, 2008.
- ⁵ A. Burnham and C. Clark. “Examining the Impacts of Methane Leakage on Life-Cycle Greenhouse Gas Emissions of Shale and Conventional Natural Gas.” *EM* (the magazine of the Air and Waste Management Association), 2012.
- ⁶ T.F. Stocker, D. Qin, G. Kasper-Plattner, et al. (Editors). *Climate Change 2013: The Physical Science Basis*. Fifth Assessment of the Intergovernmental Panel on Climate Change, 2013.
- ⁷ L.M. McKenzie, R.Z. Witter, L.S. Newman, and J.L. Adgate. “Human Health Risk Assessment of Air Emissions from Development of Unconventional Natural Gas Resources.” *Science of the Total Environment*, 2012; T. Colborn, K. Schultz, L. Herrick, and C. Kwiatkowski. “An exploratory study of air quality near natural gas operations.” *Human and Ecological Risk Assessment: An International Journal*, 2013.
- ⁸ R.B. Jackson, A. Vengosh, T.H. Darrah, et al. “Increased stray gas abundance in a subset of drinking water wells near Marcellus shale gas extraction.” *Proceedings of the National Academy of Sciences*, 2013.
- ⁹ N. Steinzor, W. Subra, and L. Sumi. “Investigating Links Between Shale Gas Development and Health Impacts through a Community Survey Project in Pennsylvania.” *NEW SOLUTIONS*, 2013.
- ¹⁰ P. Jaramillo, W.M. Griffin, and H.S. Matthews. “Comparative life-cycle air emissions of coal, domestic, natural gas, LNG, and SNG for Electricity Generation.” *Environmental Science and Technology* July 2007.
- ¹¹ T. Nagata, et al. “Life Cycle CO₂ Analysis of City Gas and LNG.” *Applied Energy*, 2001.