Review of Environmental Assessment by the Federal Energy Regulatory Commission of Transcontinental Gas Pipe Line Company's Gateway Expansion Project Proposal, Docket No. CP18-18-000.

I have reviewed the Environmental Assessment (EA) of the Federal Energy Regulatory Commission (FERC) for the Transcontinental Gas Pipe Line Company's Gateway Expansion Project, Docket No. CP18-18-000. My review identifies a fundamental deficiency in the EA in its evaluation of the environmental impact of carbon dioxide emissions associated with the proposed project.

The EA's deficiency in assessing the impact of carbon dioxide associated with the proposed project has at least four aspects. One aspect is that the EA does not take into consideration the carbon dioxide emissions that will result from combustion of the additional supply of gas that this project will make possible. A second aspect is that this proposed project contributes to a much larger proposed expansion of pipeline capacity in the region. This expansion involves several other projects that, taken together, have the potential to supply far more gas than is likely to be consumed in the region under any realistic scenario. Third, this excessive expansion in gas supply, should it occur, has to potential to undermine and perhaps destroy the ability of New York City, New Jersey, and Connecticut to achieve their expressed greenhouse gas reduction goals. Fourth, FERC should realize that its failure to adequately assess the reasonably foreseeable impacts of carbon dioxide emissions associated with this project potentially represents significant legal risk exposure to the Commission.

Each of the aspects of this fundamental deficiency is discussed further below.

1) Increased carbon dioxide emissions

The EA states that, in accordance with NEPA and FERC policy, FERC evaluated the cumulative impacts of the project and other projects in the area. The EA notes that cumulative impacts represent the incremental effects of a proposed action when added to impacts associated with past, present, and reasonably foreseeable future projects, regardless of what agency or person undertakes such other actions. Although the individual impact of each separate project may be minor, the additive or synergistic effects of multiple projects could be significant.

However, in looking at the cumulative impacts of other projects in the area, FERC includes only an assessment of greenhouse gas emissions that would be directly associated with the project's construction and operation stages. It excludes indirect effects - the greenhouse gas emissions that can reasonably be foreseen to result from the combustion of the natural gas that would be supplied by this and other projects in the area. Assessment of impacts of such emissions is dismissed in the EA with the statement, "Emissions of GHGs from the proposed Project would not have any direct impacts on the environment in the area. Currently, there is no standard methodology to determine how a project's relatively small incremental contribution to GHGs would translate into physical effects on the global environment."[1]

[1] Federal Energy Regulatory Commission, Office of Energy Projects, 2018, Gateway Expansion Project: Environmental Assessment, Docket No. CP18-18-000

But the National Environmental Policy Act (NEPA) requires that indirect environmental effects of a project be considered. Indirect effects are defined as those that are caused by a project that, while they may be later in time or removed in distance, are still reasonably foreseeable.[2]

It is increasingly clear that climate change is already affecting Americans. Extreme weather events that are linked to climate change are becoming more frequent and/or intense. These include heat episodes, heavy precipitation events, and floods and droughts in some areas of the country. Further, warming of the Earth is leading to rising sea levels and the melting Arctic sea ice, and carbon dioxide emissions are acidifying the oceans. Multiple lines of evidence confirm that human activities are the primary cause of the global warming of the past 50 years. It has been known for over 100 years that carbon dioxide traps heat and thus can warm the planet. It is clear that the burning of coal, oil, and gas and clearing of forests over the last several hundred years have increased the atmosphere's concentration of carbon dioxide by more than 40%.[3]

Clearly, carbon dioxide emissions from the combustion of natural gas that would be supplied by this project are reasonably foreseeable. And these emissions can readily be quantified based on well-known emission factors.[4] The contribution of these emissions to atmospheric concentrations of carbon dioxide and to the lowering of the pH of the oceans due to dissolution of carbon dioxide in seawater can readily be quantified as well.[5] These are physical effects on the global environment.

FERC should be able to readily estimate the carbon dioxide emissions that would result from the combustion of the 65,000 dekatherms of natural gas that the proposed Gateway Expansion Project would supply. The Commission could also estimate the carbon dioxide emissions that would result from the combustion of the nearly two million dekatherms of gas per day that could be supplied by several other proposed projects in the region, including the PennEast Pipeline Project, the Northeast Supply Enhancement Project, the Lambertville East Expansion Project, the Riverdale South to Market Project, and the Southern Reliability Link Project. Such quantification would allow FERC to compare emissions associated with this project with emissions associated with other projects in the region, and with regional greenhouse gas emission reduction goals. Without comparisons of this sort, it is hard to see how FERC can carry out informed decision making or how informed public comment can be possible.

In its review of these greenhouse gas emissions impacts, FERC could go a step further towards making what could be considered a reasoned judgement by converting emissions estimates to quantifiable harms by using the Social Cost of Carbon metric,[6] or at least make an effort to consider the health and

[2] 40 C.F.R. § 1502.16(b).
[3] U.S. Global Change Research Program, 2018, *Climate Change Impacts in the United States, Overview and Report Findings*, https://nca2014.globalchange.gov/report accessed 8/6/18
[4] U.S. Department of Energy, Energy Information Administration, *Carbon Dioxide Emissions Coefficients*, https://www.eia.gov/environment/emissions/co2_vol_mass.php accessed 8/6/18
[5] See, for example, Archer, David, 2009, *The Long Thaw: How Humans Are Changing the Next 100,000 Years of Earth's Climate*, Princeton University Press
[6] See, for example, https://www.epa.gov/sites/production/files/2016-12/documents/social_cost_of_carbon_fact_sheet.pdf accessed 8/8/18

economic costs of carbon dioxide emissions. If FERC believes that this approach is not appropriate in this case, it should explain why.

2) Excessive supply of natural gas

Of course, in calculating greenhouse gas emissions and their impacts, FERC should take into consideration reductions in combustion of fuel oils or propane that will result when natural gas replaces these fuels. It is clear that replacement of these fuels by natural gas results in a net benefit in carbon dioxide emissions and generally in the emissions other pollutants as well.

However, a comparison of the quantities of natural gas proposed to be supplied by the regional projects noted above with the amount of fuel oils and propane that could conceivably be replaced reveals a potentially major discrepancy.

The U.S. Department of Energy, Energy Information Administration, provides estimates of quantities of fuels consumed in each state. [7] Fuels consumption data are also available from New York City.[8] These data show that, in 2016, New York City's stationary sources, which include residential, commercial, and industrial facilities (but do not include the electricity generation sector) used approximately 63 trillion Btu in the form of fuel oils. These sectors in the remainder of the state of New York used about 117 trillion Btu in the form of fuel oils and propane. Assuming that the New York counties adjacent to New York City, i.e., Nassau, Suffolk, Rockland, and Westchester, consumed these fuels at the same per capita rate as did residents of the rest of the State, the New York metropolitan region (including these counties and the five counties of New York City) consumed approximately 106 trillion Btu in the form of fuel oils and propane in 2016. The entire State of Connecticut consumed approximately 68 trillion Btu in the form of these fuels, and the entire State of New Jersey consumed about 64 trillion Btu in the form of these fuels.

With the assumption that all of the uses of these fuels could be converted to natural gas in the entire states of New Jersey and Connecticut as well as the entire New York metropolitan region, the pipeline expansion projects including the Gateway Expansion Project, the PennEast Pipeline Project, the Northeast Supply Enhancement Project, the Lambertville East Expansion Project, the Riverdale South to Market Project, and the Southern Reliability Link Project would need to supply 106 + 68+ 64, or about 238 trillion Btu per year in the form of natural gas.

However, a tally of the natural gas quantities proposed to be supplied by these projects shows that together they are capable of providing nearly 2 million dekatherms per day. This is equivalent to over 720 trillion Btu of energy per year, approximately three times as much energy in the form of natural gas as could conceivably be needed even with an essentially complete conversion of all oil- and propane-burning sources in Connecticut, New Jersey, and the New York City metropolitan region, including all of Long Island, to natural gas.

[7] U.S. DOE, EIA, 2018, https://www.eia.gov/state/seds/seds-data-complete.php#stateSelection accessed 8/6/18

[8] https://data.cityofnewyork.us/Environment/Inventory-of-New-York-City-Greenhouse-Gas-Emission/k3e2-emsq accessed 3/30/18

It should be noted, however, that at least one of these capacity upgrades, the PennEast project, proposes to supply additional gas to eastern and southeastern Pennsylvania and surrounding states. Nevertheless, even if half of PennEast's proposed supply, 1.1 million dekatherms per day, were to flow to Pennsylvania and other regions not including New Jersey, Connecticut, and the New York City metropolitan area as described above, a substantial discrepancy would remain between the proposed additional supply and the amount of gas that would be necessary even in the improbable case that all of the uses of fuel oils, propane, and coal were replaced by natural gas.

This discrepancy could be even greater if compression stations are expanded in power output sufficiently to allow higher pressures in existing pipelines, which could facilitate transmission of even greater quantities of natural gas in the future. A comparison of the size of the compressor expansion proposed in the Gateway Expansion Project raises the question of whether this expansion is excessive in light of the expressed purpose of the project to increase gas transmission by 65,000 dekatherms per day. For example, earlier, in its application to FERC to expand the same compression facility that is the subject of the Gateway Expansion Project, Williams Transco stated that it was proposing a 2,500 horsepower expansion in order to provide an additional 115,000 dekatherms per day. [9] Other major pending pipeline expansion projects listed by FERC include a number of projects where compression horsepower expansions are associated with transmission capacity expansions. In almost every case, the ratio of horsepower expansion to transmission expansion is lower than with the Gateway Project, in most cases much lower. For example, the Lambertville East Expansion Project proposes increasing transmission by 60 million cubic feet per day (approximately 60,000 dekatherms per day) with a compression power expansion of only 7,000 hp.[10]

In the EA, FERC should discuss the question of why the proposed ratio of horsepower expansion to transmission expansion with the Gateway Project appears so excessive, and if the proposed expansion is not excessive, FERC should explain why.

It could perhaps be argued that some of the huge cumulative expansion of natural gas supply proposed with this project and other pipeline expansion projects in the region would make possible not just the replacement of fuel oils and propane with natural gas, but also replacement of coal. It is clear that replacing coal with natural gas at power generating facilities has significant greenhouse gas emission benefits. However, most of the replacement of coal with natural gas in the region has already been accomplished. In 2016, Connecticut, New Jersey, and the entire State of New York consumed a total of 35.4 trillion Btu in the form of coal.[11] This is much less than the total of approximately 238 trillion Btu in the form of fuel oils and propane that could theoretically be replaced by natural gas, and does not significantly change the large discrepancy between the cumulative amount of gas proposed to be supplied by this and other projects in the region and the amount of gas that could conceivably be used in this region.

[9] Email from Ted Glick to the office of Senator Menendez, 8/1/18

[10] FERC, 2018, Major Pipeline Projects Pending (Onshore), https://www.ferc.gov/industries/gas/indus-act/pipelines/pending-projects.asp accessed 8/7/18

[11] U.S. DOE, EIA, 2018, https://www.eia.gov/state/seds/seds-data-complete.php#stateSelection accessed 8/6/18

It is clear that in order to do a comprehensive analysis of the Gateway Expansion Project it must be viewed in context of the indirect climate impacts that exist from the combustion of the natural gas, regardless of where in the world this combustion occurs, that this project and the other gas supply expansion projects in the region would permit. FERC should carefully assess the potential uses of natural gas that could conceivably exist in the areas to be served by these proposed projects and compare these with the proposed supply enhancements.

3) Approval of this project could contribute to an undermining of Connecticut, New Jersey, and New York City greenhouse reduction laws and plans

A decision to approve the Gateway Expansion Project, as well as the other projects that would greatly expand the supply of natural gas to the region is at odds with the expressed goals of Connecticut, New Jersey, and New York City to make major reductions in greenhouse gas emissions by 2050. Both Connecticut and New Jersey have laws, the Global Warming Solutions Act[12] and the Global Warming Response Act,[13] respectively, that call for major reductions in greenhouse gas emissions. Connecticut's law states that by 2050 greenhouse gas emissions shall be reduced to a level 80% below 2001 levels. New Jersey's law calls for a reduction by 2050 to 80% below 1990 levels. New York City is committed to achieving an 80 percent reduction of greenhouse gas emissions compared to 2005 levels by 2050.[14] In addition, recent New Jersey legislation requires 50 percent of the energy sold in the state to be from Class I renewable energy sources by 2030, and New Jersey's Governor Murphy has directed state agencies to develop an updated Energy Master Plan that provides a path to 100 percent clean energy by 2050.[15]

Clearly, replacement of fuel oils and coal by natural gas brings a reduction in greenhouse gas emissions. The region and the nation have achieved overall greenhouse gas reductions within the last several years by such replacements, as well as by implementation of energy efficiency measures. Connecticut, New Jersey, and New York City have all gone on record as favoring replacement of fuel oils and coal with natural gas.

But greenhouse gas emissions reductions made in this manner are limited in scope. Greenhouse gas reductions of the order of 80% by 2050 cannot be achieved unless natural gas combustion is actually reduced significantly. For example, New Jersey gets about half its total energy, including that used in electricity generation, from the combustion of natural gas.[16] It simply cannot reach its 80% greenhouse gas reduction goal unless it significantly reduces this consumption of natural gas. It must replace natural gas with zero- or low-carbon energy sources such as renewables and nuclear power, and also make major progress with energy efficiency measures. Major expansion of natural gas supplies thus represents a direct challenge to the successful implementation of greenhouse gas reduction laws and

[12] See https://www.cga.ct.gov/2008/ACT/PA/2008PA-00098-R00HB-05600-PA.htm accessed 8/8/18
[13] See https://www.state.nj.us/dep/aqes/sggi.html accessed 8/3/18
[14] https://www1.nyc.gov/site/sustainability/codes/80x50.page, accessed 4/28/18
[15] See https://www.nj.gov/governor/news/news/562018/approved/20180523a_cleanEnergy.shtml 8/9/18
[16] NJDEP, 2018, Environmental Trends Report, Greenhouse Gas Emissions in New Jersey, Figure 1, https://www.nj.gov/dep/dsr/trends/pdfs/ghg.pdf accessed 8/3/18

plans that are in place in the region. The provision of the capacity to provide an excessive supply of natural gas could actually represent a long-term disincentive to efforts in Connecticut, New Jersey, and New York City to reduce the overall use of fossil fuels that will be necessary to significantly reduce greenhouse gas emission. Construction of fossil fuel energy supply infrastructure that has a long lifetime can serve to lock in a degree of commitment to fossil fuels that is unwarranted and damaging in light of the potentially catastrophic risks to the climate, the environment, and human health and welfare from global warming.

4) Potential risk exposure to FERC

FERC should be aware, that as part of the federal government, should it fail to adequately address greenhouse gas emissions impacts of its actions, or should it approve projects that encourage increased greenhouse gas emissions, it is potentially exposed to the charges expressed in the *Juliana vs. United States* case[17] or to other potential litigation with a similar basis. In the *Juliana vs. United States* case, the plaintiffs argue that the U.S. Government, through its affirmative actions, is creating a national energy system that causes climate change, and in so doing is depriving them of their constitutional rights to life, liberty, and property, and has failed to protect essential public trust resources. On July 30 of this year, the U.S. Supreme Court unanimously ruled in favor of the plaintiffs in denying the Trump administration's application for a stay, thus preserving a trial start date of October 29, 2018.

Summary

The Environmental Assessment for the Gateway Expansion Project fails to adequately assess the cumulative impact of the carbon dioxide emissions associated with this and other proposed projects in the region. This proposed project contributes to a much larger proposed expansion of pipeline capacity in the region that has the potential to supply far more gas than is likely to be consumed in the region under any realistic scenario. This excessive expansion in gas supply, should it occur, has to potential to nullify the ability of New York City, New Jersey, and Connecticut to achieve their greenhouse gas reduction goals, which, in the case of New Jersey and Connecticut, are embodied in state laws. FERC's failure to adequately assess the reasonably foreseeable impacts of carbon dioxide emissions associated with this project and other gas supply enhancement projects in the region potentially represents significant legal risk exposure to the Commission.

Michael Aucott, Ph.D.
Environmental Science and Energy Consulting and Research
609-477-0065
mlaucott@gmail.com
August 9, 2018

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[17] See https://www.ourchildrenstrust.org/us/federal-lawsuit/ accessed 8/8/18