

**UNITED STATES OF AMERICA  
BEFORE THE  
FEDERAL ENERGY REGULATORY COMMISSION**

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Texas Eastern Transmission, LP

Docket No. CP11-56

Algonquin Gas Transmission, LLC

PF10-17

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**COMMENTS OF SIERRA CLUB, FOOD & WATER WATCH, AND NO GAS  
PIPELINE ON DRAFT ENVIRONMENTAL IMPACT STATEMENT**

On January 5, 2011 the Federal Energy Regulatory Commission (“FERC”) issued a notice of application under § 7 of the Natural Gas Act, 15 U.S.C. § 717f, and § 157 of FERC’s regulations, 18 C.F.R. § 157.1 *et seq.*, for the proposed New Jersey-New York Expansion Project (“NJ-NY Project”), FERC Docket No. CP11-56-000. As stated in FERC’s notice of application, Texas Eastern Transmission, LP (“Texas Eastern”), and Algonquin Gas Transmission, LLC (“Algonquin”)(hereinafter collectively referred to as “the Applicants”) seek, among other things, authorization to construct an interstate natural gas pipeline and associated facilities in New Jersey and New York. 76 Fed Reg. 2360.

Because this project is a major pipeline construction project using right-of-ways in which there are no existing natural gas pipelines, FERC was required to prepare an environmental impact statement pursuant to 18 C.F.R. § 380.6(a)(3) in order to comply with the National Environmental Policy Act (“NEPA”), 42 U.S.C. § 4321, *et seq.*

FERC's Draft Environmental Impact Statement ("DEIS") was issued on September 9, 2011. The following comments on the DEIS are submitted on behalf of the Sierra Club, Food & Water Watch, and No Gas Pipeline.

## **I. ALTERNATIVES TO THE PROPOSED PROJECT**

The alternatives analysis is the "heart of the environmental impact statement," and it "should present the environmental impacts of the proposal and alternatives in comparative form, thus sharply defining the issues and providing a clear basis for choice among options by the decision-maker and the public." 40 C.F.R. § 1502.14. When held up against this standard, FERC's DEIS is faulty for several reasons. The assumptions FERC uses regarding the supposed need for the project are no longer valid, the data regarding alternative energy sources is outdated, and it appears that FERC only analyzed each alternative energy source in isolation and did not analyze whether several of these alternative sources taken together could make the proposed project unnecessary.

### **a. FERC must use the most up to date data regarding energy demand in order to allow for a complete alternatives analysis.**

The Applicants have stated that one of the proposed project's objectives is to "meet residential and commercial demands for energy." DEIS at 3-1. The DEIS also makes several references to increasing demand for energy in its discussion of alternatives and whether those alternatives could meet the perceived need for the proposed project. *See, e.g.*, DEIS at ES-1, 3-1, 3-4, 3-5. However, the DEIS seems to take this assertion of an increasing demand for energy at face value and does not investigate it further. Moreover, it appears that most of the data that FERC relies on in this regard is several years old and does not reflect recent trends showing decreases in energy demand

forecasts that are due in large part to the increased utilization of energy efficiency and demand response incentives. In order to provide the public and FERC with a “clear basis for choice among the options,” the Final EIS should re-assess energy demand forecasts for the proposed project area using the most up to date and relevant information.

For example, PJM, the regional electricity transmission grid operator for the region in which the proposed project will be built, issues annual Load Forecast Reports for use in its transmission planning processes. PJM’s most recent Load Forecast Report, issued in January 2011, showed a *lower* forecast for electricity demand than the previous year.<sup>1</sup> Additionally, PJM had originally approved a very costly Reliability-Must-Run (“RMR”) contract that would have kept Unit 1 at PSE&G’s Hudson Generating Station operating for several years in order to maintain transmission grid reliability, despite the fact that Unit 1 is an old and inefficient source of power.<sup>2</sup> FERC also issued an approval for this RMR contract, finding that it was “necessary for the reliability of the PJM system.” 136 FERC 61,702 (July 29, 2011). However, a few days after FERC issued its approval, PJM informed PSE&G that upon further analysis it had determined that the continued operation of Hudson Unit 1 was in fact no longer required and that PSE&G could retire the unit.<sup>3</sup> PJM’s reversal was based on its conclusion that sufficient Demand Response resources exist to control electricity and peak demand and to maintain transmission grid reliability.

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<sup>1</sup> See 2011 PJM Load Forecast Report. Attached hereto as Exhibit 1.

<sup>2</sup> Tom Johnson, “Consumers Could Pay \$400 Million to Keep Old Power Plant In Service,” *NJ Spotlight*, March 21, 2001 (available at <http://www.njspotlight.com/stories/11/0320/2005/>). Attached hereto as Exhibit 2.

<sup>3</sup> Tom Johnson, “PSEG Power to Shut Down Hudson 1 Plant,” *NJ Spotlight*, August 5, 2011 (available at <http://www.njspotlight.com/stories/11/0805/0201/>). Attached hereto as Exhibit 3.

In order to provide for the most complete and accurate alternatives analysis possible, FERC must take into account present day forecasts for energy demand in the project area. Additionally, FERC should analyze specifically how energy efficiency and demand response programs and initiatives in the project area will impact energy demand in the years to come.

**b. FERC's data regarding alternative energy sources is outdated and does not represent the true portfolio of alternative energy sources in the project area.**

FERC must update its data regarding alternative energy sources in the project area in order to allow for a complete and accurate alternatives analysis. It is not readily apparent where FERC got much of its information concerning alternative energy sources, but it is apparent that much of the data is old and therefore paints an incomplete picture of alternative energy sources in the project area. FERC should analyze the most up to date information possible concerning alternative energy sources, including an assessment of how much energy has been produced using renewable sources and how that number is expected to rise as costs associated with renewable energy diminish. By failing to do so, the current DEIS falls short of offering the public and FERC a "clear basis for choice among the options" in accordance with 40 C.F.R. § 1502.14. The information that FERC used skews the choice among the options and therefore leads to an arbitrary conclusion.

One stark example of this is FERC's assertion in the DEIS that New Jersey "has constructed more than 60 MW of solar projects in the state." DEIS at 3-9. However, as of August of 2011, prior to the issuance of the DEIS, New Jersey had in fact installed

over 430 MW of solar projects.<sup>4</sup> New Jersey has taken aggressive measures to promote the utilization of solar energy in the state and is now the nation's leader for solar photovoltaic installations. Because solar energy in particular is well suited for reducing peak demand on hot summer days, it is incumbent upon FERC to undertake a more accurate assessment of solar energy resources, as well as other alternative sources of energy.

**c. FERC should include an analysis of the utilization of combined heat and power in the project area.**

Combined heat and power ("CHP") is a source of energy efficiency with huge potential for use in the project area, and yet it does not appear that it was mentioned even once in the DEIS. CHP technologies capture waste heat produced at energy and industrial facilities and put that heat to use to both save and produce more energy. CHP systems currently produce 8% of electric power in the United States and save building and industry owners billions of dollars per year.<sup>5</sup> CHP systems drastically reduce energy use and therefore save fuel, they reduce emissions of NOx and sulfur dioxide, and they obviate the need to release millions of tons of greenhouse gases into the atmosphere each year.

FERC must add an analysis of the currently installed and potential CHP resources in the project area in the Final EIS. According to some sources New Jersey currently has nearly 3,000 MW of installed CHP resources and New York has nearly 6,000 MW of

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<sup>4</sup> See Exhibit 4.

<sup>5</sup> See <http://www.uschpa.org/i4a/pages/index.cfm?pageid=3283>.

installed CHP resources.<sup>6</sup> Moreover, there is very much potential in the industrialized project area in particular for CHP systems to be installed. For example, the United States Environmental Protection Agency recently issued a study that assesses opportunities for combined heat and power at wastewater treatment facilities.<sup>7</sup> The study discussed the efficiency, reliability, environmental, and economic benefits associated with installing CHP systems at wastewater treatment facilities. It found that CHP is a very reliable and cost-effective option for wastewater treatment facilities, and that each million gallons per day of wastewater flow can produce enough biogas in an anaerobic digester to produce 26 kW of electric capacity and 2.4 million Btu per day of thermal energy in a CHP system.<sup>8</sup> Given this data, the project area has very large untapped potential CHP capacity. The Passaic Valley Sewerage Commission wastewater treatment facility in Newark is the largest in the northeastern United States and handles an average of 330 million gallons per day of wastewater, and up to 550 million gallons per day.<sup>9</sup> The North River Wastewater Treatment Plant can handle up to 340 million gallons per day.<sup>10</sup>

And these are but two examples of the enormous CHP potential in the project area that were apparently not analyzed in the DEIS at all. In order to provide a full picture of the available alternatives for meeting the proposed purpose of the project, FERC should, in addition to updating its information regarding other alternative renewable energy

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<sup>6</sup> See <http://www.eea-inc.com/chpdata/States/NJ.html>.

<sup>7</sup> USEPA, *Opportunities for Combined Heat and Power at Wastewater Treatment Facilities: Market Analysis and Lessons From the Field*, October 2011. Attached hereto as Exhibit 5.

<sup>8</sup> *Id.*

<sup>9</sup> See <http://www.pvsc.com/about/about.htm>.

<sup>10</sup> See [http://www.nyc.gov/html/dep/html/harbor\\_water/northri.shtml](http://www.nyc.gov/html/dep/html/harbor_water/northri.shtml).

sources, include an assessment of current CHP installations and plans and potential for future CHP capacity.

**d. In the Final EIS FERC should analyze whether several of the alternative energy sources in the project area combined could make the proposed project unnecessary.**

In the DEIS it appears that FERC has analyzed each potential alternative in isolation to determine whether each alternative could meet the project's stated purpose. In order for FERC and the public to have a clear basis for choice among the alternatives, FERC should analyze whether some of the alternatives taken together could meet the proposed purpose of the project.

For example, with regard to energy conservation measures, FERC states that "while energy conservation would undoubtedly reduce the demand for fossil fuels in the Metropolitan region to some degree, it would not eliminate the need for additional natural gas supply in the Project area by 2012." DEIS at 3-6. But the question should not be whether energy conservation alone can eliminate the need for additional natural gas supply by 2012. FERC should look at whether energy conservation, in combination with alternative energy sources such as solar, wind, demand response, and combined heat and power ("CHP"), could eliminate the need for the proposed project to be in service by 2012. As another example, in dismissing renewable energy as a viable alternative to the proposed project, the DEIS states that "renewable energy is not 100 percent interchangeable with natural gas." DEIS at 3-10. However, it appears that nowhere does FERC attempt in the DEIS to analyze whether renewable energy combined with energy conservation and/or upgrades to currently existing pipelines may combine to meet the

proposed need behind the project. FERC should do so in order to offer the public a clear basis for a choice among the alternatives. Absent such an analysis, the rejection of alternative forms of energy can best be described as arbitrary.

## **II. CUMULATIVE IMPACTS**

The assessment of cumulative impacts in NEPA documents is required by the CEQ regulations. 40 C.F.R. § 1508.7. The agency must consider, *inter alia*, “other past, present, and reasonably foreseeable future actions regardless of what agency . . . or person undertakes such other actions.” *Id.* An agency must also consider impacts from “connected actions” or those actions that are closely related. *Id.* In its DEIS, FERC does not efficiently assess the total cumulative impacts of this project. It fails to address additional issues that are relevant to understanding the total impact this project will have on the environment, including but not limited to: emissions levels of activities identified as present or reasonably foreseeable projects, impacts from surrounding Title V facilities, and the impacts from fugitive emissions. FERC’s failure to provide an analysis discussing these things, therefore, renders its analysis inadequate.

### **a. FERC should analyze how Spectra’s proposed project, in conjunction with other present and foreseeable future projects, will collectively impact emissions levels.**

FERC is required to include in its DEIS a “sufficiently detailed catalogue of . . . present and future projects, and provide [an] adequate analysis of how these projects, and differences between these projects, are thought to have impacted the environment.” *Lands Council v. Powell*, 395 F.3d 1019, 1028 (9th Cir. 2005). FERC briefly discusses of some of the present and foreseeable future projects that will be worked on, or are



already in the process of being worked on simultaneously with this proposed pipeline project. FERC, however, fails to provide an adequate analysis of how these projects together will impact the environment. The DEIS fails to discuss or provide an assessment of the emissions levels for these ongoing and future projects. Moreover, it does not take into account the overall impact the emissions levels of these various projects, in conjunction with the levels that will be released from the proposed pipeline, will have on the environment. This information is key to understanding the impacts this project will have. Therefore, FERC should provide a more thorough analysis addressing these concerns.

**b. FERC should consider the reasonably foreseeable fugitive emissions that will result from this project.**

FERC should consider the foreseeable fugitive emissions that will result from this project. In order to accurately assess the cumulative impacts of this project, examining reasonably foreseeable fugitive emissions is essential. Unfortunately, the DEIS fails to do just that.

Methane, which is the chief component of natural gas, has 105 times more warming impact than that of carbon dioxide (CO<sub>2</sub>).<sup>11</sup> Natural gas is transported in pipeline networks from wells to processing plants, compressor stations, storage formations, and/or the interstate pipeline network for eventual delivery to customers.<sup>12</sup> As a result, leaks from pipeline networks, from microscopic holes, corrosion, welds and

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<sup>11</sup> Stacey Shackford, NATURAL GAS FROM FRACKING COULD BE 'DIRTIER' THAN COAL, CORNELL PROFESSORS FIND (2011), <http://www.news.cornell.edu/stories/April11/GasDrillingDirtier.html>. Attached hereto as Exhibit 6.

<sup>12</sup> Al Armendariz, Ph.D., EMISSIONS FROM NATURAL GAS PRODUCTION IN THE BARNETT SHALL AREA AND OPPORTUNITIES FOR COST-EFFECTIVE IMPROVEMENTS 1, 6-7 (Southern Methodist University, Department of Environmental and Civil Engineering 2009). Attached hereto as Exhibit 7.

other connections, as well as from compressor intake and outlet seals, compressor rod packing, blow and purge operations, pipeline pigging, and from the large number of pneumatic devices on the pipeline network can result in large emissions of methane and hydrocarbons into the atmosphere.<sup>13</sup> This information is essential; therefore, FERC should provide an analysis discussing it in more detail.

**c. FERC should take into account other Title V facilities in the area and the impact emissions from this project and these facilities will have collectively.**

FERC fails to take into account the location of this project, the surrounding Title V facilities, and the impacts this project and those surrounding Title V facilities will have collectively on the environment. Analyzing this issue is pertinent to understanding the total cumulative impacts of this project. Therefore, FERC should consider the impacts of the Title V facilities in close proximity to the proposed project, especially since these facilities “have actual or potential emissions that meet or exceed the major source threshold for their location.”

The New York Department of Environmental Conservation provides a list of all of the facilities in New York that have been issued a Title V permit.<sup>14</sup> In Staten Island, one of the areas where the Applicants plan to have their pipeline run through, there are at least four (4) Title V facilities in the surrounding area, including but not limited to:

- Arthur Kill Generating Station
- Kinder Morgan Liquids Terminals LLC
- Pouch Terminal

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<sup>13</sup> *Id.*

<sup>14</sup> See [http://www.dec.ny.gov/dardata/boss/afs/issued\\_atv.html](http://www.dec.ny.gov/dardata/boss/afs/issued_atv.html). Attached hereto as Exhibit 8.

- Staten Island Landfill<sup>15</sup>

Additionally in New Jersey, in Hudson and Union counties alone, the counties where the proposed pipeline will also run through, there are at least forty (40) Title V facilities provided on the New Jersey Department of Environment Protection's website.<sup>16</sup> Some of them include:

- Occidental Chemical Corporation
- Linden Roselle Sewerage Authority
- Citgo Petroleum Corp Linden Terminal
- Covanta Union
- Bayonne Plant Holding LLC<sup>17</sup>

This does not take into consideration the neighboring counties, like Essex County and Bergen County, both of which have a large number of Title V facilities that are also within close proximity to the proposed project area(s). FERC should, therefore, consider this information and the impacts these facilities and the proposed pipeline will have, consequently, on air emissions. Furthermore, FERC should also consider the adverse impacts this project will also have on the health of those residents living in nearby areas.<sup>18</sup>

### **III. CLIMATE CHANGE**

FERC should accurately assess the impact of this pipeline on climate change by taking into consideration all of the cumulative impacts that are associated with it. FERC downplays the effects this natural gas pipeline will have on climate change by stating that

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<sup>15</sup> *Id.*

<sup>16</sup> See [http://datamine2.state.nj.us/DEP\\_OPRA/OpraMain/get\\_long\\_report?](http://datamine2.state.nj.us/DEP_OPRA/OpraMain/get_long_report?) (attached hereto as Exhibit 9).

<sup>17</sup> *Id.*

<sup>18</sup> See [http://www.health.state.ny.us/environmental/indoors/pmq\\_a.htm](http://www.health.state.ny.us/environmental/indoors/pmq_a.htm).

the emissions of greenhouse gases from the proposed project will “not have a significant long term adverse impact on air quality.”<sup>19</sup> DEIS at 4-237. Moreover, FERC also claims that this project will “not have any direct impacts on the environment in the Project area.”<sup>20</sup> *Id.* However, FERC fails to independently assess the supposed air quality benefits of the proposed project that the Applicants assert.

Studies have implied that extracting natural gas from the Marcellus Shale could actually do more to aggravate global warming than mining coal.<sup>21</sup> In fact, one of the major concerns associated with natural gas is the fear of methane leaking into the atmosphere during hydraulic fracturing.<sup>22</sup> Natural gas, which is mostly methane, has 105 times more warming impact than that of carbon dioxide (CO<sub>2</sub>); as a result, any small leak could have a big impact.<sup>23</sup> According to reports, methane escaping into the atmosphere is larger quantities than previously thought, “with as much as 7.9 percent of it puffing out from shale gas wells . . . or seeping from loose pipe fittings along gas distribution lines.”<sup>24</sup> Therefore, FERC’s statement suggesting that this pipeline ‘will not have a long-term adverse impact on air quality’ is inaccurate and misleading. Furthermore, in asserting that there will not be any direct impacts on the environment in the Project area,

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<sup>19</sup> See DEIS 4-237.

<sup>20</sup> *Id.*

<sup>21</sup> See Exhibit 6; see also Tom Zeller Jr., STUDIES SAY NATURAL GAS HAS ITS OWN ENVIRONMENTAL PROBLEMS (2011), <http://www.nytimes.com/2011/04/12/business/energy-environment/12gas.html?pagewanted=all>.

<sup>22</sup> *Id.*

<sup>23</sup> *Id.*

<sup>24</sup> See Exhibit 6.

we are even more convinced that FERC has not considered all of the cumulative impacts of this project.

Therefore, FERC should re-evaluate its analysis of climate change and incorporate into its analysis all of the cumulative impacts, including the ones listed in this document, in order to provide a more accurate assessment of the impacts this project will have on climate change.

#### **IV. ENVIRONMENTAL JUSTICE**

##### **a. The DEIS does not adequately identify affected environmental justice communities.**

The DEIS defines environmental justice communities according to the following thresholds: communities where 23.6 percent of the individuals within a given census block are living below the poverty line as low-income populations; and/or communities where minorities comprise more than 51.1 percent of the population within a given census block as minority populations. DEIS at 4-172. FERC identified three census blocks in Union County within a half mile of the proposed project that have minority populations, 39 census blocks in Hudson County within a half mile of the proposed project that have minority populations, and six census blocks in New York that are located within a half mile of the project that have minority populations. *Id.* FERC should provide these census block numbers and their demographic information in the Final EIS so that the public may assess its accuracy.

FERC's threshold for defining minority populations is too high and likely has resulted in FERC overlooking environmental justice communities in the project area that will be disproportionately impacted by the proposed project. The United States EPA has

stated in a guidance for implementing the National Environmental Policy Act that a minority population may be present if the minority population percentage of the affected area is “meaningfully greater” than the minority population percentage of the general population.<sup>25</sup> Though the EPA did not give a precise definition of what “meaningfully greater” means, it seems that there is no rational basis for adopting 51.1% as the threshold for identifying minority populations. By not providing a basis for its 51.1% threshold, FERC has deprived the public of the opportunity to assess whether potentially impacted environmental justice communities may have been overlooked. In the Final EIS, in addition to including the census block and demographic data used by FERC in the DEIS, FERC should provide the rationale for its minority population threshold.

**b. The DEIS does not adequately identify the disproportionately high and adverse impacts of the proposed project on environmental justice communities.**

It appears that the DEIS does not make an attempt to identify or assess the disproportionately high and adverse impacts that the proposed project will have on environmental justice communities. The National Environmental Policy Act requires Federal agencies conducting an EIS to consider direct, indirect, and cumulative impacts. 40 C.F.R. § 1508.25(c). Impacts under NEPA are defined to include ecological, aesthetic, historical, cultural, economic, social, or health impacts. 40 C.F.R. § 1508.8. Cumulative impacts are impacts on the environment that result from the incremental impact of the action when added to other past, present, and reasonable future actions regardless of what agency or person undertakes such other actions. 40 C.F.R. § 1508.7.

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<sup>25</sup> USEPA, *Final Guidance on Incorporating Environmental Justice into NEPA Analyses*. Attached as Exhibit 11.

Cumulative impacts can result from individually minor but collectively significant actions taking place over a period of time. *Id.* Therefore, an EIS is supposed to assess the potential impacts of the proposed action under review taken together with other past, present, and reasonable foreseeable future actions regardless of what agency or person undertakes such actions.

Instead, the DEIS states that the impacts associated with the project are spread across the project area and therefore “not disproportionately concentrated in Environmental Justice areas and neighborhoods.” DEIS at 4-173. However, this misses the point of a cumulative impacts analysis and results in a failure to assess the true disproportionate impacts of the project. FERC should assess past, present, and reasonably foreseeable projects and facilities and other conditions that are present in the environmental justice communities identified in the DEIS, and analyze whether those conditions taken together with the proposed project may result in disproportionate impacts. To that end, FERC should assess the presence of facilities emitting criteria air pollutants and hazardous air pollutants in the project area, and especially in environmental justice communities. FERC should specifically assess the concentration of such facilities in the project area and whether the pollutants they emit may combine with the pollutants produced by the project to create a disproportionate impact. FERC should also assess other large projects proposed in close proximity to the project area, including but not limited to the Port Authority of New York and New Jersey’s raising of the Bayonne Bridge, the redevelopment of the Greenville Yards rail site along the Hudson River, the expansion of Global Terminal, the construction of the Bayonne Energy Center, the cleanup of the PPG chromium contaminated sites in Jersey City, etc. FERC

should determine whether any of these projects alone, or taken together may contribute to or result in the creation of diesel particulate matter hot spots that create very harmful conditions for local residents.

It also appears that the DEIS made no effort to take into account relevant health and occupational data that is reflective of the community. The United States EPA suggested in its guidance document for incorporating environmental justice concerns into NEPA analyses that regulators should take this data into account when assessing cumulative impacts in sensitive communities.<sup>26</sup> For example, FERC should assess whether environmental justice communities in the project area have abnormal asthma rates or asthma-related hospitalizations, abnormal cancer rates, etc. FERC should also assess whether any occupational-related exposures to environmental stresses are present in the project area that may exceed those experienced in the general population.

**V. IMPACTS NOT CONSIDERED BY FERC THAT SHOULD BE INCLUDED IN THE FINAL EIS**

**a. FERC should consider the environmental impacts associated with hydraulic fracturing to obtain natural gas from unconventional sources such as shale formations.**

In the alternatives analysis portion of the DEIS, FERC discussed energy conservation and non-gas energy alternatives to the proposed project to determine whether they might be able to meet the proposed project objectives. Among others, FERC discussed wind energy, biomass, and solar as potential alternatives to the proposed project. However, in summarizing its discussion of renewable energy sources, FERC

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<sup>26</sup> *Id.*



stated that “the development of the power plants, transmission lines, and fuel harvest areas associated with renewable projects would have potential adverse affects on air, water, ecological, and other resources. Therefore, the renewable energy alternatives were eliminated from further consideration.” DEIS at 3-10. What this means is that FERC rejected renewable energy from further consideration in its alternatives analysis on the basis that their attendant facilities and power lines may have adverse impacts on the environment.

And yet nowhere in the DEIS does FERC even cursorily take a look at the potential environmental impacts associated with obtaining much of the natural gas that will travel through this pipeline from unconventional sources in shale formations. The potential adverse impacts associated with hydraulic fracturing are well-documented and include impacts to air quality and water quality, including valuable drinking water. For example, producing and extracting natural gas from shale formations has been shown to contaminate drinking water supplies with high levels of methane.<sup>27</sup> Concerns have also been raised concerning the potential for toxic chemicals contained in hydraulic fracturing wastewater to make their way into groundwater and drinking water supplies.

Accordingly, the EPA recently announced its intention to develop federal standards for the disposal of hydro-fracking wastewater so that those toxic chemicals do not endanger human health or the environment.<sup>28</sup> With regard to air impacts, hydraulic fracturing has been shown to have very significant impacts to the air surrounding drilling sites,

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<sup>27</sup> Stephen Osborne, et al., *Methane contamination of drinking water accompanying gas-well drilling and hydraulic fracturing*, Nicolas School of the Environment, 108 Proceedings of the National Academy of Sciences 8172, 8173 (2011). Attached hereto as Exhibit 12.

<sup>28</sup> See <http://yosemite.epa.gov/opa/admpress.nsf/bd4379a92ceceecac8525735900400c27/91e7fadb4b114c4a8525792f00542001!OpenDocument>.

compressor stations, and pipelines themselves by emitting smog-forming volatile organic compounds and toxic air pollutants such as benzene and methane.<sup>29</sup> Indeed, in August 2011 the EPA proposed the first set of federal regulations designed to address the large amounts of air pollution associated with hydraulic fracturing.<sup>30</sup>

Moreover, it does not seem that the DEIS acknowledges the very significant air quality benefits that renewable sources of energy have over natural gas. FERC makes the specious, baseless, and misleading argument that the proposed project will have beneficial impacts on regional air quality because the air emissions that would result from the combustion of 800,000 Dth/d of natural gas would be less than the air emission that would result from the combustion of distillate oil of an equivalent energy value.<sup>31</sup> DEIS at 3-4. This argument fully ignores the air quality impacts associated with hydraulic fracturing. It also ignores the significant greenhouse gas emissions associated with liquefied natural gas. Also, in its discussion of renewable energy sources the DEIS does not acknowledge the fact that burning natural gas for electricity generates very significant

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<sup>29</sup> Al Armendariz, *Emissions from Natural Gas Production in the Barnett Shale Area and Opportunities for Cost-Effective Improvements* (2009).

<sup>30</sup> U.S. Environmental Protection Agency, *Proposed Rules*, 76 Fed. Reg. 52738 (August 23, 2011). Attached hereto as Exhibit 13.

<sup>31</sup> This argument assumes that *all* of the natural gas that can be delivered through this pipeline will actually replace an equivalent amount of distillate oil. That assumption is patently false. It is undisputed that only about 20% of the pipeline's capacity will be consumed in New York City. DEIS at 1-3. Also, there has been no showing or demonstration whatsoever that any of the natural gas coming through this pipeline will actually replace any distillate oil. The Applicants have not demonstrated that, nor has FERC. Therefore, it is entirely possible that the natural gas could be combusted in addition to the combustion of distillate oil, which would result in a net loss to regional air quality rather than a benefit. FERC should re-assess the impacts of the proposed project on regional air quality using realistic assumptions regarding the combustion of the natural gas the pipeline will deliver.

NOx emissions and greenhouse gas emissions, while energy efficiency (including CHP), demand response, and renewable sources of energy do not.<sup>32</sup>

If FERC in the DEIS is going to acknowledge the air quality benefits associated with combusting a certain amount of natural gas compare to an equivalent amount of distillate oil, then it should acknowledge the very significant air quality benefits associated with renewable forms of energy. More importantly, FERC must assess the adverse environmental impacts associated with hydraulic fracturing. It is undisputed that a large amount, if not the majority, of the natural gas that will be delivered through this proposed pipeline will be produced from shale formations. As such, FERC should consider the full range of impacts associated with hydraulic fracturing, and should assess those impacts in comparison with those associated with renewable forms of energy that led FERC to eliminate them from further consideration.

**b. FERC should consider the potential for threats such as Stuxnet to disrupt the operation of the pipeline and put the public at risk.**

The Sierra Club is extremely concerned about the safety of the gas pipeline infrastructure in and around New York City. As FERC must be aware, the city has twice in the last twenty years suffered devastating, successful attacks by terrorists using sophisticated information and technology.

Over the last year information regarding a relatively new computer worm, apparently developed to attack Iranian nuclear development agency facilities, has become available to anyone that cares to use it. The worm, called Stuxnet, has been studied by

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<sup>32</sup> See, e.g., National Energy Technology Laboratory, *Natural Gas Combine-Cycle Plant*, Department of Energy (2007) (available at [http://www.netl.doe.gov/KMD/cds/disk50/NGCC%20Plant%20Case\\_FClass\\_051607.pdf](http://www.netl.doe.gov/KMD/cds/disk50/NGCC%20Plant%20Case_FClass_051607.pdf)) Attached hereto as Exhibit 14.

Symantec, a computer security company, as well as a few academicians who have decoded parts of the program.<sup>33</sup> Much remains to be learned and much needs to be done to safeguard industrial control equipment like that used by Spectra.

According to the German control systems security expert that first discovered the intended use of the worm,

There is no way to prevent the production and transfer of bits and bytes that can be transferred anywhere in the world by Internet. Arms control with satellite surveillance is impossible.... So I'm afraid cyber-arms control won't be possible. That's why the best option we have to start to counter this threat is to start protecting our systems--control systems, especially--in important facilities like power, water, and chemical facilities that process poisonous gases. Funny thing is, all these control systems, if compromised, could lead to mass casualties, but we still don't have any significant level of cybersecurity for them.<sup>34</sup>

What's really worrying are the concepts that Stuxnet gives hackers. The big problem we have right now is that Stuxnet has enabled hundreds of “wannabe” attackers to do essentially the same thing. Previously, a Stuxnet-type attack could have been created by only maybe five people. Now there are likely more than 500 with the ability to do this. The skill set that is out there right now, and the level required to make this kind of thing, has dropped considerably simply because you can copy so much from Stuxnet.<sup>35</sup>

The Sierra Club commented on this danger in our motion to intervene dated January 26, 2011:

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<sup>33</sup> See, e.g., Symantec Security Response, *W32.Duqu: The Precursor to the next Stuxnet*. Attached hereto as Exhibit 16.

<sup>34</sup> See, e.g., Mark Clayton, *From the Man who Discovered Stuxnet, Dire Warnings One Year Later*, Christian Science Monitor (September 22, 2011). Attached hereto as Exhibit 17.

<sup>35</sup> *Id.*

(b) Vulnerability of the SCADA controls at Compressor Stations, Metering and Regulating Stations, and Remotely Operated Valves to a Stuxnet-like Computer Worm Attack.

The Applicant's Resource Report No. 11 on Reliability and Safety states that the proposed project will be monitored in part by data acquisition and control systems present at all metering and regulating stations along the system. The so-called Stuxnet Computer "worm," has now been reliably reported to be able to attack data acquisition systems similar to one Applicants intend to used on their Project. *See, e.g., "Stuxnet Malware Targets Energy Infrastructure SCADA Systems,"* October 15, 2010, *available at* <http://www.abanet.org/litigation/committees/energy/news.html>.

There is nothing in the Applicants' Reliability and Safety Resource Report to show that Applicant has given any consideration whatsoever to this evolving threat to these data acquisition and control systems. Therefore, Intervenor request that Applicants be required to consider and respond to this potential threat.

Your response on page 4-219:

We received a comment concerning the potential for the Applicants' monitoring and data acquisition systems to be vulnerable to computer "worms," such as the Stuxnet Computer worm. The Applicants have indicated that these controls are tested on a continuous basis and that they have fully staffed Information Technology and Corporate Security groups dedicated to the protection and security of their pipeline control systems. Additionally, their staff is certified and trained through the Department of Homeland Security and works closely with local, state, and federal agencies reviewing and developing safeguards against cyber threats.

provides no assurance that Spectra's control systems are in fact protected from a stuxnet-directed attack.

A recent report from Symantec, for instance, indicates that there is at present a good deal of activity by unspecified hackers developing new tools to enhance their ability to launch new attacks.<sup>36</sup> A recently released, 3-minute infographic, which summarizes

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<sup>36</sup> *See* Symantec. *see also* John Markoff, *New Malicious Program by Creators of Stuxnet is Suspected*, New York Times (October 18, 2011).

much of what is known regarding the worm can be viewed here:

<http://vimeo.com/25118844>

Given the vulnerability of the New York City and its value as a target for any terrorist group that includes a sophisticated hacker, and the very clear evidence that at present there is no known way of protecting Spectra's compressors and other industrially controlled systems and given the amount of publicity that the pipeline has engendered—making it an even more obvious and valuable target--this pipeline should be postponed until very convincing evidence that effective means of protecting its facilities from this threat is in place.

**I. THE DEIS FAILS TO ASSESS THE ENVIRONMENTAL IMPACT OF  
POTENTIAL EXCESS LUNG CANCERS THAT WILL RESULT  
FROM FERC CERTIFICATION OF THE PROJECT.**

- a. Section 1.3 of the DEIS entitled Public Review and Comment at page 1-8 notes that comments were received during the DEIS scoping process "regarding the potential for the combustion of natural gas to increase radon levels within buildings." That Section then dismisses FERC concern over excess lung cancers that will result from the project, because the primary cause of the 21,000 lung cancer deaths each year from radon comes from "soil gas," as reported in a 2011 EPA flier entitled A Citizens Guide to Radon- the Guide to Protecting Yourself and your Family from Radon Centers for Disease Control and the National Academies of Sciences' BEIR reports have identified radon exposure as the second greatest cause of lung cancer deaths after cigarette smoking.

- b.** In EPA's seminal report on lung cancer deaths from radon in natural gas piped into residences and burned in gas ranges and other unvented gas appliances [Raymond H. Johnson, Jr. *et al.*, *Assessment of Potential Radiological Health Effects from Radon in Natural Gas*, report EPA-520/1-73-004, EPA Office of Radiation Programs (November 1973)], estimates of yearly deaths from radon from natural gas used in residences range from 25 to more than a hundred, depending on the estimating methodology. In its Motion to Intervene in this proceeding, Sierra Club contended that FERC action in certificating the NY-NJ Expansion project would measurably increase the number of lung cancer deaths because of three interrelated factors.
- c.** The first factor is that the proximity of the project and its interconnects to current and planned Marcellus gas producing wells will assure that a substantial portion of the gas delivered to New York residents through the project will be Marcellus gas. Moreover, both Statoil Corp and Chesapeake Energy, which are contracted to provide the majority of the gas that will flow through the pipeline, are and for the foreseeable future are expected to be the major Marcellus producers in Pennsylvania and New York.
- d.** The second factor is that radon concentrations in Marcellus gas may be as much as a hundred times higher than the national average. This is based on the higher concentration of radium in the Marcellus black shale, as

documented in a 1981 U.S. Geological Survey report.<sup>37</sup> Because radon is a direct radioactive decay product of radium, the increased concentration of radium will result in a correspondingly greater concentration of radon in the natural gas produced by the Marcellus wells.

- e. The third factor is that the 3.83 day half-life of radon, combined with the relatively short distance from Marcellus Pennsylvania and New York well-head to burner tip (ranging up to a few hundred miles) will not give the radon an opportunity to decay before it reaches the gas appliances in the New York residences where it will be used. The 1973 Raymond Johnson EPA report cited above and a more recent 1980 U.S. Department of Energy Report<sup>38</sup> emphasize that the relatively few deaths from radon in natural gas from conventional sources estimated to annually occur are limited by the relatively large distance from the gulf coast production fields to the Atlantic seaboard and other Northeastern consumers. The approximately 1800 mile distance of pipeline travel gives the radon several half-lives in which to decay before reaching consumers.
- f. A summary of the above factors are explained in an unpublished paper by Prof. James Ring, emeritus of Hamilton College, NY, which is attached, and incorporated herein by reference.

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<sup>37</sup> J.S. Leventhal, J.G. Crock, and M.J. Malcolm, *Geochemistry of trace elements in Devonian shales of the Appalachian Basin*, U.S. Geological Survey Open File Report 81-778, 1981.

<sup>38</sup> C.V. Gogolak, *Review of <sup>222</sup>Rn in Natural Gas Produced from Unconventional Sources*, report DOE/EML-385, U.S. Department of Energy (November 1980).



- g. Sierra Club does not dispute FERC's position that the great majority of the 21,000 some lung cancer deaths from radon exposure result from "soil gas" in the United States. But because this NY-NJ Expansion project is expected to add a measurable number of deaths to that total, NEPA obligates FERC to assess as best it can numerically how many additional lung cancer deaths are expected to result from FERC certification of the project. The objective of NEPA is to force sometimes unwilling agencies to assess all the significant impacts of their actions, and its response to date does not do that.
- h. Well-designed tests by independent experts are needed to supplement the prior tests that were done in the 1960s and 1970s. Currently available information, as reviewed below, indicates an unacceptably high risk. This risk needs to be 1) clarified or refined by testing, 2) assessed in the context of state and/or federal environmental review, and 3) substantially mitigated and reduced through regulatory action and radon-removal strategies. Small concentrations of radon (Rn-222) are known to be present in natural gas. As stated in ATSDR's *Toxicological Profile for Ionizing Radiation*, "Radon is present in natural gas; concentrations of radon in gas at well heads average approximately 40 pCi/L (1.5 Bq/L)."<sup>1</sup> As this radon travels with the natural gas through pipeline distribution systems, some of the radon decays en route, while the remainder is routinely delivered into customers' homes along with the gas. When the gas is burned in unvented appliances such as gas stoves, the radon remains

unaffected by the combustion process and is released into the residential living space where it and its radioactive progeny (radon “daughters”) may be inhaled and pose an increased risk of lung cancer. Such radon exposure is likely to cause an estimated 13 to 129 additional cancer deaths per year and poses an unacceptably high lifetime risk. As noted above, this risk needs to be addressed, starting with measurements capable of clarifying or refining the risk.

## **II. Conclusion**

We respectfully request that FERC consider the foregoing issues prior to issuing its Final Environmental Impact Statement.

Respectfully Submitted,

A handwritten signature in black ink, appearing to read 'W. Schulte', with a long horizontal flourish extending to the right.

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