



November 18, 2015

Federal Energy Regulatory Commission
888 First Street, NE, Room 1
Washington, DC 20426

RE: Environmental Assessment; Dominion New Market Project: CP 14-497-000

Dear Commissioners:

Please accept the following comments regarding the Environmental Assessment prepared by your staff for the Dominion Transmission, Inc. "New Market Project" (CP14-497-000).

Otsego 2000 is a historic preservation and conservation organization committed to a sustainable future in which people live in harmony with the environment rather than placing greater burden upon the planet, its air and water resource, and climate. We understand that the expansion of fossil fuel infrastructure, including natural gas, challenges this. However, we also recognize the value of working to find collaborative solutions, which is why we have repeatedly provided comments on how impacts can be reduced if this project moves forward. In particular, we have recommended ways to reduce impacts of the compressor station expansion at Brookman Corners in Montgomery County, projected to produce emissions much higher than from Dominion's other proposed facilities.

Unfortunately, the Environmental Assessment prepared by FERC staff is woefully inadequate, falling far short of an objective, comprehensive analysis necessary to support a finding of no significant impact. As explained below, we are disappointed by your staff's disregard for our input, its failure to recommend any meaningful changes to the project, and its failure to address or even acknowledge many of our comments. We are also concerned by staff's unwillingness to consider the special needs of communities, including Amish and Mennonite families that would be most severely impacted by this project.

Having said this, we continue to believe that a better outcome is possible. Therefore, instead of preparing a pro forma response to these comments and issuing a finding of no significant impact, we urge you and your staff to meaningfully consider our prior comments and those provided here, and to revise its analysis with useful recommendations for how impacts of the project can be reduced. The best mechanism for this would be through the preparation of an Environmental Impact Statement (EIS), which we continue to believe is the most appropriate method of review for a project of this size affecting a 200 mile long corridor with multiple facilities and cumulative impacts. Regardless of the approach taken, however, the recommendations of your staff should be revised.

Respectfully, it is no secret that FERC has developed a reputation for being a rubber stamp for the gas industry. This is an opportunity to demonstrate otherwise. Our specific concerns and objections follow.

Sincerely,



Nicole A. Dillingham, Esq.
President, Otsego 2000
Board of Directors



Keith W. Schue
Member, Otsego 2000
Environmental Stewardship Committee

CC:

Douglas H. Zamelis, Esq., Attorney for Otsego 2000, Inc.

Background

Dominion's "New Market Project" is a major proposal to increase the flow of natural gas in its pipeline network which originates in the Marcellus and Utica fracking regions of Pennsylvania, West Virginia, and Ohio. The project encompasses a 200 mile-long, 50-year old pipeline corridor through New York with new, expanded, or modified facilities planned in six counties. This includes compressor stations in Horseheads (Chemung County), Sheds (Madison County), and Brookman Corners (Montgomery County).

Today, the Brookman Corners compressor station in the Town of Minden is a small facility with a single 7410 HP turbine compressor that runs only about once a week. However as part of its proposed "New Market Project," Dominion plans to significantly expand this to 18,543 HP in order to transport an additional 112,000 Dekatherms of gas per day. This includes 82,000 Dekatherms per day that would be transferred to the Iroquois pipeline. As proposed, the project involves the addition of a second 6393 HP turbine compressor, two 2370 HP reciprocating compressors, coolers, and other equipment.

Due to equipment proposed and limited emission controls, the Brookman Corners compressor station would produce levels of hazardous pollutants much higher than from Dominion's other two compressor stations planned in Horseheads or Sheds. According to Dominion's own data, formaldehyde levels would be 22 times higher, volatile organic compounds (VOCs) 14 times higher, carbon monoxide (CO) five times higher, nitrogen oxides three times higher, and particulate matter twice as high as at the other two sites. Negative health effects of exposure to these chemicals include cardiovascular, respiratory, and neurological damage; birth defects, cancer; leukemia; infertility; burning of lungs, eyes, and throat; muscle pain; mental impairment, headaches, and a host of other acute and chronic illnesses.

Further, greenhouse gas emissions would be nearly twice as high at Brookman Corners, falling just under the 100,000 ton/year threshold triggering Title V review. Significantly, this does not include blowdowns, start-up emissions, long-term fugitive emissions that tend to increase over time, and equipment excluded from FERC's assessment (such as dehydrators at the Dominion/Iroquois metering station located only a few hundred feet away). If these other sources are included, greenhouse gases and pollutants dangerous to human health would be even higher. Since the purpose of the compressor station at Brookman Corners substantially changes with its connection to the Iroquois system, the facility would also operate far more, exposing nearby the residents and communities downwind to dangerous pollutants on an ongoing basis.

These concerns are compounded by the topography of the Otsquago valley that is likely to limit the dispersion of emissions. Located next to Otsquago creek, the Brookman Corners compressor station is in the center of a drainage basin that extends from Van Hornesville to the village of Fort Plain. At night air can stabilize above cooler waters of the creek, creating a temperature inversion that causes emissions to settle in the valley. Furthermore, the top of proposed exhaust stacks at the facility are at a lower elevation than the valley rim, which could concentrate emissions for longer periods of time near the surface and eventually carry them downwind to Fort Plain. This is particular a concern for reciprocating compressors, which are less effective at propelling combustion emissions into the atmosphere than turbines (especially under varying

load conditions), and which produce more fugitive emissions that are vented at low velocity near the ground. Dominion has failed to consider these factors in its analysis, instead modeling dispersion based on wind patterns from Rome, NY and Albany, NY located fifty miles away.

Finally, Dominion's compressor station at Brookman Corners is surrounded by a very large community of Amish and Mennonite families, who subscribe to a traditional agrarian way of life and often spend their entire lives in a single area. Every breath they take and almost every bite of food this community consume comes from the air and land immediately around them. As such, they are particularly vulnerable to pollutants in the environment. Furthermore, because they have large families, many are children. In fact, four Amish schoolhouses are located very close to Dominion's proposed project. It is well established that children are particularly sensitive to toxins in the environment, because of their immature and sensitive respiratory, kidney, and endocrine systems. Due to their traditional ways, many do not receive regular modern medical services.

All of these factors contribute to greater risk, thereby creating a compelling argument for improvements to the proposed project that would reduce exposure.

1. Environmental Impact Statement Should Have Been Prepared

As discussed extensively in comments from numerous organizations, individuals, and local governments, an Environmental Impact Statement (EIS) should have been prepared for this project, rather than an abbreviated Environmental Assessment (EA). In fact numerous resolutions calling for an EIS have been adopted by local governments, especially those in the region surrounding Brookman Corners that would suffer the greatest impacts to air quality. These include but are not limited to the towns of Minden, Canajoharie, Springfield, Cherry Valley, Roseboom, Middlefield, and Otsego, the villages of Fort Plain and Sharon Springs, and Montgomery County.

Dominion's "New Market Project" spans 200 miles of New York State, from the Pennsylvania border to Schenectady, with new facilities or modifications in six counties. This includes new or expanded compressor stations that would pump over 200,000 tons of additional greenhouse gases and hazardous pollutants into the atmosphere annually. Together, the project introduces significant, complex, and inter-related impacts affecting air quality, public health, greenhouse gas emissions, noise, pipeline integrity, safety, and security in addition to potential upstream and downstream impacts. Further, the additional stress caused by moving increased amounts of gas through Dominion's 50-year old pipeline increases the potential for leakage, rupture, fire, explosion, or other catastrophic incident, thereby exposing residents and communities along the entire corridor to greater risk. An EIS should have been prepared to consider all of these direct, indirect, and cumulative impacts. (National Environmental Policy Act ("NEPA"), 40 CFR. § 1508.25.)

Preparing an EIS would have also allowed for greater public participation, including public comment on a draft EIS prior to its completion. As documented in December 3, 2014 scoping comments by Otsego 2000, the project has been plagued with numerous mistakes and intolerance by FERC staff which have thwarted public participation, including poorly conducted scoping meetings, inadequate meeting room accommodations, and unwillingness by staff to hold scoping meetings in the areas--including Brookman Corners--that would be most affected. A large portion of the community surrounding Brookman Corners are Amish, who do not drive and are therefore physically unable to travel long distances. Yet despite the persistent request of elected leaders and affected residents, no attempt was made by FERC to accommodate the special needs of this population.

Significantly, according to Section 617.15 of the New York State Environmental Quality Review Act (SEQR), the New York State Department of Environmental Conservation may only waive the requirement for a state-level EIS if a draft and final EIS has been prepared by the applicable federal agency. Since only an Environmental Assessment (EA) has been issued by FERC without any draft for public review, this condition has not been satisfied.

Regulations implementing NEPA allow the Commission to require an EIS if it determines that the Environmental Assessment that has been prepared is insufficient. This is clearly the case for Dominion's "New Market Project," so the Commission should require a full Environmental Impact Statement.

2. Improvements Alternatives to Reduce Emissions Not Considered

The primary focus of comments by Otsego 2000 over the past year has been to encourage design improvements at the Brookman Corners compressor station that would reduce emissions. In its application to FERC, Dominion claims to be using Best Available Control Technology (Resource Report #9, page 9-11). However, this is not supported by the fact that readily available methods exist to substantially reduce emissions, which have not been implemented. We discussed this in our initial scoping comments on the project dated December 3, 2014, and in greater detail through subsequent comments dated January 13, 2015, April 15, 2015, and July 6, 2015. Nonetheless, staff's Environmental Assessment neglected to require, recommend or even respond to our suggestions.

Significantly, two of the emission reducing features identified below (addition of an oxidation catalyst and vapor recovery) would not even require any change in the configuration of equipment proposed. We discuss these recommendation again below.

A. Installation of an Oxidation Catalyst

The most obvious example of an improvement that Dominion has failed to incorporate into its proposed project at Brookman Corners is the installation of an oxidation catalyst on its existing Taurus 60 turbine. This is analogous to the catalytic converter on an automobile. Comparing emissions of the two turbines proposed in the expanded project (one with and one without an oxidation catalyst), it is very apparent that this missing component contributes significantly to total levels of formaldehyde, carbon dioxide, and nitrogen oxides.

Brookman Corners Emissions Summary

Pollutant	Taurus 60 7410HP (tons/year) No Oxidation Catalyst	Centaur 50L 6393HP (tons/year)	2 x Cat G3608 2370HP each (tons/year)	Cat G3516 standby gen (tons/year)	Total
Formaldehyde	0.86	0.07	1.2	0.12	2.2
VOC	0.9	0.4	14.4	0.6	24.3*
CO	17	1.6	12.6	2.3	33.4
NO _x	27.9	14.4	22.9	1.2	66.3
PM-10/PM-2.5	4.6	3.9	4.6	0.1	13.1
SO ₂	0.5	0.4	0.23	0.003	1.1
GHG	35,676	30,779	24,439	277	96,683**

Note: 8760 hours/year operation for each, except the standby generator at 500 hours/year.

* includes 8.0 tons/year for fugitive emissions

** includes 5,512 tons/year for fugitive methane emissions

Using emissions data for the proposed Centaur 50L turbine at Brookman Corners and scaling relative to horsepower, it can easily be seen that adding an oxidation catalyst to the existing Taurus 60 turbine at Brookman Corners would reduce levels of formaldehyde, carbon monoxide, and nitrogen oxides significantly. (Similar estimates can be obtained by using projected emissions for Dominion's Taurus 70 turbine at Horseheads or Sheds and scaling down.)

As illustrated below, **adding an oxidation catalyst onto the existing Taurus 60 turbine at Brookman Corners would reduce total emissions of formaldehyde by 33%, carbon monoxide by 45%, and nitrogen oxides by 17%.** This is a straight-forward, cost-effective improvement that would significantly improving air quality, so there is no excuse for it not to be done.

Effect of Adding an Oxidation Catalyst on Taurus 60 Turbine at Brookman Corners

Pollutant	Taurus 60 7410HP (tons/year) <i>With Oxidation Catalyst</i>	Centaur 50L 6393HP (tons/year)	2 x Cat G3608 2370HP each (tons/year)	Cat G3516 standby gen (tons/year)	Total	Percent change
Formaldehyde	0.86 0.08	0.07	1.2	0.12	2.2 1.47	- 33%
VOC	0.9 0.5	0.4	14.4	0.6	24.3* 23.9 *	- 2 %
CO	17 1.9	1.6	12.6	2.3	33.4 18.4	- 45%
NO _x	27.9 16.7	14.4	22.9	1.2	66.3 55.2	- 17%

Note: 8760 hours/year operation for each, except the standby generator at 500 hours/year.

* includes 8.0 tons/year for fugitive emissions

We maintain that since the Taurus 60 turbine at Brookman Corners is co-located with new emission sources at the same facility, it is necessary and appropriate for this improvement be incorporated, consistent with BACT.¹ However, even if FERC staff believes that new source rules can be satisfied without installing an oxidation catalyst on the existing Taurus 60 turbine, our comments on the matter should have been discussed in its Environmental Assessment and the addition of an oxidation catalyst included as a recommendation.

An oxidation catalyst is standard equipment today. In fact Dominion intends to install one at both of its facilities in Horsehead and Sheds where emissions would be much lower, and on the new turbine and reciprocating engines proposed at Brookman Corners. It therefore makes sense to retrofit the existing Taurus 60 turbine too. Given that the community surrounding Brookman Corners is being asked to accept much higher emissions in the future, it is both reasonable and appropriate for Dominion to install an oxidation catalyst to limit those emission as much as possible.

Otsego 2000 submitted comments to this effect on April 15, 2015 and July 6, 2015. However without explanation, those comments have been ignored in FERC’s Environmental Assessment.

¹ <http://www.dec.ny.gov/chemical/30681.html>

B. Consolidation or Substitution of Turbines

Dominion has never explained, nor has FERC inquired, as to why two turbines are proposed at Brookman Corners instead of one. Brookman Corners is located near the end of Dominion’s pipeline. Furthermore, according to the “New Market Project” application, about three quarters of the additional gas proposed for transport (82,000 Dekatherms/day) is intended for transfer to the Iroquois pipeline using reciprocating compressors. It is therefore not apparent why an additional turbine almost equal in size to the existing, currently under-utilized Taurus 60, is needed.

In comments dated April 15, 2015 and July 6, 2015, Otsego 2000 suggested that if this much additional horsepower is indeed needed at Brookman Corners, it could be accomplished by replacing the existing Taurus 60 and proposed Centaur 50L turbine with a Taurus 70 turbine (with oxidation catalyst). This would be equivalent to the turbine that Dominion plans to install at Horseheads and Sheds. Doing this would reduce not only hazardous pollutants, but also total greenhouse gas emissions, which would drop by 25%. Furthermore, it would eliminate one exhaust stack and could reduce the required size of the compressor building at that Dominion intends to enlarge. The effect of installing a single Taurus 70 turbine at Brookman Corners in place of the two turbines proposed is illustrated below. Although not included in our estimate, this would also likely result in the additional reduction of fugitive emissions, including both VOCs and methane.

Effect of Replacing Taurus 60 and Centaur 50L Turbines with a Single Taurus 70 Turbine

Pollutant	Taurus 60 7410HP Taurus 70 11,000 HP (tons/year)	Centaur 50L 6393HP (tons/year)	2 x Cat G3608 2370HP each (tons/year)	Cat G3516 standby gen (tons/year)	Total	Percent change
Formaldehyde	0.86 0.11	0.07	1.2	0.12	2.2 1.43	- 35%
VOC	0.9 0.6	0.4	14.4	0.6	24.3* 23.6 *	- 3 %
CO	17 2.4	1.6	12.6	2.3	33.4 17.3	- 48%
NO _x	27.9 22.3	14.4	22.9	1.2	66.3 46.4	- 30%
PM-10/PM-2.5	4.6 6.1	3.9	4.6	0.1	13.1 10.8	- 18%
SO ₂	0.5 0.6	0.4	0.23	0.003	1.1 0.83	- 25%
GHG	35,676 47,830	30,779	24,439	277	96,683** 72,546**	- 25%

Note: 8760 hours/year operation for each, except the standby generator at 500 hours/year.

* includes 8.0 tons/year for fugitive emissions

** includes 5,512 tons/year for fugitive methane emissions

As clearly illustrated above, significant reductions in both hazardous pollutants and greenhouse gas emission are possible in this configuration. Nonetheless, FERC staff failed to respond to or even acknowledge this alternative in its Environmental Assessment.

Alternatively, if two turbines are necessary, we commented that emissions could be reduced by replacing the existing Taurus 60 turbine with the more efficient and less polluting Centaur 50L (with oxidation catalyst). This is unlikely to affect performance since the Centaur 50L turbine has only slightly less horsepower than the Taurus 60, and operating two Centaur 50L turbines in tandem would still produce 12,786 horsepower of compression (which exceeds the horsepower of a single Taurus 70). In addition to reducing hazardous pollutants, this would cut greenhouse gas emissions by about 7%, as illustrated below.

Again, this practical alternative discussed in comments by Otsego 2000 has been ignored by FERC in its Environmental Assessment.

Effect of Replacing Taurus 60 Turbine with a Second Centaur 50L Turbine

Pollutant	Taurus 60 7410HP Centaur 50L 11,000 HP (tons/year)	Centaur 50L 6393HP (tons/year)	2 x Cat G3608 2370HP each (tons/year)	Cat G3516 standby gen (tons/year)	Total	Percent change
Formaldehyde	0.86 0.07	0.07	1.2	0.12	2.2 1.46	- 34%
VOC	0.9 0.4	0.4	14.4	0.6	24.3* 23.8 *	- 2 %
CO	17 1.6	1.6	12.6	2.3	33.4 18.1	- 46%
NO _x	27.9 14.4	14.4	22.9	1.2	66.3 52.9	- 20%
PM-10/PM-2.5	4.6 3.9	3.9	4.6	0.1	13.1 12.5	- 5%
SO ₂	0.5 0.4	0.4	0.23	0.003	1.1 1.0	- 9%
GHG	35,676 30,779	30,779	24,439	277	96,683** 86,274**	- 11%

Note: 8760 hours/year operation for each, except the standby generator at 500 hours/year.

* includes 8.0 tons/year for fugitive emissions

** includes 5,512 tons/year for fugitive methane emissions

C. Installation of Cost-effective Vapor Recovery Technology

Fugitive emissions, meaning the leakage of unburned methane and other hydrocarbons, have been a focus of concern by Otsego 2000 in all of our comments. This is particularly an issue at Brookman Corners because of Caterpillar G3608 reciprocating compressors which are proposed to transfer gas to the Iroquois pipeline.

As discussed in our January 13 and April 15, 2015 comments on the project, reciprocating compressors are problematic due to multiple seals and rod-packing associated with pistons and cylinders that comprise the combustion engine and compressor of a reciprocating system. In fact, the EPA estimates that fugitive emissions from reciprocating compressors accounts for 24% to 29% of total emissions from reciprocating compressors, compared to less than 5% for centrifugal turbine compressors. (See our April 15, 2015 comments.) Furthermore unlike combustion emissions that are propelled from the exhaust stacks at a compressor station, fugitive emissions are released at low velocity from building vents closer to the ground. As such they can play a disproportionately higher role in the public exposure to pollutants. In the presence of sunlight, fugitive releases of methane can also convert to formaldehyde, which may threaten nearby residents with even higher levels of exposure to this known carcinogen. VOCs combined with nitrogen oxides can also create ground-level ozone, which is responsible for irritation of the eyes, nose, and lungs.

As discussed in previous comments by Otsego 2000, several techniques are available to recapture fugitive emissions. However, we chose to highlight one offered by REM Technology (www.remtechnology.com) which is both cost effective and fuel saving. Ideal for reciprocating engines, the *SlipStream*[®] system developed by REM Technology is a vapor recovery process that manifolds fugitive emissions together and reroutes them under controlled conditions back to the air intake of the compressor's engine where they are combusted--roughly analogous to positive crankcase ventilation which is required on all automobiles today. Unlike a typical Vapor Recovery Unit that injects fugitives back into the pipeline, the method developed by REM Technology requires no additional compression, so is very affordable. Stray emissions normally vented from other places in a compressor station can be recaptured as well.

As discussed in a 2014 white paper by the EPA Office of Air Quality Planning and Standards titled *Oil and Natural Gas Sector Compressors*, REM Tech reports that its vapor recovery system can result in the elimination of over 99% of VOC and methane emissions that would otherwise be released to the atmosphere from compressor rod packing.² Moreover, since recaptured emissions are combusted, hydrocarbons that would otherwise be lost become part of the fuel stream, thereby helping to generate power and allowing the compressor station to operate more efficiently without waste. This fuel-saving aspect of the *SlipStream* system allows the technology to pay for itself within a very short amount of time. Based on Dominion's estimate of projected fugitive emissions projected at Brookman Corners, and assuming that fugitive emissions from all equipment at the site can be collected, up to 8 tons of VOCs could be recaptured and over

² <http://www.epa.gov/airquality/oilandgas/pdfs/20140415compressors.pdf>

5,500 tons of greenhouse gas emissions (measured in carbon dioxide equivalents) saved annually. More information on *SlipStream* can be found at: <http://www.epa.gov/gasstar/documents/workshops/2012-annual-conf/nasser.pdf>

Although the inspection and replacement of rod-packing in a reciprocating engine and compressor is important, leakage still occurs between inspections, and ongoing maintenance is difficult to enforce. Furthermore, even newly-installed equipment produces fugitive emissions, especially reciprocating compressors that are inherently leaky. Thus there is no substitute for vapor recovery and no reason not to install a system like *Slipstream* at Brookman Corners.

The environmental, public health, cost, and fuel-saving benefits of vapor recovery are numerous. It is disappointing that the Environmental Assessment prepared by FERC staff makes no mention of vapor recovery, nor does it respond our comments on the subject.

D. Electric Compressors and Other Improvements Not Considered

As discussed in our January 13, April 15, 2015, and July 7, 2015 comments, another method of substantially reducing combustion emissions from the Brookman Corners compressor station would be to replace one of more of the proposed gas-fired units with electric-drive compressors.

Compact electric compressors intended for in-line pipeline applications are readily available with sufficient horsepower to substitute for the Taurus 60 and Centaur 50L turbine compressors proposed by Dominion. It is also possible to use electric compressors in applications where reciprocating engine/compressors have been traditionally applied. In fact, the EPA Natural Gas STAR PRO Fact Sheet Number 103 titled “Install Electric Compressors” describes an application in which one operator replaced five reciprocating compressors (two 2650 horsepower, two 4684 horsepower, and one 893 horsepower compressor) with four 1750 horsepower electric-drive compressors for an estimated annual fuel savings of 1,700,000 Mcf of natural gas.

(<http://www.epa.gov/gasstar/documents/installelectriccompressors.pdf>) This is similar to the situation at Brookman Corners where two 2370 horsepower, highly-polluting Caterpillar G3608 reciprocating compressors are proposed. Replacing these with a set of electric-drive compressors would be a major improvement.

In its Environmental Assessment, FERC staff acknowledges that public comments were submitted suggesting that electric compressors be installed specifically at the Horseheads and Sheds facilities, but conspicuously fails to mention that the same recommendations were made by Otsego 2000 and others with respect to Brookman Corners.

“Several commenters also suggested that we consider the alternative of installing electric motor-driven compressors in lieu of gas-powered units at the proposed Horseheads and Sheds Compressor Stations. The potential advantages of using electric-motor-driven compressors include: (1) no production of emissions, including fossil fuel combustion emissions, at the site of operation, and (2) equal or lesser noise contributions at nearby NSAs. The proposed Horseheads and Sheds Compressor Station sites do not have adequate power for electric-motor driven compressors. DTI has stated that each site would require approximately 10,000 kW of electricity to power the compressor units and other station facilities. Doing so would require miles of additional electric transmission lines to bring in the necessary three-phase power required for the Project. . . . While use of electric motors may be viable alternative capable of meeting the Project’s stated purpose and need, we do not find that additional environmental benefits gained from construction of an electric unit outweigh the potential impacts from the construction of a new power line to serve an electric unit.” (New Market Project EA, page 110)

In its response, FERC staff eliminates the use of electric compressors as a viable alternative because adequate high-voltage electric power lines are not available at either the Horseheads or Sheds sites. However, as explained in comments by Otsego 2000, ample electricity is available at Brookman Corners since large 230 KV electrical transmission power-lines (soon to be upgraded to larger 345 KV lines) are co-located with the Dominion pipeline and pass directly overhead of the property. This is more than adequate to power electric compressors at the site. Furthermore, since the compressor station at Brookman Corners occupies a small portion of Dominion’s 50 acre parcel, there would be plenty of room to locate a substation on the site. These circumstances unique to the Brookman Corners compressor station are completely ignored in the Environmental Assessment prepared by staff.

In its response, staff also refers to statements by Dominion about reliability if electricity is lost, but fails to offer any substantiation for them. The flow of gas within Dominion’s main line would not abruptly stop if compression is temporarily interrupted by the loss of electricity. Furthermore, the amount of gas transferred from Dominion’s pipeline to Iroquois is a small component of the total flow in the Iroquois line. Electric-driven compressors are as reliable as gas-fired ones and are used at many compressor stations today, so this is an erroneous concern. FERC staff also concludes that electric compressors would “not necessarily” result in a benefit to regional air quality since additional power generated by the burning of fossil fuels could occur at the generation source. However this dismisses non-combustion generators that supply electricity in the region, including nuclear, hydropower, and renewables, as well as efficiencies of scale associated with energy generation at a power plant instead of from multiple combustion sources.

Other emission-reducing methods suggested by Otsego 2000 included the use of “zero-emission” dehydrators at the nearby metering station on Brookmans Corners Road and the relocation of off-site shutoff valves closer to the compressor station to reduce the loss of gas in the event of an accidental or emergency blowdown. These comments were also ignored in the Environmental Assessment prepared by FERC staff.

2. Pipeline Integrity and Safety Issues Ignored

Otsego 2000 comments extensively in its December 3, 2014 scoping comments on the need for a detailed evaluation of pipeline integrity to ensure that Dominion’s 50-year old network can safely accommodate the addition stress associated with carrying an additional 112,000 Dekatherms/day of gas. It is not apparent from the Environmental Assessment prepared by staff that this has occurred.

Dominion and FERC staff have said that the previously established maximum allowable operating pressure (“MAOP”) of the pipeline will not be increased. However in our comments, we explain that this alone is not sufficient to conclude that the additional stress of operating the pipeline closer to that previously set value is not without risk. We also emphasized that a thorough inspection of the pipeline along the entire corridor should be performed to determine if the previous established MAOP is still appropriate or should potentially be reduced, considering present conditions. It is very possible that over time, corrosion has occurred or that older welding practices (for example inferior low-frequency resistance welds) have compromised the pipeline’s integrity. Increasing carrying capacity under these circumstances could lead to catastrophe.

Similarly, we commented on the need to consider safety impacts associated with reversing flow of the Iroquois Pipeline, which has been proposed as part of the Iroquois South-to-North (“SoNo”) project. We also referenced an advisory bulletin issued by the U.S. Department of Transportation Pipeline and Hazardous Materials Safety Administration (PHMSA) titled “*Guidance for Pipeline Flow Reversals, Product Changes and Conversion to Service*” (Billing Code 4910-60-W, Docket No. PHMSA-2014-0040)³ that specifically cautions against flow reversal and other modifications to pipeline usage without thorough evaluation.

Disturbingly, the Environmental Assessment prepared by FERC staff does not address any of these issues, and appears to simply accept at face value claims of the applicant regarding operating pressure and safety. Instead of calling upon Dominion to perform the thorough evaluation that we requested, the Environmental Assessment prepared by staff simply includes a general discussion of federal standards on pipeline safety. (See Environmental Assessment, Section 10 “Reliability and Safety,” pages 96-102.) This is followed by a general commentary that seems to be intended to make the broad argument that pipelines are safe relative to other dangers to which the public is exposed. This is clearly non-responsive to the particular concerns that

³ http://www.pipelinelaw.com/files/2014/09/Advisory_re_Flow_Reversals.pdf .

we identified and irrelevant to the purpose of the Environmental Assessment, which is to specifically evaluate the safety issues associated with Dominion’s “New Market Project.”

We are also puzzled that staff seems to believe that 1237 “significant incidents” resulting in death, hospitalization, or damage to property in excess of \$115,000 is low. (See EA, page 100 including footnote). This corresponds to more than one significant incident every six days. The Environmental Assessment mentions cathodic protection which has been required since 1971, however parts of Dominion’s pipeline are older than this and no information is provided in the document as to whether cathodic protection is used throughout the corridor or not.

Relating to safety, our December 3, 2014 comments also discussed the lack of emergency preparedness among volunteer local responders to handle a serious accident at Brookman Corners. These concerns are ignored in the Environmental Assessment too.

3. Public Health Impacts Not Adequately Assessed

As discussed in our December 3, 2015 comments to FERC, it is well documented that compressor station emissions have caused significant acute and chronic health problems for people living or working near them. Health impacts of exposure to volatile organic compounds, nitrogen oxide, carbon monoxide, formaldehyde, ground-level ozone, particulate matter and other hazardous air pollutants include, but are not limited to, cardiovascular, respiratory and neurological damage; birth defects; cancer; leukemia; infertility; burning of lungs, eyes, and throat; muscle pain; mental impairment, headaches, and a host of other ailments. These impacts are discussed at length in a report by Thimble Creek Research, prepared for the Madison County Department of Health and submitted in this proceeding.⁴ As discussed in that report, 90% of individuals within two to three miles of compressor stations experience odors and/or health effects.

Moreover, a growing body of research shows that federal air quality regulations pertaining to gas development, and the method by which permits are granted, do not sufficiently protect public health. For example, a recent report published in the journal *Environmental Health* found that 38% of gas infrastructure sites, including compressor stations and gas production sites, generate concentrations of volatile compounds that greatly exceed health-based risk levels.⁵

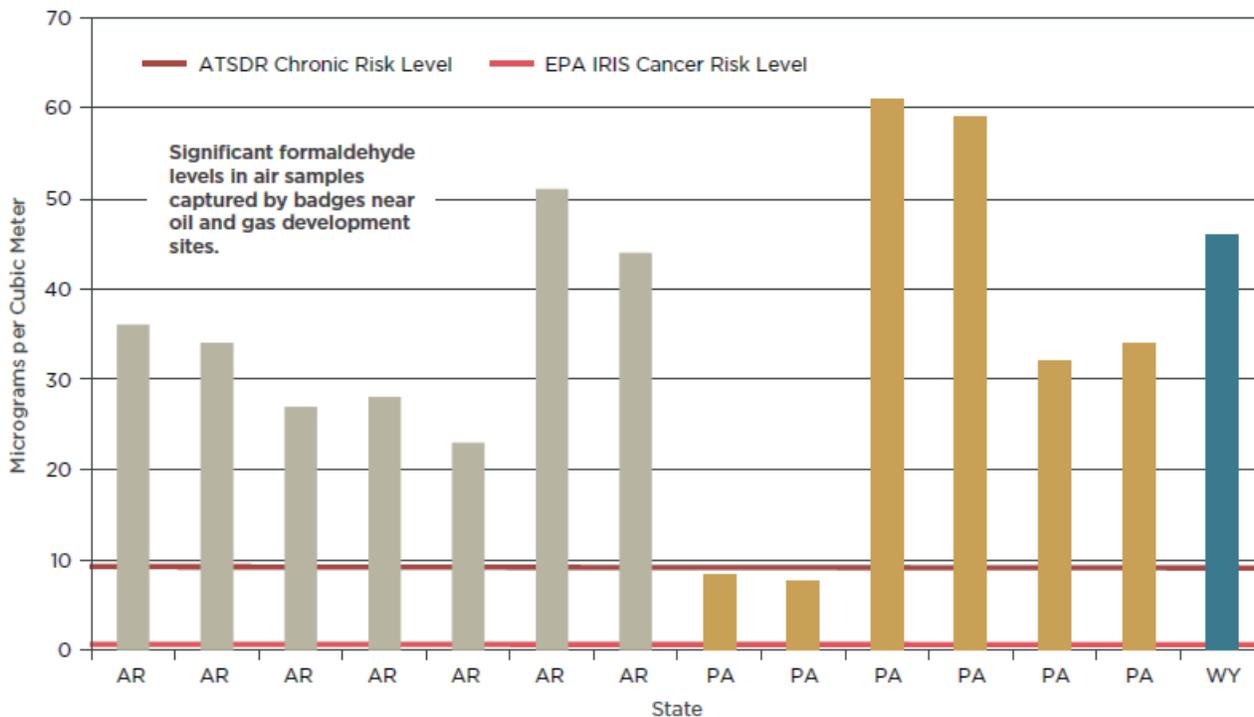
⁴ http://www.madisoncounty.ny.gov/sites/default/files/publicinformation/madison_county_doh_comments_-_docket_no_cp14-497-000.pdf

⁵ Macey et al., *Air Concentrations of Volatile Compounds Near Oil and Gas Production: A Community-Based Exploratory Study*, *Environmental Health* 2014, <http://www.ehjournal.net/content/pdf/1476-069X-13-82.pdf>; and Breech et al., *Warning Signs: Toxic Air Pollution Identified at Oil and Gas Development Sites*, <http://comingcleaninc.org/assets/media/images/Reports/cc-rpt-fracking%2010.14.pdf>

In our scoping comments, we recommended that a comprehensive health impact assessment be performed to evaluate the potential negative effects, short and long-term, to people and animals living near and at various distances from each of the proposed compressor stations, including specifically Brookman Corners. We recommended that this should include a thorough review of records and reports on the health impacts of compressor and pipeline emissions, as well as the projected costs of health care, lost wages, and human suffering.

Instead of doing this, FERC staff prepared a report titled “Human Health Risk Assessment and Responses to Comments” (EA, Appendix B) which seemingly tries to allay public concerns with models showing that harm will not occur or that the risk to human health is small. The flaw in this is that it dismisses real-world data that has been collected in the field, such as the following which corresponds to actual emissions at various compressor station facilities.

FIGURE 5
Formaldehyde Levels Near Gas Pipeline Compressors that Exceed Health-Based Standards



ATSDR: Agency for Toxic Substances and Disease Registry
 EPA IRIS: Environmental Protection Agency Integrated Risk Information System

Source: *Warning Signs - Toxic Air Pollution Identified at Oil and Gas Development Sites - Results from Community Air Monitoring Reveal Chemicals Linked to Health Hazards*, Coming Clean and Global Community Monitor, October 2014, Figure 5.

Each of the above compressor stations are facilities that received requisite federal and state approvals. Nonetheless, in practice emission levels greatly exceeded safe health standards. It is not convincing to relying on models that are ultimately inconsistent with reality. Clearly there are emission events or sources that the modeling performed by FERC fail to capture. For example, the report concludes that the impact of full station ESD blowdowns would occur only for “a short duration every five years and would not pose any discomfort, irritation, or mild health effects.” Yet emergency or maintenance blowdowns are known to occur much more frequently than this as unscheduled, and sometimes unreported events. As described in the Environmental Assessment (EA, page 87), the goal of the blowdown model was only to determine the potential short-term (1-hour acute) from an “infrequent” full station blowdown. Longer term effects of exposure to more frequent blowdowns were not considered. Likewise the conclusion that odors are essentially only a concern during blowdowns and at the property line boundary is inconsistent with the observation of many who live near compressor stations. Rather than purely relying on modeled results, FERC should support research to determine why events in the field are worse than what its models predict. Also not captured in FERC’s modeling is improper practices, such as intentional venting at night. A realistic consideration of risk must consider the possibility of such activities.

Assumption for FERC’s dispersion modeling also appear to be flawed. For example, FERC staff asserts that concerns from commenters about inadequate stack height are unfounded because those stacks are taller than nearby structures. (EA, page 86) However, at Brookman Corners the compressor station is located at the base of a valley, such that exhaust stack is actually lower than many nearby structures, and is in fact much lower than land nearby on the north side of Route 80. Dispersion is a legitimate concern at this site. As discussed by Otsego 2000, reciprocating engines are also less effective at propelling exhaust into the atmosphere, especially when operating at reduced load conditions. Since the reciprocating compressors proposed at Brookman Corners must be adjustable to accommodate variable differences in pressure between the two pipelines, this means that those engines will probably only rarely operate at full efficiency. Another factor not fully considered is the propensity for reciprocating engines and compressors to leak much more over time. Even one very leaky seal or rod-packing can dramatically worsen fugitive emissions.

Finally we are perplexed by FERC’s comparison of compressor station emissions to “everyday” combustion sources. See Appendix B, Tables 16 and 17. The concept of the compressor station at Brookman Corners producing the equivalent NOx emissions of 7260 cars concentrated onto a 50 acre property with their engines running is not appealing. Nor is the concept of 15,250 home oil furnaces for carbon monoxide, 102,857 trucks for particulate matter, or even 171 wood stoves for formaldehyde. In our view, Table 17 in Appendix B makes a very compelling argument that better emission controls are needed.

4. Segmentation of Related Projects and Cumulative Impacts Not Considered

As discussed in our December 3, 2015 scoping comments, FERC must avoid the segmentation of related projects. See *Delaware Riverkeeper et al. v. FERC et al.* (DC Cir. Docket Number 1496336, June 6, 2014).

According to Dominion's application to FERC, the purpose of its "New Market Project" is transfer an additional 30,000 Dekatherms/day of gas to customers attached to destinations on its main line, and 82,000 Dekatherms/day through the Iroquois Pipeline to markets in New York and New England. However Iroquois Gas Transmission System (now majority owned by Dominion) has pursued open season bidding for its "South-to-North" ("SoNo") project, which would reverse the flow of the Iroquois pipeline and export gas out of the United States to Canada. Similarly, on the same day that Dominion filed its application for the "New Market Project, it filed another application for the Clarrington project involving pipeline upgrades and new compressor stations in West Virginia and Ohio in order to increase the supply of gas into its pipeline network. See comments filed in this proceeding by the Allegheny Defense Project, October 22, 2014.

In prior scoping comments, we assert that it is improper segmentation for FERC to review these inter-related projects independently, and that they must instead be considered together through a single comprehensive EIS. This issue is completely ignored in the Environmental Assessment prepared by FERC staff.

With respect to the cumulative impacts, our comments to FERC emphasized the need to consider all "upstream" and "downstream" impacts associated with Dominion's projects. In the "upstream" direction this includes the extent to which the project promotes increased gas extraction and hydraulic fracturing which in turn requires additional gas well pad, drilling rigs, gathering lines, processing plants and other activities related to extraction. In the "downstream" direction, this includes the extent to which the project induces the development of additional infrastructure and facilities associated with increased dependency on gas, such as power plants, storage facilities, and distribution networks. Accordingly we stated that a comprehensive assessment of safety, health, environmental, and climate impacts associated with these activities should be performed.

No such analysis was included in the Environmental Assessment. Instead FERC staff identified a geographically limited and arbitrary set of projects in the "downstream" direction, including only one pipeline (a seven mile lateral in from the Borger compressor station in Tompkins County) and seven other potential commercial users of gas. This was then further reduced by limited "regions of influence" such that only air pollutants were considered for those seven commercial gas users. Interestingly, the Environmental Assessment also erroneously credits the Dominion project with somehow causing a gas turbine at Compressor Station 245 on the Tennessee Gas Pipeline to be replaced. With respect to wildlife impacts, only temporary construction impacts are considered; the permanent cumulative impacts of emissions, noise, and light from facilities, particularly Brookman Corners, are ignored. Stating that no "standard methodology" existing, no cumulative analysis of climate change impacts were provided at all.

Further, FERC staff dismisses out of hand any consideration of impacts associated with the increased gas drilling, stating that it is not within the scope of the Environmental Assessment and that gas drilling is outside of the “region of influence.” We strongly reject this assertion. Clearly the transport of additional gas in Dominion’s pipeline requires additional extraction at the source, regardless of how far away that is.

The Environmental Assessment also incorrectly claims that the nearest land eligible for natural gas drilling is “at least 20 miles south of the Project area.” This may be true for high volume hydraulic fracturing (using 300,000 or more gallons of water) which has been prohibited in New York State. However it is not true for conventional gas drilling and hydraulic fracturing with less than 300,000 gallons of water, which is still allowed and is occurring in the state.

5. Climate Change Impacts Ignored

In our December 3, 2014 comments, we called for a comprehensive inventory of greenhouse gas emissions for the project and a lifecycle analysis of greenhouse gas emissions (including leakage) associated with the additional transport of 112,000 Dekatherms of gas per day. This would include greenhouse gas emissions associated with the extraction, transport, distribution, and use of gas within the pipeline. No such analysis was performed.

Significantly, 112,000 Dekatherms corresponds to about 2500 tons of methane. When combusted, this amount of gas flowing in Dominion’s pipeline will produce roughly 6875 tons of carbon dioxide every day.

We are also troubled by the misleading response provided to public concerns regarding the use of “fracked gas.” The Environmental Assessment states “Once out of the ground, conventional and unconventional natural gas are subject to the same processing, transport and end-use, as well as have indistinguishable atmospheric impacts after production.” (EA, page 31) However this dismisses the climate impacts of production which are demonstrably much greater for gas produced by fracking compared to gas extracted by conventional methods. Howarth estimates methane leakage from shale gas produced from fracking to be within a range of 3.6% and 7.9%, and methane leakage from conventional gas to be within a range of 1.7% to 6%.⁶ This is a significant difference.

Assuming an average methane leakage rate of 5% for natural gas systems and using a global warming potential of 86 for methane (recognized by the Inter-governmental Panel on Climate Change over a 20 year timeframe), this corresponds to about 10,750 tons of carbon dioxide equivalents (CO₂e) lost to the atmosphere every day from the flow of 112,000 Dekatherms of gas. That is about 150% more than the impact of combustion. Adding this to 6875 tons of carbon dioxide from combustion yields 17,625 tons of CO₂e

⁶ *A Bridge to Nowhere: Methane Emissions and the Greenhouse Gas Footprint of Natural Gas*, Robert W. Howarth, *Energy Science & Engineering*, April 2014. <http://onlinelibrary.wiley.com/doi/10.1002/ese3.35/pdf> (See page 49, or page 3 of the PDF)

produced every day as the result of Dominion's "New Market Project."

A significant and persistent flaw in FERC's analysis of energy is that it dismisses the catastrophic impacts of climate change, dismissing out of hand the potential for renewables, as staff does in this Environmental Assessment (EA, page 109).

6. Impact on Historic Sites and Agricultural Lands Ignored

The Environmental Assessment prepared by FERC staff ignores critical information regarding historic sites and agricultural lands.

In our December 3, 2014 scoping comments to FERC, Otsego 2000 mentioned that the Brookman Corners compressor station is located directly adjacent to a registered historic site with which it shares a property line. Information regarding this historic site, known as Slate Creek Farms, has also been submitted to FERC by its current owners, John and Maryann Valentine. As document in state and national records, Slate Creek Farm was established in 1834 on Otsquago Creek by John Smith, an immigrant from Germany. The entire 200 acre property, including the farm, adjacent residence and outbuildings, has been listed on the New York State Registry of Historic Places (11NR06276) since October 19, 2011. Slate Creek Farm has also been listed on the National Register of Historic Places (20120131) since January 31, 2012. A historic marker commemorating the site, placed by the Heritage and Genealogical Society of Montgomery County, is visible on Route 80 in front of the property. **The fact that this historic site, which shares a property line with Dominion's project is not addressed in the Environmental Assessment by FERC is a major error.**

Brookman Corners is also located in the Erie Canalway National Heritage Corridor and near numerous nationally and state recognized historic sites such as the Holy Trinity Monastery, the Fort Plain Historic District, the Cherry Valley Historic District, and the Cooperstown and Glimmerglass Historic Districts.

As discussed in our scoping comments, many property owners in the vicinity of Brookman Corners are farmers that rely on clean air, water, and soil for their livelihood and care about the quality of food they produce. This includes a vibrant Amish community that is inextricably connected to the land they cultivate, as well as landowners, including right next to the Brookman Corners compressor station, who have certified organic farm operations that are threatened by the project. Expansion of the compressor station at Brookman Corners constitutes an industrial activity that is inherently incompatible with adjacent and surrounding historic sites and agricultural lands. The only way of mitigating that incompatibility is by reducing air, noise, and light pollution from the facility.

Significantly, the Brookman Corners compressor station is located in an Agriculture District and subject to local zoning laws which allow public utility stations only by special permit. It is therefore necessary and appropriate for conditions to be attached as a condition upon site plan approval to mitigate those impacts.

7. Water Resource Issues Ignored

Otsego 2000 submitted extensive comments on water resource issues, particularly relating to the Brookman Corners compressor station property which is located adjacent to Otsquago Creek and contains a wetland that is hydrologically connected to the creek. These were provided in our December 3, 2014 scoping comments to FERC and in subsequent comments dated April 15, 2015, which included reference comments to the New York State Department of Conservation. In particular, we noted that Dominion's application failed to identify the existence of Otsquago Creek--a Class C trout stream--in its application.

The fact that the wetland on Dominion's property at Brookman Corners is not isolated, but instead hydrologically connected to Otsquago Creek is significant. However, nowhere is this mentioned in the wetland report prepared by the environmental consultant hired by Dominion, Tetra Tech. During warm weather, flowing water from this wetland into Otsquago Creek is readily visible. However Tetra Tech performed its wetland survey during the month of March with snow on the ground.

As discussed in our comments, Otsego 2000 does not support crossing this wetland so that Dominion can access the northern pasture of its property as a staging area. This is a concern because of impacts to the wetland itself, but also because any runoff from equipment, chemicals, or other material located in this northern area would drain directly to this wetland, or to sensitive forested wetlands abutting Otsquago Creek immediately to the north and west. According to soil maps, this part of the property has a confining layer, so water retention is essentially impossible. Noise, light, and other impacts of construction should be kept out of this area very close to the creek as well. These comments have been ignored in the Environmental Assessment.

Although the focus of Otsego 2000 has been on the compressor station at Brookman Corners, we notice that the proposed Horseheads compressor station is precariously located between two tributaries of Bulkey Creek. Dominion intends to cross one of these, which is classified as a Class C trout stream. Horizontal Direction Drilling is the least harmful method of crossing, however this has not been proposed. Instead, the Environmental Assessment simply states that Dominion proposes to utilize either a dry (flume or dam-and-pump) or wet (open-cut) crossing. This is insufficient information. A wet (open-cut) crossing involves laying pipeline directly into a flowing waterway and would have the greatest adverse impact on water quality, fish, and wildlife. This should not be permitted. Horizontal Direction Drilling should be required if the project is approved.

8. Wildlife Issues and Impacts of Noise and Light Ignored

In our December 3, 2014 scoping comments to FERC, Otsego 2000 identified several bird species classified as endangered, threatened, or “of special concern” in the vicinity of the compressor station at Brookman Corners, but which were absent from Resource Report #3 in Dominion’s application. Most notably, members of the local Audubon chapter as well as residents in the area, have observed the short-eared owl, which is a New York State endangered species, during winter months. Audubon members have also observed the northern harrier, identified as a state threatened species. Both of these raptor species have been observed at Brookman Corners over several years during the Fort Plain Christmas Bird Count, as documented by the state Department of Environmental Conservation and Natural Heritage Program. In addition, the New York State Breeding Bird Atlas identifies three states threatened species--the northern harrier, upland sandpiper, and Henslow’s sparrow--in the area. According to the Atlas, the horned lark and vesper sparrow, both species “of special concern,” are also present.

Despite our comments, Table 4 of the Environmental Assessment prepared by FERC staff contains no bird species, nor are any discussed in the document.

Like people, wildlife in the vicinity of Brookman Corners will be negatively impacted by increased emissions, noise, and light from Dominion’s project. Higher levels of noise and light are likely to interfere with the nocturnal hunting behavior of raptors, and the ability for songbirds to communicate and protect their territories. Emissions from the project could also harm wildlife. Incorporating the emission reducing measures we have identified would benefit both wildlife and people.

To reduce wildlife impacts and protect “dark skies,” Otsego 2000 stated in scoping comments that full cut-off lighting should be required. However the Environmental Assessment prepared by FERC staff only mentions public comments about lighting for Horseheads and Sheds. (See pages 47.) Lighting considerations are particularly important at Brookman Corners since the compressor station there would be the most massive of the three sites. Although much of the facility is behind an embankment and not very visible from Casler Road, existing spotlights at the site are higher in elevation, and at night cast glaring light in all directions. Full-cutoff fixtures that direct light downward and LED lights, such as planned for Horseheads and Sheds, should also be utilized at Brookman Corners.

Based on analysis in the Environmental Assessment, noise from the facility at Brookman Corners would also be worse than at Dominion’s other two compressor stations, particular from the reciprocating compressors proposed. Action should be taken to reduce noise to levels comparable to the other sites. According to the Environmental Assessment, Dominion could delay a year before correcting any noise-related problems. (EZ, page 95) This timeframe should be substantially reduced.