

Re: Scoping Notice; Tennessee Gas Pipeline Company, L.L.C., Docket No. PF14-22-000
Northeast Energy Direct Project

Introduction. These comments are submitted on behalf of the Nassau-Burden Lake Citizens Against the NED Pipeline and Compressor Station for purposes of scoping in relation to the proposed Northeast Direct Pipeline. Our comments relate to Rensselaer County, in particular Schodack, Burden Lake, Nassau and the Rensselaer Plateau.

To its credit, FERC's May 15, 2015 letter to Kinder-Morgan requested a considerable amount of important information. Despite a July 24, 2015 submission by the applicant of more than 6500 pages of resource reports, much of that information remains outstanding. The missing information is essential to a full understanding of the implications of the pipeline. It is our firm belief, therefore, that scoping should stay open for at least two more months. Beyond this, it should stay open for a reasonable period of time after the applicant completes the blanks in its resource reports. It is impossible to identify all the environmental issues that should be explored in a project this large, particularly when it has had a major route change, so many new pages of resource report and so many items left to be determined.

Before addressing purely local concerns, we would briefly take issue with the fundamental underlying premise purporting to justify the pipeline; i.e. that there is a capacity problem negatively affecting the New England states. While high demand days have caused price spikes and have led power producers to resort to alternatives such as briefly increasing their use of coal, oil and LNG, adequate electric generation has never been in doubt. As to price spikes, these occurred at the same time in Pennsylvania, the source of the natural gas that purportedly would spare us this problem, strongly suggesting that lack of pipeline capacity was not the problem. In truth, increasing our reliance on a single energy source will produce the very price volatility sought to be avoided.

More importantly, full utilization of existing pipeline capacity is inconsistent with New England's existing and proposed greenhouse gas 'budgets'. Exporting additional fossil fuels will simply add to the world's climate woes. This has been recognized in President Obama's recent tightening of EPA's emission regulations, which will accommodate a large transition from coal power directly to renewables like wind and solar, skipping over natural gas altogether. The argument that more natural gas is necessary to balance intermittent solar and wind is a false one. With New England currently using natural gas for 41% of its energy, that balance has already been achieved. Simply put, additional use of natural gas will necessarily place the New England states in violation of federal and state limits on emissions long before any benefit is seen for the large additional cost on ratepayers. The EIS should address how New England will meet its emissions budgets if it uses the additional natural gas being provided.

Pipe and Compressor Downsizing. Late in the scoping period, the applicant announced a downsizing of its pipe from 36 inches to 30 inches and its compressor station at Nassau from 90,000hp to 41,000hp. However, in its letter of July 24, 2015 to FERC stating the intention to reduce the size, Tennessee Gas Pipeline said, "Tennessee will continue to evaluate the needs of the market and reserves the right to amend the Project scope and construction schedule as needed to most effectively meet the demand needs of the market commitments supporting the Project." Accordingly, there is no assurance that the pipe will ultimately be downsized. Such a reservation of rights leaves the public with no knowledge of the ultimate size of the project, whether smaller or larger. We do not believe that it is possible to properly evaluate the environmental impact of the proposal when as fundamental a factor is

left unstated. Our comments will relate to the pipe and compressor station as initially proposed.

Hudson River and estuary crossing. The Hudson River is a Superfund site for two hundred miles from Fort Edward south to NYC. The crossing at Coeyman's Landing and Schodack is just 20 miles south of the Troy dam, where General Electric has performed an expensive dredging and cleanup operation of PCB deposits in the sediments to prevent their further downstream migration. The river is over 1100 feet wide at the proposed crossing point at Papscanee Island, which lies between the Hudson and an estuary marsh. The island is 1600 feet wide at that point. On the east side of the route would cross the estuary marsh at the mouth of the Moordener Kill creek. The estuary marsh is a significant feeding area for the protected Atlantic Sturgeon.

The EIS should establish whether Kinder-Morgan's (KM) river crossing method will disturb and re-suspend PCB deposits at the crossing site. FERC should study the effect on downstream communities such as Rhinebeck and the City of Poughkeepsie which use the Hudson River for drinking water. Additionally, the Town of Bethlehem uses wells adjacent to the Hudson at its Clapper Road treatment facility, in very close proximity to the proposed pipeline crossing. The Hudson is an estuary river which changes its direction of flow four times per day. The danger to the public water supply requires a hard look.

KM has indicated that it generally attempts to use dry stream crossing methods. If Horizontal Direct Drilling (HDD) will be used, the EIS should explain how KM will address inadvertent return of drilling material or fluid seepage and its potential to disturb PCB-laden sediment layers. How will they protect the drinking water, benthic invertebrates, aquatic plants and fish-spawning habitat in the river and estuary marsh?

Mr. Andrew Kahnle testified at the FERC scoping hearing in Castleton on July 14, 2015 regarding the effect of the river crossing on the Hudson and its fisheries. Mr. Kahnle is a retired fishery scientist with over thirty years experience in management of the Hudson River fisheries. He stated that the reach of river containing the proposed pipeline crossing is used as a spawning and nursery area by the short-nose sturgeon, American shad, striped bass and as a feeding area for Atlantic Sturgeon. Both the short-nosed sturgeon and Atlantic sturgeon are Federally listed endangered species. The marsh and stream complex to the east of the river is an important spawning and nursery area for many Hudson River fishes. This tidal complex has been designated as a significant fish and wildlife habitat by the New York State Department of State. This formal designation means that activities such as pipeline construction requires special scrutiny to avoid environmental damage. The applicant's environmental reports are silent on construction techniques for crossing the river. If excavation and backfilling are used, construction should not occur at times of the year when the area is used for fish migration, spawning, rearing of young or feeding. Turbidity must be controlled with turbidity curtains or settling.

The bottom sediments of the Hudson and its tidal marshes contain many contaminants. Before excavation, the applicant must test sediments across the entire width of the proposed trench. If contaminants are detected, contaminant and contaminated sediments must be contained during construction.

The river and marsh bottoms also support a rich variety of natural invertebrates, which are important food for fishes. Construction will disturb or eliminate these organisms and this loss will impact fish especially the endangered short-nosed sturgeon. Finally, the NED Pipeline is just one of several

pipeline and power cables being proposed for the Hudson River. Given the importance of the Hudson to endangered short-nosed sturgeon and Atlantic sturgeon, FERC should ask the National Marine Fishery Service for a biological opinion evaluating the cumulative impacts of all of the proposed projects for these endangered fish species.

Papscanee Island. The proposed pipeline follows an existing pipeline right-of-way where it exits on the east shore of the Hudson River and crosses Papscanee Island. The home of the Staats family is on the property and they have been asked to sell another 75 feet. The home, which dates to 1696, has been in the same family for 11 generations. It is one of the oldest continually occupied residences in the State. The Federal Highway Administration has identified Papscanee Island as "a historic property eligible for listing in the National Register of Historic Places as an historic district for its association with events of significance to the broad patterns of upper Hudson Valley history, particularly with regard to the Mohican people, and containing sites important to history and prehistory. The land was once the central site of the Mohican tribe and continues to be of considerable cultural significance to the tribe, as it is their ancestral home." There is a very significant archaeological site on the island called Goldkrest, where pre-European longhouse remains have been found. It is our understanding that the Tribal Historic Preservation Officer of the Stockbridge-Munsee Community Band of Mohican Indians has been contacted for the required consultation under Section 106 of the National Historic Preservation Act.

Although a significant portion of the island is protected by the Open Space Institute and the Staats family, the scenic and historical integrity of much of Papscanee Island has been lost. It has been partially covered in dredge spoil to make way for a deep water channel in the Hudson River. It is in fact no longer an island but is attached to the shore on the north end. The east shore of the island is hemmed in by a railroad right-of-way. The northern tip of the island in the neighborhood beyond the Goldkrest site is industrial. Now the NED would take another 75 feet from the remaining intact portion of the island. Each incursion seems to beget the next. The cumulative effect must be evaluated. The EIS should consider avoiding the island altogether, rather than let it die a death of a thousand cuts.

Nassau compressor station (Market Path Mid Station 1).

We note that on May 15, 2015, FERC notified the applicant of a number of items that were required for its resource reports. Many – if not most – of those items remain outstanding. Among these was the requirement that the applicant specify the location and details for new compressor stations including plot plans identifying the proposed units, buildings, piping and other equipment. Instead the applicant provided bare compliance with no level of detail. We do not know anything about the height, layout, lighting, security features, fencing or visibility of the proposed structure.

The proposed 90,000hp compressor station is just 2800 feet from the southern tip of Burden Lake in an area that is otherwise extremely quiet. Portions of the lake are within the half-mile buffer from the compressor. Once sound reaches the lake, there is no topographical barrier to attenuate the noise or prevent its travel over the water. Residents of Burden Lake report that on calm winter nights they can easily hear low frequency noise from Amtrak trains from the tracks 12 miles to the west.

The extremely loud sounds produced by blow downs will be carried far further than in other locations, particularly since the prevailing winds are from the south and run directly toward the lake. As pointed out in NYSDEC's SGEIS on the Oil, Gas and Solution Mining Regulatory Program in New York State,

even a six decibel increase in sound pressure can be annoying against existing rural background levels of only thirty decibels. (See Final SGEIS, May 2015, Vol. 1, page 6-301.) FERC should study the effect on the sound impact of the topography, prevailing winds and quiet background.

Tennessee Gas Pipeline discussed existing noise levels at the proposed Nassau compressor station in its Resource Report Vol. I, RR9, p. 9-39. It found daytime sound levels of 49 decibels and nighttime levels of 43.8 decibels, with an ambient level of 51.2 decibels. These levels are far higher than readings taken by a member of the Town of Nassau Natural Resources Committee, which found levels of 26 to 30 decibels. On the day that measurements were taken by Tennessee, the present owner of the land on which the station would be located was operating a drill rig and the owner of the nearest NSA was operating a tractor. Testing was at the side of the road. The noise levels therefore were not indicative of typical levels. They were artificially high. The applicant should be required to retest at night, at a more appropriate time of the year and not at roadside.

The most important feature of compressor stations that FERC needs to consider in much more than its customary depth is the reasonably foreseeable significant adverse health impacts of gas pipeline infrastructure(detailed below).

The American Medical Association adopted Resolution 519 at its June, 2015 annual meeting in Chicago. Plainly unsatisfied with current regulatory agency health impact assessment protocols, the AMA determined to support legislation requiring FERC, among other agencies, to conduct comprehensive health impact assessments in keeping with formal protocols of the public health profession.

The attached Memorandum by Dr. David O. Carpenter, State University of New York School of Public Health, presents several key examples of the way in which FERC health impact assessment protocols fall far short of professional standards. We are formally requesting that FERC supplement its review of compressor station impacts by seeking the assistance of the U.S. Dept. of Health and Human Services.

Excessive exposure to low frequency noise (LFN) can cause a systemic pathology known as vibroacoustic disease (VAD). VAD has been observed in several populations exposed to environmental LFN such as those produced by compressor stations. In both human and animal models, LFN exposure causes thickening of cardiovascular structures. Depression, increased irritability and aggressiveness, a tendency for isolation and decreased cognitive skills are all part of the clinical picture of VAD. LFN is a demonstrated genotoxic agent. The occurrence of malignancies among LFN-exposed humans, and of metaplastic and dysplastic appearances in LFN-exposed animals, clearly corroborates the mutagenic outcome of LFN exposure. (Noise Health. 2004 Apr-Jun;6(23):3-20). FERC should consider noise control measures to eliminate exposure to the high volume noise as well as LFN that travels easily over water as well as locate the compressor far from populated, rural areas.

The sound from the compressor station could be mitigated by employing a number of smaller stations with electric motors instead of natural gas engines, installing silencers and mufflers, erecting sound containment structures, moving the facility to a less sensitive location, or, preferably eliminating it altogether. The EIS should study the feasibility of the alternative of electric compressors.

The Clean Air Act, which was last amended in 1990, requires EPA to set National Ambient Air Quality Standards (40 CFR part 50) for pollutants considered harmful to public health and the environment.

The Clean Air Act identifies two types of national ambient air quality standards. *Primary standards* provide public health protection, including protecting the health of "sensitive" populations such as asthmatics, children, and the elderly. *Secondary standards* provide public welfare protection, including protection against decreased visibility and damage to animals, crops, vegetation, and buildings.

The construction and operation of the proposed projects will result in significant emissions of various air pollutants, including NO_x, VOCs, carbon monoxide, particulate matter, sulfur dioxide, and GHGs, particularly methane. These pollutants affect air quality—and therefore human health—in a variety of ways. NO_x is a precursor of both ozone and fine particulate matter (“PM_{2.5}”). VOCs are also an ozone precursor. Fine particulate matter is linked to increased heart attacks, aggravated asthma and decreased lung function, and for people with heart or lung diseases, premature death. Ozone exposure can lead to coughing, chest pain, and throat irritation. It also worsens bronchitis, emphysema, and asthma, and can reduce lung function. The EPA has listed Rensselaer County as a nonattainment area for ozone pollution. http://www.epa.gov/oaqps001/greenbk/anayo_ny.html

The most common hazardous air pollutants associated with natural gas development are n-hexane and the “BTEX compounds” benzene, toluene, ethylbenzene, and xylenes. Benzene is a known human carcinogen, and formaldehyde, which is also emitted from natural gas operations, is a probable human carcinogen. Methane is a potent GHG, which the Intergovernmental Panel on Climate Change (“IPCC”) estimates to have 34 times the global warming potential (“GWP”) of carbon dioxide (“CO₂”) over a 100-year period.

The estimated emissions from construction may exceed the tons-per-year threshold for major sources for multiple of the pollutants emitted, including NO_x, VOCs, CO, and PM. If it is determined during analysis that the project exceeds the limits for attainment status for VOCs and NO_x’s, additional air pollution measures must be taken to meet or exceed the general conformity requirements. Moreover, the Draft EIS must include the potential health effects to workers and members of the community who live nearby and who may be at risk of exposure to harmful air pollutants.

When unfavorable meteorological conditions exist, both wet and dry pollutants from the compressor station are going to fall-out into Burden Lake with a potential for adverse impacts on water quality and the aquatic habitat in Burden Lake. FERC should undertake all necessary meteorological and air quality modeling studies to determine potential impacts and must identify how they will require Kinder-Morgan to take appropriate steps to prevent negative water quality and aquatic habitat impacts from occurring in Burden Lake and the Valatie Kill and the surrounding watersheds.

The cleaning operations for pipelines remove hazardous components from the unrefined natural gas. The resulting waste should not be stored onsite, but should be removed immediately.

Aside from hosting a nesting population of bald eagles, golden eagles and numerous osprey, Burden Lake is a regular stopover for migratory waterfowl in the spring and fall. These include large numbers of Canada geese, bufflehead ducks, mergansers, loons, wild swans, and mallards, etc. FERC should study the impact of the compressor station on resident and migratory birds.

In addition to exposure to pollutants while swimming in the lake, many residents use lake water for cooking, bathing and showering. Experimental studies have demonstrated that VOCs can be efficiently transferred from water to air, especially in showers where the water is heated and there is a large water-

air interface. VOCs released to the air can equilibrate with the air in the bathroom and eventually with the rest of the house. (Agency for Toxic Substances and Disease Registry, 4770 Buford Hwy NE, Atlanta, GA 30341; Public Health Assessment Guidance Manual (2005 Update); Appendix G: Calculating Exposure Doses).

Burden Lake hosts a children's summer camp operated by the Rensselaer Boys and Girls Club. For the last nine years, it has hosted Wounded Warriors events for recreation and recovery of severely disabled veterans. It is inconceivable that we would subject these veterans, many of whom may be suffering from post-traumatic stress syndrome or traumatic brain injury, to constant, sudden and extreme noises or to force them to find another host site after forging a strong community connection here for so many years in an ideal site.

The rates of asthma in children exposed to toxic emissions have been demonstrated in the literature. Given the number of children attending Camp Adventure and Camp Schodack, both in close proximity to the proposed compressor site, the EIS should address the impact on these children, the associated cost of medical treatments for asthma attacks, and the long range health impacts of steroidal treatment of asthma. Mitigation would include air quality testing conducted by the NYSDOH before any construction, during construction, and during normal operations as well as blow downs. All mitigation methods to contain emissions should be required.

Dr. Carpenter has described the process by which methane gas reacts with sunlight to produce formaldehyde. This is a carcinogen. It causes nose bleeds, particularly in children. Given the number of children using the area for recreational purposes, the EIS should address the impact to them of exposure to this toxin. Nitrous oxide and VOCs produce ground level ozone that has been estimated to reduce crop growth by 30%. The EIS should study the economic and environmental impact of this on the farms in this community.

In addition to the health matters raised above, the EIS should address the work of Susan Nagel at the Institute for Health and Environment at SUNY and examine the risk of exposure to VOCs from the compressor station and the impact on reproductive health, endocrine system, breast cancer, developmental delays, changes in immune function, impaired sperm quantity and quality, fertility problems, and miscarriages. The EIS should address the impact of emissions on asthmatics and people with respiratory illness during the construction and operation phases of the project. The EIS should consider the higher background levels of radon in Rensselaer County and the impact of potential contamination at compressor stations handling gas from Marcellus Shale, known to have a particularly high radon content. Creation of a "public health registry" related to exposures and health effects. Biomonitoring for VOCs should be provided for humans and domestic and wild animals (Recommended by the Institute for Health and Environment at the State University of New York at Albany, Susan Nagel, December 5, 2014)

The EIS should address the need for a statewide network of reporting exposures and health effects in residents around the compressor station before construction and after operation.

Our region is served by volunteer fire, rescue and ambulance service. The nearest burn units are in Westchester County and Syracuse. Risks of the sort presented by a compressor station in industry are normally served by professionals. The EIS should address how emergency services would be provided. As was done with the Constitution Pipeline, the applicant should be required to install Class 2 design

pipe in all Class 1 locations, install the pipeline deeper than required for Class 1 locations with a minimum depth of 36 inches in normal soils and 24 inches in consolidated rock, inspection of 100 percent of mainline pipeline welds, hydrostatic testing of the entire pipeline at a level suitable for Class 3 locations, and spacing of mainline valves (MLVs) at closer intervals to meet Class 2 requirements in all areas.

Pipeline compressor stations typically employ stadium type lighting for security purposes, despite the fact that these stations are generally hidden from view by the topography and are unattended. Lighting of the sort contemplated would pollute the night sky, preventing any view of the stars from Burden Lake and unnecessarily interfering with activities of night animals such as bats and owls.

As pointed out in the report of the Nassau's Natural Resource Committee:

“There are very few full-time outdoor lights that are operated in the community surrounding the compressor station study corridor within Nassau. There is one street light (with a notably dim bulb), located at the intersection of Clarks Chapel Road and Center Nassau Road. There are two “farm-light” fixtures in the area, one attached to a residence on Clarks Chapel Road east of County Route 15, and one on a barn on Slivko Road near Clarks Chapel Road. Otherwise, the area is lighted only intermittently by household lighting, and by passing cars which are infrequent during night-time hours. The area can be characterized as experiencing dark-sky conditions, with stars and planets readily observable on average nights with skies clear of clouds. Astronomical conditions are readily observed and appreciated in the community. Obtrusive lighting is rare, and dark conditions are encouraged by the community as reported by the Town of Nassau Comprehensive Plan (pg. 634).”

The EIS should consider the impact of 24-hour lighting on the circadian rhythm of individuals exposed to the light pollution. Exposure to light at night can disrupt circadian clock mechanisms causing sleep disturbances. Studies have demonstrated that disruptions in circadian clock mechanisms are associated with weight gain in humans. (The Effects of Light at Night on Circadian Clocks and Metabolism; Laura K. Fonken and Randy J. Nelson) The global increase in the prevalence of obesity and metabolic disorders coincides with the increase of exposure to light at night and shift work. These converging lines of evidence indicate that exposure to light at night may cause metabolic changes in mammals. Disruption of the sleep cycle in children can have a severe impact on learning. There should be a full examination of the ecological consequences of artificial night lighting.

FERC should study the compressor lighting impacts and determine if there is a reason why security lights could not use motion detectors or why night vision security cameras could not be employed as a mitigation measure. There is no reason why the facility cannot meet Dark Sky guidelines for shielding of glare.

A 1998 Phase 1A survey of the Totem Lodge area east of Burden Lake found remnants of a potential prehistoric archaeological site. referred to as the Totem Lodge Prehistoric site. It is identified as New York State Museum (NYSM) Site 4584. A phase 1B survey also found several prehistoric sites.

The proposed compressor station is 9,000 feet from Eastfield Village, a collection of colonial buildings in an historically authentic setting, used for educational and study purposes at 104 Mud Pond Road in

East Nassau. The constant sound would be incongruous with the site's mission and purpose.

The applicant has offered no reason why the compressor station must be in the one-mile section identified, rather than in an industrial zone. Within that mile, the sole reason offered for the ultimate selection is that the landowner was willing to sell. That is an inadequate reason for not selecting the environmentally most suitable site in light of the applicant's right to the use of eminent domain proceedings.

This pipeline follows the route of a high power electric right-of-way, making the use of electric compressor station motors feasible. These release far fewer VOCs into the air and run more quietly. This alternative must be fully explored.

Compressor emissions would be unacceptably high for an area immediately adjacent to a highly settled recreational lake and an organic farm. It is widely known that there are simple and economical methods to reduce such emissions, but there is no indication that Tennessee Gas Pipeline would employ them. Among the methods recommended by the EPA are:

1. Keep compressors pressurized when off-line.
2. Connect blowdown vent lines to the fuel gas system and recovering all, or a portion, of the vented gas to the fuel gas system.
3. Install static seals on compressor rod packing.
4. Install ejectors on compressor blowdown vent lines.
5. Require low or no-bleed controllers.

Regardless of where the compressor is located, the applicant should be required to employ all of the above methods.

Pipeline, M.P 40.3 to M.P. 44. The pipeline would run just north of the former Dewey Loeffel landfill, a Superfund site which has produced contamination in Nassau Lake. FERC should study the compound effect on the affected lands and the waters of Nassau Lake of a potential leak from the pipeline flowing through the landfill area.

The EIS should study the effect of creating a preferential path for underground flow of water, from the perspective of connecting currently separate aquifers, one or more of which may be contaminated, to dewatering aquifers relied upon for potable water. It should be determined if the pipeline will connect the aquifer surrounding Dewey Loeffel to other aquifers.

The pipeline would be immediately on the other side of the existing electric transmission right-of-way from the proposed Troy Sand & Gravel hard rock quarry at MP 43.6. The quarry proposal is being litigated but, if finally approved, will use blasting. FERC should evaluate the effect of blasting on pipeline welds.

The pipeline would be less than 660 feet from two places of public assembly: the Nassau Sportsman's

Club on Boyce Road and a church at the intersection of North Nassau Road and County Route 18.

The proposed northern route of the NED through the Town of Nassau will intersect numerous headwater streams and wetland areas of the Valatie Kill and the Tsatsawassa Creek. These two streams are protected C(t) streams. In the most recent rule changes to the Clean Water Act the EPA and the US Army Corps of Engineers have indicated that they intend to extend protection to the headwater segments of protected streams.

The proposed route of the NED will also cross over a major unconsolidated aquifer in the Town of Nassau and Stephentown. The aquifer roughly follows the Tsatsawassa Creek as it meanders through Dunham Hollow, both above and below State Route 43. This aquifer and its re-charge zones provide the water supply for many homes in the Town of Nassau and the Village of East Nassau. Protection of this aquifer is critical to the Town and is afforded such protection in Town law. Wells should be tested before construction and periodically during operation for the detection of VOCs.

Appendix K, p. K-91, Table 2.2-9 of the Resource Report indicates that the Hudson River, the Valatie Kill (at MP 40.8) and the Tackawasick Creek (at MP 45.32) would be used as source water for hydrostatic pressure testing. The Tsatsawassa/Tackawasick is a protected aquifer and trout stream. The Valatie Kill is a trout stream that is contaminated by discharges from the Dewey Loeffel Toxic Landfill Federal Superfund site. The use of water from the Valatie Kill has the significant potential of contaminating even larger areas of surrounding towns.

A 1996 study of the Hudson River showed that at that time it contained 113 non-indigenous species of vertebrates, vascular plants, and large invertebrates, not including algae and small invertebrates. (Exotic species in the Hudson River basin: a history of invasions and introductions, EL Mills, DL Strayer, MD, Scheuerell, JT Carlton - Estuaries, 1996; http://dSPACE.gcswwd.com/bitstream/handle/123456789/111/Mills_et_al_Estuaries&Coasts_1996.pdf?sequence=1). We would submit that there is no safe place to discharge this water.

Rensselaer Plateau. The pipeline would bisect the 118,000 acre Rensselaer Plateau, one of the largest and most ecologically intact native habitats in New York State.

The pipeline would isolate and fragment wildlife on either side of the line, defeating the goals of the Rensselaer Plateau Alliance's conservation plan. The RPA's Forest Legacy Grant proposal was recently ranked #5 nationally by the U.S. Forest Service Legacy Program. Running the pipeline adjacent to existing electric power easements exacerbates the problem of fragmentation of habitat by widening the existing gap separating contiguous habitats. The impact on the Plateau's animal and plant life should be closely studied. Consideration should be given to burying the pipeline deep enough to permit reforestation. The applicant should be required to provide "travel lanes" or corridors sufficiently wide for animal movement where the habitat is fragmented. If the pipeline must cross the Rensselaer Plateau and cut across its many trail systems, the applicant should offer a dedicated multi-use east-west trail on the right-of-way.

New York State has identified the Rensselaer Plateau as an important area for protection due to its diversity and bird breeding features and the Audubon Society has designated the Rensselaer Forest

Tract as an important bird breeding area. The Audubon Society specifically cites the high diversity and abundance of forest breeders on the Plateau, including many at-risk species. Many birds are experiencing declining population numbers in the Northeast due in part to loss of large blocks of forest. The Plateau has also been the focus of conservation efforts by the Rensselaer Land Trust and The Nature Conservancy. We are concerned about the impact the pipeline and its supporting infrastructure will have on breeding bird populations in the Rensselaer Plateau area as well as the areas surrounding Burden Lake and the Valatie Kill watersheds. FERC should consult with and seek input from the NYS Chapter of the Audubon Society, the Rensselaer Land Trust and the New York Chapter of the Nature Conservancy on the impact the proposed NED project would have on the Rensselaer Plateau and the areas surrounding the Burden Lake and Valatie Kill watersheds. We would direct your attention to Dr. David M. Hunt's comments (Submittal 20150820-4024) regarding the Plateau and the three pipeline reports referenced therein.

The Plateau is characterized by steep topography. Construction across such areas creates a potential for flash flooding, affecting lakes and streams at lower elevations. Glass Lake and Crooked Lake are particularly vulnerable to flows from higher elevations in high volume storm events. Historically, the Glass Lake Dam has been overtopped twice and came dangerously close during Hurricane Irene. The dams along Wynantskill Creek are not capable of withstanding additional loads. Catastrophic collapse would threaten communities as far away as the City of Troy.

FERC should consult with and seek input from the Rensselaer Plateau Alliance, the Town of Nassau and the Town of Stephentown on the proposed route of the NED on the Rensselaer Plateau as it relates to impacts on streams, wetlands and groundwater quality and quantity. FERC should address this issue in the EIS they are preparing and delineate how these headwater streams, wetlands and groundwater aquifers will be afforded protection both during the initial construction and post construction phase.

Stream Crossings. Depending on the size, timing, duration and methods employed, stream crossings can have significant impacts on aquatic ecosystems by altering stream morphology, process and function including in-stream habitat both upstream and downstream of the crossing location, as well as at the crossing location itself. We recommend that the pipeline route avoid alteration of stream hydrology, sediment transport, and morphology by eliminating crossing streams of any size, including ephemeral streams, wherever possible.

Where avoidance is not feasible, measures to reduce impacts should include site specific evaluations of construction activities. For example, stream crossings should be located downstream from all confluences to reduce the total number of stream crossings and the impacts on stream morphology at these convergent locations. We recommend that the FERC include in the draft EIS appropriate measures to reduce both short-term and long-term impacts to stream morphology and hydrology. This is particularly important given the importance of small headwater streams that serve as spawning reaches and thermal refuges for coldwater fish, including native and wild trout.

The Resource Report describes the proposed methods that will be used for stream crossings, including: open cut, flume, dam-and-pump, conventional bore and horizontal directional drilling (HDD). While each of these methods is explained, the report fails to explain under what circumstances each method will be used, what information will be gathered during surveys and related analysis to inform which

stream crossing method should be used, what criteria and type of evaluation process will be used by the applicant to determine which crossing method is appropriate, and when, during the planning process, a decision will be made on which method is appropriate.

We recommend that the draft EIS identify each stream crossing by mile post, as well as the proposed method for each stream crossing. We recommend that the open cut crossing method not be used in any circumstances on any streams within watersheds that support native and wild trout. We strongly recommend that the applicant use HDD, direct bore or Direct Pipe™ methods to cross sensitive streams where feasible.

HDD, direct bore and Direct Pipe™ methods are preferred for stream crossings because they have the advantages of minimizing land disturbance, avoiding the need for dewatering the stream, leaving the immediate stream bed and banks intact, and reducing erosion, sedimentation and project-induced watercourse instabilities. Further, the Direct Pipe™ method is favorable for stream crossings over other methods, including HDD and open trench, because it is suitable for unconsolidated sand, gravel, and cobbles (such as river bottoms), virtually eliminates the risk of blowouts associated with HDD, and does not disturb the channel bed as compared to dry crossing methods. Because the Direct Pipe™ method presents the least amount of risk to stream systems, it should be evaluated for proposed crossings of native and wild trout streams.

The draft EIS should evaluate whether the use of HDD, direct bore and Direct Pipe™ methods for each stream crossing is feasible, and where these methods are determined not to be feasible, provide a justification. Where HDD, direct bore or Direct Pipe™ methods are proposed, the draft EIS should describe the typical work area required and protective measures that will be used to limit runoff of sediment and other fluids into streams, as well as describe a contingency plan if the HDD, direct bore or Direct Pipe™ method fails and results in sediment and/or drilling fluid entering a stream.

If the dry crossing method is proposed, the Applicant should identify which type of dry crossing—whether dam and pump, flume, cofferdam, or dry open cut—will be used. Each type of dry crossing method has unique and individual impacts. In order for the Commission to identify the impacts of each stream crossing on stream hydrology and aquatic habitat and to propose appropriate mitigation measures, the specific type of dry crossing method proposed for each stream crossing must be identified in the draft EIS.

Field reconnaissance by pipeline personnel is necessary for the identification of stream crossings since many ephemeral and some perennial streams are not visible on topographical maps. Information that must be gathered during surveys and included in a draft EIS, in order to determine which type of crossing method should be used for each stream, what impacts may result, and what mitigation measures are needed, includes at a minimum:

- Geotechnical feasibility studies to determine if HDD, Direct Pipe™ or other conventional bore method is appropriate and feasible for each stream crossing;
- Proximity to the nearest confluence up and downstream;
- Stream discharge, channel gradient, channel sinuosity, stream substrate, cross-sectional surveys, channel debris and sediment storage, and stream order;

- Geomorphological data, including complete fluvial geomorphic characterization of the stream's hydraulic geometry, plan form, and profile, and information about bed and bank stability, scour depth and depth of pools; and
- A scour depth analysis either based upon measured pool depth or calculated scour for observed bed materials and design discharge, to determine the potential for vertical or lateral adjustment of each stream.

This information is necessary for a site-specific review of the proposed method and will provide an opportunity for interested parties to provide specific recommendations on mitigation measures appropriate for each specific stream crossing.

The EIS should describe the typical work area required and protective measures that will be used to limit runoff of sediment and other fluids into streams, as well as describe a contingency plan if the HDD, direct bore or Direct Pipe™ method fails and results in sediment and/or drilling fluid entering a stream.

Effect of Compressor on Property Values. In other pipeline applications, FERC has found that there is no peer-reviewed literature supporting the proposition that pipelines reduce property values in any significant way. However, a review of the existing literature shows that no such study even mentions compressor stations. Unlike pipelines, compressors can be seen, heard and smelled. Compressors of the size contemplated for Nassau are in fact indistinguishable from heavy industrial uses. There is a significant body of peer-reviewed literature that demonstrates large reductions in property values of residences located near such uses. FERC is relying, therefore, on the wrong body of literature with respect to compressors. (See, *Undesirable Facilities And Property Values: A Summary Of Empirical Studies*, Stephen Farber, *Graduate School of Public and International Affairs, University of Pittsburgh, Pittsburgh, PA 15260, USA*; Received 10 September 1996; accepted 13 March 1997.)

The EIS must consider the economic consequences of declining property values, the impact on mortgage agreements and the ability to secure reverse mortgages for seniors in the community. A complete economic analysis would consider this among other negative externalities such as increased health costs, environmental costs and additional costs to local government for fire, police and highway maintenance.

Additional Mitigation. FERC should consider the following matters and related mitigation measures:

- *The No Action Alternative.* The natural gas transported by the NED would add to total carbon emissions loads in direct contravention of the EPA's Energy Plan. It is unnecessary to relieve constraints on electric capacity since existing shortfalls are easily met with LNG purchases. These shortfalls could be eliminated entirely by repairing leaks in the current system, adding renewable sources of energy such as wind, water and solar and increasing energy efficiencies in general. Electric use has been flat since 2008 and the world is adding more capacity for renewables each year than coal, natural gas and oil combined. The NED and other northeast pipelines are likely to be obsolete and unused before they reach the end of their useful lives, leaving ratepayers to pick up the bill and leaving a trail of environmental destruction.
- *Alternative routes.* There is a southern route that follows a pre-existing pipeline. It is

approximately 3 miles long and crosses from the Town of Schodack under Route 203 south of the Village of Nassau approximately 1800 feet north of Sweets Crossing Road, then travels easterly under Hanley Road, Malden Bridge Road and Jefferson Hill Road, where it intersects Mashodack Road, then ESA, crossing Middle Road and into Columbia County. This route has fewer elevation changes and avoids the Rensselaer Plateau. It is 3.6 miles shorter and involves only 10 acres of additional ROW instead of 24 to 40 acres. It is only 10% forested rather than 90%. It has only 7 sites of concern (1 classified stream, 5 unclassified streams, 5 wetlands) compared to 19 such sites (4 classified streams, 6 unclassified streams, 2 small ponds, 8 wetlands). Subsurface archaeological sites on the southern route are already disturbed. 1.5 miles of the northern route passes through a groundwater aquifer; .7 miles of the southern route passes through an aquifer. A route along the New York Thruway (Berkshire Spur) and the Massachusetts Turnpike is far preferable to either the northern or southern routes.

The applicant's analysis rejecting the Mass Pike Route (I-90) is conclusory, with no underlying detail. The treatment of the topic in the resource reports suggests that the true underlying reason is that the expense of installation would be greater. For example, it counts the number of major and minor water crossings. However, it fails to distinguish among these on the basis of their quality. On a trip down the Mass Pike, one sees numerous small water bodies that are simply man-made detention ponds with little ecological significance. Their function and effectiveness would not change with a crossing. In contrast, the applicant's chosen route includes estuary marshes that are significant breeding grounds for threatened and endangered species. These cannot be equated. The EIS should explore the kind and quality of each water crossing on each route. The same is true of the applicant's other statements regarding the route. If there are conflicting, existing utilities, what are they and where? If there is development close to the route, what is it and how would it be affected? Are there industrial areas that can house compressor stations without residential conflict?

Thank you for the opportunity to comment.

9 July 2015

The American Medical Association has Resolved to support legislation requiring comprehensive health impact assessments as an integral part of regulatory review of gas pipeline proposals. This position reflects the fact that significant adverse health impacts may be overlooked by current regulatory review.

In brief, the typical regulatory agency approach is to estimate the total short-term and long-term emissions directly sent into air or water by the project under consideration. Estimated total emissions are then compared with Federal or State standards for “acceptable” emissions. If the estimated levels fall below critical thresholds, the project is assessed as having a non-significant health impact.

A more complete and informative look at environmental impacts is called a comprehensive health impact assessment, and was outlined as a set of research protocols by the Centers for Disease Control and Prevention, and by the National Academy of Sciences.

Listed below are three examples of impacts which are not currently included in reviews by agencies such as New York State Department of Environmental Conservation or the Federal Energy Regulatory Commission:

1. **Emission spikes.** Regulatory agencies measure emissions in terms of averages taken over numerous short (for example, one hour or less) or long-term intervals (for example one or more days). Recent studies have found that these averages don’t reveal the occurrence of very high levels of “peak” emissions which may occur at irregular intervals. These peaks may have serious adverse health impacts that are not captured by averaging over longer periods of time. A comprehensive assessment performed according to public health professional standards would capture information on peak emissions and their consequent health implications.
2. **Dynamic evolution of emissions.** Regulatory agencies take a very local and static view of toxic emissions, assessing them in isolation from each other and only at the time and place immediately adjacent to their source. Many if not most standards are based on single chemical emission, while under most circumstances it is a mixture of different chemicals that are emitted. In addition, it is well established that any single emission can disperse widely, evolve and combine with other emissions and atmospheric conditions, and become reabsorbed into distant water and soil. Only a comprehensive health assessment can properly evaluate the full range of emission impacts.
3. **Downstream and upstream impacts.** Regulatory agencies restrict their assessment of impacts to the operations of the project in question. But pipeline impacts extend far beyond pipeline operations. Pipelines are a “midstream” structure, placed between the start-point of gas well production sites and the endpoint of residential consumption. Adding a pipeline has the impact of expanding both production and consumption. And many studies have reported that the endpoint use of pipeline-provided gas in residential stoves has adverse impacts on respiratory function. Only a comprehensive health assessment would, correctly, view this as a pipeline impact.

These examples are not exhaustive. The issue of vulnerable sub-populations (such as people with pre-existing asthmatic conditions) is not routinely addressed by regulatory agencies, but is a key part of comprehensive health impact assessments. The complete list of differences between regulatory versus public health impact reviews is long and complex.

Nonetheless, the conclusion is quite clear to the American Medical Association: current regulatory procedures do not adequately protect public health and safety.

Yours sincerely,

A handwritten signature in blue ink that reads "David O. Carpenter". The signature is written in a cursive, flowing style.

David O. Carpenter, M.D.

Director, Institute for Health and the Environment
University at Albany