

Reasons for the New Jersey Department of Environmental Protection (NJDEP) to Deny Permits for the Northeast Supply Enhancement (NESE) Project

NESE hinders meeting clean energy goals of the State of NJ & NY

The NESE Project's greenhouse gas emissions and methane leaks would undercut the State's goals to address Impacts on Climate Change. Based on the responses from the public and political leaders, there is growing support for these goals.

- **Over 4,500 people signed online petitions to the NJDEP and/or to Governor Murphy that included reasons for the NJDEP to deny the June 12, 2019 permit applications. More comments were emailed or submitted in writing to the NJDEP during the comment period for this 3rd set of applications, but we do not know how many.**
- **Governor Cuomo & Mayor DeBlasio, along with many other elected officials in NJ & NY, have voiced their opposition to the NESE Project.**

Though not an aspect of permit review requirements of the NJDEP, the goals of both New Jersey and New York to meet targets for reducing greenhouse gases and address impacts of climate change is an issue raised by many. The methane releases and leaks from the compressor station and pipeline of NESE would hinder both states in meeting these goals. Though National Grid and Williams/Transco say that the NESE Project would aid air quality, other investigative reports such as the March 2019 report, *False Demand: The Case against the Williams Fracked Gas Pipeline* by Suzanne Mattei, have refuted claims that the additional gas is needed and that it could help improve air quality since there are very few oil boilers in National Grid's service area in this part of NY that need to be converted, and there is no guarantee that those will actually be converted to gas. This report by Suzanne Mattei, a former regional director at the NYSDEC, now with Lookout Hill Public Policy Associates, provides sufficient evidence that National Grid has been misrepresenting the gas supply situation in New York for its corporate benefit. Read the report at: https://350.org/wp-content/uploads/2019/03/Stop_Williams_False_Demand.pdf

NJ had the wettest and hottest months and years recently.

- According to scientists, July 2019 is on track to be the hottest month in recorded history.
- In New Jersey, the year 2018 had more precipitation than in any other year since record-keeping began in 1895.

NJ has twice the sea level rise of the Global average.

NJ has unhealthy ozone – We are in a “moderate nonattainment” region.

NJ had record cases of West Nile cases in NJ in 2018.

Climate change is harming and will continue to harm New Jersey and New York waters.

- The NY/NJ Harbor and Estuary Program (HEP), established under the Clean Water Act, recently issued a report noting that climate change will impair the ability of the program to meet its goals, which means failing to maintain best usages of New Jersey and New York waters as required by 401 Water Quality Certification.

Source: <https://www.hudsonriver.org/NYNJHEPClimateVulnerability.pdf>

- The HEP report found 17 risks to the NY/NJ estuary related to climate change. These will be caused by climate change-related sea level rise, increased precipitation, extreme weather events, temperature increases, increased drought, and increased acidification of the water.
- Kate Boicourt, co-author of the HEP report and director of resilience at Waterfront Alliance, stated: “We’re already having trouble meeting water quality standards. Climate change will only exacerbate this challenge, with increasing annual precipitation and record-setting storms adding stress to our aging infrastructure, putting both people and habitat at risk.”

Construction and operation of the compressor station and pipelines that are part of the NESE Project will increase greenhouse gases in New Jersey that lead to significant weather events and other harmful effects. Compressor stations and gas pipelines leak methane – the most potent short-term greenhouse gas.

NESE’s Applications & reviews clearly omitted assessing actual greenhouse gas (GHG) emissions, both initially and cumulatively, for the impact on Central New Jersey from Compressor Station 206 (CS206). The following is from FERC’s 1/25/19 FEIS -

Yearly Emission Estimates for Compressor Station 206	
Greenhouse Gas Equivalent (CO₂e)	136,143 tons per year
• Methane (CH₄ – the most impacting GHG)	more than 33.41 tons every year *
• Carbon dioxide (CO₂)	claimed est. 130,943 tons every year
• Nitrous oxide (N₂O)	claimed est. 3.29 tons every year

** Notes: Any accounting for fugitive emissions (leaks) is likely grossly underestimated.*

The threshold for comparing this to the Prevention of Significant Deterioration (PSD) threshold of 75,000 tons per year of emissions of 132,720 tons of Greenhouse Gas Equivalent per year (as noted in the application) was not triggered because CS206 was not considered a major source for the NJDEP.

- **Exhaust Temperature & Velocity:** Compressor Station 206 would have two smokestacks, each emitting exhaust at a rate of 210,000 cubic feet per minute at a temperature greater than 849° Fahrenheit. There were no available studies of the impact of exhaust at this velocity, amount or temperature on the environment.
- **It’s old technology** and, as confirmed by the manufacturer, combustion exhaust temperature increases at lower than 100% load along with emitting more unburned fuel and chemical byproducts.

Reported emissions estimates for the Solar Mars 100 turbines proposed for Compressor Station 206 are not warranted by the turbine manufacturer, and they were not validated by FERC or NJDEP.

- As stated by the manufacturer of the Solar Mars 100 turbines - “non-warranted emissions of SO₂, PM_{10/2.5}, VOC, and formaldehyde.”
- VOC emissions are not warranted due to erratic operation turbine as confirmed by: “Any emissions warranty is applicable only for steady-state conditions.” This actually refers to all emissions, and changes in turbine load produce erratic chemical emissions.

Williams/Transco noted that they have never used Selective Catalytic Reduction (SCR) technology on a Solar Mars 100 before, so the impact on pollution reduction cannot be adequately assessed.

- In the application to NJDEP for a Freshwater Wetlands Individual Permit (June 12, 2019), the Factsheet document (page 14) notes: “Compressor Station 206 will be Transco’s first natural gas transmission compressor station to utilize SCR on the turbine driven compressors.”

Methane is the main component of natural gas, and its impact on the climate is more severe than that of carbon dioxide.

It is argued that methane is a short-lived pollutant and therefore should be treated differently. However, "short-lived" is relative. Methane stays in the atmosphere for an average of nine years, which, according to the latest IPCC report, is about the timeframe that humanity has to stabilize greenhouse gas emissions in order to avoid the worst impacts of global climate change. Additionally, methane is a much more potent greenhouse gas than CO₂, producing 84 times the global warming potential (GWP) of an equivalent weight of CO₂ over a 20-year period.

Even over CO₂'s average 100-year lifetime in the atmosphere, methane yields 25 to 32 times the global warming potential of CO₂. Nitrous oxide is worse still, creating 298 times the global warming potential of CO₂ over a 100-year period, as well as causing depletion of stratospheric ozone, leading to more sun burns and skin cancer.

In short, methane and nitrous oxide are much worse greenhouse gases than CO₂, especially when we consider the speed with which we need to act. CO₂ is only the most damaging greenhouse gas emission because there is so much more of it emitted worldwide.

Also to note - Natural gas is not the "transition" fuel that some think it is. It emits half the amount of carbon as coal, but if as little as 3.5 percent of its methane is released, it pollutes worse than coal. Also - data on methane release are scarce due to weaknesses in monitoring and reporting requirements.

Methane Leaks are not accounted for in the NESE application documents.

- Methane leaks from compressor station + pipelines (unintentional equipment malfunctions & intentional releases from valves) are not monitored carefully, or reported. Without use of infrared camera surveying / optical gas imaging / special sensors, the real amount will likely never be known. EPA estimates a 1.4% leak rate, but a recent actual study found that the methane leak rate is 2.3%.
- A new study, [published on June 21, 2018 in the journal Science](#), puts the rate of methane emissions from domestic oil and gas operations at 2.3 percent of total production per year, which is 60 percent higher than the current estimate from the Environmental Protection Agency. That might seem like a small fraction of the total, but it represents an estimated 13 million metric tons lost each year, or enough natural gas to fuel 10 million homes. It would be worth an estimated \$2 billion. This much leaked methane would have roughly the same climate impact in the short-term as emissions from all U.S. coal-fired power plants, the authors found.

Source: R. A. Alvarez et al., Science 10.1126/science.aar7204 (2018 June 21). Assessment of methane emissions from the U.S. oil and gas supply chain. **Accessed at:** <http://science.sciencemag.org/content/early/2018/06/20/science.aar7204/tab-pdf>

- [An earlier EDF study](#) showed that a methane leak rate of greater than 3 percent would result in no immediate climate benefits from retiring coal-fired power plants in favor of natural gas power plants.
Source: Ramón A. Alvarez, Stephen W. Pacala, James J. Winebrake, William L. Chameides, and Steven P. Hamburg. Greater focus needed on methane leakage from natural gas infrastructure. PNAS April 24, 2012 109 (17) 6435-6440. **Accessed at:** <https://doi.org/10.1073/pnas.1202407109>
- A 2014 study by EDF and Google used Google's Street View mapping cars that were fitted with methane sensing technology that traveled roads to document and map methane leaks on Staten Island. This revealed one leak every mile in this exclusively National Grid distribution area. As reported by them, over one-quarter of National Grid's pipelines here were cast iron or other corrosive and leak-prone materials, and over one-half of their pipelines were 50+ years old. This study took place between January and April 2014. **Accessed at:** <https://www.edf.org/climate/methanemaps/city-snapshots/staten-island>
- There should be an emphasis on measuring methane emissions (not just carbon dioxide) in our state's efforts to reduce greenhouse gas.
- We are in an ozone nonattainment zone, and methane leaks contribute to ozone.

Methane leakage has been underestimated in reports by industry.

See, for example:

R. A. Alvarez et al., Science 10.1126/science.aar7204 (2018 June 21). Assessment of methane emissions from the U.S. oil and gas supply chain. Accessed at: <http://science.sciencemag.org/content/early/2018/06/20/science.aar7204/tab-pdf>

Voiland, A. (2016 March 8). Methane matters: Scientists work to quantify the effects of a potent greenhouse gas. Accessed at: <https://earthobservatory.nasa.gov/Features/MethaneMatters/printall.php>

Impacts of increased greenhouse gas emissions were not accounted for by any agency reviewing NESE’s application and environmental impact documents.

- NESE would significantly worsen climate change impacts in the region due to greenhouse gas emissions from drilling, producing, transporting and burning of natural gas. It is apparent from recent global and U.S. reports, listed below, that consideration of impacts from greenhouse gases is urgent.
- Recent reports have clearly shown how emissions from natural gas-fired compressors are dangerous, toxic and highly damaging to the environment and our health, and impacts from the NESE Project were not identified or independently examined by FERC as long-term or cumulative health impacts in the EISs.
- FERC acknowledged the **specific vulnerability of New York City to climate change** by listing projected changes on page 4-388 in the FEIS for the NESE Project (1/25/19):

	By 2020	By 2050
average temperature would increase from 54 °F	to 57 °F	to 61 °F
Coastal flooding would increase by up to 100-year flood heights	1.5 percent	3.6 percent reaching 13.8 feet
number of days per year with rainfall exceeding 2 inches would increase from 3 to	up to 5 days	up to 4 days
Precipitation would increase	up to 10 percent	up to 13 percent
Sea level rise would increase by as much as	10 inches	30 inches

In NESE’s FEIS, prepared by FERC, they note that **“Construction and operation emissions from the NESE Project would increase the atmospheric concentration of GHGs, in combination with past and future emissions from all other sources, and contribute incrementally to future climate change impacts.”** FERC lists many documented impacts of climate change in the FEIS. However, in the FEIS, FERC claims that, “there is no widely accepted standard, per international, federal, or state policy, or as a matter of physical science, to determine the significance of the Project’s GHG emissions.” In other words, FERC has declined to weigh climate change in the balance when deciding whether or not to grant Williams/Transco a certificate to proceed.

FERC’s claim that there is no standard for determining a project’s greenhouse gas emissions is false. Three peer-reviewed, well-cited Integrated Assessments Models (IAMs) for determining the social cost of carbon exist. After the DEIS was released, FERC was informed about these models by a detailed report co-authored by leading environmental and legal authorities. Moreover, the report also made it clear that FERC has a legal obligation to weigh the impact of climate change under the National Environmental Policy Act (NEPA). The report stresses that the “uncertainty about the full effects of climate change raises the social cost of greenhouse gases and warrants more stringent climate policy.” There are methods for determining the impact of greenhouse gas emissions, and FERC must use them when weighing whether or not to permit a project like NESE to go forward. Indeed, in *Sierra Club v. FERC*, a recent D.C. Circuit Court affirmed that FERC *must* evaluate the impacts of greenhouse gas emission when assessing a project.

Source: FERC Accession Nos. 20180514-6016(32884460) & (32884461) by New York University School of Law’s Institute for Policy Integrity with the Environmental Defense Fund, National Resources Defense Council, Sierra Club, and the Union of Concerned Scientists.

The cost of weather/climate-related disasters is mostly borne by taxpayers and people who are directly impacted but not involved in decision-making policies about the production and transportation of carbon-intensive goods.

According to the National Oceanic and Atmospheric Administration (NOAA), economic costs in the U.S. from the 16 weather/climate-related disasters in 2017 were \$309.5 billion. This exceeded the previous record by over \$100 billion - For 2005, from Hurricanes Dennis, Katrina, Rita & William, CPI-adjusted costs to present dollars were \$219.2 billion. The number of weather/climate-related disasters in the U.S. in 2017 tied the number from 2011, but the actual isolated events in 2017 were arguably more because wildfires were counted as regional-scale, seasonal events and not as multiple isolated events.

In 2018, there were 14 weather and climate disaster events with losses exceeding \$1 billion each across the United States. These events included 1 drought event, 8 severe storm events, 2 tropical cyclone events, 1 wildfire event, and 2 winter storm events. Overall, these events resulted in the deaths of 247 people and had significant economic effects on the areas impacted. The 1980–2018 annual average is 6.2 events (CPI-adjusted); the annual average for the most recent 5 years (2014–2018) is 12.6 events (CPI-adjusted).

During 2018, the U.S. experienced an active year of billion-dollar disaster events including the 4th highest total number of events, only behind the years 2017, 2011 and 2016. In 2018, the U.S. also experienced the 4th highest total costs (\$91 billion) only behind the years 2017, 2005 and 2012.

Source: NOAA National Centers for Environmental Information (NCEI) U.S. Billion-Dollar Weather and Climate Disasters (2019). <https://www.ncdc.noaa.gov/billions/>

In New York, the situation is critical. New York has experienced a foot (30.48cm) of sea-level rise since 1900, due to expansion of warming ocean water and glacial melt. Additionally, New York is locked into additional sea-level rise for centuries to come because of heat-trapping greenhouse gases already in the atmosphere. Increased CO₂ emissions will only expedite and exacerbate escalating sea level rise. Sea-level rise impacts include: inundation of low-lying areas and the erosion of beaches and bluffs, saltwater infiltration of surface waters and aquifers as well as the possible compromise of low-lying sewage, wastewater, transportation, communication, and energy infrastructure and systems.

Greenhouse Gas Emissions - Relevant Reports:

- October 7, 2018 - Comprehensive assessment by the Intergovernmental Panel on Climate Change (IPCC) released in Incheon, South Korea. **Accessed at:** <https://www.ipcc.ch/report/sr15/>

IPCC, 2018: *Global warming of 1.5°C. An IPCC Special Report on the impacts of global warming of 1.5°C above pre-industrial levels and related global greenhouse gas emission pathways, in the context of strengthening the global response to the threat of climate change, sustainable development, and efforts to eradicate poverty* [V. Masson-Delmotte, P. Zhai, H. O. Pörtner, D. Roberts, J. Skea, P.R. Shukla, A. Pirani, W. Moufouma-Okia, C. Péan, R. Pidcock, S. Connors, J. B. R. Matthews, Y. Chen, X. Zhou, M. I. Gomis, E. Lonnoy, T. Maycock, M. Tignor, T. Waterfield (eds.)]. In Press.

- November 23, 2018 - A new federal report finds that climate change is affecting the natural environment, agriculture, energy production and use, land and water resources, transportation, and human health and welfare across the U.S. and its territories. **Accessed at:** <https://nca2018.globalchange.gov/>

Volume II of the Fourth National Climate Assessment (NCA4), released Nov. 23, 2018 by the United States Global Change Research Program (USGCRP -- <http://www.globalchange.gov/about>), focuses on climate change impacts, risks and adaptations occurring in the U.S. The report contains supporting evidence from 16 national-level topic chapters (e.g., water, oceans, energy, and human health), 10 regional chapters and two chapters that focus on societal responses to climate change. NOAA is one of 13 federal agencies that contributed significantly to the Fourth National Climate Assessment. USGCRP also released the Second State of the Carbon Cycle Report (SOCCR2 -- <https://carbon2018.globalchange.gov/>).

Some Other Relevant Resources & References about Greenhouse Gas Emissions:

The greenhouse gas impacts of proposed natural gas pipeline buildout in New York – PSE for Earthworks (February 2018). **Accessed at:** <https://www.psehealthyenergy.org/wp-content/uploads/2018/02/NY.Pipelines-1.pdf>

Ridlington, E. (Frontier Group) and Madsen, T. (Environment America Research & Policy Center). (Spring 2017) Our Health at Risk – Why are millions of Americans still breathing unhealthy air? Environment New Jersey Research & Policy Center. **Accessed at:** <https://environmentnewjersey.org/sites/environment/files/reports/Our%20Health%20at%20Risk%20vNJ%20web.pdf>

Shankman, S. and Horn, P. (3 October 2017) The most powerful evidence climate scientists have of global warming. **Accessed at:** https://insideclimatenews.org/news/03102017/infographic-ocean-heat-powerful-climate-change-evidence-global-warming?utm_source=Inside+Climate+News&utm_campaign=31b399ba86-Weekly+Newsletter&utm_medium=email&utm_term=0_29c928ffb5-31b399ba86-327817337

NATIONAL SECURITY: Long-Range Emerging Threats Facing the United States As Identified by Federal Agencies. (December 2018) GAO-19-204SP, a report to congressional committees from the US Government Accountability Office. **Accessed at:** <https://www.gao.gov/assets/700/695981.pdf>

When Williams/Transco re-applied on May 17, 2019 to the NYSDEC, it responded that, “without agreeing that this comment is relevant to the Water Quality Certification,” building the NESE would reduce GHG emissions. To make this claim, Williams hypothesized that if all 400,000 dekatherms of the gas delivered through the pipeline in an entire year were burned in boilers that would otherwise burn No.2 fuel oil, 2.80 million metric tons less carbon dioxide equivalents would be emitted in a year.

- **Construction Emissions:** The NYSDEC estimates 99,781 tons of carbon dioxide equivalent (CO₂e) emissions (the equivalent of burning 50,000 tons of coal) resulting from the construction of the NESE project alone.
- **Upstream Emissions:** Gas leakage would contribute substantially to emissions well before the gas is actually burned. Natural gas is mostly methane, a greenhouse gas that, when it leaks, is 86 times more powerful in the short term than CO₂. When just 3.2% of methane leaks—and gas infrastructure is known to leak as much as 11%—methane is as bad for the climate as burning coal.
- Williams/Transco doesn’t account for the fact that all No.2 oil in NYC is mixed with biodiesel by law. This makes the emissions of No.2 oil comparable to gas.
- In sum: The NESE pipeline would not substantially reduce emissions in New York — a fact corroborated by a recent report by Oil Change International. Williams/Transco manipulates the facts by leaving out crucial information about methane leakage and biodiesel that render its claims false.

Reference: Stockman, L., Trout, K. and Blumenthal, B. (May 2019). Burning the gas ‘bridge fuel’ myth: Why gas is not clean, cheap, or necessary. Oil Change International. Accessed at: http://priceofoil.org/content/uploads/2019/05/gasBridgeMyth_web-FINAL.pdf

- Furthermore, studies show that the energy the pipeline is to provide could easily be met by renewable technologies like ground- and air-source heat pumps, which would drastically reduce emissions and help to reduce the effects of climate change on New York waters.
- Further reductions in gas demand in New York will come from building retrofits as mandated by the recently passed Climate Mobilization Act, which will dramatically cut energy use in big buildings, and is yet another reason the pipeline isn’t needed.

On June 11, 2019, the consulting firm M.J. Bradley & Associates published a report commissioned by National Grid that claims that building the NESE would be better for the climate than if it were not built. National Grid is the sole customer for the gas that would flow through the NESE pipeline, having signed a 15-year contract. The Bradley report compares the release of greenhouse gases (GHG) with and without the construction of the NESE for ten years, from 2020 to 2030. It claims to take all components into consideration: the production and distribution of fuel, as well as its transformation into energy. The report concludes that building the NESE would yield 32-37% less GHG emissions over 10 years than would be emitted if the pipeline were not built.

Source: M.J. Bradley & Associates. (11 June 2019). Life Cycle Analysis of the Northeast Supply Enhancement Project. **Accessed at:** <https://www.mjbradley.com/reports/life-cycle-analysis-northeast-supply-enhancement-project> or https://www.mjbradley.com/sites/default/files/MJBA_NESE_LCA_06112019.pdf

HOWEVER ...

The report systematically underestimates the climate impacts of natural gas and the pipeline in general, relying on misleading assumptions and omitted and incorrect data to make its claims.

- **The report underestimates the climate impact of the NESE by using the wrong calculation for methane.** The gas that would flow through this pipeline is primarily methane, and methane is an extremely potent greenhouse gas (GHG). Notably, methane is particularly potent when it first reaches the atmosphere. In the first twenty years after its release, it is 86 times more potent a greenhouse (heat-trapping) gas than carbon dioxide. A hundred years after its release, methane's potency declines to roughly 34 times as powerful as carbon dioxide. The Bradley report recognizes this, but its calculations of this 10-year period use the 100-year potency of methane instead of the 20-year figure. Since methane virtually disappears from the atmosphere after twelve years, and since there is widespread agreement that we have only until 2030 to make the changes that will prevent a two degree Celsius elevation in global mean temperature (or worse), the 20-year figure more accurately measures these effects in the first decade of the proposed pipeline's use. The Bradley report thus seriously underestimates the impact of methane as a greenhouse gas.
- **The report chose to largely ignore the most recent research on "upstream" methane emissions despite expert advice.** The authors had available to them research from the Environmental Defense Fund that shows that upstream contributions to global heating, i.e. the methane released into the atmosphere from fracked wells, compressor stations, and long-distance pipelines, are 24% higher than the contributions reported by industry to the Department of Energy. The Bradley report buried this alternative calculation in the appendix. Moreover, Professor Robert Howarth of Cornell has recently published evidence that the upstream leakage of natural gas is on the order of 12%, not the 3% figure used by the EPA.
- **The Bradley report may well underestimate the climate impact because it relies on data furnished by National Grid to estimate how much gas is lost through leaks from local distribution networks.** This data is not publicly available but is likely based on whatever large leaks National Grid has responded to. In NYC, half of the distribution pipelines under the streets are more than 50 years old and many of them are made of cast iron or other corrodible material. While large leaks can be detected by their odor, and are always addressed because of the risks to the public, the detection of moderate and small leaks requires specialty equipment. In 2014, the Environmental Defense Fund, Google Street View, and Colorado State University teamed up to map methane emissions on every street on Staten Island. They found an average of one leak per mile in that borough. These were overwhelmingly all previously undetected moderate and small leaks. The study "conservatively" estimated that they added up to 1,000 tons of methane per year seeping from the local distribution system into the atmosphere, a significant driver of climate change. The NYC City Council has recently recognized the need for such complete and systematic surveys of methane leaks in all boroughs. Data that only takes large leaks seriously underestimates the GHG emissions from a distribution system.
- **The report does not acknowledge the emissions impact of the pipeline construction itself.** The NYSDEC estimates that construction would generate 99,781 tons of carbon dioxide equivalent (CO₂e) emissions (the equivalent of burning 50,000 tons of coal). In addition, National Grid says that a major purpose of the NESE would be to serve new building construction in the region, which may require new distribution pipelines. This is also not accounted for in the report.
- Having underestimated the GHG emissions that would stem from the construction of the NESE, the report overestimates the GHG emissions that would stem from not building it.
- **The report overestimates the emissions it predicts for the "No NESE" path by erroneously including No.4 heating oil in its calculations.** The report mentions, correctly, that NYC regulations require that the use of No.4 heating oil be phased out by 2030. But a scrutiny of the chart where the authors show their calculations demonstrates that they assumed that the use of No.4 oil will continue and indeed *rise* through 2030, thus bolstering their claim that the "No NESE" option leads to a worse climate outcome.

- **The report also overestimates emissions from the “No NESE” path by failing to mention the fact that, when combined with biodiesel, emissions from No.2 oil are comparable to those of gas.** In New York City, all public and private buildings burning No.2 oil will be required to use a blend of at least 10% biodiesel by 2025. The blending of No. 2 oil with biodiesel substantially improves emissions.
- A major contribution to the overestimation of emissions from the “No NESE” path are the **flawed assumptions about electricity’s contribution to GHG emissions.** The report assumes that without NESE, New Yorkers will use more electricity, which is entirely possible (and, in fact, desirable from a climate perspective.) But the study uses 2018 data on emissions from local power plants as if those emissions would remain constant through 2030. The report acknowledges that NYS and NYC are currently working on significant renewable energy projects such as offshore wind, more solar installations, and battery storage that will generate no emissions, as well as mandating energy efficiency that will decrease demand. But the report dismisses this work as “uncertainties,” thus allowing it to find a greater climate impact for the “No NESE” option.

The report undercuts its own agenda by showing the alarming global heating potential of the use of more methane.

- In the main body of the Bradley report, it is noted that the GHG emissions attributable to the increased use of gas if NESE were to be built shows an increase in emissions from roughly 125,000 metric tons of carbon dioxide-equivalent in 2020 to an astonishing 1,270,000 metric tons by 2030. Using the EDF calculations, building the NESE would generate an even more stunning 1,318,000 metric tons of carbon-dioxide-equivalent by 2030.
- The extraction, transportation, and burning of gas is currently responsible for 20% of the contribution to fueling the climate crisis. The use of fossil fuel in all its forms - coal, petroleum, gas - needs to decline rapidly if we are to meet the Paris Agreement target of less than 2 degrees centigrade (3.6° F) of global heating by 2100.
- Note, too, that the NESE pipeline is intended to last 50-60 years, that is, until 2070 or 2080. The Bradley report only considers the first ten years of the life of the pipeline although National Grid has signed a fifteen-year contract for this gas. The graphs of GHG emissions, whether using the DoE-based figures or the EDF-based figures, shows a steady rise in emissions, which leaves the question open about how serious the impact of this pipeline would be in the years following 2030.

The report tries to claim that National Grid is aligned with NYS and NYC climate goals but has to slant its presentation in order to do so while presenting completely contradictory information on heat pumps.

- The report devotes a full page to describing NYS and NYC’s climate plans. It says that the NESE “can help meet these goals . . . by allowing for continued oil-to-gas conversions and preventing new construction from relying on heating oil.” This echoes National Grid’s major public relations claim that “natural gas is clean energy.” But it is not clean energy - it is the powerful GHG methane, whose climate impacts the report grossly underestimates.
- As for heat in new buildings or in buildings converting from reliance on fossil fuels, the future lies with heat pump technology. Currently, New York State is focusing on supporting the adoption of air source and ground source heat pumps by small residential buildings. Its goal is to have this technology heat *half* these buildings by 2025. Builders of new homes no longer have to choose between oil and gas; heat pumps are the better option. A state analysis of and program for larger buildings, both multifamily and residential, is in development.
- **National Grid’s emphasis in this report on oil to gas conversions also exaggerates the likelihood of buildings that currently heat with oil converting to gas.** The experience of the last ten years in NYC has shown that owners of boilers with No.6 oil often chose the cheaper option of converting to No.4, rather than buying a new gas boiler. There are less than 450 No.4 oil boilers in National Grid’s service area, so the market for converting them to gas is similarly likely to be small.
- National Grid also seeks to present itself as a company with a plan to address climate change, but has to omit key policies to do so. This report devotes a full page to National Grid’s “80 x 50 Pathways” plan. In it, National Grid says, for example, that it aims for 28% of residents in its American service areas to have heat pumps for space heating by 2030. In areas where National Grid supplies electricity, it makes business sense for National Grid to encourage heat pumps, as adopters would remain or become its customers. And, indeed, National Grid is encouraging heat pump adoption in Rhode Island. But National Grid is not encouraging heat pump adoption in NYC or on Long Island since it only provides gas service there and would lose customers as a result of such

conversions. Consequently, the report is completely contradictory in its assessment of heat pumps. In order to make the case that the NESE pipeline is the best climate solution, it frames heat pumps in our area as part of the problem even as it touts them as the solution in the “Pathways” plan.

Sources:

For the NYSDEC’s concern with climate change: Notice of Denial of Water Quality Certification, May 15, 2019. <https://www.dec.ny.gov/press/117017.html>

The report: M.J. Bradley & Associates. (11 June 2019). “Life Cycle Analysis of the Northeast Supply Enhancement Project”, <https://www.mjbradley.com/reports/life-cycle-analysis-northeast-supply-enhancement-project>.

Recognition of difference in potency: Bradley, “Life Cycle”, p. A-11 (though the table has numbers reversed, presumably a typo); for the report’s use of 100-year Global Warming Potential in its calculations: see graph description, p. 7; for the importance of using the 20-year time scale, see: Robert Howarth, “Methane emissions and climatic warming risk from hydraulic fracturing and shale gas development: implications for policy,” *Energy and Emission Control Technologies*, 2015: 3, p. 45.

Decision to use the DoE’s data: A-4; for higher upstream emissions: Howarth, “Methane emissions,” p. 49.

Reliance on National Grid Data for estimates of leaks: Bradley, “Life Cycle,” p. A-4; the Staten Island study can be found by following links from this site: <https://www.edf.org/climate/methanemaps>.

For climate impact of NESE construction: Karen Gaidasz, “DEC public comments on FERC, NESE Draft Environmental Impact Statement”, May 14, 2018.

Charts showing methodology that has New Yorkers using more No.4 oil in 2030 than they use in 2020: Bradley, “Life Cycle”, Appendix B.

For No.2 blended with biodiesel’s emissions compared to gas: Suzanne Mattei, “False Demand: The Case Against the Williams Fracked Gas Pipeline,” 350.org, March 2019, p. 10-11. <https://350.org/press-release/stop-williams-false-demand/>

For the assumption that 2018 power plant emissions will remain constant through 2030: Bradley, “Life Cycle,” p. A-7.

For volume of GHG emissions if NESE were to be built: Bradley, “Life Cycle,” p. 7; graph of GHG emissions using the EDF “upstream” calculation: A-5

For the global carbon budget and Paris Agreement targets: <https://www.globalcarbonproject.org/>

For National Grid’s 15-year contract: Bradley, “Life Cycle”, pg. 4.

National Grid’s claim that NESE will help with NYS/NYC climate goals: Bradley, “Life Cycle,” p. 11.

For NYS support for heat pumps: <https://www.nyserda.ny.gov/ny/pumped>; see also: NYSERDA, “New Efficiency: New York--Analysis of Residential Heat Pump Potential and Economics,” January 2019, <https://www.google.com/search?client=firefox-b-1-d&q=nyserda+heat+pump+report>

For the low conversion rate of No.6 boilers and the small number of No.4 boilers: Mattei, “False Demand,” 9-10.

National Grid’s “80 x 50 Pathways”, <https://news.nationalgridus.com/wp-content/uploads/2018/06/80x50-White-Paper-FINAL.pdf>; Bradley, “Life Cycle,” p. 12.; an example of National Grid’s support for heat pumps in Rhode Island, a service area where National Grid is both the gas and the electric utility: <https://www.nationalgridus.com/RI-Mini-split-Heat-Pump>