Presented during public comment to the Climate Change Advisory Committee, June 30, 2010.
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Climate Change Advisory Committee,

Thank you for your service and your work on the very important issue of climate change.

It is indeed concerning that net emissions increased in 2017 from 2016. Your presentation points out that decreases in the power sector were counteracted by increases in the transportation and industrial sectors.

Protect Northern PA is a group of concerned individuals who came together this year when a facility to manufacture LNG in Wyalusing Township, Bradford County, was given an air quality permit by DEP.

We, too, are concerned about increases in the industrial and transportation sectors.

The manufacture and overland movement of liquified natural gas (LNG) is a growing industry in Pennsylvania and nationally (1). Liquified natural gas is also known as methane refrigerated liquid. Its manufacture is resource intensive, emitting GHG (both carbon dioxide and methane) throughout production. The properties of LNG are such that regular methane "boil-off" occurs during loading, transport, and transloading to end users. Furthermore, since large quantities of gas feedstock must be delivered to a LNG plant, we can expect additional methane releases from fracking, gathering lines, compressor stations, and pipelines.

The Facility case studies, we have described, below, illustrate problems associated with the control and measurement of GHGs related to LNG manufacture and transport.

I. Facility case studies

A. New Fortress Energy LLC, dba Bradford County Real Estate Partners LLC (2)

In Wyalusing Township, Bradford County, New Fortress Energy LLC purports to manufacture 3.5 to 4 million gallons per day of LNG and transport it by truck or rail to a port along the Delaware River for export to foreign buyers.

Among other emissions, it discloses that it will emit 1,107,670 TPY greenhouse gases (expressed as carbon dioxide equivalent, CO2e).

DEP's approval requires tracking and reporting of GHGs, but, we do not see any carbon offsets required.

With DEP's site-specific approach to permitting, GHG of all the gas-related ancillary activities were not considered.

Neither Pennsylvania, nor other domestic users will receive this LNG – it is intended for foreign export.

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B. Edge Gathering Virtual Pipeline (3)

Edge Gathering Virtual Pipeline is a business model using mobile liquefaction units. According to its website, it currently delivers LNG made in the Pennsylvania Marcellus Region to Norwich, Connecticut.

The company anticipates expanding this business model via the deployment of additional "cryobox" liquefaction units.

- We learned from communication with DEP staff that "truck-based" systems are exempt from air quality permitting. DEP's regulatory guidance on exempt facilities (DEPARTMENT OF ENVIRONMENTAL PROTECTION, Bureau of Air Quality, DOCUMENT NUMBER: 275-2101-003, TITLE: Air Quality Permit Exemptions, EFFECTIVE DATE: August 8, 2018) makes no mention of portable LNG facilities. What specifically in the guidance allows a new source of LNG to be exempt?
  http://www.depgreenport.state.pa.us/elibrary/GetFolder?FolderID=4564
- DEP's approach to exemption does not anticipate GHGs in the aggregate from widespread use of mobile liquefaction units.

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C. REV LNG LLC / NICHE LNG LLC (4)

There is a wellhead-installed LNG facility, on Dolan Road in Wyalusing.
According to the company website, it plans to make 50,000 gallons per day of LNG and ship it to customers in the northeast.

This facility and, perhaps, others its type does not have its GHG tracked. It cannot be found in the Power BI Report Server, Air_Emissions_Report , although it has been permitted since 2015.

Our photo

II. Data

A. The (draft) **Pennsylvania (draft) Greenhouse Gas Inventory** shows a breakout of

- Industrial Sector Process Emissions (Table 5), to include Cement Manufacture, Lime Manufacture, Limestone and Dolomite Use, Iron & Steel Production, ODS Substitutes, Electric Power Transmission and Distribution Systems, Other.
- Natural Gas Production Process Emissions (Table 7), to include Natural Gas Production, Natural Gas Transmission, Natural Gas Distribution, Oil Production.

Neither of these two groupings clearly show that you are tracking GHG associated with LNG and petrochemical manufacture.

B. DEP's data, **Power BI Report Server, Air_Emissions_Report**, does not drill down to LNG and petrochemical sources.
http://www.depgreenport.state.pa.us/powerbiproxy/powerbi/Public/DEP/AQ/PBI/Air_Emissions_Report

C. DEP's eFACTS "Facility" search does not allow one to pull up a list of facilities making LNG, NGL and petrochemical products, or to differentiate CNG from LNG facilities.
https://www.ahs.dep.pa.gov/eFACTSWeb/criteria_auth.aspx

Upon viewing permit and application information in eFACTS, facilities permitted by the Air Quality program are all largely identified as a "Natural Gas Processing Plant" and a "Minor Facility Plan Approval New Source Performance Std." These general categories fail to inform as to the activity.

III. Recommendations

1. Since we are serious about controlling greenhouse gasses, NO new source should be exempt from air quality permitting. As was pointed out in the recent Attorney General report, DEP's permitting programs showed a failure to aggregate. We must aggregate, not exempt, the GHGs from new technologies such as mobile liquefaction and well-head units.

2. All new significant emissions of GHG must require an environmental assessment (harms v. benefits) layer of permitting. Facilities making LNG for export must come under additional scrutiny.

3. Overland (surface) transport of LNG by truck and by rail car needs to be considered as a source. The companies know how much LNG transport they do, in what type of package, and how much boil-off to expect from point A to point B. This is especially important, with the expectation of more well-head-based LNG manufacture generating more LNG truck hauling, and given the federal government's recent permitting of LNG transport by rail. https://www.phmsa.dot.gov/news/us-department-transportation-issues-final-rule-safe-transportation-liquefied-natural-gas-rail

4. LNG transported across state lines must be tracked and considered as a Pennsylvania GHG emission. Given the urgency of the need to address GHG, it is unethical to say that Pennsylvania's exported LNG is someone else's emissions problem. Again, with federal permitting, as of June 19th , LNG interstate transport by rail could increase. https://www.phmsa.dot.gov/news/us-department-transportation-issues-final-rule-safe-transportation-liquefied-natural-gas-rail

5. All new permitting must require carbon offsets. All existing sources, upon permit renewal, must do the same.

6. The Power BI Report Server_Air Emissions Report should be more user friendly so that citizens can engage with it. After all, 70% of the public is very concerned about climate change. Let the public become citizen scientists to tackle the problem.

The public needs to be able to see which industry is contributing increasing amounts of GHG. To that end, GHG data needs to be broken out by the type of gas-industrial product: LNG, CNG, NGL, etc. Not only is LNG a growing industry in PA, but petrochemical industries are constructing plants in PA. We ought to be able to know which industries are taking off in PA that are contributing to GHG.

8. DEP's eFACTS Facility Search needs additional granularity to enable easy drill-down to the type of facility, according to product produced, LNG, CNG, NGL, etc. Categories such as "Air Quality" and "Oil and Gas" are just too broad.

Thank you for your attention to these issues.
We encourage you to visit our website to learn more, **protectnorthernpa.org**.

Diana G. Dakey
On behalf of Protect Northern PA

Protectnorthernpa.org
Protecting our communities from fracked-gas industrialization

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References

1. PHMSA research
https://www.phmsa.dot.gov/sites/phmsa.dot.gov/files/docs/research-and-development/hazmat/reports/71651/fr2-phmsa-hmtrns16-oncall-20mar2019-v3.pdf

Excerpts

3.3.5 Small Scale LNG Applications There is a trend toward building small scale LNG facilities throughout the world and the U.S. is no exception. The reason for this trend is primarily economics. Instead of investing billions of dollars in large liquefaction plants, investors prefer instead to start up small operations to test emerging LNG merchant markets, including maritime LNG bunkering, mining operations, energy and production sites, LNG truck fueling operations and remote power generation sites. This trend is accompanied by new liquefaction technologies that include "modular" elements to scale operations according to customer needs. This small scale LNG market is developing rapidly, especially for transportation fuel and to serve end users in remote areas or not connected to the main pipeline infrastructure.

1. Production—"Micro LNG" production plants can produce from 10,000 to 60,000 LNG GPD.
2. On Road—Truck and cryogenic trailer, each hauling approximately 9,300 gallons of LNG.
3. Rail transport on the horizon—at approximately 30,000 gallons per rail car.
4. LNG as Marine Fuel—examples include Harvey Gulf & Tote Maritime using LNG as fuel.
5. Marine transport options also increasing with barges, smaller LNG transport ships and specialized ISO delivery vessels

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2. New Fortress Energy, LLC

https://www.dep.pa.gov/About/Regional/North-central-Regional-Office/Community-Information/Pages/New-Fortress-Energy.aspx

The emissions from all of the sources at the facility included in this project will not exceed the following limits: 95.90 TPY nitrogen oxides (NO_x, expressed as NO_2), 90.04 TPY carbon monoxide (CO), 35.57 TPY volatile organic compounds (VOCs), 83.25 TPY sulfur oxides (SO_x, expressed as SO_2), 99.67 TPY total particulate matter (filterable plus condensable), 99.67 TPY particulate matter equal to or less than 10 microns (PM_{10}), 99.60 TPY particulate matter equal to or less than 2.5 microns ($PM_{2.5}$), 8.77 TPY hazardous air pollutants (HAPs), 4.55 TPY any single HAP, 49.02 TPY ammonia, 24.56 TPY sulfur acid (H_2SO_4), and 1,107,670 TPY greenhouse gases (expressed as carbon dioxide equivalent, CO_2e).

https://www.ahs.dep.pa.gov/eFACTSWeb/searchResults_singleClient.aspx?ClientID=346822

https://www.ahs.dep.pa.gov/eFACTSWeb/searchResults_singleAuth.aspx?AuthID=1255306

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3. Edge Gathering Virtual Pipeline
https://edgelng.com/news-and-insights/
Web information as of 6.28.20
Excerpts
Pennsylvania, USA, 18 June 2019; Edge Gathering Virtual Pipelines 2 LLC ("Edge LNG"), the pioneer in delivering low-cost, high quality LNG by converting stranded and flared natural gas, has produced and delivered its first LNG in the United States. With no need for pipelines, Edge LNG is the first viable route to market for stranded gas reserves, and a revenue generating alternative to flaring or venting associated gas from oil production.

Edge LNG began on-well-site LNG production in the US on May 7 2019, accessing Marcellus gas in Pennsylvania, and making truck-delivered LNG sales to its first customers, which include Emera Energy Services, Inc. To date, EDGE has delivered over 30,000 gallons of LNG to a delivery point at a New England gas utility over 300 miles away from the Marcellus production site.

The Edge LNG Virtual Pipeline works by deploying Galileo Global Technologies' transportable CryoboxTM LNG production and liquefaction equipment "at the source" – natural gas wells – and delivering the LNG directly to customers' doorsteps. Edge LNG Cryobox units fit on a standard 40 ft tractor trailer and are designed to be quickly and easily connected, and disconnected, from feedstock gas wells. Units are also self-powered using produced gas, removing the need for a grid connection.

For owners of stranded gas wells, or oil producers forced to flare or vent associated gas, Edge LNG is a revolutionary way to monetize otherwise uneconomic assets. As a scalable and modular solution, Edge LNG requires minimal capex and opex investments that rise in parallel to the production curve, ensuring a compelling financial case for asset owners. For LNG buyers, Edge LNG offers a new source of high-quality, low cost LNG that can be delivered anywhere. By sourcing otherwise "wasted" gas and avoiding pipeline costs, Edge LNG will be among the most competitive suppliers of truck-delivered LNG worldwide.

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4. REV LNG LLC / NICHE LNG LLC
https://www.ahs.dep.pa.gov/eFACTSWeb/searchResults_singleSite.aspx?SiteID=789618

Company information per website 6.28.20
https://www.niche-llc.com/towanda
*Towanda is a liquefied natural gas (LNG) facility currently under construction located in **Bradford County, Pennsylvania**. Once in-service, NiCHe will be able to service a variety of customers from industrial and commercial operators to local gas distribution utilities in the Northeast by providing them with an affordable natural gas supply.*
Project Facilities
*The station is located on an approximately 3.7 acre parcel adjacent to the **Howard Energy Compressor Station** that is part of the gathering system supplying gas to the **Towanda site**.*

- *Chart, Inc. supplied nitrogen expander liquefaction system sized for 50,000 GPD*
- *On-site prime power generators*
- *Three 60,000 gallon LNG storage tanks for a total of 180,000 gallons*
- *Gas pretreatment and other ancillary equipment*
- *Truck loading facility*
