UNITED STATES OF AMERICA
BEFORE THE
FEDERAL ENERGY REGULATORY COMMISSION

Scoping Comments of Land Stewardship Project

Docket No. CP24-60-000

Northern Lights 2025 Expansion Project

April 25, 2024

In accordance with the Commission's April 2, 2024, Notice of Scoping Period, Land Stewardship Project respectfully submits the following comments on the scope of environmental issues the Commission must consider as part of its National Environmental Policy Act (NEPA) analysis of Northern Natural Gas's Northern Lights 2025 Expansion Project ("the Project"). *See Northern Natural Gas; Notice of Scoping Period Requesting Comments on Environmental Issues for the Proposed Northern Lights 2025 Expansion Project*, 89 Fed. Reg. 22,704 (Apr. 2, 2024). As part of its NEPA review, the Commission must investigate, evaluate, and consider the extent to which the Project would facilitate the expansion of factory-farm gas — that is, methane produced from the anaerobic digestion of the manure of animals confined in factory farms — and must account for the environmental effects of any expansion of factory-farm gas caused by the Project.

I. Legal Standard

"Prior to approving a certificate on a proposed pipeline, the National Environmental Policy Act ('NEPA') requires the Commission to evaluate the action's

environmental impacts." *Sierra Club v. FERC*, 38 F.4th 220, 226 (D.C. Cir. 2022). These environmental impacts include:

- "Direct effects, which are caused by the action and occur at the same time and place";
- "Indirect effects, which are caused by the action and are later in time or farther removed in distance, but are still reasonably foreseeable," and which "may include growth inducing effects and other effects related to induced changes in the pattern of land use, population density or growth rate, and related effects on air and water and other natural systems, including ecosystems"; and
- "Cumulative effects, which are effects on the environment that result from the incremental effects of the action when added to the effects of other past, present, and reasonably foreseeable actions regardless of what agency (Federal or non-Federal) or person undertakes such other actions."

40 C.F.R. § 1508.1(g)(1)–(3).

In the context of Section 7 certificate proceedings, indirect effects include both "the impacts of upstream gas production and downstream gas combustion." *Birckhead v. FERC*, 925 F.3d 510, 517 (D.C. Cir. 2019) (per curiam). If the Commission fails to "either quantify and consider the project's [environmental effects] . . . or explain in . . . detail why it cannot do so," its approval of a pipeline project is arbitrary and capricious. *Sierra Club v. FERC*, 867 F.3d 1357, 1375 (D.C. Cir. 2017) (*Sabal Trail*) (applying this principle to downstream effects); *see also Eagle Cnty. v. Surface Transp. Bd.*, 82 F.4th 1152, 1179–80 (D.C. Cir. 2023) (applying this principle to upstream effects), *cert. pet. docketed sub nom. Seven Cnty. Infrastructure Coal. v. Eagle Cnty.*, No. 23-975 (U.S. Mar. 6, 2024).

Properly analyzing upstream and downstream indirect effects is necessary not only to satisfy the procedural requirements of NEPA, but also the Natural Gas Act's substantive "public interest and convenience" standard. *Vecinos para el Bienestar de la*

Comunidad Costera v. FERC, 6 F.4th 1321, 1331 (D.C. Cir. 2021) (explaining that because FERC's NEPA analysis was "deficient, the Commission must also revisit its determination[] of public interest and convenience under Section[] . . . 7 of the" Natural Gas Act).

Where FERC lacks sufficient information to evaluate fully the environmental effects of approving a Section 7 certificate, "[i]t should go without saying that NEPA . . . requires the Commission to at least *attempt* to obtain the information necessary to fulfill its statutory responsibilities." *Birckhead*, 925 F.3d at 520; *see also Food & Water Watch v. FERC*, 28 F.4th 277, 286 (D.C. Cir. 2022) (discussing "the Commission's record-development obligation" under NEPA). Thus, the Commission "is not allowed to shirk its responsibilities under NEPA by labeling . . . reasonably foreseeable upstream and downstream environmental effects as crystal ball inquiry." *Eagle Cnty.*, 82 F.4th at 1179–80 (cleaned up). A failure to seek out information necessary to evaluate a proposed project's environmental effects is arbitrary and capricious under NEPA.

II. Publicly Available Documents Indicate that the Project May Facilitate the Creation and Distribution of Factory-Farm Gas

Northern Natural Gas's application for a Section 7 certificate discloses that one of the shippers whom the project is intended to serve is CenterPoint Energy Resources Corp., D/B/A CenterPoint Energy Minnesota Gas. *See* Abbrev. Appl. Requesting a Certificate of Pub. Convenience & Necessity, at 21, 23–25 (Feb. 16, 2024) (accession no. 20240216-5267) (hereinafter "Section 7 Application"). The Section 7 Application further notes:

> CenterPoint is diligently working toward a cleaner energy future by reducing carbon emissions across operations and energy supply chain while prioritizing safety, the integrity of its system, and continued reliable service. Specifically for Minnesota, the Natural Gas Innovation Act ("NGIA") was

> passed in June 2021 with bipartisan support. This law establishes a regulatory framework to enable the state's investor-owned natural gas utilities to provide customers with access to renewable energy resources and innovative technologies, with the goal of reducing greenhouse gas emissions and advancing the state's clean energy future. The NGIA allows a natural gas utility to submit an innovation plan for approval by the MPUC which could propose the use of renewable energy resources and innovative technologies such as:
>
> 1. renewable natural gas (produces energy from organic materials such as . . . *agricultural manure* . . .).

Id. at 24 (emphasis added).

CenterPoint's June 2023 NGIA application to the MPUC explicitly proposes using up to 100,000 DTH/year of factory-farm gas produced from industrial dairies. *See In re CenterPoint Energy*, No. 23-215, Doc. ID 20236-196995-11, at sheet CNP04 (June 28, 2023), https://www.edockets.state.mn.us/EFiling/edockets/searchDocuments.do?method=eDocketsResult&userType=public#{00EF0389-0000-CF26-B0AE-1EFE9322F07A}.

CenterPoint further boasts on its website about its plans to:

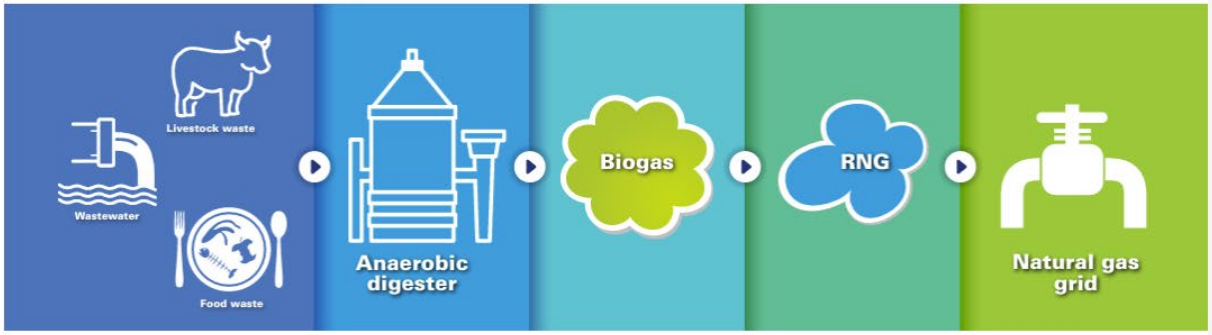
> invest[] in low-carbon, zero-carbon and even carbon-negative energy resources that can supplement or replace conventional natural gas, including:
>
> - Renewable Natural Gas (RNG): RNG is produced by capturing and recycling organic waste materials from farms . . . and other sources to produce pipeline-quality gas. CenterPoint Energy would purchase RNG for its gas supply [and sell it to customers].

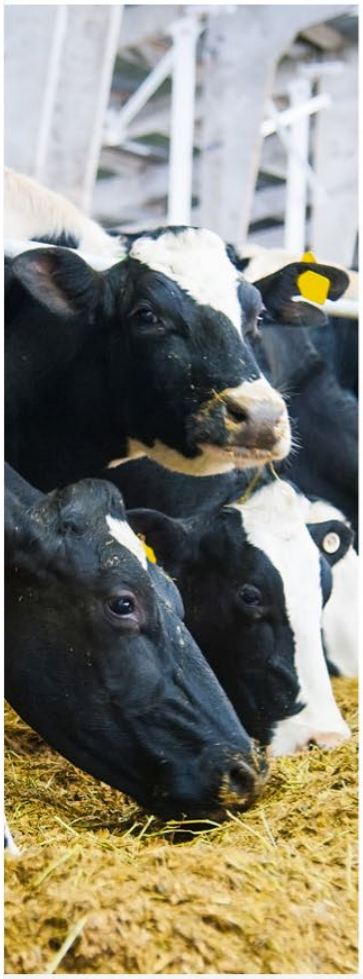
See CenterPoint Energy Proposes Innovations to Advance a Cleaner Energy Future in Minnesota, CenterPoint Energy (June 29, 2023), https://sustainability.centerpointenergy.com/centerpoint-energy-proposes-innovations-to-advance-a-cleaner-energy-future-in-minnesota.

Furthermore, in publicly available documents, CenterPoint highlights the use of factory farms in the production of "renewable" natural gas:

CenterPoint Energy

Renewable natural gas: basics and benefits





CenterPoint Energy is committed to innovative technology that meets energy demands. An example of this innovation is renewable natural gas (RNG) from organic sources.

What is RNG?

RNG is a low- or no-carbon renewable gas derived from renewable organic resources (such as animal manure, wastewater and food waste) or from renewable electricity (such as wind or solar). The status of RNG can be compared to renewable electricity technologies in the early 2000s. There is considerable potential, but supportive public policies and incentives are needed to take advantage of this potential.

Benefits of RNG

- Reduces greenhouse gas emissions
- Supports rural economic development
- Diversifies energy sources
- Improves waste management

Where organic RNG technology is today

- RNG derived from organic waste is already commercially available but is currently more expensive than conventional natural gas. As the industry grows, prices may decline.
- The organic RNG industry is growing rapidly. In the last five years, RNG supply has increased by almost 300%.
- Most RNG today is used to fuel natural gas vehicles due to incentives from the federal government and some states. Policies to encourage use of RNG in homes and businesses will be an important next step for the industry.

See CenterPoint Energy, *Renewable Natural Gas: Basics and Benefits* (2020), https://www.centerpointenergy.com/en-us/Documents/201369_MN_RNG_FactSheet_General.pdf.

And recently, CenterPoint issued a request-for-proposals to acquire supplies of so-called "renewable" natural gas, which Land Stewardship Project believes will likely include factory-farm gas. *See* Am. Biogas Council, *ABC Member CenterPoint Energy Releases Request for Proposals, Seeking Supply of RNG*, https://americanbiogascouncil.org/abc-member-centerpoint-energy-releases-request-for-proposals-seeking-supply-of-rng (last visited Apr. 23, 2024).

Taken together, there is substantial circumstantial evidence suggesting that CenterPoint (and perhaps other shippers) require the additional capacity the Project would provide, at least in part, to facilitate the production of factory-farm gas that otherwise would not exist.

III. The Production of Factory-Farm Gas Has Severe Environmental Consequences

As part of its NEPA review, the Commission must investigate and evaluate the extent to which the Project will cause the production and sale of factory-farm gas. This is because, far from being the greenwashed panacea its backers claim, factory-farm gas has serious environmental consequences for neighboring communities and the planet.

A. *Factory-Farm Gas Often Fails to Fulfill Promises of Methane Emissions Reductions, and in Some Cases May Actually Increase Methane Emissions*

Factory farms rely on cesspools (often euphemistically called "lagoons") to store the massive amount of feces produced by confined animals. Because the concentrated waste in these containers is deprived of oxygen, these cesspools produce methane through a process known as anaerobic digestion. The methane produced by the anaerobic

digestion of agricultural manure comprises about 9.2 percent of the country's methane emissions. Env't Prot. Agency, *Inventory of U.S. Greenhouse Gas Emissions and Sinks: 1990–2022*, at 2-22 (Apr. 23, 2024), https://www.epa.gov/system/files/documents/2024-04/us-ghg-inventory-2024-main-text_04-18-2024.pdf. Industry proponents of factory-farm gas claim that installing anaerobic digesters reduces methane emissions from these cesspools. Often, however, these promises prove illusory. In some cases, incentivizing digesters may *increase* methane emissions.

First, anaerobic digesters are notoriously leaky. The California Methane Project, a years-long effort to track methane plumes across California led by researchers from NASA's Jet Propulsion Laboratory, tracked about twenty-five digesters and identified "significant methane point sources at four [dairy digester] facilities in the" San Joaquin Valley. *See* Riley Duren et al., *The California Methane Survey* 41–42 (July 2020), https://www.energy.ca.gov/sites/default/files/2021-05/CEC-500-2020-047.pdf; *see also* Riley M. Duren et al., *California's Methane Super Emitters*, 575 Nature 180 (2019) (summarizing results of the California Methane Project). Another analysis relying on satellite and airborne sensors identified 59 methane plumes from digester-equipped factory farms. *See* Food & Water Watch, *The Proof Is in the Pluming* (Jan. 30, 2024), https://storymaps.arcgis.com/stories/4b708bdc0d2d419ba34cb352ca79b6e3. Given the non-continuous nature of the monitoring in this study, the true amount of methane pluming from digesters is almost certainly much greater. A third study, using ground-based remote optical sensing, found that cesspools with covers (and thus presumed to be equipped with digesters) "did not emit significantly less [methane] than those [cesspools] without a cover." N.T. Vechi et al., *Ammonia and Methane Emissions from Dairy*

Concentrated Animal Feeding Operations in California, Using Mobile Optical Remote Sensing, 293 Atmospheric Env't 1, 10 (2023), https://www.sciencedirect.com/science/article/pii/S1352231022005131?via%3Dihub. Thus, the Commission must view skeptically and rigorously verify any claims that factory-farm gas will reduce methane emissions from manure cesspools.

Second, the installation of anaerobic digesters can cause factory farms to *abandon* lower-carbon methods of manure management to maximize the amount of methane produced and sold. For example, a recent report revealed that when "Threemile Canyon, a mega-dairy in Oregon . . . began participating in California's Low Carbon Fuel Standard [('LCFS')] Program," it stopped using solid-liquid separation before sending manure to a digester because solid-liquid separation reduces "the methane emissions that could be captured and sold as credits under the program." *See* Chloë Waterman & Molly Armus, Friends of the Earth & Soc. Resp. Agric. Project, *Biogas or Bull****? The Deceptive Promise of Manure Biogas as a Methane Solution* 28–29 (2024), https://foe.org/wp-content/uploads/2024/03/Factory-Farm-Gas-Brief_final.pdf.[1] Poultry factory farms present another example of "[t]hese perverse incentives." *Id.* at 29. Poultry "naturally produce dry litter that emits little methane." *Id.* So to produce and sell factory-farm gas, poultry factory farms "are starting to add thousands of gallons of water per ton of poultry litter manure so that their litter does produce methane." *Id.* (endnote omitted) "Even in a best-case scenario, this practice creates novel methane emissions from digester leakage while squandering vast quantities of water." *Id.* Thus, the Commission

[1] The LCFS requires participating digesters outside of California to connect to the interstate gas pipeline network. *See* Cal. Code Regs. tit. 17, § 95488.8(i)(2)(A).

must acquire information on the manure management practices currently employed by any factory farm that would produce factory-farm gas to be shipped using the additional capacity provided by the Project, and what manure-management practices those factory farms would use should the Project be approved. Without that information, the Commission cannot evaluate the degree to which the Project might cause the production of more methane than would otherwise exist, and how much of that additional methane may escape into the atmosphere.

Third, as discussed in greater detail below, the production and sale of factory-farm gas leads factory farms to expand their herd sizes. *See infra* at III.B. When the animals in question are ruminants (such as cattle), this increase in herd size corresponds to more enteric fermentation — which accounts for roughly three times as much methane as does agricultural manure. *See* EPA, *Inventory*, at 5-3. This induced increase in enteric emissions offsets, and may overwhelm, any reductions in methane emissions achieved by equipping cesspools with digesters. Even if the Commission believes that methane emissions reductions from manure management will outweigh any increase in enteric emissions, the Commission is not "excused from making emissions estimates just because the emissions in question might be partially offset by reductions elsewhere. . . . In other words, when an agency thinks the good consequences of a project will outweigh the bad, the agency still needs to discuss both the good and the bad." *Sabal Trail*, 867 F.3d at 1374–75; *see also* 40 C.F.R. 1508.1(g)(4) ("Effects may also include those resulting from actions which may have both beneficial and detrimental effects, even if on balance the agency believes that the effects will be beneficial.").

B. *Anaerobic Digesters Cause Factory Farms to Expand*

Only factory farms can produce manure in a way that can fuel a digester. More environmentally sustainable, pasture-based animal agriculture is incompatible with this system of methane production, because manure on open pasture undergoes aerobic digestion, which does not produce significant amounts of methane. For factory farms, digesters not only add a new revenue stream; they also incentivize herd size expansion. The reason is simple: more animals means more manure, and more manure means more money — both in absolute terms, and because of economies of scale, on a per-animal basis.

An economic modeling analysis commissioned by the Union of Concerned Scientists of California's Low Carbon Fuel Standard — a program through which many factory farms around the country make money by producing and selling factory-farm gas — illustrates this point. Those researchers found that profits from factory-farm gas increase as herd size increases, and explained that "[t]his market distortion" means "dairies are incentivized to purchase more cows." Amin Younes & Kevin Fingerman, *Quantification of Dairy Farm Subsidies Under California's Low Carbon Fuel Standard* 17 (Sept. 2021), https://ww2.arb.ca.gov/sites/default/files/2022-04/2022-03-28%20-%20Petition%20for%20Reconsideration%20%28TOC%20Updated%29.pdf.[2] Younes and Fingerman conclude that "[t]he resulting trend is expected to be one of an increased number of animals . . . *and* a greater size of individual herds." *Id.*

Empirical evidence confirms that the expansion of factory-farm gas goes hand-in-hand with the expansion of factory farms. A recent analysis compared dairies with and

[2] The referenced analysis begins at page 186 of the comments in the linked document.

without digesters, and found that "[h]erd sizes at facilities with digesters grew 3.7% year-over year, 24 times the growth rate for overall dairy herd sizes in the states covered by" the study. *See* Waterman & Armus 38.

The "growth inducing effects" of factory-farm gas on herd size will have environmental consequences, which the Commission must consider. 40 C.F.R. § 1508.1(g)(2). These environmental impacts include, but are not limited to:

1. Increased methane emissions from enteric fermentation. As noted above, enteric fermentation produces roughly three times as much methane as does agricultural manure. EPA, *Inventory*, at 5–3. Moreover, anaerobic digesters do nothing to mitigate enteric emissions. Thus, by increasing herd sizes, anaerobic digesters lead to increased enteric emissions that offset, and may overwhelm, methane reductions that might be achieved by capping cesspools.

2. Increased localized air pollution. Factory farms release a host of harmful air pollutants into the surrounding air, only some of which are emitted from uncovered cesspools. *See* Steve Wing et al., *Air Pollution from Industrial Swine Operations and Blood Pressure of Neighboring Residents*, 121 Env't Health Perspectives 92, 92 (2013) (explaining that "CAFO airborne emissions, including ammonia, hydrogen sulfide (H_2S), volatile organic compounds, and endotoxins, originate from confinement buildings, waste storage areas, and land application of animal waste").

In large part because of these emissions, research confirms that residing near a factory farm leads to worse health outcomes on a range of indicators. *See, e.g.*, Ji-Young Son et al., *Exposure to Concentrated Animal Feeding Operations (CAFOs) and Risk of Mortality in North Carolina, USA*, 799 Sci. Total Env't (2021); Julia Kravchenko et al.,

Mortality and Health Outcomes in North Carolina Communities Located in Close Proximity to Hog Concentrated Animal Feeding Operations, 79 N.C. Med. J. 278 (2018); Leah Shinasi et al., *Air Pollution, Lung Function, and Physical Symptoms in Communities Near Concentrated Swine Feeding Operations*, 22 Epidemiology 208 (2011). More animals in factory farms means more localized pollution, which is a reasonably foreseeable effect of causing additional factory-farm gas production that the Commission must consider.

3. "[I]nduced changes in the pattern of land use" to produce the feedcrops to sustain these additional animals. 40 C.F.R. § 1508.1(g)(2). For example, a high-producing dairy cow eats between 110 to 120 pounds of wet feed, or 50 to 55 pounds of dry matter, every day. *See* Extension Found., *How Many Pounds of Feed Does a Cow Eat in a Day?*, DAIREXNET (Aug. 16, 2019), https://dairy-cattle.extension.org/how-many-pounds-of-feed-does-a-cow-eat-in-a-day. The increase in demand for livestock feed from the expansion of factory-farm herd sizes thus requires an increase in feed production, which may translate to the conversion of land to feedcrop production, which the Commission must consider as part of its environmental analysis.

C. *Anaerobic Digestion Mineralizes Nitrogen in Manure, Resulting in Increased Ammonia Emissions*

If the Commission approves a project that will cause the upstream production of factory-farm gas, it will increase ammonia (NH_3 or NH_4) emissions. These additional ammonia emissions are "reasonably foreseeable" effects of any project that leads to an

increase in factory-farm gas production, and so must be part of the Commission's environmental review.

The process of anaerobic digestion "mineraliz[es]" the nitrogen in animal waste by breaking down complex organic molecules comprised, in part, of nitrogen atoms. Michael A. Holly et al., *Greenhouse Gas and Ammonia Emissions from Digested and Separated Dairy Manure During Storage and After Land Application*, 239 Agric., Ecosystems & Env't 410, 411 (2017). Particularly when digestate is used as a fertilizer — a common method of disposal — much of this nitrogen enters the surrounding environment as ammonia. Holly et al. found that anaerobically digesting animal manure and using it as fertilizer "resulted in an 81% increase in cumulative NH_3 emissions compared to" raw manure. *Id.* at 413.

Other forms of digestate management can also increase ammonia emissions. One study found that when digestate is recirculated back into a cesspool, ammonia emissions increased by 47 percent. *See* Kim H. Weaver et al., *Effects on Carbon and Nitrogen Emissions Due to Swine Manure Removal for Biofuel Production*, 41 J. Env't Qual. 1371, 1382 (2012).

As one review summarizes, "because of their higher pH and NH_3/NH_4 contents, anaerobic digestates have a higher potential than livestock manures for emitting ammonia . . . into the atmosphere. Hence, they can adversely affect air and water quality . . . ." Roger Nkoa, *Agricultural Benefits and Environmental Risks of Soil Fertilization with Anaerobic Digestates: A Review*, 34 Agronomy for Sustainable Dev. 473, 485 (2014).

The additional ammonia created by factory-farm gas production "can volatilise . . . and react with compounds in the atmosphere to form ammonium aerosols and particulate matter (such as ammonium nitrate and ammonium sulphate particles), which contribute to atmospheric pollution." Advait Palakodeti et al., *A Critical Review of Ammonia Recovery from Anaerobic Digestate of Organic Wates Via Stripping*, 143 Renewable & Sustainable Energy Rev. 1, 2 (2021). Ammonia emissions can cause health impacts including "respiratory tract, skin, or eye irritations, coughing, chronic lung disease, inflammation of the membranes, and odors." Son et al. at 2. Moreover, this ammonia "can also be oxidized in the atmosphere to form HNO_3, causing acid rain" and "runoff from ammonia-rich waste streams into water bodies can cause eutrophication, causing a decrease in dissolved oxygen levels, which is harmful to aquatic organisms." Palakodeti et al. at 2.

Insofar as approving the Project will lead to additional factory-farm gas production, these environmental impacts of increased ammonia emissions would be reasonably foreseeable effects of the Commission's decision to greenlight the Project. Thus, the Commission must seek out information regarding the extent to which the Project would cause additional factory-farm gas production, and the ammonia-related environmental effects of doing so.

D. *Anaerobic Digestion Leads to Increased Nitrous Oxide Emissions*

In addition to ammonia, when digestate is exposed to the atmosphere (such as when it is used as a fertilizer), the nitrogen made available by anaerobic digestion can also react with ambient oxygen to form nitrous oxide (N_2O). Holly et al. found that N_2O emissions from digestate were 13.5 times higher than from undigested animal manure.

Holly et al. at 414 (5.4mg N_2O/kg digestate versus 0.4mg N_2O/kg undigested manure). Another study found that applying digestate to fields "led to . . . 4.1 times the cumulative growing season N_2O emissions of . . . cattle manure." Ben W. Thomas & Xiying Hao, *Nitrous Oxide Emitted from Soil Receiving Anaerobically Digested Solid Cattle Manure*, 46 J. Env't Qual. 741, 745 (2017). When used as fertilizer, digestate also induces greater N_2O emissions than would using urea, a common inorganic nitrogen fertilizer. *See* Haoruo Li et al., *Digestate Induces Significantly Higher N_2O Emission Compared to Urea Under Different Soil Properties and Moisture*, 241 Env't Rsch. 1, 9 (2024); *see also* Maria Dietrich et al., *Anaerobic Digestion Affecting Nitrous Oxide and Methane Emissions from the Composting Process*, 15 Biores. Tech. Reps. 1, 3 (2021) (finding that when composted, digestate produces almost seven times as much N_2O as undigested organic waste). Though factors like different manure management methods and soil conditions can affect how much additional N_2O is produced from digestate, research consistently finds that by making nitrogen available to react with ambient atmospheric gases, digestion results in more N_2O emissions than would leaving the same feedstocks undigested.

The increased N_2O emissions associated with factory-farm gas production matter because N_2O is a climate super-polluter. The EPA estimates that N_2O has a 100-year global warming potential 273 times greater than that of CO_2. *See* Env't Prot. Agency, *Understanding Global Warming Potentials* (last updated Mar. 27, 2024), https://www.epa.gov/ghgemissions/understanding-global-warming-potentials. Thus, even a small increase in N_2O emissions resulting from anaerobic digestion can offset a

significant portion of any methane reductions achieved by employing a digester. (And those methane reductions are often themselves overstated, as discussed *supra*.)

Even if increased N_2O emissions do not completely overwhelm methane reductions, the Commission still has an obligation to determine and weigh the relative climate effects of methane and N_2O emissions from anaerobic digestion. *See Sabal Trail*, 867 F.3d at 1374–75 ("Nor is FERC excused from making emissions estimates just because the emissions in question might be partially offset by reductions elsewhere. . . . In other words, when an agency thinks the good consequences of a project will outweigh the bad, the agency still needs to discuss both the good and the bad."); 40 C.F.R. 1508.1(g)(4) ("Effects may also include those resulting from actions which may have both beneficial and detrimental effects, even if on balance the agency believes that the effects will be beneficial."). Thus, the Commission has an obligation to determine whether the Project would cause increased factory-farm gas production, the extent to which that factory-farm gas production would result in increased N_2O emissions, and the effects of any increased emissions of this climate super-polluter.

E. *Anaerobic Digestion Concentrates Heavy Metals to Potentially Hazardous Levels*

The process of anaerobic digestion concentrates heavy metals in the digested waste. *See* Christine Knoop et al., *Nutrient and Heavy Metal Accumulation in Municipal Organic Waste from Separate Collection During Anaerobic Digestion in a Two-Stage Laboratory Biogas Plant*, 239 Biores. Tech. 437, 437, 445 (2017) (finding that anaerobic digestion concentrated heavy metals in feedstock by factor of 1.6, and that for one experiment, the resulting levels of heavy metals meant the digestate would "not be suitable as soil amendment"). One study found that soil irrigated with agricultural manure

digestate contained unsafe levels of various heavy metals. *See* Bo Bian et al., *Contamination and Risk Assessment of Heavy Metals in Soils Irrigated with Biogas Slurry: A Case Study of Taihu Basin*, 187 Env't Monitoring Assessment 155, at 13 (2015) ("Significant accumulation of toxic heavy metals in different kinds of soils samples is due to the biogas slurry [*i.e.*, digestate] irrigation in the Taihu basin."). Crop uptake of these heavy metals can lead to dangerous levels of heavy metals in food. *See* Yajun Chang et al., *Resource Utilization of Biogas Waste as Fertilizer in China Needs More Inspections Due to the Risk of Heavy Metals*, 12 Agric. 72, at 11 (2022) (finding that lead concentration in digestate slurry from a dairy was 29 times higher than the maximum permissible level, and that "the return of such slurry to the field would cause environmental pollution and Pb enrichment in crops, and eventually lead to human lead poisoning"); Qingyu Liu et al., *Comprehensive Risk Assessment of Applying Biogas Slurry in Peanut Cultivation*, 8 Frontiers in Nutrition, at 4–5, 10 (2021) (finding that arsenic and mercury concentrations in soil treated with digestate were 11.12 and 26.67 times higher than in untreated soil, respectively, and that peanuts grown in soil treated with digestate contained unsafe levels of mercury).

The concentrations of heavy metals in digestate depend on various factors, including the concentration of those metals in the untreated manure and the degree to which the manure or digestate is treated to remove these metals. The Commission cannot adequately discharge its NEPA obligations unless it obtains additional information about the degree to which any factory-farm gas production caused by the Project will lead to the production and use of digestate containing potentially unsafe levels of heavy metals,

and what systems will be in place to monitor and prevent adverse environmental effects from these concentrated heavy metals.

IV. The Commission Must Develop the Record Regarding the Involvement of Factory-Farm Gas in the Project

When the administrative record lacks sufficient information to allow the Commission to evaluate a project's environmental effects, NEPA requires the Commission to attempt to acquire such information. *See Birckhead*, 925 F.3d at 520; *Food & Water Watch*, 28 F.4th at 286. Here, as discussed *supra*, the record suggests that the Project may lead to the production of additional factory-farm gas. Thus, the Commission requires more information to determine if in fact the Project would lead to the production of factory-farm gas; and if it would, to evaluate the environmental effects of this increased upstream production.

Specifically, the Commission must seek answers to the following questions from Northern Natural Gas, CenterPoint, the other shippers who would use the additional capacity provided by the Project, and any other relevant stakeholders identified in the Commission's environmental review process:

- Does CenterPoint, or any other shipper identified in Northern Natural Gas's application, require the additional capacity this Project would provide to ship factory-farm gas?
- To what extent do CenterPoint's, or any other shipper's, plans to produce, acquire, ship, and/or sell factory-farm gas depend upon the approval of the Project?
- What and where are the sources of any factory-farm gas that would be shipped using the additional capacity provided by the Project?

- Do the factory farms that would produce any factory-farm gas to be shipped using the additional capacity provided by the Project already have anaerobic digesters?
    - If so, do those factory farms intend to produce or upgrade additional factory-farm gas to be shipped using the additional capacity provided by the Project?
    - If not, what kinds of digesters do those factory farms intend to install? How will those digesters be financed? Do those factory farms intend to participate in any subsidy programs, such as California's Low-Carbon Fuel Standard?
- What manure-management methods do the factory farms that would produce the factory-farm gas to be shipped using the additional capacity provided by the Project use now, and what methods do they intend to use if the Project is constructed?
- Regarding the factory farms that would produce the factory-farm gas to be shipped using the additional capacity provided by the Project, what herd sizes do they project over the next ten years, both with and without the Project? How much revenue per animal do those factory farms project over the next ten years, both with and without the Project?
- What measures would be in place to detect and mitigate methane leakage from any digesters that would produce factory-farm gas to be shipped using the additional capacity provided by the Project?
- What feedstock or feedstocks will such digesters use to produce any factory-farm gas to be shipped using the additional capacity provided by the Project?

- How will the digestate associated with the production of factory-farm gas to be shipped using the additional capacity provided by the Project be disposed of? Will it undergo solid-liquid separation? Will it be composted? Will it be used as fertilizer? If it will be used as fertilizer, where and under what conditions?
- What systems are in place to detect and mitigate ammonia and nitrous oxide emissions from the digestate created by the production of factory-farm gas that would be shipped using the additional capacity provided by the Project?
- What systems are in place to detect and mitigate unsafe levels of heavy metals in the digestate created by the production of factory-farm gas that would be shipped using the additional capacity provided by the Project? If that digestate is to be used as fertilizer, what systems are in place to detect and mitigate unsafe levels of heavy metals in the soil and in plants grown in that soil?
- What measures will be in place to ensure that digestate created as a byproduct of the production of factory-farm gas that would be shipped using the additional capacity supplied by the Project and applied to agricultural fields will not contaminate nearby watersheds?

This list of questions is a starting point, and is not intended to be exclusive.

V. If the Project Will Cause the Production of Additional Factory-Farm Gas, the Commission Should Open a Supplemental Scoping Period and a Supplemental Period to Timely Intervene and Protest

Neither Northern Natural Gas's application nor the Commission's April 2, 2024, Notice of Scoping Period contains sufficient information to put potentially interested parties on notice that the Project would cause additional upstream production of factory-farm gas. If this Project would result in the production of additional factory-farm gas, the Commission should open a supplemental scoping period and a supplemental period to

intervene and protest so that individuals and organizations who would be affected by the production of additional factory-farm gas have the opportunity to be heard on the scope of environmental review and on the merits of the project. Assuming the Commission's response to these comments reveals that some of the gas to be shipped using the additional capacity provided by the project would be factory-farm gas, a supplemental scoping period would be necessary to fulfill "NEPA's dual mission . . . to generate federal attention to environmental concerns and to reveal that federal consideration for public scrutiny." *Minisink Residents for Env't Preservation & Safety v. FERC*, 762 F.3d 97, 112 (D.C. Cir. 2014) (cleaned up). And a supplemental period to intervene and protest would be necessary to ensure adequate notice to the public before the Commission determines whether the Project would satisfy the Natural Gas Act's public convenience and necessity standard.

VI. Conclusion

We appreciate the opportunity to comment on the scope of the Commission's environmental review. Should the Commission have any questions regarding these scoping comments, please do not hesitate to contact us at:

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