

**UNITED STATES OF AMERICA
BEFORE THE
FEDERAL ENERGY REGULATORY COMMISSION**

**Consumers Energy Co.
Docket No. PR 25-52-000**

June 9, 2025

SIERRA CLUB’S PROTEST AND MOTION TO INTERVENE

Pursuant to 18 C.F.R. § 385.211, the Sierra Club hereby protests Consumers Energy Co.’s application for a limited-jurisdiction certificate of public convenience and necessity. *See* Appl. of Consumers Energy Co. for a Limited Jurisdiction Certificate of Pub. Convenience & Necessity (May 19, 2025) (accession no. 20250519-5135) (“the Application”). The Sierra Club seeks a formal hearing on the Application. *See* 18 C.F.R. § 157.10(a)(1).

The Sierra Club also moves to intervene in these proceedings. *See id.* § 385.214. As described below, the Sierra Club and its members have interests which may be directly affected by the outcome of the proceedings and the Sierra Club’s participation is in the public interest. *Id.* § 385.214(b)(2).

I. Intervention

The Sierra Club seeks to intervene as a party to these proceedings pursuant to 18 C.F.R. § 385.214.¹ Founded in 1892, the Sierra Club is a national organization with more than 60 chapters and over a million members and supporters. The Sierra Club’s purpose

¹ The Sierra Club herein “state[s], to the extent known . . . the basis in fact and law for” Sierra Club’s opposition to the Application. 18 C.F.R. § 385.214(b)(1). Should new information come to light, the Sierra Club reserves the right to amend the grounds for its opposition or to raise new grounds for denying the Application.

is to explore, enjoy, and protect the wild places of the earth; to practice and promote the responsible use of the earth's ecosystems and resources; and to educate and enlist humanity to protect and restore the quality of the natural and human environments. The Sierra Club's principal place of business is 2101 Webster St., Suite 1300, Oakland, CA 94612. The Sierra Club's Michigan Chapter's headquarters are located at 602 W. Ionia St., Lansing, MI 48933. *See* 18 C.F.R. § 385.203(b)(2).

The Sierra Club's membership includes members in Michigan who would be negatively affected by the environmental impacts of the Application. Specifically, as described below, the Application appears intended and likely to increase the production of factory-farm gas—or “Renewable Natural Gas” (“RNG”) created by the anaerobic digestion of massive amounts of concentrated animal manure from confined animal feeding operations (“CAFOs”)—in Michigan.

As described in greater detail below, the installation of digesters is associated with increases in the herd sizes of CAFOs. The logic is simple: creating a new revenue stream for manure incentivizes factory farms to increase the number of animals they confine. The expansion of herd sizes at CAFOs creates localized environmental effects that can affect the health and wellbeing of people living nearby. Moreover, the digestate left over by the anaerobic digestion process can also present significant environmental hazards. To the extent that Consumers Energy Co.'s “expansion” of its RNG program depends on its ability to sell gas across state lines without triggering the Commission's jurisdiction, the environmental effects of that expansion on the Sierra Club's membership in Michigan would be the foreseeable result of the Commission granting the Application. Specifically, the Sierra Club's membership includes Michigan residents who live near CAFOs that

may install or expand digesters and/or the sites where the resulting digestate may be disposed of if the Commission approves the Application. Thus, the Sierra Club “represents . . . interest[s] which may be directly affected by the outcome of the proceeding.” 18 C.F.R. § 385.214(b)(ii).

The Sierra Club’s “participation” would also be “in the public interest,” *id.* § 385.214(b)(2)(iii), because it seeks to require the Commission fairly to consider the environmental consequences of facilitating the introduction of factory-farm gas into the nation’s interstate gas pipeline network. Whatever the outcome of these proceedings, the agency’s consideration of these environmental effects is in the public interest.

Communications and Service

Pursuant to 18 C.F.R. § 385.203(b)(3), the names and addresses of the persons upon whom all communications concerning these proceedings should be served are as follows:

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II. Protest and Comments in Opposition

The Sierra Club objects to and opposes the Application because the Application appears intended and likely to cause the increased production, interstate shipment, and/or sale of factory-farm gas. The Commission must develop the record to determine where, when, and to what extent granting the Application would cause the expansion of factory-farm gas and intensive factory farming in Michigan, and what the environmental ramifications of that expansion would be. Under the Natural Gas Act, the Natural Gas

Policy Act, and the Commission's regulations, the environmental harms of increasing factory-farm gas production and expanding factory farming in Michigan would outweigh whatever economic benefits Consumers Energy Co. may claim, and so the Application does not meet the public convenience and necessity standard under 15 U.S.C. § 717f(c), (e) and 18 C.F.R. § 284.224(b)(3).

A. Legal Standard

Section 7 of the Natural Gas Act permits the Commission to approve a certificate application only if the proposed project “is or will be required by the present or future public convenience and necessity; otherwise such application shall be denied.” 15 U.S.C. § 717f(e). The Commission may “attach” to a certificate “such reasonable terms and conditions as the public convenience and necessity may require.” *Id.* The regulations governing applications for limited-jurisdiction blanket certificates of the kind Consumers Energy Co. seeks here contain an identical “public convenience and necessity” requirement. *See* 18 C.F.R. § 284.224(b)(3) (providing that such a limited-jurisdiction blanket certificate will be granted “if required by the present or future public convenience and necessity”). For ease of reference, the public convenience and necessity standard found in both 15 U.S.C. § 717f and 18 C.F.R. § 284.224(b)(3) is hereinafter referred to as either “the public convenience and necessity standard” or the “Section 7 standard.”

The “public convenience and necessity” standard is broad, and “requires the Commission to evaluate all factors bearing on the public interest.” *Atl. Refin. Co. v. Pub. Serv. Comm’n of N.Y.*, 360 U.S. 378, 391 (1959). The relevant public interests encompass not only the Natural Gas Act’s “principal purpose . . . to encourage the orderly development of plentiful supplies of . . . natural gas at reasonable prices,” but also

“undoubtedly [includes] other subsidiary purposes,” such as “conservation, environmental, and antitrust questions.” *NAACP v. Fed. Power Comm’n*, 425 U.S. 662, 669–70 & n.6 (1976); *Myersville Citizens for a Rural Cmty., Inc. v. FERC*, 783 F.3d 1301, 1307 (D.C. Cir. 2015). Under this standard, the Commission may “deny a pipeline certificate on the ground that the pipeline would be too harmful to the environment.” *Sierra Club v. FERC*, 867 F.3d 1357, 1373 (D.C. Cir. 2017) (*Sabal Trail*).²

Indeed, not only is the Commission *permitted* to consider the environmental effects of a proposed project under the public convenience and necessity standard; the Natural Gas Act and 18 C.F.R. § 284.224(b)(3) *require* that it do so. The Commission cannot determine whether a project “is or will be required by the present or future public convenience and necessity” unless it considers the environmental effects of a project as part of its analysis. 15 U.S.C. § 717f(e); 18 C.F.R. § 284.224(b)(3); *see also Fed. Power Comm’n v. Transcont’l Gas Pipe Line Corp.*, 365 U.S. 1, 30 (1961) (explaining that evidence regarding a pipeline’s effects on air pollution is “entitled to great weight” in the Section 7 analysis); *N.J. Conservation Found. v. FERC*, 111 F.4th 42, 63 (D.C. Cir. 2024) (invalidating FERC’s Section 7 analysis where FERC failed adequately to consider environmental effects of approving pipeline project); Romany M. Webb, *Climate*

² In *Seven County Infrastructure Coalition v. Eagle County* No. 23-975, 2025 WL 1520964 (U.S. May 29, 2025) (slip op.), the Supreme Court limited the D.C. Circuit’s *Sabal Trail* doctrine in relevant part by holding that the National Environmental Policy Act (“NEPA”) does not require agencies to consider the upstream environmental consequences of inducing additional energy production. *See id.* at *12. However, the D.C. Circuit’s holding in *Sabal Trail* that the Natural Gas Act gives FERC the authority to deny a project on environmental grounds under the Section 7 standard is an independent holding that remains good law. To be clear: The Sierra Club here argues that it is the Natural Gas Act itself and 18 C.F.R. 284.224(b)(3), rather than NEPA, which require the consideration of upstream environmental effects under the public convenience and necessity standard.

Change, FERC, and Natural Gas Pipelines: The Legal Basis for Considering Greenhouse Gas Emissions Under Section 7 of the Natural Gas Act, 28 N.Y.U. Env't L. J. 179 (2020) (explaining why text, case law, statutory and legislative history, and agency practice confirm the requirement that the Commission weigh the environmental effects of a proposed pipeline project as part of its § 7 analysis); Erin Rausch, Note, *Greenhouse Gas Emissions and FERC's Authority Under § 7 of the Natural Gas Act*, 37 Geo. J. Legal Ethics 741, 746 (2024) ("Interpretations of the public convenience and necessity standard in other statutes, the legislative history of the NGA, and the history of FERC's understanding of this standard all support that the public convenience and necessity standard confers broad authority to FERC to consider environmental impacts on the public as part of its public interest assessment in its certification decision-making process.").

If the Commission were to fail to consider a project's environmental effects before issuing a certificate, such a "fail[ure] to consider an important aspect of the problem" would result in a quintessentially arbitrary and capricious decision. *Motor Vehicle Mfrs. Ass'n of U.S., Inc. v. State Farm Mut. Auto. Ins. Co.*, 463 U.S. 29, 43 (1983); *see also Env't Def. Fund v. FERC*, 2 F.4th 953, 967 (D.C. Cir. 2021) ("The Commission's award of a [Section 7] Certificate is reviewed under the Administrative Procedure Act's arbitrary and capricious standard.").

B. *The Record and Publicly Available Documents Suggest that Granting Consumers Energy Co. a Limited Jurisdiction Blanket Certificate Would Cause the Expansion of Factory-Farm Gas and the Introduction of Such Gas into the Interstate Pipeline Network*

Consumers Energy Co. represents that it "is expanding its natural gas operations to include a Renewable Natural Gas ('RNG') program available to its retail customers"

and that “[a]s part of this operational expansion, [it] is exploring opportunities to deliver volumes of . . . RNG . . . into [its] gas system within Michigan to then sell and transport—via displacement, exchange, or other means— . . . RNG to states outside of Michigan using the interconnection points between Consumers Energy and various interstate pipelines located within Michigan.” Appl. ¶ 8.

Based on reporting and the company’s public statements, Consumers Energy Co.’s “expansion” of its “renewable natural gas” program, *id.*, appears to rely on the installation of biodigesters at factory farms, or CAFOs.³ The hundreds or thousands of animals confined within such facilities produce massive amounts of manure, which factory farms commonly store in massive outdoor cesspools (sometimes euphemistically called “lagoons”). All but the top layer of the manure in these pits is deprived of oxygen, so the remaining manure undergoes anaerobic digestion, a process which produces significant amounts of methane. Indeed, manure management comprises about nine percent of the United States’s anthropogenic methane emissions. *See* Env’t Prot. Agency, *Inventory of U.S. Greenhouse Gas Emissions and Sinks: 1990–2022*, at 2-4 (Apr. 11, 2024), <https://www.epa.gov/ghgemissions/inventory-us-greenhouse-gas-emissions-and-sinks-1990-2022>. Digesters capture (some of) this methane, and “renewable” natural gas is created by scrubbing this factory-farm gas of certain chemical impurities and pumping it into pipelines. Because smaller-scale farming operations and pasture-based agricultural methods do not produce nearly as much concentrated manure, digesters are only

³ *See, e.g.*, Consumers Energy Co., “Consumers Energy Adds Enough Clean Energy to Power Nearly 400,000 Homes in 2024” (Dec. 9, 2024), <https://perma.cc/KV56-HC3T>; Consumers Energy Co., “Carbon Offsets for Natural Gas” (last accessed June 4, 2025), <https://perma.cc/9WW4-393T>.

technically and economically feasible for the largest industrial animal agriculture operations.

Furthermore, Consumers Energy Co.’s stated intention to “sell and transport—via displacement, exchange, or other means— . . . RNG to states outside of Michigan,” Appl. ¶ 8, is likely a reference to the company’s intention to claim credits under California’s Low Carbon Fuel Standard, or LCFS. Indeed, in testimony before the Michigan Public Service Commission in 2021, Neil P. Dreisig, an employee of Consumers Energy Co., identified the LCFS as one of “two primary carbon credit markets,” and further testified that Consumers Energy Co. “intends to monetize environmental attributes [of RNG] by selling them into carbon markets.” *See* Direct Testimony of Neal P. Dreisig on Behalf of Consumers Energy Co. at 17–18, *In re Consumers Energy Co.*, No. U-21148 (Mich. Pub. Serv. Comm’n, Dec. 2021), <https://perma.cc/ZW27-SNNT>⁴; *see also In re Consumers Energy Co.*, No. U-21387, 2024 WL 1209153, at *2 (Mich. Pub. Serv. Comm’n Mar. 15, 2024) (noting that “if there is any unsubscribed RNG Program supply, [Consumers Energy Co.] ‘will sell the environmental attributes into renewable fuel markets to recover any remaining costs of supply and the remaining gas supply will be used for internal use’” (citation omitted)).

To participate in the LCFS from outside of California, the California Air Resource Board’s regulations allow a company like Consumers Energy Co. to “inject[]” RNG “into the common carrier pipeline in North America” and report that RNG as if it were sold in California for carbon-crediting purposes “without regards to physical traceability.” Cal. Code Regs. tit. 17, § 95488.8(i)(2)(A). This model of placing RNG into the interstate

⁴ The referenced testimony is found at pages 289–90 of the PDF at the above URL.

pipeline network hundreds or thousands of miles from California and then acting as if that gas actually reaches California is in large part why subsidization by the LCFS has driven the expansion of factory-farm gas production nationwide. *See* Evan Halper & Samuel Oakford, *California Draws Ire as Out-of-State Factory Farms Turn Pig Poop Into Cash*, Wash. Post (Apr. 19, 2025), <https://www.washingtonpost.com/business/2025/04/19/climate-factory-farms-carbon-credit-california>.

To the extent the Application is a prelude to Consumers Energy Co.’s participation in the LCFS, it demonstrates a remarkable dual-consciousness. Consumers Energy Co.’s participation in the LCFS would require pretending *as if* it sold RNG in California—even though it merely injects its factory-farm gas into pipelines in Michigan, regardless of whether any of that gas ever reaches California. But simultaneously, its Application to the Commission requires pretending *as if* the company is acting only within Michigan’s borders, when it really wishes to participate in a national system that subsidizes environmentally destructive agricultural practices. Simply put, the Commission should not allow Consumers Energy Co. to have it both ways. The company can either be an intrastate actor (and not cash in by selling factory-farm gas through the interstate pipeline network) or it can be an interstate actor (and thus be subject to the Commission’s oversight).

Given Consumers Energy Co.’s public statements indicating it intends to invest in factory-farm gas and participate in the LCFS, the Commission cannot discharge its responsibility to determine if the Application serves the public convenience and necessity without seeking out additional information about where, when, how, and how much

additional factory-farm gas would be produced as a result of granting the Application. A failure to seek out this information—including on the relationship between the Application and Consumers Energy Co.’s stated intention to participate in California’s LCFS program—would amount to a failure adequately to consider the environmental effects of granting the Application, and would thus render the Commission’s ultimate decision arbitrary and capricious. A list of specific topics to serve as a starting point for the Commission’s development of the record is provided in Part II.D, *infra*.

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

As part of its Section 7 analysis, the Commission must investigate and evaluate the extent to which the Application will induce the production, shipment, and sale of factory-farm gas. This is because, far from being the greenwashed panacea its backers claim, factory-farm gas can have serious environmental consequences for neighboring communities and the planet.

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

Industry proponents of factory-farm gas claim that installing anaerobic digesters reduces methane emissions. Often, however, these promises prove illusory. In some cases, incentivizing digesters may *increase* methane emissions. Because methane has a 100-year global warming potential 27–30 times greater than that of CO₂, an accurate accounting of how approving the Application would affect methane emissions is crucial to the Commission’s analysis of the Application. *See* Env’t Prot. Agency, *Understanding Global Warming Potentials* (last updated Jan. 16, 2025), <https://www.epa.gov/ghgemissions/understanding-global-warming-potentials>.

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 Plumbing* (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 plumbing 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 associated with the Application will reduce methane emissions.

Second, the installation of anaerobic digesters can cause factory farms to *abandon* lower-GHG methods of waste 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.

Additionally, because cold temperatures slow or stop the anaerobic digestion process, some factory-farm gas producers install equipment to warm their manure in order to keep producing methane through the winter—methane that would otherwise not exist, and which those producers then market as a green alternative to conventional natural gas.

Thus, the Commission must acquire information on the waste-management practices currently employed by Consumers Energy Co.’s prospective suppliers, and what waste-management practices those prospective suppliers would use should the Application be approved. Without that information, the Commission cannot evaluate the degree to which granting the Application 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 II.C.ii. When the animals in question are ruminants (such as cattle), this increase in herd size leads to more enteric

emissions—the largest source of anthropogenic U.S. methane emissions. *See* Env’t Prot. Agency, *Inventory of U.S. Greenhouse Gas Emissions and Sinks: 1990–2022*, at 2–4 (Apr. 11, 2024), <https://www.epa.gov/ghgemissions/inventory-us-greenhouse-gas-emissions-and-sinks-1990-2022>. Digesters do nothing to reduce enteric emissions. Thus, this induced increase in enteric emissions can offset, and may overwhelm, any reductions in methane emissions achieved by installing digesters.

ii. Anaerobic Digesters Cause Factory Farms to Expand

For factory farms, digesters not only add a new revenue stream, but also incentivize herd size expansion. The reason is simple: more animals mean more feedstock for digesters, and more feedstock for digesters means more money — both in absolute terms, and because of economies of scale, on a per-animal basis. Indeed, the CEO of one of Consumers Energy Co.’s first suppliers of factory-farm gas told the *Michigan Farm News* he installed a digester because if dairies are not “looking toward the future . . . you kind of get that old story of the dairy that just *stays the same size*—can’t adapt, *can’t grow . . .*” Mitch Galloway, *Breaking Ground: Swisslane Farms Consumers Energy Partner on Biodigester, Solar Center*, Mich. Farm News (May 31, 2024), <https://perma.cc/U87B-RBTV> (emphasis added).

An economic modeling analysis of the LCFS commissioned by the Union of Concerned Scientists further indicates that digesters cause CAFO growth. 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 Fingerma, *Quantification of Dairy Farm Subsidies Under*

California's Low Carbon Fuel Standard 17 (Sept. 2021), <https://perma.cc/6XGF-LDLT>.⁵

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 further 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 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 as part of its Section 7 analysis. These environmental impacts include, but are not limited to:

1. Increased methane emissions from enteric fermentation. As noted above, enteric emissions are the largest source of the United States’s anthropogenic methane emissions. EPA, *Inventory*, at 2-4. Moreover, anaerobic digesters do nothing to mitigate enteric emissions. Thus, by increasing herd sizes, anaerobic digesters lead to increased enteric emissions that can offset, and may overwhelm, methane reductions that might be achieved by installing digesters.

2. Increased localized air pollution. Factory farms release a host of harmful air pollutants into the surrounding air. *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 (H₂S), volatile organic compounds, and endotoxins, originate

⁵ The referenced analysis begins at page 186 of the comments in the linked document.

from confinement buildings, waste storage areas, and land application of animal waste”). More animals in factory farms mean more localized pollution, which is a reasonably foreseeable effect of causing additional factory-farm gas production that the Commission must consider.

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). The Commission must consider these environmental effects on public health and safety as part of its Section 7 analysis.

3. Induced changes in land use patterns to produce the feed crops to sustain these additional animals. 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>. In short, the increase in demand for livestock feed from the expansion of factory-farm herd sizes requires an increase in feed production, which may translate to the conversion of land for feed crop production or other environmental effects, which the Commission must consider as part of its Section 7 analysis.

In sum, the Commission must seek out information regarding the extent to which the Application would cause additional factory-farm gas production, the degree to which that additional production will induce herd size expansion, and the environmental effects of growing herd sizes.

iii. Anaerobic Digestion Mineralizes Nitrogen in Feedstock, Resulting in Increased Ammonia Emissions

Facilitating the expansion of factory-farm gas in Michigan threatens to increase ammonia (NH₃ or NH₄) emissions and runoff. These additional ammonia emissions and runoff must be part of the Commission's Section 7 analysis.

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); *see also* Sailesh Sigdel et al., *Ammonia Emissions and Corn Yield Response from Injected Versus Surface-Applied Liquid-Separated Anaerobic Digestate*, 117 *Agronomy*, at 2 (2025) (explaining that digestion “changes the chemical composition of the digested manure resulting in the potential for increased ammonia (NH₃) volatilization from digested manures”). 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 NH₃ emissions compared to” raw manure. *Id.* at 413.

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 Wastes 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; accord Sigdel et al. at 2 (“Ammonia is a harmful gas with severe health and environmental consequences.”). 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.

As one review summarizes, “because of their higher pH and NH_3/NH_4 contents, anaerobic digestates have a higher potential than [undigested] 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).

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

iv. *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 (N₂O). Holly et al. found that N₂O emissions from digestate were 13.5 times higher than from undigested animal manure. See Holly et al. at 414 (5.4mg N₂O/kg digestate versus 0.4mg N₂O/kg undigested manure). Another study found that applying digestate to fields “led to . . . 4.1 times the cumulative growing season N₂O emissions of . . . cattle manure.” Ben W. Thomas & Xiyang Hao, *Nitrous Oxide Emitted from Soil Receiving Anaerobically Digested Solid Cattle Manure*, 46 J. Env’t Qual. 741, 745 (2017).

These studies are part of a substantial body of research indicating that digestates can substantially increase N₂O emissions. See Roberta Pastorelli et al., *Effects of Anaerobic Digestates and Biochar Amendments on Soil Health, Greenhouse Gas Emissions, and Microbial Communities: A Mesocosm Study*, 14 Applied Scis. 4, at 10 (2024) (finding N₂O fluxes 5–6 times higher for soil amended with digestate compared to unamended soil [2.79–.99 digestate versus 0.53 control] over study period); 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 N₂O as undigested organic waste); Haoruo Li et al., *Digestate Induces Significantly Higher N₂O Emission Compared to Urea Under Different Soil Properties and Moisture*, 241 Env’t Rsch. 1, 9 (2024) (finding that using digestate as fertilizer produces significantly more N₂O than would using urea, a common inorganic fertilizer). Though factors like soil conditions can affect

how much additional N₂O is produced from digestate, research consistently finds that by making nitrogen available to react with ambient atmospheric gases, digestion results in more N₂O emissions than would leaving the same feedstocks undigested.

The increased N₂O emissions associated with factory-farm gas production matter because N₂O is a climate super-polluter. The EPA estimates that N₂O has a 100-year global warming potential 273 times greater than that of CO₂. *See* Env't Prot. Agency, *Understanding Global Warming Potentials*. Thus, even a small increase in N₂O 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 N₂O emissions do not completely overwhelm methane reductions, the Commission still has an obligation to determine and weigh the relative climate effects of methane and N₂O emissions from anaerobic digestion as part of its Section 7 analysis. Thus, the Commission has an obligation to determine whether approving the Application would cause increased factory-farm gas production, the extent to which that factory-farm gas production would result in increased N₂O emissions, and the effects of any increased emissions of this climate super-polluter.

v. *Anaerobic Digestion May Concentrate 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”); Malgorzata Czatzkowska et al., *Heavy Metal and Antimicrobial Residue Levels in Various Types of Digestate from Biogas Plants—A Review*, 17 Sustainability 416, 11 (2025) (reviewing studies finding “increasing concentrations of HMs [heavy metals] after anaerobic treatment”). One study found that soil irrigated with agricultural 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 can lead to dangerous levels of heavy metals in food. See Czatzkowska et al., at 11 (“It should be emphasized that HM [heavy metal] residues in soil, even at low concentrations, can be absorbed by roots and can accumulate in edible plant parts.”); 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 feedstock and the degree to which the feedstock or digestate is treated to remove these metals. The Commission cannot adequately discharge its Section 7 obligations unless it obtains additional information about the degree to which any factory-farm gas production caused by the Application 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.

D. The Commission Must Develop the Record Regarding the Involvement of Factory-Farm Gas in the Application

When the administrative record lacks sufficient information to allow the Commission to evaluate a project's environmental effects, Section 7 requires the Commission to attempt to acquire such information. Otherwise, the Commission cannot discharge its obligations to determine if a given project would serve the public convenience and necessity.

Here, as discussed *supra*, the record suggests that the Application may lead to the production of additional factory-farm gas. Thus, the Commission requires more information to determine if in fact the Application would lead to the production of factory-farm gas; and if it would, to evaluate the environmental effects of this increased production as part of its Section 7 analysis.

Specifically, the Commission must seek answers to the following questions from Consumers Energy Co. and any other relevant stakeholders identified in the Commission's review of this matter:

- If the Application is granted, how much RNG does Consumers Energy Co. intend to “sell and transport . . . to states outside of Michigan”? Appl. ¶ 8. Over what timeframe?
- How much of that gas will be sourced from industrial agriculture facilities, as opposed to other sources of “Renewable Natural Gas” such as landfills or wastewater treatment plants?
- Which agricultural operations will provide the factory-farm gas Consumers Energy Co. proposes to sell across state lines? Where in Michigan are these prospective suppliers located?
- To what extent do Consumers Energy Co.'s and its prospective suppliers' plans to produce, acquire, or sell factory-farm gas depend on the Commission's approval of the Application? How much additional factory-farm gas would be produced, bought, sold, and/or shipped because of the Commission's approval?
- What herd sizes do Consumers Energy Co.'s prospective suppliers project over the next ten years if the Application is approved? If it is not approved?
- How much additional annual revenue from the sale of factory-farm gas do Consumers Energy Co.'s prospective suppliers project if the Application is approved, on an absolute and a per-animal basis?

- What manure-management methods do Consumers Energy Co.'s prospective suppliers of factory-farm gas currently employ? How would those manure management methods change if the Commission were to approve the Application?
- What measures do Consumers Energy Co.'s prospective suppliers have in place, or will they put in place, to monitor and prevent methane leakage from digesters?
- How would Consumers Energy Co.'s prospective suppliers of factory-farm gas dispose of their digestate? What systems are in place to detect and mitigate ammonia and nitrous oxide emissions from the digestate created as a result of the Commission's granting of the Application? 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 caused by the Commission's granting of the Application? 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?

This list of questions is a starting point, and is not intended to be exclusive. If the Commission's development of the record reveals additional information regarding the environmental effects of allowing Consumers Energy Co. to sell factory-farm gas across state lines, the Sierra Club reserves the right to amend or add to these questions.

III. Conclusion

For the foregoing reasons, the Sierra Club respectfully requests that the Commission grant its motion to intervene, and further requests that the Commission

conduct a robust environmental analysis of the effects of inducing additional factory-farm gas production in the state of Michigan. Should that robust environmental analysis confirm the deleterious environmental effects of inducing additional factory-farm gas production, the Sierra Club requests that the Commission deny the Application.

Respectfully submitted this 9th day of June, 2025.

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Certificate of Service

I hereby certify that I have this day served the foregoing document upon each person designated on the official service list compiled by the Secretary in this proceeding.

Dated this 9th day of June, 2025.

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