April 25, 2022

Federal Energy Regulatory Commission, Order on Draft Policy Statements, March 24, 2022.

Docket No. PL21-3-000

Comments submitted by Patrick Michaels, Kevin Dayaratna, and Marlo Lewis.[1]

Thank you for the opportunity to submit additional comments on how (or whether) the Federal Energy Regulatory Commission ("FERC," "Commission") should consider climate change impacts in reviews of infrastructure projects under the Natural Gas Act (NGA).[2]

Our comments of January 7, 2022, on the Commission's November 19, 2021 technical conference on greenhouse gas (GHG) mitigation under the NGA, advised FERC to steer clear of climate policy, for three main reasons.[3]

First, the Biden administration's NetZero agenda to decarbonize and degasify the U.S. electric power sector cannot lawfully be aligned with the NGA. Biden's goals conflict with the NGA's "principal purpose," which is to "encourage the orderly development of plentiful supplies of electricity and natural gas at reasonable prices." In addition, climate change is not a factor Congress authorized FERC to consider. The words "climate," "carbon," "greenhouse," "global," "warming," "mitigate," or any of their cognates do not occur in the Act.

Second, although the direct and indirect emissions of natural gas infrastructure may be "reasonably foreseeable," the climate effects are not. FERC's project reviews are governed by the National Environmental Policy Act. NEPA requires scrutiny of major federal actions "significantly affecting the human environment." Even the emissions of the largest natural gas projects are too small to discernibly affect global climate, and no project's "carbon footprint" is big enough to influence the fate or fortunes of any community, business, or human being anywhere in the world.

Third, the social cost of carbon (SCC)—an estimate of the present value of the cumulative climate damages of an incremental ton of CO2e emissions—is too speculative and subjective, and too easily manipulated for political purposes, to be weighed in the same scales with an infrastructure project's estimated economic benefits. The Biden administration's SCC estimates are egregiously biased in favor of climate alarm and regulatory ambition, rendering any agency action that relies on them arbitrary and capricious.

Unlike several presenters at the November 2021 technical conference, FERC's "interim" (now "draft") GHG policy statement does not advocate requiring SCC analysis in NGA determinations of public convenience and necessity. Neither, however, does FERC disavow an intent to require it in later policy statements. The Commission may simply be waiting for the Biden administration's Interagency Working Group (IWG) to finalize its interim SCC estimates,[4] or for courts to resolve Louisiana's challenge to federal agency use of those metrics.[5]

The Commission's draft GHG policy statement establishes a "rebuttable presumption that proposed projects with 100,000 metric tons per year of carbon dioxide equivalents (CO2e) emissions will be deemed to have a significant impact on climate change." FERC also implies that it may condition project approval on the sponsor's plans to "mitigate all or a portion of the project's climate change impacts."[6]

The camel's nose is already under the tent. It is not hard to guess where this is going if FERC does not quickly reverse course. The usual suspects will pressure the Commission to: (1) progressively lower climate significance thresholds, (2) monetize undetectably small project-related climate "impacts" using agenda-driven SCC estimates, and (3) either reject needed natural gas infrastructure projects outright or impose mitigation requirements that render them uneconomic.

We stand by the chief policy conclusion of our January 7 comments. If an infrastructure project is commercially viable and helps ensure plentiful supplies of electricity and natural gas at reasonable prices (the NGA's principal purpose), the Commission knows in advance that the project's economic benefits far exceed its climate-related externalities. Therefore, no further investigation of the project's GHG emissions is required, nor does it make sense to condition the certificate of public convenience and necessity on the project's adoption of mitigation measures.

New research by Dr. Dayaratna (hereafter "Heritage analysis") further confirms that conclusion. Using the U.S. government's leading energy and climate policy models, the Heritage analysis demonstrates that banning construction of new U.S. pipelines would have a negligible effect on

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[4] Interagency Working Group on the Social Cost of Greenhouse Gases, *Technical Support Document: Social Cost of Carbon, Methane, and Nitrous Oxide Interim Estimates under Executive Order 13990*, February 2021, https://www.whitehouse.gov/wp-content/uploads/2021/02/TechnicalSupportDocument_SocialCostofCarbonMethaneNitrousOxide.pdf.
[5] *Louisiana v. Biden* (2021), a lawsuit challenging interim estimates for the social cost of greenhouse gases released by the Interagency Working Group on Social Cost of Greenhouse Gases, http://climatecasechart.com/climate-change-litigation/case/louisiana-v-biden/.
[6] Fact Sheet | Interim Greenhouse Gas (GHG) Emissions Policy Statement (PL21-3-000), February 17, 2022, https://ferc.gov/news-events/news/fact-sheet-interim-greenhouse-gas-ghg-emissions-policy-statement-pl21-3-000.

U.S. annual CO_2 emissions through 2050 and, thus, a similarly negligible effect on global temperatures through 2100. The policy implication for FERC is clear. No level of over-regulation or prohibition that regulators might apply to the development of U.S. natural gas pipelines could meaningfully affect the Earth's climate or possibly be worth the economic losses imposed on construction companies, natural gas producers, and energy consumers.

Mitigation of Project-Related GHG Emissions: All Economic Pain for No Climate Gain

The Heritage analysis is based on the federal government's own data. One of the side cases in the Energy Information Agency's (EIA) Annual Energy Outlook 2022 (AEO 2022) assumes no additional interstate natural gas pipelines are built between 2024 and 2050. Compared to the reference case, the side case projects 4.6% less natural gas production, 4.3% less natural gas consumption, and Henry Hub prices 11% higher in 2050.[7]

The following chart, based on AEO 2022 data, depicts carbon dioxide emissions from fuel consumption in the reference case and the no-pipeline-construction case:
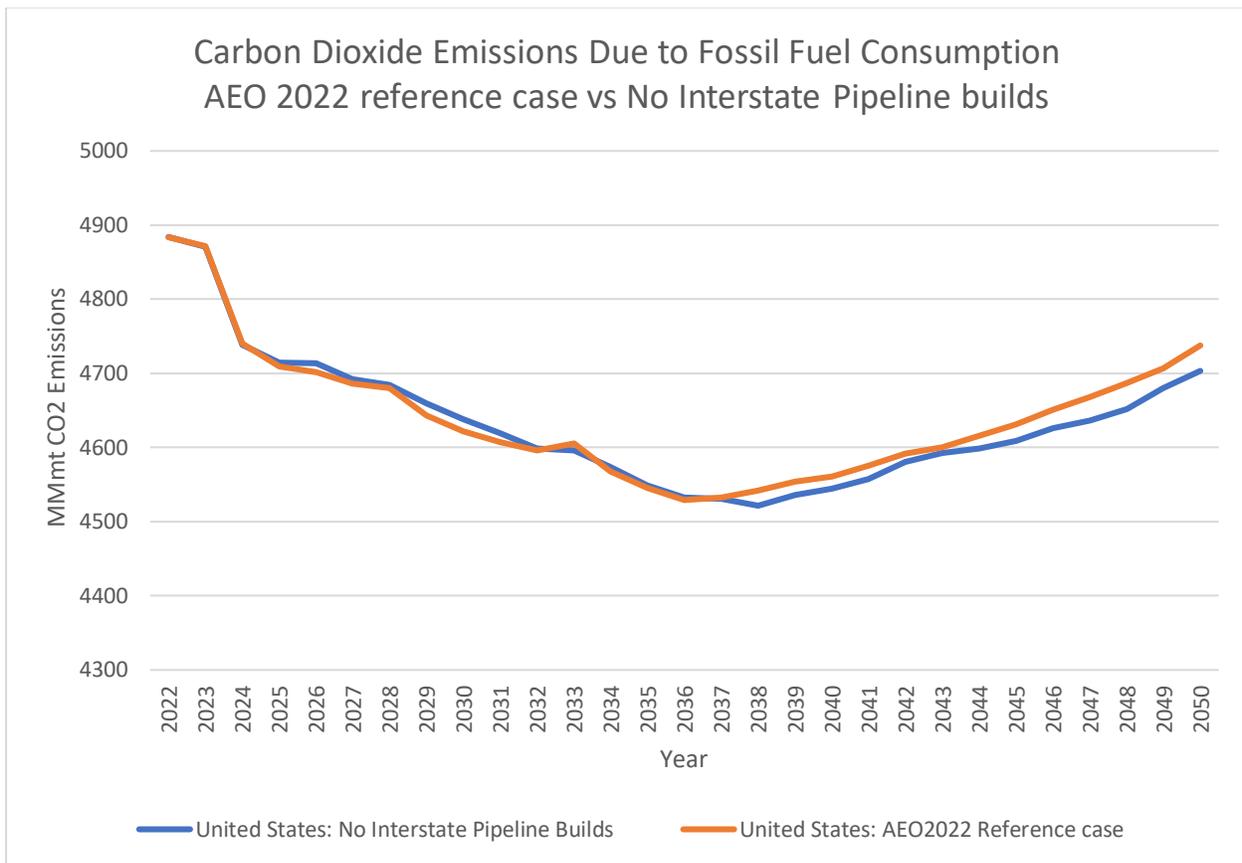
As the above chart illustrates, eliminating pipeline construction reduces U.S. annual CO_2 emissions by less than 0.74% through 2050.

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[7] https://www.eia.gov/outlooks/aeo/data/browser/

Dayaratna took those emissions forecasts and simulated the associated temperature impacts using the Model for the Assessment of Greenhouse Gas Induced Climate Change (MAGICC version 6). He assumed a climate sensitivity of 4.5°C (the upper end of the IPCC's estimates of this metric) and used Representation Concentration Pathway 6.0 as the baseline emission scenario. Upon adjusting fossil-fuel CO_2 emissions for the United States in accordance with the upper bound of the EIA's CO_2 reductions, he found the following temperature differences:

Global Temperature Impact of Prohibiting Pipeline Production After 2024
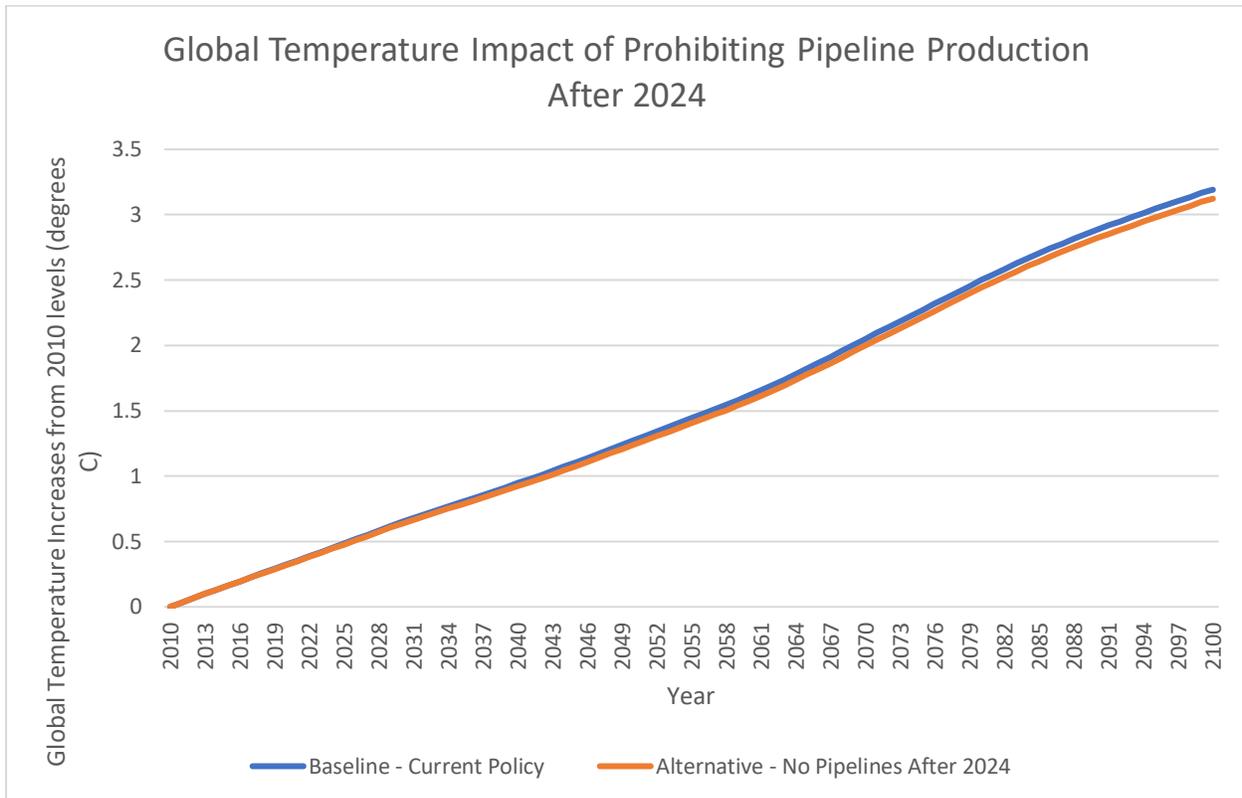
Full details of the Heritage analysis are included in the appendix below. The analysis projects temperature reductions of 0.034°C by 2050 and 0.069°C by 2100 compared to the reference case. Those mitigations are smaller than the margin of error (0.08°C) for estimating annual global average surface temperature.[8] Moreover, the Heritage analysis almost surely overestimates the temperature impacts of a national ban on pipeline construction, for three reasons. The analysis assumes a climate sensitivity that is likely larger than the planet's actual sensitivity.[9] It assumes

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[8] National Oceanic and Atmospheric Administration, Global Temperature Uncertainty, https://www.ncei.noaa.gov/access/monitoring/dyk/global-precision.

[9] K. Dayaratna, R. McKitrick, and D. Kreutzer, "Empirically Constrained Climate Sensitivity and the Social Cost of Carbon," *Climate Change Economics*, Vol. 8, No. 2 (2017), p. 1750006; https://www.worldscientific.com/doi/abs/10.1142/S2010007817500063

the maximum level of CO_2 reductions suggested by the EIA's simulations. It begins the MAGICC simulations in 2020—four years earlier than in the EIA side case.

Conclusion

The Biden administration declares climate change to be a "global crisis," "planetary emergency," and "existential threat."[10] FERC is an independent agency and to our knowledge has not officially endorsed those characterizations. Nonetheless, whatever one's views about the magnitude and certainty of climate change risks, everyone should be able to agree that two things are important to know about any climate change policy: How much will it cost, and how much global warming will it avert? The Heritage analysis demonstrates that prohibiting natural gas pipelines, which goes beyond any measures FERC has proposed for public comment, would have no detectable impact on global temperatures. The climate "benefits" of FERC's proposal would be even more miniscule.

In contrast, the regulatory burdens and litigation risks created by the proposal could impose significant costs on construction companies, natural gas producers, and U.S. energy consumers. The draft GHG policy thus cannot pass a cost-benefit test.

Respectfully Submitted,

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Appendix: Model for the Assessment of Greenhouse Gas Induced Climate Change

The Heritage analysis uses the Model for the Assessment of Greenhouse Gas Induced Climate Change (MAGICC) versions 6.[11] The MAGICC model quantifies the relationship between

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[10] For an alternative assessment see Bjorn Lomborg, "The World Is Getting Safer from Floods," Wall Street Journal, September 8, 2021, https://www.wsj.com/articles/flood-climate-change-ipcc-united-nations-infrastructure-deaths-cost-severe-weather-11631134276, "Climate Change Calls for Adaptation, Not Panic," Wall Street Journal, October 21, 2021, https://www.wsj.com/articles/climate-change-adaptation-panic-exaggerating-disaster-11634760376, and "We're Safer from Disasters than Ever Before," *Wall Street Journal*, November 3, 2021, https://www.wsj.com/articles/climate-activists-disasters-fire-storms-deaths-change-cop26-glasgow-global-warming-11635973538.

[11] Meinshausen, S. C. B. Raper and T. M. L. Wigley (2011). "Emulating coupled atmosphere-ocean and carbon cycle models with a simpler model, MAGICC6: Part I "Model Description and Calibration." A*tmospheric Chemistry and Physics* 11:1417-1456.doi:10.5194/acp-11-1417-2011, https://acp.copernicus.org/articles/11/1417/2011/acp-11-1417-2011.pdf

atmospheric radiative forcing, oceanic heat content, and surface temperature perturbation via the following relationship:

$$\Delta Q_G = \lambda_G \ \Delta T_G + \frac{dH}{dt},$$

where ΔQ_G is the global-mean radiative forcing at the top of the troposphere. This extra energy influx is decomposed into increased outgoing energy flux and heat content changes in the ocean via the derivative $\frac{dH}{dt}$. The outgoing energy flux is related to the global-mean feedback factor λ_G as well as surface temperature perturbation ΔT_G.

Climate sensitivity, denoted in the MAGICC model as ΔT_{2x}, is defined as the equilibrium global-mean warming after a doubling of carbon dioxide concentrations and specified via a reciprocal relationship to a feedback factor λ:

$$\Delta T_{2x} = \frac{\Delta Q_{2x}}{\lambda}.$$

In the above equation, ΔT_{2x} represents the climate sensitivity and ΔQ_{2x} represents the radiative forcing following a doubling of carbon dioxide concentrations. The time or state-dependent effective climate sensitivity S^t is defined by combining the above two equations as follows:

$$S^t = \frac{\Delta Q_{2x}}{\lambda^t} = \Delta Q_{2x} \frac{\Delta T_G^t}{\Delta Q^t - \frac{dH}{dt}|^t}$$

where ΔQ_{2x} represents the model-specific forcing for doubled carbon dioxide concentration, λ_t represents the time-specific feedback factor, ΔQ^t represents the radiative forcing, ΔT_G^t represents the global-mean temperature perturbation and $\frac{dH}{dt}|^t$ represents the climate system's heat uptake at time t.

Dayaratna used MAGICC version 6.0 to forecast changes in global annual surface temperature. By modifying emissions trajectories and specifying a climate sensitivity, one can run the MAGICC model to generate these forecasts. Dayaratna used the modified Representative Concentration Pathway 6.0, specified in the fifth IPCC Assessment Report.[12]

Using data from the Environmental Protection Agency, Dayaratna found that the United States emitted approximately 40% of carbon dioxide emissions with respect to all Organization for

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[12] U.N. Intergovernmental Panel on Climate Change, "Emissions Scenarios", 0-521-80081-1, 2000, https://www.ipcc.ch/site/assets/uploads/2018/03/emissions_scenarios-1.pdf (July 3, 2019); U.N. Intergovernmental Panel on Climate Change, "Climate Change 2001: Synthesis Report", 0-521-80770-0, 2001, http://www.grida.no/publications/267 (July 3, 2019); U.N. Intergovernmental Panel on Climate Change, "Climate Change 2007 Synthesis Report", 92-9169-122-4, 2008, https://www.ipcc.ch/site/assets/uploads/2018/02/ar4_syr_full_report.pdf (July 3, 2019); U.N. Intergovernmental Panel on Climate Change, "Climate Change 2014 Synthesis Report", 978-92-9169-143-2, 2015, https://www.ipcc.ch/site/assets/uploads/2018/02/SYR_AR5_FINAL_full.pdf (July 3, 2019).

Economic Co-operation and Development (OECD) member nations. [13] He altered OECD projections accordingly assuming this fraction to be constant over time. He also assumed a climate sensitivity of 4.5°C, a level significantly higher than that assumed by the Obama Administration's Interagency Working Group.[14]

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[13] U.S. Environmental Protection Agency, *Inventory of U.S. Greenhouse Gas Emissions and Sinks 1990-2017*, 430P19001, April 12, 2019, https://www.epa.gov/sites/production/files/2019-02/documents/us-ghg-inventory-2019-main-text.pdf (July 3, 2019).

[14] Obama Administration, Interagency Working Group on Social Cost of Carbon, *Technical Update of the Social Cost of Carbon for Regulatory Impact Analysis*, Technical Support Document Under Executive Order 12866, May 2013, https://obamawhitehouse.archives.gov/sites/default/files/omb/assets/inforeg/technical-update-social-cost-of-carbon-for-regulator-impact-analysis.pdf (July 2, 2019).