April 26, 2021
Docket No. PL18–1–000

Comments of the Competitive Enterprise Institute

Thank you for the opportunity to comment on the Federal Energy Regulatory Commission's Notice of Inquiry (NOI) on "Certification of New Interstate Natural Gas Facilities."[1] The Competitive Enterprise Institute (CEI) submitted comments on the Commission's April 25, 2018 NOI on the same topic.[2] Although the new Section C ("Consideration of Environmental Impacts") includes new and revised questions, the basic issue is the same: Whether the Commission should consider greenhouse gas (GHG) emissions in public convenience and necessity determinations for interstate natural gas facilities, and if so how.

CEI's basic answer remains the same:

- Natural gas infrastructure enhances the supply, reliability, and affordability of energy. Plentiful supplies of affordable and reliable energy support economic growth and technological innovation. Growth and innovation reduce both climate-related mortality risks and the relative economic impact of climate-related damages (losses as a percent of GDP).[3]

- The climate change impact of even the largest natural gas facility, even if combined with upstream and downstream emissions, is undetectably small, regardless of whether it increases or reduces net emissions.

- "Saving the planet" one natural gas facility at a time is a fool's errand. Blocking interstate gas facilities in the name of climate protection would impose real costs out of all proportion to the speculative benefits. Indeed, any policy increasing the cost and reducing the supply of natural gas would make society less able to afford investment in adaptation.[4]

- The social cost of carbon (SCC) is too speculative and too easily manipulated for partisan ends to inform public convenience and necessity determinations.

- Neither the National Environmental Policy Act (NEPA) nor the Natural Gas Act (NGA) was designed to be a framework for setting national climate policy, and neither authorizes the Commission to mandate a national energy transformation away from fossil fuels.

- The Commission should decline to do piecemeal what it lacks authority to do on the scale and schedule demanded by climate campaigners and opponents of hydraulic fracturing.

I now turn to the Commission's new and revised questions regarding its consideration of environmental impacts.

C1. Should the Commission broaden its environmental analysis to consider alternatives beyond those that are currently included, and if so how does the Commission reconcile that broadening with the D.C. Circuit's guidance in *Citizens Against Burlington, Inc.* v. *Busey*?

In addressing this question, it is important to start by observing that agencies' analyses of alternatives often conflate the purpose for the proposed federal *action* with the purpose of the proposed *project*. This is an error that results in the consideration of more alternatives than NEPA requires the agency to assess.

NEPA requires agencies to consider alternatives *to the proposed action*, as *Citizens Against Burlington, Inc. v. Busey* makes clear. The court stated:

> In commanding agencies to discuss "alternatives to the proposed action," however, NEPA plainly refers to alternatives to the "major *Federal* actions significantly affecting the quality of the human environment," and not to alternatives to the applicant's proposal. NEPA § 102(2)(C), 42 U.S.C. § 4332(2)(C) (emphasis added). An agency cannot redefine the goals of the proposal that arouses the call for action; it must evaluate alternative ways of achieving its goals, shaped by the application at issue and by the function that the agency plays in the decisional process.[5]

In the case of a natural gas pipeline, the action is the grant or denial of a Certificate of Public Convenience and Necessity under 15 U.S.C. § 717f(c)(1)(e). That section limits the alternatives FERC must consider to (1) granting the Certificate, (2) denying the Certificate, or (3) granting the certificate with "such reasonable terms and conditions as the public convenience and necessity may require." The reasonable terms and conditions that the Commission may attach to the Certificate broadens the alternatives analysis somewhat but provides no basis for consideration of alternatives outside the scope of the project application.

As the court explained, "Congress did not expect agencies to determine for the applicant what the goals of the applicant's proposal should be." Yet activists often pressure agencies to do just that—change or thwart the goals of companies seeking to build fossil-fuel infrastructure. For example, in debates over the Keystone XL Pipeline, a common talking point of opponents is that "we" should not invest in "dirty energy" but rather in renewables and energy efficiency. As if private capital were public property, to be reallocated by federal agencies at the behest of political pressure groups.

When faced with such pressure, the Commission may cite, in addition to *Citizens*, the Council on Environmental Quality's (CEQ) July 2020 final rule updating NEPA procedural regulations. The rule specifically revises the regulatory definition of "purpose and need" to make it consistent with *Citizens*.[6] The revised definition is as follows:

> **§ 1502.13 Purpose and need**
> The statement shall briefly specify the underlying purpose and need for the proposed action. When an agency's statutory duty is to review an application for authorization, the agency shall base the purpose and need on the goals of the applicant and the agency's authority.[7]

At the risk of belaboring the obvious, although some administration officials and members of Congress may want to prohibit the construction of new natural gas facilities, Congress has never voted on, much less authorized, such a policy.

CEI encourages the Commission to restrict, rather than broaden, its consideration to those alternatives to the proposed federal action (the granting of a certificate) that the agency is required to assess by NEPA and the relevant statutory authority for the action. It should avoid conflating the purpose of the action with the purpose of the project, as agencies routinely do in its environmental impact statements. And it should certainly not expand its alternatives analysis beyond current practice.

C2. Are there any environmental impacts the Commission does not currently consider in its cumulative impact analysis that could be captured with a broader regional evaluation?

The Commission does not list environmental impacts it does not currently consider in cumulative impact analyses. One suspects the question has something to do with climate change, but which aspects of the issue are currently not considered in public convenience and necessity determinations?

The Commission already considers how regional climate change impacts may affect the structural integrity of proposed facilities and how facilities might exacerbate such effects. For example, as discussed in the Commission's final environmental impact statement (EIS) for the Alaska LNG Project, melting permafrost due to climate change may exacerbate soil liquefaction, which may affect the integrity of the proposed 806.9-mile pipeline. Warmth from the pipeline may contribute to permafrost thawing. A warming climate plus the corridor created by the pipeline may accelerate the spread of non-native invasive plant species.[8]

Perhaps then the Commission seeks comment on whether it should undertake regional-scale cumulative analyses of natural gas-related *GHG emissions*.

To what end? Conducting such analyses would likely encourage self-defined "stakeholders" to claim that the region's collective emissions exceed the limits required to meet Paris Climate Treaty goals, hence building any new facilities is contrary to public convenience and necessity. CEI advises that the Commission not set the stage for such mischief.

In its proposed revised guidance on applying NEPA to greenhouse gas emissions, the Trump administration CEQ sensibly observed that because "the potential effects of GHG emissions are inherently a global cumulative effect," no individual project measurably increases cumulative impact; hence a "separate cumulative effects analysis is not required."[9] CEQ, however, did not

fully explicate what that observation implies. Because no individual project measurably increases cumulative impact, *an analysis of the project's individual emissions is not required*.

Considering a facility within a regional context does not make its GHG emissions any more relevant to a determination of its public convenience and necessity. All facilities exist in regions! Being in one region rather than another does not make a facility's incremental contribution to the global pool of GHG emissions any more significant.

A facility adds the same quantity of emissions to the universe of regional sources as it does to the universe of global sources. In neither case does the facility's incremental emissions measurably increase the cumulative impact of the global pool. And it is the global pool, not any of the millions of individual sources, nor the regional location of those sources, that matters in climate change forecasts and impact assessments.

In short, a cumulative analysis of project-level GHG emissions is climatologically useless regardless of whether the facility's emissions are examined in a regional or global context.

Unfortunately, there is a political value in adding a facility's emissions to the collective emissions of the region in which it is located. Doing so reinforces the "worse than we thought" narrative by focusing public attention on bigger, scarier-sounding emission totals. The Commission should leave such rhetorical manipulation to advocacy groups and other, more politicized agencies.

C3. In conducting an analysis of a project, how could the Commission consider upstream impacts (*e.g.,* from the drilling of natural gas wells) and downstream end-use impacts? If so, how might this be done? How could such a policy be squared with CEQ's final rule?

Taking the last question first, the Commission quotes the following passage from CEQ's July 2020 updated regulations implementing NEPA procedural provisions:

> *Effects* or *impacts* means changes to the human environment from the proposed action or alternatives that are reasonably foreseeable and have a reasonably close causal relationship to the proposed action or alternatives, including those effects that occur at the same time and place as the proposed action or alternatives and may include effects that are later in time or farther removed in distance from the proposed action or alternatives.[10]

The climate change effects of even the largest project are too small and remote in time to be reasonably foreseeable. Unforeseeable, immeasurably small effects also lack a close causal connection to specific agency actions. Hence, such effects are not a proper subject of NEPA review. Including upstream and downstream emissions in the analysis does not change that bottom line.

Other passages in CEQ's updated procedural NEPA regulations also imply that NEPA scrutiny is not required for project-related GHG emissions. I will excerpt and italicize those passages, commenting on each in turn.

In considering the potentially affected environment, agencies should consider, as appropriate to the specific action, the affected area (national, regional, or local) and its resources, such as listed species and designated critical habitat under the Endangered Species Act. Significance varies with the setting of the proposed action. For instance, in the case of a site-specific action, significance would usually depend only upon the effects in the local area.[11]

> Comment: Site-specific actions would have even less significance for the world as a whole—the "area" potentially affected by cumulative GHG emissions.

Effects do not include those effects that the agency has no ability to prevent due to its limited statutory authority or would occur regardless of the proposed action.[12]

> Comment: Climate change effects derive from myriad sinks and sources, located all over the world, over periods of decades to centuries. No project authorization or permitting decision can prevent such impacts, which would occur regardless of the proposed action. Hence, again, climate change effects of project-level GHG emissions are not a proper subject of NEPA review.

Agencies are not expected to conduct exhaustive research on identifying and categorizing actions beyond the agency's control.[13]

> Comment: The authority to approve an interstate natural gas facility does not empower the Commission to control how gas is produced and consumed across the states and around the world. Exhaustive research on upstream and downstream GHG emissions would be a waste of the Commission's resources.

The Obama administration CEQ initially proposed to require analysis of upstream and downstream GHG emissions for facilities with direct emissions exceeding a threshold of 25,000 metric tons per year.[14] However, uncertainties associated with the proposal proved so confusing that it was dropped in the Final Obama CEQ Guidance.[15]

Southern Methodist University law professor James W. Coleman provides an extensive and sobering review of governmental efforts to estimate and control the upstream and downstream emissions of energy infrastructure projects.[16]

Coleman draws two main conclusions. "First, the marginal impact of a single energy transport project in ever changing global energy markets is so uncertain that it provides no useful information to the agencies that decide on these projects." For example, he asks, "how can the government predict the effect of a single energy transport facility on global energy markets, especially when there are competing modes of transport?" He notes that "the most controversial part of the State Department's assessment of Keystone XL was its conclusion that denying the pipeline would actually increase global greenhouse gas emissions because oil would just move by trains instead."

The Commission similarly notes that natural gas transported by an interstate facility may reduce GHG emissions by "displacing a more carbon-intensive fuel source such as coal or fuel oil."[17]

A more fundamental problem, Coleman argues, is that even if the government can estimate the impact of a pipeline or power line on upstream and downstream markets, it is not clear how that information should influence its decision. He asks: "Should it, as President Obama suggested, shut down any facility that encourages fossil fuel production? If so, how does that interact with the traditional standard for reviewing energy transport projects, which approves them only if they support energy production?"

Coleman clearly has the Commission in mind when posing that question. His accompanying footnote states:

> See U.S. Fed. Energy Reg. Commission, Order Granting Authorization under Section 3 of the Natural Gas Act and Issuing Certificates, 147 FERC ¶ 61,230 (June 19, 2014) (approving liquefied natural gas facility because it would lead to "increased production" as well as "increased economic activity and job creation, support for continued natural gas exploration, and increased tax revenue").

Coleman's second main conclusion is that rejecting a pipeline because it could encourage energy production or consumption in international markets "is to assert the power and the authority to control energy markets in other countries—an undiplomatic encroachment on the authority of those countries to balance environmental and economic concerns in regulating their own energy markets."

Of more particular concern to the Commission, such extraterritorial regulation would also raise federalism concerns:

> Even when energy markets are purely domestic, the same dynamic may strain the balance of power in energy federalism: if the federal government begins using reviews of interstate infrastructure to control upstream and downstream energy markets that have traditionally been regulated by the states, it will engender opposition to federal environmental review of these projects.

C4. In conducting an analysis of the impact of a project's GHG emissions, how could the Commission determine the significance of these emissions' contribution to climate change? Is there any level of GHG emissions that would constitute a *de minimis* impact?

I would rephrase the question as follows: Is there any level of project-related GHG emissions that is not *de minimis*? The answer is no.

The climatic insignificance of project-related emissions has been CEQ's consistent view for more than a decade. Yet the Obama CEQ required agencies to quantify facility-level GHG emissions, ostensibly to incorporate the "effects of climate change" into NEPA reviews.

The logic behind the Obama CEQ's policy appears to be political. Requiring agencies (hence also project applicants) to quantify the "direct and indirect" GHG emissions of proposed projects injects climate concerns into the daily routines of myriad public and private actors involved in

building, upgrading, and reviewing energy infrastructure. It is a "consciousness raising" strategy. The "climate benefit" consists in forcing business leaders and agency heads to "think globally" whenever they act locally.

The obvious question, though, is what official rationale supposedly justifies requiring agencies and applicants to quantify GHG emissions and consider mitigation alternatives? It is the proposition that "projection of a proposed action's direct and reasonably foreseeable indirect GHG emissions may be used as a proxy for assessing potential climate effects."[18] That premise is incorrect.

Climate change science holds that cumulative global GHG emissions over decades to centuries will have climate change effects. It does not postulate that incremental emissions have identifiable climate impacts. Incremental emissions attributable to specific projects are not large enough to have foreseeable, traceable, or verifiable climate effects.

A proxy voter can cast a real, countable, ballot for an absentee voter. Data from tree rings, ice cores, fossil pollen, ocean sediments, and corals can be calibrated to instrumental data and then serve (albeit imperfectly) as proxies for climatic conditions in pre-industrial times.

In contrast, no testable, measurable, or otherwise observable relationship exists between project-level greenhouse gas emissions and climate change effects. To call the former a "proxy" for the latter is an abuse of terminology.

The Obama CEQ struggled with this issue for years. CEQ's initial 2010 draft GHG guidance observed, "From a quantitative perspective, there are no dominating [project-level] sources and fewer sources that would even be close to dominating total GHG emissions."[19] CEQ proposed that 25,000 tons or more of annual carbon dioxide-equivalent GHG emissions could provide "an indicator that a quantitative and qualitative assessment may be meaningful to decision makers and the public." However, the document immediately clarified that CEQ was not making a claim about climatic impact: "CEQ does not propose this as an indicator of a threshold of significant effects, but rather as an indicator of a minimum level of GHG emissions that may warrant some description in the appropriate NEPA analysis for agency actions involving direct emissions of GHGs."[20]

The 2010 draft guidance further clarified: "CEQ does not propose this [25,000 ton] reference point as an indicator of a level of GHG emissions that may significantly affect the quality of the human environment." Lest anyone mistakenly infer climatological significance, CEQ stated: "However, it is not currently useful for the NEPA analysis to attempt to link [proposed projects to] specific climatological changes, as such direct linkage is difficult to isolate and to understand."[21]

Nonetheless, stakeholders were confused. How can NEPA analysis of a project emitting 25,000 tons of greenhouse gases per year be "meaningful" if that quantity of emissions is not climatically "significant"?[22]

CEQ's 2014 draft GHG guidance devoted several pages to the issue without resolving it. CEQ again proposed a 25,000 metric ton reference point while disclaiming an intent to make a "determination of significance." Rather, the significance of an agency action depends on multiple factors, such as "the degree to which the proposal affects public health or safety, the degree to which its effects on the quality of the human environment are likely to be highly controversial, and the degree to which its possible effects on the human environment are highly uncertain or involve unique unknown risks."[23]

However, that restates rather than removes the perplexity. The degree to which GHG emissions from an individual project affect public health and safety is for all practical purposes zero. The climatic insignificance of individual projects is non-controversial and highly certain. Greenhouse gas emissions from individual projects are not suspected of posing unique unknown risks.

After wrestling with comments ranging from 'no project-level emissions are big enough to quantify' to 'no project-level emissions are too small to quantify,' CEQ judged that a 25,000-ton disclosure threshold is "1) low enough to pull in the majority of large stationary sources of greenhouse gas emissions, but also 2) high enough to limit the number of sources covered that state and local air pollution permitting agencies could feasibly handle."[24] In other words, the 25,000-ton reporting threshold was determined by administrative convenience, not climatic significance.

Then, two years later, the final 2016 GHG guidance dropped the 25,000-ton threshold without a word of explanation or comment. Perhaps CEQ just gave up trying to explain how quantifying emissions that are not climatically "significant" could still be "meaningful."

C5. As part of the Commission's public interest determination, how would the Commission weigh a proposed project's adverse impacts against favorable impacts to determine whether the proposed project is required by the public convenience and necessity and still provide regulatory certainty to stakeholders?

Weighing the climate impacts of a facility's GHG emissions against the economic benefits is easy. Those impacts are effectively nil, as explained in the response to question C4 above. In other words, project-level GHG emissions should carry no weight in public convenience and necessity determinations.

C6. Does the NGA, NEPA, or other federal statute authorize or mandate the use of Social Cost of Carbon (SCC) analysis by the Commission in its consideration of certificate applications?

Those statutes do not mandate the use of SCC analysis by the Commission in its consideration of certificate applications. To take only the most obvious point, the NGA, NEPA, and Clean Air Act were enacted decades before federal agencies ever started using SCC analysis, and none has been amended to require its use.

SCC analysis has traditionally been used in regulatory benefit-cost analysis, not permitting decisions. That is partly because changes in emissions due to new regulatory requirements such

as emission performance standards or emission caps are more predictable than changes in emissions due to the construction of new bridges, highways, pipelines, and other infrastructure. The long-term impacts of infrastructure projects on emissions chiefly depend on energy market and macroeconomic developments, which are hard to foresee.[25]

CEI is well aware of the Ninth Circuit's 2008 ruling that the Department of Transportation must estimate the dollar value of the carbon dioxide (CO_2) emission reductions resulting from fuel economy regulations.[26] The court argued that "while the record shows that there is a range of values, the value of carbon emissions reduction is certainly not zero." Three responses are in order.

First, it is by no means clear that the Ninth Circuit's ruling applies to permitting decisions, as the Commission indicates in question C7. In *EarthReports, Inc. v. FERC* (2016), the D.C. Circuit upheld the Commission's decision not to use SCC analysis when approving construction and operation of a liquefied natural gas (LNG) export facility. The Commission concluded that SCC analysis would not be an "appropriate or informative" decision-making tool because, among other reasons, the tool "does not measure the actual incremental impacts of a project on the environment." The court agreed.[27]

Second, we may question the Ninth Circuit's assumption that a "range of estimates" obligates an agency to pick a specific value within that range. Science can inform SCC analysis but SCC estimates are not science because futurology is not science. Let's break that down.

- Federal agencies attempt to estimate the cumulative damages of an incremental ton of CO_2 out to the year 2300. Since it is total cumulative emissions that determine climate impact, the agencies must first estimate the trajectory of global emissions and concentrations over the next 280 years.

- Emissions come from economic activity. It is hard enough to get macroeconomic and energy market projections right over the next five years. No one can foresee the state of economic evolution in 2100, much less 2200 and 2300.

- A key part of SCC analysis is estimating the "damage function"—the assumed relationship between changes in global average temperature and changes in productivity, consumption, property damages, and the like. Human beings use technology to adapt to environmental conditions.

- Estimating future climate damages therefore requires forecasting how technology will develop—over centuries—as the world warms. Nothing is harder to foresee than long-term technological change.

Sometimes the most truthful answer is "we don't know."

Third, the Ninth Circuit did not consider an important aspect of the issue. Carbon dioxide emissions have positive as well as negative externalities. Global warming lengthens growing seasons.[28] Rising CO_2 concentration boosts crop yields and fortifies greenery everywhere.[29]

Under some reasonable assumptions, the *net* social cost of carbon may be zero or even less than zero. For example, a recent study finds that when a leading SCC estimation model is run with updated empirical information about climate sensitivity[30] and the agricultural benefits of atmospheric CO_2 fertilization,[31] the SCC drops to very small numbers, with a 40 percent probability of being negative, through the mid-21st century.[32] A negative cost is another way of saying a net benefit.

C7. If the Commission chooses to use the SCC tool, how could it be used to determine whether a proposed project is required by the public convenience and necessity?

It would be used in a biased way. The Commission's SCC estimates would almost certainly be those of the Biden administration's Interagency Working Group, and the IWG's estimates are egregiously biased.

The IWG uses three integrated assessment models, abbreviated DICE, FUND, and PAGE, to estimate the social cost of carbon.[33] As noted in CEI's previous comment letter, DICE and PAGE ignore the agricultural benefits of atmospheric CO_2 enrichment. A vast peer-reviewed literature demonstrates that elevated CO_2 levels boost crop yields.[34] By one credible estimate, CO_2 fertilization added $3.2 trillion to global crop production during the 50-year period 1961-2011.[35]

SCC estimates are also supposed to incorporate the value of ecosystem services. Satellite data and other information indicate immense ecological benefits from rising CO_2 concentration. Those include an 11 percent increase in green foliage cover in arid regions during 1982-2010, an increase in global green foliage cover during 1982-2015 equivalent to an area twice the size of the continental United States, and a 31 percent increase in terrestrial plant gross primary production during the 20th century.[36]

The Biden administration's interim report on the social cost of greenhouse gases does not mention CO_2 fertilization.[37] In all likelihood, the final report, due January 2022, will retain the biased methodology the IWG has been using since its inception in 2009. It will continue to average together the results of three SCC-estimation models, two of which effectively assign zero dollars to the immense agricultural and ecological benefits of CO_2 fertilization.

University of Colorado professor Roger Pielke, Jr. recently brought to light another major bias in the IWG exercise. The SCC estimates are based on five emission scenarios of which four are "reference" (no climate policy) scenarios. Each reference scenario (USG1-4 below) projects post-2100 cumulative CO_2 emissions greater than total estimated fossil reserves.

Cumulative CO_2 emissions ($GtCO_2$)		
	By 2200	By 2300
USG1	11,207	16,741
USG2	20,024	33,023
USG3	8,113	10,864
USG4	14,092	20,504
USG5	3,691	4,843
Estimated reserves ($GtCO_2$)	3,674 - 7,113	

Source: Electric Power Research Institute, *Understanding the Social Cost of Carbon: A Technical Assessment*, October 20, 2014, https://www.epri.com/research/products/3002004657.

For example, in the USG2 scenario, cumulative CO_2 emissions reach 22,024 gigatons in 2200 and 33,023 gigatons in 2300—multiples of total estimated reserves (3,674 – 7,113 gigatons).

To even approach such massive cumulative emissions, Pielke, Jr. observes, "the world would have to make it a policy goal to burn as much coal as possible over the coming centuries. That seems unlikely."[38]

Pielke, Jr. also notes that it no longer makes sense to treat no-climate-policy scenarios as reference scenarios. Granted, the world is not on course to achieve zero-net emissions by 2050. However, achieving zero-net emissions by 2100 and certainly by 2200 is far from implausible. If the world achieves net-zero by 2200, cumulative CO_2 emissions will reach ~3,150 gigatons, Pielke, Jr. estimates. Cumulative emissions in the IWG's reference scenarios are 3.4 to 10.4 times larger.

Pielke, Jr. concludes: "If the world economy does not actually emit into the atmosphere tens of thousands of gigatons of carbon dioxide, as envisioned by the IWG, then the majority of the IWG SCC estimates are simply imaginary—setting aside all other methodological issues that might be raised."

Conclusion

The comments above may be summarized as follows.

C1. CEI encourages the Commission to restrict, rather than broaden, its consideration of alternatives to those the Commission is required to assess by NEPA and the NGA. It should avoid conflating the purpose of the action with the purpose of the project, as agencies routinely do in environmental impact statements. And it should certainly not expand its alternatives analysis beyond current practice.

C2. The Commission should not bother estimating cumulative project-level GHG emissions, whether on a global or regional basis. The result in either case is the same: the facility's emissions have no significant or even knowable effect on the human environment. The only value of estimating cumulative regional emissions would be political. It would provide larger, scarier-sounding emission totals to incite opposition to the project.

C3. The Commission should not bother estimating upstream and downstream project-level GHG emissions. Long-term upstream and downstream emissions depend on energy-market and macroeconomic developments that are hard to foresee. Even the largest project's direct and indirect GHG emissions have no significant effect on the human environment. An attempt to reduce upstream emissions would conflict with the Commission's statutory mandate to increase energy production and the associated economic activity, job creation, and tax revenue. Controlling upstream and downstream emissions would require an impolitic and unauthorized encroachment on the power of states and foreign governments to regulate energy markets within their respective jurisdictions.

C4. There is no level of project-related GHG emissions that would not be *de minimis*. The Obama CEQ struggled for six years to explain how project-level GHG emissions that have no significant effect on the human environment could still be "meaningful" for purposes of NEPA review. It eventually gave up trying.

C5. Project-level GHG emissions should carry no weight in public convenience and necessity determinations. If a proposed natural gas facility is deemed under traditional criteria to serve the public convenience and necessity, its economic and energy market benefits will far outweigh the unknowably small and remote impacts of its GHG emissions.

C6. The NGA and NEPA do not mandate the use of SCC analysis in public convenience and necessity determinations. Nor does the Ninth Circuit's ruling in *Center for Biological Diversity v. NHTSA* (2008). Even if SCC analysis were a useful tool in regulatory benefit-cost analysis,[39] it would still not provide useful information for project authorizations, as the Commission argued, and the D.C. Circuit affirmed, in *EarthReports, Inc. v. FERC* (2016).

C7. Attempting to use SCC analysis to determine the public convenience and necessity of proposed projects would fatally compromise the objectivity of the Commission's deliberations. The Commission's SCC estimates would almost certainly be those of the Biden administration's Interagency Working Group, which are egregiously biased. The IWG averages the results of three SCC estimation models, two which effectively assign a dollar value of zero to the immense agricultural and ecological benefits of CO_2 atmospheric enrichment. The IWG also uses four "reference" emission baselines that assume atmospheric concentrations over the coming centuries that could not be achieved even if the world adopted a collective goal of burning all economically recoverable fossil fuel reserves. Official SCC estimates are junk science. The Commission should leave their use to advocacy groups and more politicized agencies.

Respectfully submitted,

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[1] Federal Energy Regulatory Commission, Certification of New Interstate Natural Gas Facilities; Notice of Inquiry, 86 FR 11268, February 24, 2021, https://www.govinfo.gov/content/pkg/FR-2021-02-24/pdf/2021-03808.pdf.

[2] Marlo Lewis, CEI Comments on the Federal Energy Regulatory Commission's Notice of Inquiry Regarding the Certification of New Interstate Natural Gas Facilities, Docket No. PL18-1-000, June 21, 2018, https://cei.org/regulatory_comments/cei-comments-on-the-federal-energy-regulatory-commissions-notice-of-inquiry-regarding-the-certification-of-new-natural-gas-facilities/.

[3] A study published after the previous NOI comment period finds that climate-related hazards show a "clear decreasing trend in both human and economic vulnerability, with global average mortality and economic loss rates that have dropped by 6.5 and nearly 5 times, respectively, from 1980–1989 to 2007–2016." See Giuseppe Formetta and Luc Feyen. 2019. Empirical Evidence of Declining Global Vulnerability to Climate-Related Hazards. *Global Environmental Change* 57, https://www.researchgate.net/publication/333507964_Empirical_evidence_of_declining_global_vulnerability_to_climate-related_hazards.

[4] U.S. residential natural gas prices in 2020 were roughly equivalent to prices in 2015 (https://www.eia.gov/dnav/ng/hist/n3010us3m.htm). In the U.S. Energy Information Administration's Residential Energy Consumer Survey (RECS), nearly one-third of households reported facing a challenge in paying energy bills or sustaining adequate heating and cooling in their home in 2015. About one in five households reported reducing or forgoing basic necessities like food and medicine to pay an energy bill and 14 percent reported receiving a disconnection notice for energy service. Eleven percent of households reported keeping their home at an unhealthy or unsafe temperature. Seven million households (7 percent of the national total) experienced the inability to use heating equipment at some point in 2015 and 6 million (5 percent) experienced the loss of air conditioning. These issues occurred during a year when overall energy-related expenditures were at their lowest point in over a decade. See EIA, "One in three U.S. households faced challenges in paying energy bills in 2015," https://www.eia.gov/consumption/residential/reports/2015/energybills/. Raising residential energy prices by blocking construction of new interstate natural gas facilities would further impair the ability of millions of low-income households to cope with heat waves and cold snaps.

[5] *Citizens Against Burlington, Inc. v. Busey*, 938 F. 2d 190, 199 (D.C. Cir. 1991), emphasis added.

[6] CEQ, Update to the Regulations Implementing the National Environmental Policy Act, 85 FR 43330, July 16, 2020, https://www.govinfo.gov/content/pkg/FR-2020-07-16/pdf/2020-15179.pdf.

[7] 85 FR 43365.

[8] Federal Energy Regulatory Commission, *Alaska LNG Project, Final Environmental Impact Statement*, Volume 1 of 3, FERC/EIS-0296F, March 2020, pp. 4-44, 4-105, 4-279, https://www.ferc.gov/sites/default/files/2020-06/01_Alaska_LNG_FEIS_Volume_1.pdf.

[9] CEQ, Draft National Environmental Policy Act Guidance on Consideration of Greenhouse Gas Emissions, 84 FR 30098, June 26, 2019, https://www.govinfo.gov/content/pkg/FR-2019-06-26/pdf/2019-13576.pdf.

[10] 85 FR 43375.

[11] 85 FR 43360.

[12] 85 FR 43344

[13] 85 FR 43344

[14] CEQ, Draft NEPA Guidance on Consideration of the Effects of Climate Change and Greenhouse Gas Emissions, Memorandum for Heads of Federal Departments and Agencies, February 18, 2010, p. 3, https://ceq.doe.gov/docs/ceq-regulations-and-guidance/20100218-nepa-consideration-effects-ghg-draft-guidance.pdf (hereafter CEQ GHG Guidance 2010); CEQ, Revised Draft Guidance on Consideration of Greenhouse Gas Emissions and the Effects of Climate Change in NEPA Reviews, 79 FR 77814, December 24, 2014, https://www.govinfo.gov/content/pkg/FR-2014-12-24/pdf/2014-30035.pdf.

[15] CEQ, Final Guidance for Federal Agencies and Departments on Consideration of Greenhouse Gases and the Effects of Climate Change in National Environmental Policy Act Reviews, Memorandum for Heads of Federal Departments and Agencies, August 1, 2016, https://ceq.doe.gov/docs/ceq-regulations-and-guidance/nepa_final_ghg_guidance.pdf (hereafter CEQ Final GHG Guidance 2016). The words "upstream" and "downstream" do not occur in this "final" (later rescinded) guidance, although the guidance requires agencies to quantify "indirect" emissions when those are "reasonably foreseeable" (p. 16).
[16] James W. Coleman, "Beyond the Pipeline Wars: Reforming Environmental Assessment of Energy Transport Infrastructure," *Utah Law Review*, Volume 2018, Number 1, Article 3, https://dc.law.utah.edu/cgi/viewcontent.cgi?article=1142&context=ulr.
[17] 86 FR 11272.
[18] CEQ, Draft GHG Guidance 2010, p. 3; 77 FR 77825; CEQ Final GHG Guidance 2016, pp. 4, 10.
[19] CEQ, Draft GHG Guidance 2010, p. 2.
[20] CEQ, Draft GHG Guidance 2010, p. 3.
[21] CEQ, Draft GHG Guidance 2000, p. 3.
[22] 77 FR 77809-77810.
[23] 77 FR 77810.
[24] 77 FR 77818.
[25] The Energy Information Administration undertakes a retrospective analysis of its previous energy market and macroeconomic forecasts every two years. EIA summarizes the results of its most recent lookback as follows: "In an unbiased projection, with a sufficiently large number of samples, overestimates and underestimates over time would occur in equal measure. In comparing the AEO Reference case projections with realized outcomes from 1994 to 2019, out of the 25 variables listed in Table 1, 17 more variables have historically been overestimated than underestimated." Energy Information Administration, *Annual Energy Outlook Retrospective Review*, December 29, 2020, https://www.eia.gov/outlooks/aeo/retrospective/.
[26] *Center for Biological v. NHTSA* 538 F.3d 1172 (9th Cir. 2008).
[27] *EarthReports, Inc. v. FERC*, 828 F.3d 949, 956 (D.C. Cir. 2016).
[28] EPA, Climate Change Indicators: Length of Growing Season, https://www.epa.gov/climate-indicators/climate-change-indicators-length-growing-season.
[29] Marlo Lewis, "Yet Another Study Confirms the Ecological Benefits of Carbon Dioxide," OpenMarket.Org, April 10, 2017, https://cei.org/blog/yet-another-study-confirms-ecological-benefits-of-carbon-dioxide/.
[30] Climate sensitivity is typically defined as the amount of warming that results after the climate system has fully adjusted to a doubling of atmospheric CO2 concentration.
[31] Literally hundreds of peer-reviewed studies document significant increases in food crop photosynthesis, dry-weight biomass, and water-use efficiency due to elevated CO_2 concentrations. See the Center for the Study of Carbon Dioxide and Global Change's Plant-Growth Database: http://co2science.org/data/plant_growth/plantgrowth.php
[32] Kevin D. Dayaratna, Ross McKitrick, and Patrick J. Michaels. 2020. Climate sensitivity, agricultural productivity and the social cost of carbon in FUND. *Environmental Economics and Policy Studies*, 22:433–448, https://link.springer.com/content/pdf/10.1007/s10018-020-00263-w.pdf. The authors ran the experiment with the FUND (Climate Framework for Uncertainty, Negotiation, and Distribution) model because is the only one of the three integrated assessment models (IAMs) used by federal agencies that estimates CO_2 fertilization benefits.
[33] The three models are the Dynamic Integrated Climate-Economy (DICE) model, developed by Yale University economist William Nordhaus, https://sites.google.com/site/williamdnordhaus/dice-rice; the Climate Framework for Uncertainty, Negotiation, and Distribution (FUND) model, developed by University of Sussex economist Richard Tol and UC Berkeley data scientist David Anthoff, http://www.fund-model.org/; and the Policy Analysis of the Greenhouse Effect (PAGE) model, developed by Cambridge University economist Chris Hope, https://www.jbs.cam.ac.uk/wp-content/uploads/2020/08/wp1104.pdf.
[34] See footnote 30, above.
[35] Craig D. Idso, *The Positive Externalities of Carbon Dioxide: Estimating the Monetary Benefits of Rising Atmospheric CO2 concentration on Global Food Production*, Center for the Study of Carbon Dioxide and Global Change, October 21, 2013, http://co2science.org/education/reports/co2benefits/MonetaryBenefitsofRisingCO2onGlobalFoodProduction.pdf

[36] Randall J. Donahue et al. 2013. Impact of CO2 fertilization on maximum foliage cover across the globe's warm, arid environments. *Geophysical Research Letters* Vol. 40, 1–5, https://friendsofscience.org/assets/documents/CO2_Fertilization_grl_Donohue.pdf; Zaichun Zhu et al. The Greening of the Earth and Its Drivers. 2016. *Nature Climate Change* 6, 791-795, https://www.nature.com/articles/nclimate3004; J.E. Campbell et al. 2017. Large historical growth in global gross primary production. *Nature* 544, 84-87, https://www.nature.com/articles/nature22030

[37] 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 (hereafter IWG TSD 2021), https://www.whitehouse.gov/wp-content/uploads/2021/02/TechnicalSupportDocument_SocialCostofCarbonMethaneNitrousOxide.pdf.

[38] Roger Pielke, Jr., "The Biden Administration Just Failed Its First Scientific Integrity Test," The Honest Broker Newsletter, February 28, 2021, https://rogerpielkejr.substack.com/p/the-biden-administration-just-failed.

[39] As may be inferred from this comment letter, SCC analysis is too subjective and vulnerable to partisan manipulation to inform regulatory decisions. See also Kevin D. Dayaratna, "Why the Social Cost of Carbon Is the Most Useless Number You Never Heard Of," *The Daily Signal*, March 5, 2021, https://www.heritage.org/energy-economics/commentary/why-social-cost-carbon-the-most-useless-number-youve-never-heard.