

April 18, 2012

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Dear Ms Athas:

Thank you, again, for meeting with us earlier this month to discuss NEPA compliance issues associated with the export of liquefied natural gas (LNG). At the meeting, you asked that we provide more information, including (1) recent scientific work on the implications of increased LNG use for climate change and (2) examples of NEPA analysis of upstream impacts of infrastructure projects. This letter responds to your requests.

We urgently need CEQ and EPA's help to ensure that LNG exports are properly analyzed under NEPA, as events this week demonstrate. FERC has just issued an order granting the first facility siting authorization for any export facility, Sabine Pass, in Louisiana. See *Order Granting Section 3 Authorization*, 139 FERC ¶ 61,039 (April 16, 2012). In the Order, despite acknowledging that DOE's conditional approval for the facility turns in significant part on "increased production" of domestic gas, *id.* at ¶ 28, FERC declined to conduct any NEPA analysis of the induced production impacts of LNG export, *see id.* at ¶¶ 94-99. It did so despite the applicant's affirmation that its project "will support increased shale-gas production," *id.* at ¶ 97, and despite the Energy Information Administration report confirming these production increases. As a result, FERC's Environmental Assessment (EA) fails to consider the most important environmental effects of LNG export.

As you will recall, DOE has conditioned its export license for Sabine Pass on FERC's satisfactory completion of the NEPA process. DOE plainly cannot finalize the Sabine Pass license on the basis of the EA which FERC conducted, as it does not analyze the impacts of the very increased production upon which DOE relied to grant the license in the first place. We have filed a protest with DOE today, discussing these points in detail; that protest is attached.

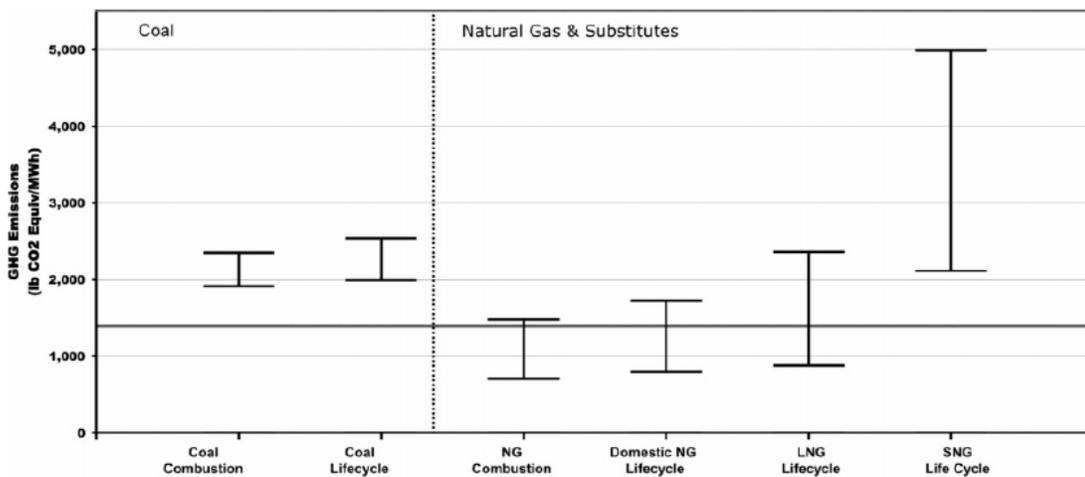
The NEPA failings in the Sabine Pass matter may well be repeated without clear guidance from CEQ and EPA. This involvement is needed, now, to ensure that DOE does not move forward with LNG export authorizations without conducting the careful and transparent NEPA analysis needed for this seismic shift in the U.S. gas market. We hope that the additional information in this letter will help you to move forward swiftly and decisively.

I. LNG and Climate Change

LNG proponents have argued that LNG exports will help ameliorate climate change by replacing coal power plants abroad, and DOE/FE has sometimes uncritically echoed this view. *See, e.g.*, Letter from Deputy Assistant Secretary Chris Smith to Representative Edward Markey (Feb. 24, 2012) at 4-5.¹ The scientific literature demonstrates that this view is wrong, and especially so for LNG derived from high-emitting unconventional gas sources.

LNG's life-cycle is the most carbon-intensive of any natural gas source. This is because LNG requires a great deal of additional energy to liquefy, transport, and regasify it, pushing up LNG's life-cycle emissions at every phase of the process. Accordingly, a 2007 peer-reviewed life-cycle study of LNG used for electricity generation, prepared by a group at Carnegie-Mellon University, concludes that LNG's life-cycle emissions overlap with those of coal, as the figure below demonstrates.² LNG is not an attractive substitute for coal on this metric.

Figure 1: Life-Cycle Emissions of LNG, Natural Gas, and Coal in Electricity Generation³



This conclusion has been reinforced over the last few years as underlying life-cycle emissions estimates for natural gas generally have sharply increased. These increased estimates reflect the unconventional gas boom: Before the boom began, EPA and others relied on a 1996 study which assumed that methane emissions from gas production

¹ Available as an appendix to Rep. Markey's recent report on LNG exports, posted online at http://democrats.naturalresources.house.gov/sites/democrats.naturalresources.house.gov/files/content/files/2012-03-01_RPT_NGReport.pdf.

² Jaramillo *et al.*, *Comparative Life-Cycle Air Emissions of Coal, Domestic Natural Gas, LNG, and SNG for Electricity Generation*, 41 *Environ. Sci. Technol.* 6,290, 6,295 (2007). ("SNG", in the figure above, refers to synthetic natural gas made from coal.)

³ *See id.* ("SNG", in the figure above, refers to synthetic natural gas made from coal.)

were very low. Unconventional gas production emits a great deal more methane than conventional wells, and unconventional gas is increasingly dominant in the U.S. gas supply. Accordingly, in 2010, EPA updated its emissions estimates for the industry to account for these extremely high methane emissions.⁴ In its 2012 Inventory of Greenhouse Gas Sources and Sinks, EPA estimates that natural gas production systems emitted over 215 million metric tons CO₂e, more than any other stationary source except for power plants.⁵

The high emissions associated with unconventional gas have major implications for LNG exports. The Energy Information Administration projects that “on average, across all cases and export scenarios,” increased use of unconventional gas (both shale and tight gas) will account for 85% of the gas production needed to meet export demand.⁶ This means that the life-cycle emissions of LNG, which is already highly polluting, are *greater* than the 2007 study anticipates because the bulk of LNG will be sourced from high-emitting unconventional gas plays which were not considered in that study. Thus, any remaining benefits of LNG over coal on a life-cycle basis will be further eroded. Unconventionally-sourced LNG is the very dirtiest form of a dirty fuel.

Worse still, growing empirical evidence suggests that gas production emissions are *still* underestimated, meaning that LNG may be even more polluting than we now suppose. This spring, a consortium of researchers led by the National Oceanic and Atmospheric Administration (NOAA)’s Earth System Research Laboratory, monitored air quality around oil and gas fields.⁷ They observed high levels of methane, propane, benzene, and other volatile organic compounds, in the air around the fields. The researchers concluded that their “analysis suggests that the emissions of the species we measured” – that is the cancer-causing, smog-forming, and climate-disrupting pollutants released from these operations – “are most likely underestimated in current inventories,” perhaps by as much as a factor of two.”⁸

The upshot is that CEQ should view claims that LNG produces significant climate change mitigation benefits with skepticism. In fact, LNG production and export results in substantial greenhouse gas emissions.⁹ It is, thus, essential that DOE carefully weigh

⁴ See EPA, Greenhouse Gas Emissions Reporting from the Petroleum and Natural Gas Industry, Background Technical Document at 7-10 & App. B (2010) (revising these estimates). Available at http://www.epa.gov/climatechange/emissions/downloads10/Subpart-W_TSD.pdf.

⁵ Available at: <http://epa.gov/climatechange/emissions/downloads12/US-GHG-Inventory-2012-ES.pdf>.

⁶ Energy Information Administration, *Effect of Increased Natural Gas Exports on Domestic Energy Markets* (2012) at 11, available at .

⁷ G. Petron *et al.*, *Hydrocarbon emissions characterization in the Colorado Front Range: A pilot study*, 117 *J. of Geophysical Research* 4304, DOI 10.1029/2011JD016360 (2011) (attached).

⁸ *Id.* at 4304 (emphasis added).

⁹ EPA’s just-released New Source Performance Standards for this industry will reduce production emissions somewhat, but these standards do not cover most existing pollution sources, or directly control methane. Although the standards are vitally important, they do not support the claims of LNG export proponents.

these impacts along with any putative benefits in its public interest process. It can only do so with the benefit of a full EIS for LNG export.

II. Examples of Upstream Impacts in NEPA Documents

With regard to your request for examples of EISs addressing the upstream impacts of infrastructure decisions, DOE's own earlier efforts provide a useful example. In its 2005 Final Environmental Impact Statement (EIS) for the Imperial-Mexicali 230-kV Transmission Lines, DOE was considering, as it is here, whether it was in the public interest to construct new infrastructure which directly enabled substantial upstream environmental impacts. The Imperial-Mexicali EIS considers the impacts of a transmission line which would enable the operation of two Mexican power plants serving the U.S. market. Although DOE initially attempted to avoid considering the impacts of those plants, confining its analysis to the line itself, it was corrected by court order. *See Border Power Plant Working Group v. Department of Energy*, 260 F.Supp.2d 997 (S.D.Cal. 2003). The final EIS on remand accordingly reviews both the transmission project and the upstream impacts of the plants to the extent they affected the U.S., including ways to mitigate those impacts.¹⁰ *See, e.g.*, Final EIS at 4-43- 4-65 (analysis of air quality impacts and mitigation measures).

We offer no particular view as to the technical merits of that analysis, but the approach used there -- namely, a description of induced upstream impacts coupled with consideration of alternative ways to mitigate them -- is generally appropriate for considering the upstream production impacts of LNG export. Indeed, the LNG case is simpler, because the upstream effects are domestic. Thus, unlike in the Imperial-Mexicali case, DOE need not partition foreign from U.S. impacts, nor be concerned that certain mitigation measures proposed for another jurisdiction will not be enforceable. *See* 70 Fed. Reg. 21,189, 21,195 (Apr. 25, 2005) (Record of Decision for the Imperial-Mexicali line, expressing some of these concerns). If DOE could manage the complex international issues inherent in the earlier EIS, it can certainly adequately consider the domestic production impacts chiefly at issue here.¹¹

More generally, EISs considering the upstream impacts of infrastructure decisions should be relatively common. For example, decisions to construct a forest road which will enable timber sales, *see Thomas v. Peterson*, 753 F.2d 754, 760 (9th Cir. 1985), or to build a new railway to coal mines, *see Northern Plains Resource Council, Inc. v. Surface Transportation Board*, 668 F.3d 1067, 1081-82 (9th Cir. 2011), or to green light highway or airport expansions which will induce development, must be accompanied by NEPA

¹⁰ The final EIS is available at: <http://energy.gov/nepa/downloads/eis-0365-final-environmental-impact-statement>

¹¹ Of course, this is not to say that the downstream environmental impacts of LNG export are not relevant: DOE must also consider how exports will alter environmental impacts downstream of the terminal, and particularly so if it relies on the putative benefits of coal-to-gas switching in other nations to justify its licensing decisions, as some export proponents have urged.

analyses of these causally-connected upstream impacts. The analysis which DOE must perform here is, in other words, not at all unusual.

This analysis, though not uncommon, is plainly necessary here: Without it, DOE will move forward to license a historic shift in the U.S. gas market and gas production practices without ever properly considering their impact on the human environment. Core NEPA principles and basic prudence require a careful analysis of these impacts before any export license – including that for the Sabine Pass facility – is finalized.

III. Conclusion

Thank you, again, for your careful consideration of these concerns. We will look forward to your response. Please be in touch if we can be of any further assistance.

Sincerely,

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