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DEMOCRATIC STAFF DIRECTOR

December 14, 2012

The Honorable Steven Chu
Secretary
Department of Energy
1000 Independence Avenue, S.W.
Washington, DC 20585

Dear Secretary Chu,

I write to convey my disappointment in the deeply flawed methodology utilized in a Department of Energy (DOE)-commissioned study that was intended to analyze the economic impacts associated with the export of liquefied natural gas (LNG) from the United States and to request that this analysis be appropriately updated. The economic analysis performed by NERA Economic Consulting (NERA) and released last week found that LNG exporting will lead to higher domestic energy prices and will have significant negative impacts on American manufacturing and workers, similar to the conclusions reached by previous studies.¹ But I was disappointed to find fundamental flaws with the study that I fear may have led to conclusions that severely underestimate the negative impacts of large-scale natural gas exporting. Given the important role this study may play in determining U.S. natural gas export policy, I strongly urge that the study's methodology be reevaluated in some key areas, that the most recent projection data available be utilized in the model, and that the model be re-run and re-analyzed.

There are several fundamental flaws associated with the NERA study:

- 1) NERA's model used energy projection data from the Energy Information Administration's (EIA's) 2011 World Energy Outlook, which was published in 2010. This data badly underestimates the growth that has already occurred in domestic natural gas demand as well as demand that is expected in the future.**

¹ EIA, "Effect of Increased Natural Gas Exports on Domestic Energy Markets," January 2012. Available at: http://www.eia.gov/analysis/requests/fe/pdf/fe_lng.pdf. Deloitte, "Made in America: The Economic Impact of LNG Exports from the United States," 2011. Available at: http://www.deloitte.com/assets/Dcom-UnitedStates/Local%20Assets/Documents/Energy_us_er/us_er_MadeinAmerica_LNGPaper_122011.pdf

I am concerned that because of its utilization of 2010 data that have already been shown to be grossly inaccurate, the NERA study fails to fully grasp the pace and scope with which the boom in shale gas production is transforming major sectors of the American economy. The electricity sector is rapidly switching from coal to cleaner burning natural gas. Heavy industrial users—already consumers of 40 percent of total U.S. natural gas supplies—are making tens of billions of dollars of additional capital investments in energy-intensive manufacturing that will create huge amounts of new domestic natural gas demand. And natural gas vehicles are now expected to be significant drivers of new domestic natural gas demand. Yet the NERA study failed to capture this new economic reality because it used natural gas demand projections for these rapidly changing sectors that are significantly out of date.

The older data used in the NERA study projects a much different future for natural gas than the most recent projections from the Energy Information Administration (EIA):

- The data used by NERA projected that natural gas use in the U.S. power sector would actually *decline* between 2010 and 2020. In reality, natural gas use in the power sector has already grown by 27 percent since 2010, and the latest EIA projections are that it will grow 11 percent between 2010 and 2020.²
- The data used by NERA projected that natural gas use in the industrial sector would grow by 1.46 quadrillion BTU between 2010 and 2035. The latest EIA projections, however, are that industrial demand will grow by 47 percent more than that, or by 2.15 quadrillion BTU, over this period.³
- The data used by NERA projected annual natural gas use in the transportation sector would grow to 160 billion cubic feet in 2035. But the latest EIA projections are that it will grow to more than *seven times* that level by 2035.⁴

I understand that data from EIA's 2013 Annual Energy Outlook (AEO) was not available at the time the NERA study was conducted. But 2012 AEO data certainly was available, and that data did assume marginally higher levels of U.S. natural gas demand relative to the 2011 AEO. So I am puzzled why NERA chose to use the older 2011 WEO data..

Further, even EIA's most recent 2013 AEO projections for domestic natural gas demand fail to capture many of the more than 100 newly announced natural gas-intensive manufacturing projects that have been announced over the past 18 months. Those projects represent over \$90 billion in investment and billions of cubic feet of additional future daily natural gas use. Studies

² EIA, Annual Energy Outlook 2013.

³ Id.

⁴ Id.

from other analysts, such as IHS CERA, foresee natural gas demand in America growing far more than what EIA assumes even in their most recent 2013 AEO. A thorough and comprehensive exporting analysis should have examined these types of higher future domestic demand scenarios, especially at a time when projections are changing so quickly year-to-year. Yet while the NERA study acknowledged that “the potential exists for significant increases in natural gas demand across the U.S. economy,” it failed to consider that potential in any of its modeling. The only context in which NERA considered higher domestic natural gas demand was in the context of higher general economic growth and a scenario in which ultimately recoverable shale resources were relatively high. While it makes sense to assume greater shale gas supplies will lead to lower prices and ultimately higher incremental domestic demand, this should not be the only method for considering higher future domestic demand.

I therefore request that new economic modeling be done that utilizes the 2013 AEO data or a similar data set developed in the past six months. In addition, I request that you provide me with a copy of any document (such as the contract or scoping documents for the study) in the Department’s possession that describes the task and data NERA was expected to utilize.

2) The NERA study fundamentally misinterpreted a key report on the impact of energy cost increases on America’s energy-intensive trade-exposed manufacturers and failed to delineate the impact of natural gas exporting on specific manufacturing sectors.

In order to better understand how energy-intensive trade-exposed (EITE) manufacturers (such as chemical, fertilizer, glass, and steel manufacturers) can be impacted by higher energy costs, NERA cited extensively from a 2009 study that looked at potential impacts of the Waxman-Markey energy and climate legislation, H.R. 2454, on U.S. manufacturers. This report, “The Effects of H.R. 2454 on International Competitiveness and Emission Leakage in Energy-Intensive Trade-Exposed Industries,” (Interagency Report) was an interagency government effort responding to a request from several U.S. senators about my bill.⁵ Based on this report, apparently, and NERA’s own modeling of natural gas exports, NERA concluded that “The cap-and-trade program in the Waxman-Markey bill would have caused increases in energy costs and impacts on EITE even broader than would the allowing of LNG exports because the Waxman-Markey bill applied to all fuels and increased the costs of fuels used for about 70% of electricity generation.” The NERA analysis was correct in looking to the Interagency Report because the impacts of natural gas exporting on EITE manufacturers are potentially similar to those resulting from greenhouse gas regulation. Unfortunately, NERA’s conclusion based on its review of this report is unequivocally wrong.

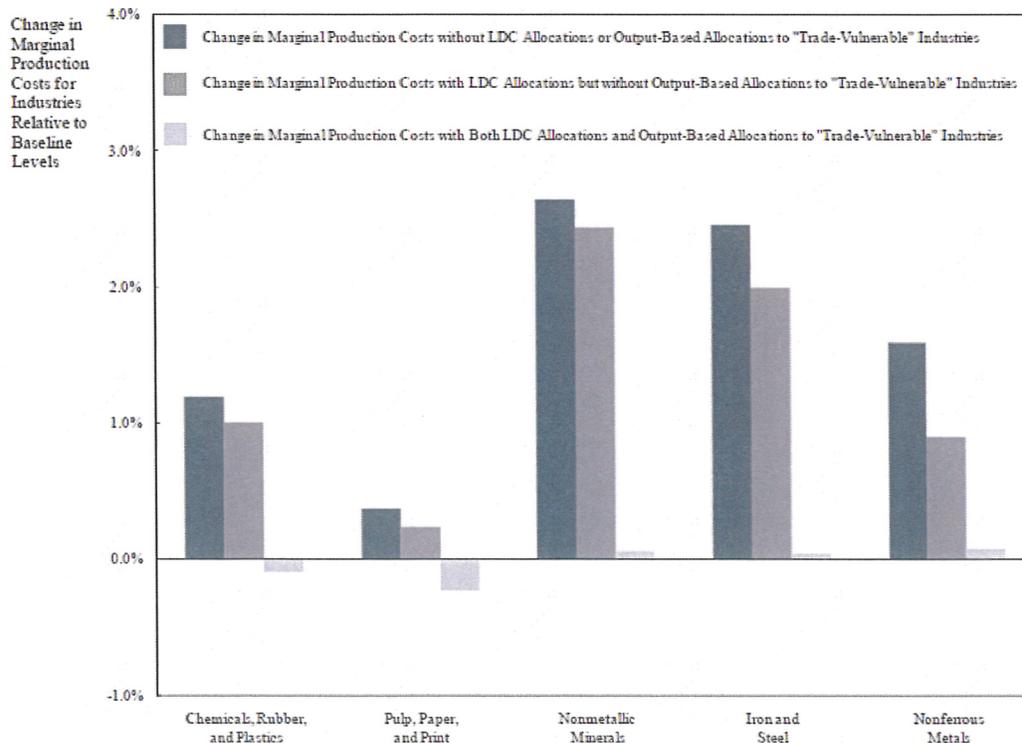
⁵ U.S. Government Agencies, “The Effects of H.R. 2454 on International Competitiveness and Emission Leakage in Energy-Intensive Trade-Exposed Industries,” December 2, 2009. Available at: http://www.epa.gov/climatechange/Downloads/EPAactivities/InteragencyReport_Competitiveness-EmissionLeakage.pdf

In crafting H.R.2454, Energy and Commerce Committee Chairman Henry Waxman and I were well aware of and very concerned about the impacts of greenhouse gas regulation on America’s manufacturing competitiveness. That’s why in the cap-and-trade portion of the bill, we included a detailed allowance allocation plan to ensure that EITE manufacturers were not put at a disadvantage relative to foreign competitors, while still incentivizing reductions in greenhouse gas emissions. Industries verified to be energy-intensive and trade-exposed were allotted allowances under the cap-and-trade program to neutralize any cost increases associated with emissions from their direct energy consumption. They were also allocated allowances to neutralize any cost increases resulting from the indirect emissions associated with their electricity use.

The conclusion of the Interagency Report was that the cap-and-trade program would have very little impact, no impact, or potentially *positive* impact on EITE manufacturers. Figure 14 from the Interagency Report and its explanation below detail these findings:

“Yet, as Figure 14 indicates, together, the LDC allocations and output-based rebates can, in fact, fully — and potentially more than fully — mitigate the increase in production costs borne by energy-intensive trade-exposed industries, and the associated competitiveness impacts, even after accounting for the program’s indirect effects.”

Figure 14. Effect of Domestic Cap-and-Trade Program on Marginal Production Costs of Energy-Intensive Trade-Exposed Industries without and with Allocations to Local Distribution Companies and Output-Based Allocations to “Trade-Vulnerable” Industries



Largely as a result of the fair way in which American manufacturing was treated in the bill, energy-intensive manufacturers like DuPont, GE, Dow, Alcoa, and many others supported Waxman-Markey.⁶ With natural gas exports, however, there are no analogous policies to those contained in the Waxman-Markey legislation to help maintain affordable energy for consumers and help American manufacturers maintain global competitiveness. This is the key point the NERA analysis seemed to miss. The Interagency Report was clear that without the mitigating measures included in Waxman-Markey, some EITE industries would have been exposed to production cost increases of 2.5 percent or more. The potentially crippling cost increases that could have hit up to 12 percent of U.S. manufacturing output and affected 780,000 workers were neutralized by the allocation system contained in Waxman-Markey. However, similar impacts on EITE industries resulting from large-scale natural gas exports would not be neutralized and therefore should be more fully accounted for in an analysis of natural gas exports.

It is very important for us to know exactly which of the EITE industries would be deeply affected by natural gas exporting. Unfortunately, the NERA study also fell short in that regard. The NERA study concludes the discussion on EITE industries by saying that “competitive impacts of higher natural gas prices attributable to LNG exports will be very narrow, but it was not possible to model impacts on each of the potentially affected sectors.” I find this unacceptable. The Interagency Report modeled sector-by-sector impacts of cap-and-trade, and it is imperative that a similar modeling of sector-by-sector impacts resulting from natural gas exports be conducted as well. Further, since the manufacturing sector has endured both a crushing economic recession and a dynamic resurgence (driven at least in part by low natural gas prices) in the last five years, sector-by-sector impacts should be modeled using more recent data than that used for the Interagency Report, which used data from 2007.

I therefore request modeling be done that looks at the impact of natural gas exporting on U.S. manufacturing on a sector-by-sector basis using the most recent data available.

3) The NERA report failed to assess the relative economic impacts associated with domestic industrial utilization of natural gas compared to exporting, and it made inaccurate assumptions regarding who would benefit through exporting.

According to Dow Chemical, the value of every unit of energy used by the manufacturing sector is multiplied by a factor of 20 within the economy because of the production it stimulates throughout the value chain.⁷ In addition, for every manufacturing job created on the factory

⁶ “Building the American Clean Energy Economy,” page 27, July, 30, 2012. Available at: <http://globalwarming.markey.house.gov/files/WEB/ACESPacket/ACESCleanEnergyPlan.pdf>

⁷ Dow Chemical Company, press release, December 6, 2012. Available at: <https://media.gractions.com/EE3B35BC4057E0B833E10AB0A1E1F8B9EC78B9DF/72575bdb-20f2-49b0-aa77-1869d9081e56.pdf>

floor, five to eight more jobs are created in the larger economy. On the other hand, exporting our energy provides a narrow benefit to natural gas producers and exporters and has little to no domestic value multiplier for the American economy. The NERA analysis goes into detail in explaining why it believes that the fertilizer, chemical, iron and steel, and other EITE industries are both low value-added industries and susceptible to international competition. But it does not explain how the loss of these industries would impact U.S. employment or the supply chains in which these industries are intricately tied.

I am particularly concerned about the assumption in the NERA study that financing of natural gas investments would originate from U.S. sources and that the investment benefits would accrue to Americans widely. This is an important assumption in determining both net U.S. economy-wide costs and benefits as well as distributional impacts, and I believe this assumption is inaccurate and misleading.

Many foreign corporations, either directly or through partnerships, produce oil and gas in the United States utilizing foreign financing arrangements. Many of these foreign companies are actually *owned by foreign governments*. In fact, because of an oil company court challenge, many foreign state-owned companies are already producing billions of dollars worth of oil and gas in U.S. waters in the Gulf of Mexico without paying a dime in royalties to U.S. taxpayers. Beneficiaries include Italy's state-owned company ENI, Brazil's Petrobras, Norway's Statoil, and Columbia's Ecopetrol.⁸

Even in the case where natural gas exporting leads to increased gas production by American companies, the vast majority of Americans will see no investment income from natural gas exporting. The NERA report says "Different socioeconomic groups depend on different sources of income, though through retirement savings an increasingly large number of workers share in the benefits of higher income to natural resource companies whose shares they own." Polls suggest that roughly half of Americans own stock.⁹ The Americans that own stock in natural gas companies, in particular, is likely much lower than that. And the vast majority of those Americans are likely exposed to the natural gas sector only through diversified mutual funds, meaning their ownership stake is very small.

The dividends and capital gains received from natural gas investments will go mostly to the people that benefit from dividends and capital gains already: the wealthy. According to The Washington Post, more than 50 percent of all capital gains over the past two decades have

⁸ House Natural Resources Committee Democrats, press release, September 18, 2012. Available at: <http://democrats.naturalresources.house.gov/press-release/markey-chinese-oil-deal-would-expand-foreign-oil-company-access-free-drilling-gulf-rob>

⁹ Dennis Jacobe, Gallup, "In U.S., 54% Have Stock Market Investments, Lowest Since 1999," April 20, 2011. Available at: <http://www.gallup.com/poll/147206/stock-market-investments-lowest-1999.aspx>

accrued to the wealthiest 0.1 percent of taxpayers.¹⁰ The richest five percent of Americans receive 80 percent of all capital gains. Similarly, over a third of dividends go to the top one percent of earners of the population. And 72 percent of dividends go to households that earn more than \$100,000 a year. More simply, the minority of Americans with significant ownership stakes in natural gas production—the wealthy—will likely see benefits from exporting, while for the majority of Americans, higher energy bills and diminished job prospects mean natural gas exporting reduces economic wellbeing. Further, the vast majority of shale gas reserves are on private lands, which means royalties on increased gas production will tend to go to private landowners rather than to the U.S. Treasury where the benefits would be more widely shared.

I therefore request that modeling and analysis be done to look at the impact of natural gas exporting on U.S. employment. Please also examine how, on average, the costs and benefits of natural gas exporting are distributed to Americans, based on geography and income level.

The flaws in the NERA study indicate that we still have a long way to go before we can be confident that large-scale LNG exporting is truly in America's interest and can be done in a way that protects American consumers and manufacturers. It is critical that policy makers and the American people have a true understanding of the full impacts of exporting domestically produced natural gas before the Department moves forward in granting additional LNG export permits. Please respond to my request for the Department to ensure that economic models are re-run based on the most recent data, that new and important areas are added to the model, that inaccurate assumptions are corrected, and that analysis and findings are updated to reflect these important changes.

I thank you for your attention to this issue. Please direct questions on this matter to Jonathan Phillips on my staff at jonathan.phillips@mail.house.gov or (202) 225-6065.

Sincerely,



Edward J. Markey
Ranking Member
Committee on Natural Resources

¹⁰ [Steven Mufson](#) and [Jia Lynn Yang](#), Washington Post, "Capital Gains Tax Rates Benefiting Wealthy Feed Growing Gap Between Rich and Poor," September 11, 2011. Available at: http://www.washingtonpost.com/business/economy/capital-gains-tax-rates-benefiting-wealthy-are-protected-by-both-parties/2011/09/06/gIQAdJmSLK_story.html