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Please accept the attached document as a comment in response to the DOE's LNG export study.

Best,

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LNG Exports: An Opportunity for America

But Attentive Regulators Must Mitigate Negative Consequences

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As a result of revolutionary gas extraction techniques (hydraulic fracturing combined with horizontal drilling), the United States suddenly enjoys a dramatic reversal of fortune in energy production and trade.

- In 2007, the United States had 11 re-gasification plants in place for LNG imports, and 60 additional LNG import projects were on the drawing boards. As recently as six years ago, prospective US dependence on foreign oil and gas extended as far as the eye could see.
- The shale revolution has completely transformed this outlook. In the past year, firms have filed permits to transform nine of the LNG re-gasification import plants into LNG liquefaction export plants.
- In 2011, the United States still accounts for only one-tenth of one percent of the worldwide LNG export market, but this share should grow significantly over the next decade. The US Energy Information Administration (EIA) now forecasts that domestic natural gas supply will exceed demand by 2016, making the United States a net exporter of natural gas.

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However, natural gas producers must finance large fixed costs and overcome domestic policy barriers in order to make the United States a significant exporter of LNG.

- Fixed costs are huge: liquefaction plants cost \$1 billion to \$2 billion dollars each, LNG transport tankers cost \$200 million dollars apiece, and re-gasification plants cost \$0.5 to \$1 billion dollars each.
- Natural gas exports are regulated by the US Natural Gas Act of 1938. Section 3 requires that the export of natural gas to a foreign country be approved by the Department of Energy (DOE). The DOE will issue an export license only if it is deemed in the national public interest, and conditions can be imposed on the license. Two types of licenses are granted: a blanket authorization permits exports on a short-term or spot market basis for a two-year period; a long-term authorization permits a sales contract for a period longer than two years. Currently, the United States has a bifurcated natural gas trade policy. In 1992, the US Energy Policy Act amended the 1938 Natural Gas Act to facilitate exports to free trade agreement (FTA) partners: which introduced different standards for review of natural gas exports to FTA partner countries. Under section 3(c)

[T]he exportation of natural gas to a nation with which there is in effect a free trade agreement requiring national treatment for trade in natural gas, shall be deemed to be consistent with the public interest, and [...] granted without modification.

LNG exports to non-FTA countries on the other hand, require a DOE assessment of their potential benefits and negative side effects. The NERA report commissioned by the DOE, and public comments on the report, are an essential part of this assessment.

The DOE is now processing several applications for LNG exports, as producers are eager to take advantage of large price differentials between the United States and foreign markets.

- US natural gas prices are around \$3 per mmBtu (million British thermal units), while prices in Europe are \$11-13 per mmBtu and prices in Southeast Asia are as

high as \$18 per mmBtu. Even adding the cost of liquefaction and ocean transport at \$5 and higher per mmBtu, producers can earn a significant profit on LNG exports.

- The United States has FTAs in place with 20 countries and allows natural gas exports to nearly all of them (Costa Rica and Israel appear to be exceptions). However, there are no plans to establish FTAs with major prospective LNG importers like China and India; moreover FTA ties with the European Union and Japan are possible but uncertain. Accordingly, US exports could be limited unless one of two events occurs: US law is further amended to provide LNG export parity to all members of the World Trade Organization (WTO), whether or not US FTA partners; or the DOE finds that potential benefits outweigh negative side effects.

The DOE will balance public interests in approving or rejecting LNG permits.

Proponents, including natural gas producers and some lawmakers, argue that LNG exports are good for the United States. Opponents, including some environmental advocates and downstream industrial users of natural gas, stress negative side effects.

- Larger natural gas production – mainly for domestic consumption but also for the LNG export market may spur recovery in the sluggish US economy. Industry officials claim that the booming industry has already created over half a million new jobs; the NERA report takes the view that employment has shifted into shale production from other industries.
- In the medium term, LNG exports could reduce the US trade deficit from its counterfactual level. Other major LNG suppliers are Qatar and Australia.
- If the United States, along with Qatar and Australia, provide their trade partners with a reliable source of energy, worldwide reliance on volatile oil producing economies will likely decrease.
- Opponents of LNG exports stress different arguments. Manufacturers that use large quantities of natural gas worry both about higher average prices and price

spikes. Although natural gas is not a major budget item for American households, any price increase or spike would negatively impact American consumers.

- As a rule, the United States does not impose export restrictions to suppress domestic prices and favor domestic manufacturers. However, if the United States decides to restrict the export of LNG, while allowing unfettered domestic consumption, these restrictions would constitute a subsidy to downstream manufacturing. Lower cost natural gas in the United States would translate into lower cost natural gas liquids (e.g. ethane, butane, propane) used as raw material inputs in downstream manufacturing like petrochemical production. For example, an advantageous price differential between the United States and international spot prices could potentially reduce the cost of manufacturing polyethylene (the most commonly used plastic).
- Potential environmental impacts of LNG trade have stirred controversy. The biggest environmental risks are associated with the initial fracking process and not specifically related to LNG exports. These risks can be mitigated by proper oversight, regulation, and industry best practices. State utility commissions and the Federal Energy Regulatory Committee (FERC) must approve permits before well construction begins. FERC is responsible for ensuring the integrity of pipelines and LNG liquefaction plants to mitigate the release of methane (a powerful greenhouse gas). As well, approval may be required from local officials to ensure that natural gas companies adhere to urban planning, aesthetic, or pollution requirements. The Environmental Protection Agency (EPA) governs construction that may endanger drinking water, as well as safe disposal of wastewater. The EPA's governance is not comprehensive due to exclusions in the Safe Drinking Water Act. Industry officials argue that "best practices" serve to fill any gaps, such as locating geologically sound sites for waste water drilling. As natural gas production increases, the various regulatory agencies should collaborate to establish a cohesive approval process for natural gas extraction.
- Residents near shale gas plays are concerned that they have paid the environmental costs of natural gas extraction while others will reap the benefits if and when natural gas can be readily exported. These concerns highlight

competing interests of natural gas producers, land owners, and nearby residents. Land owners whose properties are above shale plays have been compensated, and nearby residents have enjoyed the benefits of local tax income and possibly an increase in local employment. As with all economic endeavors, local and state regulators must work to maintain as much as a balance between vested parties as possible.

The DOE must give a heavy weight to trade rules and the precedents set by US trade agreements and trade litigation.

- If the United States, acting through the DOE, decided to put substantial restrictions on US exports of LNG, that decision would stand in stark contrast to US opposition to export controls by foreign countries on their natural resources.
- The United States has actively opposed the use of natural resource export restrictions by countries and has pursued dispute resolution through FTA arbitration panels and the WTO dispute settlement body. Two of the better known cases include:
 - The decades old dispute over Canadian lumber. The United States claims that the Canadian system of forestry management entails export restrictions that given Canadian lumber mills an unfair advantage.
 - Chinese trade practices concerning the export of raw materials. The United States, along with several other WTO members, argued that China's export restraints created scarcity and higher prices in global markets, while providing downstream Chinese industries with a much cheaper domestic supply.
- The United States included precedent-setting provisions in its FTA with Canada, to limit the use of energy export restrictions. The agreement prohibits the use of export taxes on energy unless the same tax is applied to energy consumed domestically, and requires that any reduction in supply be shared proportionally between the domestic and export market.

- It would be hypocritical and contrary to WTO rules for the United States to impose restraints on the export of LNG while permitting unfettered domestic consumption of natural gas.
- If the United States nevertheless does impose restraints, US actions will certainly be cited in the future by other countries that decide to flout international trade rules and restrict their own exports of natural resources as a means of subsidizing downstream industrial users. What's more, it is likely that countries that are not FTA partners will either retaliate with their own natural resource restrictions or challenge US policies at the WTO.