



**Industrial Energy Consumers of America**  
*The Voice of the Industrial Energy Consumers*

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February 19, 2015

The Honorable Lisa Murkowski  
Chairman  
Senate Committee on Energy and Natural  
Resources  
304 Dirksen Senate Building  
Washington, DC 20510

The Honorable Maria Cantwell  
Ranking Member  
Senate Committee on Energy and Natural  
Resources  
304 Dirksen Senate Building  
Washington, DC 20510

**QUESTIONS FOR THE RECORD**

**JANUARY 29, 2015**

**HEARING: S. 33, THE LNG PERMITTING CERTAINTY AND TRANSPORTATION ACT**

Dear Chairman Murkowski and Ranking Member Cantwell:

Thank you for the opportunity to testify before the Senate Committee on Energy and Natural Resources in regards to S. 33, the “LNG Permitting Certainty and Transportation Act.” We deeply appreciate your interest in ensuring that the Natural Gas Act is fully implemented as it was intended, supporting LNG export volumes, while ensuring affordable natural gas and electricity for all consumers long-term.

The three questions from Senators Manchin and Franken seek answers to fundamental public policy issues. IECA’s answers to these questions provide a foundational and relatively comprehensive roadmap for public policymakers to move forward with and achieve the desired result (LNG exports plus consumer protections), consistent with the Natural Gas Act and continue to reflect a rich history of federal public policymaking that starts with addressing the “public interest.”

As of February 18, 2015, 38 applications to ship to non-free trade countries have been submitted to the U.S. Department of Energy (DOE) for approval, which totals 38.07 Bcf/day. Five are approved and four are conditionally approved. Plus, 40 applications have been received to ship to free trade countries totaling 40.2 Bcf/day, or 54.7 percent of U.S. 2014 demand.

DOE approval of export applications are commitments to export LNG for periods of 20 to 30 years and invoke significant consequences that substantially increase risks to economic growth, job creation, income disparity, and investment. These risks are illustrated today in Australia.

A February 17, 2015 news story from The Sydney Morning Herald entitled, “Australia’s LNG market a ‘slow train crash’ says Credit Suisse analyst” should give all policymakers pause. Below are the key paragraphs that state, in short, that there is a significant shortfall of natural gas for export, an equivalent to 12 times the annual consumption of gas across Australia, excluding Western Australia and the Northern Territory.

“Australia's emerging gas market is like a "slow train crash" because of a huge shortfall in gas needed to fulfil contracts over the next 20 years according to an analysis that has infuriated an industry that spent \$75 billion building LNG plants over the past decade.

Credit Suisse energy analysts calculate that the three Queensland LNG projects are short of as much as 8800 petajoules of gas reserves to meet their 20-year LNG sales contracts, an amount equivalent to 12 times the annual consumption of gas across Australia excluding Western Australia and the Northern Territory.

The reality is that over the 20-year contracts that have been signed for these projects, you are broadly taking 40 years worth of domestic east coast supply and sending it offshore.”<sup>1</sup>

What happened in Australia can happen in the U.S., unless the Natural Gas Act is fully implemented as it was intended, with consumer safeguards. Australia did not put safeguards in place. The IECA position on these matters is addressed in the answers below to the questions submitted by Senators Manchin and Franken.

### **RESPONSES TO SENATOR MANCHIN**

***Question 1: Like you, I do not oppose natural gas exports but do believe in approaching this issue with caution. In your testimony, you suggest that DOE conduct a rulemaking to define public interest. What do you think should be included in that definition?***

#### **I. Introduction**

As an initial matter, we appreciate your accurate representation of our position. We do not oppose natural gas LNG exports. In fact, we do not oppose the export of natural gas, *provided* these exports flowed from a *process* that recognized the value of natural gas to *all* of the participants in our domestic economy, and the risks of LNG exports. This is what we believe Congress intended in 1938 when the Natural Gas Act made such imports and exports subject to the “Public Interest.”<sup>2</sup>

As you note, we suggest that DOE conduct a rulemaking to define “public interest.” This is because we believe the task of defining that term, as well as establishing a process within which to apply that definition, is both important and complex enough to warrant such a comprehensive effort. We believe that only a comprehensive rulemaking could produce a workable definition of public interest and a process characterized by balance, transparency, open participation, and consistent focus on the original intent of Congress.

While we do not attempt to short-circuit such an effort here, we welcome the opportunity to outline our ideas and suggest an agenda of considerations to address in the rulemaking.

#### **II. A New Rulemaking is Needed – and Overdue**

A rulemaking to develop a relevant definition of the “public interest” is overdue. This same rulemaking also needs to update the policy guidance and review procedures used to apply the new definition to the export of LNG to non-Free Trade Agreement (non-FTA) countries. The definition of “public interest” is at the core of this entire discussion. Yet, we cannot find where DOE has articulated any such definition.

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<sup>1</sup> “Australia's LNG market a 'slow train crash' says Credit Suisse analyst,” by Angela Macdonald-Smith, Sydney Morning Herald, February 17, 2015, <http://www.smh.com.au/business/australias-lng-market-a-slow-train-crash-says-credit-suisse-analyst-20150217-13gnh8.html>.

<sup>2</sup> 15 U.S. Code § 717b - Exportation or importation of natural gas (a) mandatory authorization order.

We note that the Government Accountability Office (GAO) reached the same conclusion. In a September 2014 report entitled, “Federal Approval Process for Liquefied Natural Gas Exports,”<sup>3</sup> the GAO finds that neither the Natural Gas Act, nor the DOE, has defined “public interest” (see page 10). Given the centrality of this term to the entire enterprise, this is a glaring omission, if not a legal issue.

More practitioners at the energy bar are also coming to concur in the need of a better definition. A recent post by the University of Texas at the Austin School of Law, Energy Center observed that the DOE “...relies on its limited precedent and an old and increasingly out-of-step internal guideline. As a result of this practice, the “public interest” – which in any context can come across as slippery – remains a somewhat amorphous and unpredictable standard.”<sup>4</sup>

An historical perspective also shows the need for a new rulemaking – the thinking on how to apply the concept of the “public interest” within the Natural Gas Act (NGA) has atrophied. By way of contrast, the evolution of this approach to regulation in the communications field shows an active and continuous development of new ideas from the Titanic to the internet. The Radio Act of 1912, passed in the wake of the Titanic disaster, required broadcasters to obtain federal licenses. However, as broadcasting quickly grew, the radio waves were threatened with chaos because the Secretary of Commerce lacked the authority to differentiate which applicants would or would not receive a license. The Radio Act of 1927 borrowed the so-called public interest standard from railroad and utility regulation as a way to give the Secretary the needed degree of discretion – i.e. the authority to say “no.” Congress never defined the term or how it was to be used. Instead, Congress left the definition and application of the term to the discretion of the Secretary of Commerce, Herbert Hoover, who they trusted to achieve the ends they intended. In applying this standard to the export of LNG, it is instructive to note that, from the outset, they created a standard that gave the broadest possible consideration to the public at large instead of the broadcasters. In 1928, the Federal Radio Commission (FRC) issued its first comprehensive interpretation of the public interest standard that concluded with the admonition useful to our consideration of LNG export.<sup>5 6 7</sup> The FRC said, “The emphasis must be first and foremost on the interest, the convenience, and the necessity of the listening public, and not on the interest, convenience, or necessity of the individual broadcaster or the advertiser.”<sup>8</sup> This inclusive emphasis has been consistently applied to the regulation of communications following the evolution of technology from radio, to television, to cable, to satellite, and to the internet. Even the FCC’s most recent proposal on the internet places the highest value on the needs of the broad public and not the large Internet Service Providers (ISPs).

Since 1938, when Congress wrote the public interest standard into the NGA, it has been exercised only once, 30 years ago, for a different application and under very different circumstances. The previously cited GAO report notes that the DOE has based its decision-making guidance for LNG exports on a

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<sup>3</sup> “Federal Approval Process for Liquefied Natural Gas Exports,” Government Accountability Office, <http://www.gao.gov/assets/670/666177.pdf>.

<sup>4</sup> Brown, Jeremy, “An Inconsistent Approach to “Public Interest” Consistency Determinations: Section 3 of the Natural Gas Act and the Rush to Export LNG”, University of Texas at Austin School of Law, Energy Center, September 26, 2014.

<sup>5</sup> “The Radio Act of 1927 as a Product of Progressivism” Mark Goodman, Mississippi State University.

<sup>6</sup> “A Brief History of the Public Interest Standard” Carrie McLaren.

<sup>7</sup> Krasnow, Erwin G., and Jack N. Goodman, “The ‘public interest’ standard: The search for the Holy Grail,” *Federal Communications Law Journal*, May 1998.

<sup>8</sup> Federal Radio Commission Annual Report 166 (1928) at 169-70.

rulemaking it developed in 1984 for LNG imports.<sup>9</sup> In 1984, natural gas played a relatively small role in the U.S. economy. Even as recently as 2002, “LNG imports accounted for only 1% of total U.S. gas consumption.”<sup>10</sup> Thirty years later, and as a direct consequence of deliberate policy decisions,<sup>11</sup> it is difficult to identify a source of energy that is more widely relied upon. In 2015, natural gas is a major input to U.S. manufacturing for fuel, feedstock, and electricity generation, particularly in energy-intensive industries. Projecting into the future, natural gas will play an increasingly important role in residential, transportation, and power generation applications.

The differences between the consequences of LNG imports and exports are as stark as they are sound. Natural gas imports increase supply and lower price, and make more use possible. Imports reduce consumer risk. Imported natural gas competes with domestic production and, in some cases, can even result in some fuel substitution (e.g. gas replaces coal in power generation). On the other hand, exports reduce supply and force the allocation of a finite resource. In the case of LNG export, this is a particular challenge because in nearly all of the applications for which natural gas is used, there are few, if any, viable substitutes. Evolution of both physical infrastructure and regulation have so limited the energy choices of industrial users, particularly the energy-intensive industries, that they are either unable to switch from natural gas or can do so only at great expense. In the case of power generation, for example, the EPA’s proposed Clean Power Plan and the new lower ozone limits explicitly require dramatically increased dependence on natural gas.

Policy guidance based upon considerations applicable to LNG imports 30 years ago, in 1984, is not relevant to exports in 2015, and even less relevant to exports in 2020 or 2030, 25 years from now. It is past time for DOE to conduct a rulemaking that identifies the considerations relevant to exporting natural gas now and in the future, and base its policy on those. By continuing to use policy guidance from a vastly different time for an activity in which the risks and benefits are reversed, the DOE is failing to comply with the spirit of the NGA. For all of these reasons, a new rulemaking is overdue.

### **III. Problems with Present Tools, Models and Processes**

One outcome of a new rulemaking needs to be DOE’s abandoning most of the tools, models, and processes it now uses to review LNG export applications. Specifically, this would include DOE’s inappropriate use of Gross Domestic Product (GDP), models not suited to the purposes and a refusal to reopen the process when warranted.

The DOE has based the measurement of “public interest” almost entirely upon the misapplication of an estimated growth in GDP. As cited by Jeremy Brown in his article entitled, “An Inconsistent Approach to ‘Public Interest’ Consistency Determinations: Section 3 of the Natural Gas Act and the Rush to Export LNG”, the DOE:

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<sup>9</sup> “Federal Approval Process for Liquefied Natural Gas Exports,” Government Accountability Office, <http://www.gao.gov/assets/670/666177.pdf> (page 11).

<sup>10</sup> “Liquefied Natural Gas (LNG) Import Terminals: Siting, Safety and Regulation” Congressional Research Service (CRS) Report for Congress, January 28, 2004.

<sup>11</sup> “Congress could try to reduce the need for new LNG terminals by acting to curb growth in U.S. LNG demand, or growth in natural gas demand overall. For example, Congress could change public and industrial incentives for conservation, switching to other fuels, or developing renewable energy supplies. But other fuels like coal and nuclear power pose their own hazards to communities and the environment, so their expansion may not be preferable to additional LNG infrastructure.” “Liquefied Natural Gas (LNG) Import Terminals: Siting, Safety and Regulation” Congressional Research Service (CRS) Report for Congress, January 28, 2004.

“...has incorporated the EIA<sup>12</sup> and NERA<sup>13</sup> studies into the administrative records for subsequent non-FTA applications. In its conditional orders, the agency has included standard – and lengthy – discussions of these studies and responses to the comments received on them. In effect, DOE/FE has anchored its public interest assessments to the studies and used them to rebuff arguments of inconsistency with the public interest”.<sup>14</sup>

At its core, the NERA study claims: “In all of the scenarios analyzed in this study, NERA found that the U.S. would experience net economic benefits from increased LNG exports.”<sup>15</sup>

The misapplication of GDP refers to how the NERA study reaches its sweeping conclusion that is then used by the DOE to justify approval or conditional approval of nine LNG export applications to non-free trade countries. Further review of the NERA study reveals that it is a deeply flawed proxy for a definition of public interest. The NERA study goes on to describe how its metric of economic welfare and a small overall increase in GDP is nothing more than a windfall for a small group of [natural gas] resource owners and export terminal owners being large enough to offset the losses from lower incomes and higher energy prices inflicted upon the remaining bulk of the population. The NERA study discusses a positive macroeconomic impact in one section, but it describes how the export of natural gas would cause reductions in income in the next.<sup>16</sup> The NERA study describes how “[h]ouseholds with income solely from wages or transfers, in particular, will not participate in these benefits.”<sup>17</sup> The NERA study further explains how “[h]igher natural gas prices ... can also be expected to have negative effects on output and employment, particularly in sectors that make intensive use of natural gas.” In other words, the vast majority of households will transfer income and wealth to a small number of resource owners, as LNG exports place energy-intensive industries at a particular global disadvantage. It is difficult to escape the fact that this assessment of what is “in the public interest” is completely contrary to the tradition, long adhered to in the regulation of communications. Further, in an environment in which we openly acknowledge the harmful impact of a highly skewed income distribution, this measure of so-called “positive impact” is particularly troubling, and this direct attack on U.S. manufacturing jobs is unacceptable.

GDP is an inappropriate/insufficient metric, even if it is not being misapplied. As explained in a 2011 Demos report,

“GDP measures the total monetary value of goods and services produced within our national borders in a given period. Developed in the 1930s to help policymakers gauge our recovery from the Great Depression, essentially GDP is a measure of raw economic activity and was considered even by its chief architect, Simon Kuznets, to be a very poor instrument for measuring economic development, let alone social progress. But in the

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<sup>12</sup> “Effect of Increased Natural Gas Exports on Domestic Energy Markets, as requested by the Office of Fossil Energy” U.S. Energy Information Administration (EIA), January 2012, [http://energy.gov/sites/prod/files/2013/04/f0/fe\\_eia\\_lng.pdf](http://energy.gov/sites/prod/files/2013/04/f0/fe_eia_lng.pdf).

<sup>13</sup> “Macroeconomic Impacts of LNG Export from the United States” NERA Economic Consulting, December 3, 2012, [http://energy.gov/sites/prod/files/2013/04/f0/nera\\_lng\\_report.pdf](http://energy.gov/sites/prod/files/2013/04/f0/nera_lng_report.pdf).

<sup>14</sup> Brown, Jeremy, “An Inconsistent Approach to “Public Interest” Consistency Determinations: Section 3 of the Natural Gas Act and the Rush to Export LNG”, University of Texas at Austin School of Law, Energy Center, September 26, 2014.

<sup>15</sup> NERA Study (p. 6).

<sup>16</sup> Ibid, pages 6-8.

<sup>17</sup> Ibid, page 8.

decades after World War II and especially in the last two decades, GDP has become synonymous with the broader welfare and progress of society, (i.e. public interest)...”<sup>18</sup>

This same report goes on to outline how “the case against GDP can be broken down in seven ways”<sup>19</sup>:

1. **Distribution:** GDP tells us nothing about how growth is distributed at the household level.
2. **Quantity vs. Quality:** GDP measures the quantity of goods and services, but not the quality.
3. **Defensive Expenditures:** GDP does not distinguish between expenditures that positively increase human welfare, such as college tuition, and “defensive expenditures” that protect against threats.
4. **Real Economic Value vs. Borrowed and Speculative Gains:** GDP tells us nothing about the sustainability of economic activity. Consumption financed by borrowing adds to GDP just like consumption financed by real gains in household buying power.
5. **Depletion of Natural Capital and Ecosystem Services:** GDP essentially ignores environmental problems. Economic activity that depletes natural resources is just as valuable, by GDP standards, as economic activity fueled by renewable resources.
6. **Non-Market Activities:** GDP tells us nothing about the value generated by non-market services provided in the household, in the public sector, in civil society, and in the broader ecological systems that surround us.
7. **Social Well-Being:** GDP does not always track with indicators of social well-being, such as rates of poverty, literacy, and life expectancy.

This is not to completely discard the use of GDP. Demos agrees, “GDP is a good general barometer of levels of economic activity.”<sup>20</sup> The chief difficulty arises from DOE using no other metric to assess the “public interest,” that is transparent to the public. While overall economic growth is usually a good outcome, it is not, by itself, a sufficient basis to support a claim of public welfare – it was never intended for this purpose.

#### DOE’s Analytical Methods and Models are Inappropriate for the Purpose

The macroeconomic studies performed by NERA use the forecasts generated by the aforementioned EIA study. However, the EIA models and methods are inappropriate for these purposes because they include distinct sources of systemic bias against industrial customers that significantly alter decisions for which they are used.

The EIA models are based upon regression analyses calibrated with data not more recent than 2010 – a time most notable for the worst U.S. manufacturing slowdown in the recent past. Predictions from any model calibrated with this data would include a bias that severely understates the gas demand for industrial customers, particularly energy-intensive industries, and likewise severely understates the impact of LNG export on available supply and price.

Even if the EIA models were built using more recent data, the practice of using a regression model-based years in the past to extrapolate assumed relationships far into the future becomes increasingly questionable as the forecast horizon lengthens. As may be observed from the performance of past EIA forecasts, predictions of industrial demand, price, and other results beyond about five years are prone

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<sup>18</sup> Daly, Lew and Posner, Stephen “Beyond GDP, New Measures for a New Economy” Demos, 2011 (p.4).

<sup>19</sup> Ibid.

<sup>20</sup> Ibid (p. 4).

to significant error. In a more subtle way, this practice also limits what may be realized in the future by constraining it to how market components interacted in the past.

Rather than a regression model calibrated with outdated relationships, DOE should explicitly include the measurable demand expected from announced manufacturing projects under construction, gas-fired power generation units and other new sources of demand just as it postulates future levels of LNG export. DOE could accomplish this by using one or more of the readily available models that estimate future industrial demand from the bottom-up by capturing the data on large production projects already in the public (e.g.: PIRA, Charles River Associates). IECA can provide several forecasts by independent consultants that show much higher industrial natural gas demand than that of the EIA.

#### DOE Does Not Intend to Review Licenses, Once Issued

In an October 2013 response to Senator Murkowski, DOE stated, “we take very seriously the investment-backed expectations of private parties and would not rescind a previously granted authorization except in the event of extraordinary circumstances.”<sup>21</sup> For a series of reasons, this is an unacceptable abdication of DOE’s responsibility under the NGA.

- There is inherent uncertainty in all of the forecasts being used to make these long-term decisions. In fact, the magnitude of these uncertainties several years into the future rivals the size of the marginal gains in GDP used to find that these authorizations were not inconsistent with the public interest.
- This commitment positions DOE to place a higher economic value and priority on the tens of billions invested in LNG export facilities than the trillions invested in the nation’s manufacturing base and infrastructure. In terms of jobs, this commitment will have the perverse consequence of protecting less than 1%<sup>22</sup> of the country’s good paying jobs while exposing the other 99% to the risks of higher energy prices at home and lower wages, while manufacturers in competing non-FTA countries benefit from low-cost U.S. natural gas.
- It is contrary to the NGA. On its face, protecting 1% while placing 99% at risk is the opposite of the “public interest.” It is also contrary to the NGA itself which states, in part: “...The Commission may by its order grant such application, in whole or in part, with such modification and upon such terms and conditions as the Commission may find necessary or appropriate, and may from time to time, after opportunity for hearing, and for good cause shown, make such supplemental order in the premises as it may find necessary or appropriate (emphasis added).”<sup>23</sup>

The Brookings Institute, an organization robustly in favor of LNG exports, suggests one of several possible solutions. “Finally, the Department should take an audit of the natural gas export policy every five years. This should serve as an important information-gathering exercise. Such an audit would identify what happened to domestic natural gas supply, demand, prices, and international markets

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<sup>21</sup> Letter, Paula A. Gant, Deputy Assistant Secretary, DOE Office of Oil and Natural Gas to The Honorable Lisa Murkowski, Senator Alaska, October 17, 2013.

<sup>22</sup> The first seven LNG export applications to non-free trade countries, according to their websites will result in 1,890 permanent jobs.

<sup>23</sup> 15 U.S. Code § 717b - Exportation or importation of natural gas (a) mandatory authorization order.

during each five-year period. Policy adjustments, if determined necessary, could be made following the review.”<sup>24</sup>

#### The Process is Unduly Constrained

A rulemaking should adjust the review process to allow reasonable, meaningful, and balanced participation by all affected stakeholders. Due to the disparate economic interests involved (successful applicants stand to gain billions once shipments commence, while other parties seek to protect the status quo) and the built-in tilt provided by the NGAs’s rebuttable presumption, the review of an LNG export license application is a decidedly one-sided enterprise. The costly studies and other resources available to LNG export applicants used to justify approval to DOE, is easily far beyond the means of other stakeholders, even sophisticated industrials. To see each LNG application legal intervention to its conclusion include estimated legal costs of \$125,000, plus an economic study of \$100,000, costing upwards to \$8,550,000 dollars for 38 applications to ship to non-free trade countries. Moreover, due to the rapid emergence of shale gas in the U.S. market, there was a tremendous rush to export. A fair amount of applications to export LNG to non-FTA countries were filed and queued in short order. As DOE performed its EIA and then its NERA studies, and developed its review process through late 2011 and 2012, intervention deadlines for most of the applications passed, leaving no legal recourse. Even then, DOE did not substantively address comments offered on the NERA study. After about 188,000 initial comments and over 2,700 reply comments, of which approximately 800 were unique, DOE did not see the need to make a single adjustment to its NERA study. It is IECA’s observation, having reviewed the comments, that very few comments were, for example, from homeowners. Confirming our view that the general public is disconnected to these public policy decisions that will directly and negatively impact them long-term. During that same time supply, demand, and price expectations continued to undergo significant and material changes.

However, in the case of the Freeport LNG terminal application, industrial stakeholders sought to intervene out-of-time in order to raise the serious questions concerning the then out-of-date data and studies being used by the DOE to review the application, the inappropriate application of the “public interest,” as well as the accumulating volume of LNG exports already (conditionally) approved. While these interventions were 17 months past the deadline for the subject proceeding, that was the point. The DOE had not substantively addressed the comments submitted offering concerns on the EIA and NERA studies, and the basis for approval was now 17 months further out-of-date. Nonetheless, when new stakeholders with reasonable concerns cited these materially changed conditions as grounds to intervene out-of-time, DOE declined to engage the new interventions on their merits. In a victory of procedure over substance, the DOE did not consider any fact other than the date of the motion to intervene.<sup>25</sup>

#### **IV. Considerations to Govern a Rulemaking – a Roadmap**

The preceding sections identify a significant number of widely varied, substantive difficulties with the present definition of “public interest” and how it is applied to reviewing applications to export LNG to non-FTA countries. We therefore believe that, lest the effort be lost in all of the detail, it would be more constructive to suggest a thoughtful process that a rulemaking might use to fashion an updated,

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<sup>24</sup> Ebinger, Charles K. and Avasarala, Govinda, “Natural Gas Briefing Document #2: Revising the LNG Export Process”, Brookings Energy Security Initiative, Natural Gas Task Force, August 2013.

<sup>25</sup> FE DOCKET NO. 11-161-LNG, Order Conditionally Granting Long-Term Multi-Contract Authorization to Export Liquefied Natural Gas by Vessel from the Freeport LNG Terminal on Quintana Island, Texas to Non-Free Trade Agreement Nations, DOE/FE Order No. 3357, November 15, 2013.

relevant definition, as well as a durable process within which to apply it before offering any specific considerations for a new definition. A June 2012 position paper by The International Federation of Accountants (IFAC)<sup>26</sup> presents an outline that could serve as a roadmap to that end. The process IFAC uses to produce its standards can be adapted to the process of establishing and applying a new definition of public interest. We outline a condensed adaptation of that process map here.

By way of example, IFAC used this process to produce the following concise, yet comprehensive and inclusive definition of ‘public interest’ as applied to the accounting profession:

“The net benefits derived for, and procedural rigor employed on behalf of, all society in relation to any action, decision or policy.”

In settling out, IFAC stresses the importance that an agency attempting to serve the “public interest” consider the implications of its actions, decisions, and policies on society overall. While IFAC stressed that “public” is inclusive of all society, it identifies the broad groups that comprise the public and how each group is impacted by the decision. For a final time, we emphasize that it in this regard that the present use of GDP, as a principle metric of public interest, is most deficient.

#### Who is the “Public”?

On the broadest level, “public” includes the widest possible scope of society: for example, individuals and groups sharing a marketplace for goods and services (including those provided by government), as well as those seeking sustainable living standards and environmental quality, for themselves and future generations.

Although the impact of the decisions differs among these groups, there is a fundamental obligation to act in the interest of each group.

#### What are the “Interests” of the Public?

In the broadest respect, “interests” are all things valued by individuals and by society. These include rights and entitlements (including property rights), access to government, economic freedoms, and political power. Interests are things we seek to acquire and control; they may also be ideals we aspire to, and protections from things that are harmful or disadvantageous to us.

#### General Assessments for Determining if Actions, Decisions, or Policies are in the Public Interest

A definition of the public interest has limited practicality without some way of determining whether something does or does not serve the public interest. To determine whether an action, decision, or policy has been undertaken in the public interest, an assessment can be made against public interest criteria, being conscious of the dimensions of both outcome (net benefits) and process. That is, there are two general assessments:

- The Assessment of Costs/Benefits – The extent to which, for society, as a whole the benefits of the action, decision, or policy outweigh the costs; and
- The Assessment of Process – The extent to which the manner of considering the action, decision, or policy was conducted with the qualities of transparency, public accountability,

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<sup>26</sup> “A Definition of the Public Interest” International Federation of Accountants Policy Position #5, June 2012.

independence, adherence to due process, and participation that includes a wide range of groups within society.

It is important to note that the private and public interest are not necessarily in conflict. A profitable entity (e.g. LNG export terminal) may be generating public benefit. However, the two may diverge where, for example, there are externalities or circumstances where one imposes considerable negative impacts on the other. One could not claim such an outcome as being consistent with the public interest.

#### The Trade-Off between Outcomes and Process

Demonstrating that the public interest has been served requires that any action, decision, or policy be assessed against public interest criteria, being conscious of the dimensions of both outcome (net benefits) and process—that is, undertaking the two assessments described above.

#### Assessment of Costs/Benefits

The first assessment is a consideration of the public interest in terms of negative and positive outcomes or “costs and benefits” for society as a whole. Cost/benefit analysis is the formal process of evaluating the negative and positive outcomes—both short- and long-term—of a particular action, decision, or policy to determine whether or not (and the extent to which) positive outcomes outweigh negative ones. Costs and benefits can be assessed in both quantitative and qualitative terms.

It is important to distinguish the application of cost/benefit analysis in a societal context from the project or investment appraisal undertaken by individual organizations seeking to maximize profit. It is feasible for an action to have a positive net benefit for an entity, while having a net cost to society as a whole. In the public interest context, this assessment refers to the impact on society as a whole, rather than to the entity. It is an assessment of whether or not an action, decision, or policy does more good to the public than harm. However, when assessing the impacts on society as a whole, it is important to consider the distribution of benefits and costs, between different parts of society. The assessment should be cognizant of situations where an action, decision, or policy that benefits one group within society, may come at a cost to another. Those undertaking the action, decision, or policy need to consider whether such an outcome was anticipated, and desired.

Additionally, cost/benefit analysis is often followed by some form of post-implementation review or process used to evaluate the effectiveness of policies or actions taken. This is to assess whether those policies or actions have fulfilled their intended purpose, and the extent to which costs and benefits were accurately determined. In many cases, post-implementation review also provides information into how such policies or actions can be further modified for improvement, and concludes the cost/benefit analysis cycle.

#### Assessment of Process

The second assessment is a consideration of the procedural aspects of acting in the public interest. This involves considering the extent to which an action, decision, or policy was developed or conducted with the qualities of transparency, public accountability, independence, adherence to due process, and participation that includes a wide range of groups within society.

*Transparency* is the process of making information accessible to the public. Such information includes the decisions that are reached, including the process by which they are made.

*Public Accountability* refers to processes designed to ensure that public organizations meet their obligations to their stakeholders and society at large.

*Independence* – Institutions charged with acting in the public interest should be established to reinforce independence from special interest groups, political pressures, and personal interests—matters that can have undue influence over responsibilities to the public. They should enable and require the consideration of potential conflicts of interest and threats to independence. The independence of such bodies should be considered in their design and composition, incorporated into their procedures of due process, and ensured by their funding arrangements. The appearance of independence should also be considered in public statements and actions made by individuals representing or leading these institutions.

*Competence* – Institutions charged with acting in the public interest should also ensure that they have the capability, in terms of appropriate, competent, and knowledgeable personnel resources, to ensure that the objectives of the organization, project, or outcome can be achieved.

*Establishment of, and Adherence to, Due Process* refers to the establishment of procedures of governance and operation, and the accurate, consistent observance of them.

*Inclusive Participation from a Wide Range of Groups within Society* refers to two main concepts:

- *Fair and balanced participation in decision-making* means that, while a decision process should never be unduly delayed or abused, when an individual or group has something new, significant and material to say, the substance of that contribution must be considered.
- *Opportunity for public consultation (e.g. reply/rebuttal and sur-rebuttal comments)* – this process provides for greater inclusiveness in the design of public policy by involving the participation of a wide range of opinions and expertise. It also allows for greater transparency and acceptance by providing the public with insights into how the final decision was made.

## **V. Some Specific Criteria**

The roadmap suggested in Section IV, when applied to address the concerns and gaps identified in Sections II and III, will undoubtedly identify and evaluate additional criteria that can be used to measure “public interest.” However, we suggest starting with the simple concepts that flow from the body of public interest thought pioneered by Justice Brandeis – i.e. *that the public interest is that which produces the most good for the most people.*

To connect this concept to the specific questions raised by the export of LNG to non-FTA countries we suggest considerations including:

- a) the degree to which the costs and benefits of exporting LNG to non-FTA countries are proportionately distributed across all households, i.e. all segments of the U.S. economy and all geographic regions of the country (median vs. mean)<sup>27 28</sup>;

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<sup>27</sup> This is also to satisfy the imperative to recognize that the entrepreneurial development of hydraulic fracking that is largely responsible for the recent growth in US domestic natural gas production and reserves had its origins in early basic and applied research conducted by the US DOE and funded by all of the nation’s taxpayers.

<sup>28</sup> It is also important to note that unlike companies engaged in exploration and production of energy even in the recent past, producing natural gas by fracking shale formations involves much less risk. Producers have even made

- b) the value added to the U.S. economy by exporting a raw material vs. the value added by exporting a finished manufactured good;
- c) the impact on net permanent U.S. jobs by producing and exporting natural gas (and importing manufactured goods) vs. producing and exporting manufactured goods, especially in price sensitive industries;
- d) the loss of a significant U.S. competitive advantage as energy prices in the U.S. (both natural gas and electricity) approach parity with energy prices globally;
- e) the compounding higher risk to the U.S. consumer and the economy with each additional LNG export approval;
- f) the degree to which physical linkage to natural gas markets in other countries that are price insensitive, that do not approach the natural gas storage capacity in the lower 48 states of the U.S., will increase price volatility and trigger reliability issues, especially during summer and winter peak demands;
- g) the degree to which operation of an LNG export terminal affects the reliable operation of the natural gas pipeline network in the vicinity of the terminal, as well as the reliability of the electricity grid via the gas-fired electricity generating stations in the same region;
- h) the degree to which modest increases in the price of natural gas make the country's GHG goals more costly and more difficult to attain;
- i) the degree to which the DOE is able to revisit and adjust licenses to export LNG to non-FTA countries should future conditions of supply, reserves, production, demand or price differ significantly from those assumed when the DOE granted the license (i.e. what if the forecasts prove incorrect?);
- j) the degree to which the DOE is able to periodically review, revisit and adjust, if needed, the volume of LNG approved for export to non-FTA countries under any license (e.g. every two years);
- k) the GHG emissions of U.S. energy-intensive industries compared to the GHG emissions of comparable industries in non-FTA countries;
- l) the impact that exporting LNG to a non-FTA country will have provide a disincentive for that country to open its domestic markets to U.S. manufactured goods by implementing a fair and comprehensive Free Trade Agreement with the U.S.; and
- m) the efficiency losses and extra GHG releases inherent in producing a good with energy that must be liquefied, transported and then re-gasified before it can be used vs. using the natural gas in manufacturing operations closer to where it is produced, in manufacturing facilities with a high degree of attention to GHG releases; and
- n) as U.S. supply and demand balance, the impact to the marginal cost of natural gas and electricity driven by foreign government backed LNG buying entities that are price insensitive, especially during summer and winter peak demand.

## **VI. An Alternate Approach to Achieving the Intent of Congress**

The concept of "public interest" started as a shortcut in the process of drafting legislation governing regulated enterprises (e.g. railroads, radio, etc...). It was used in legislation from the New Deal Era and it is a product of the Progressive Era that preceded it. While the term "public interest" provides an expedient way to draft legislation delegating the details of achieving the Intent of Congress to an

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the comparison to manufacturing or farming rather than exploring. Consequently, producers who are now exposed to much less risk in their exploration and production operations, no longer merit the high returns or the regulatory deference they once deserved.

agency, that agency must work continuously to ensure it is defining and applying the term in a way that keeps up with developments in technology, markets and mores. It is a challenging concept to use.

However, there are alternatives. In 1977, Congress amended the Federal Reserve Act<sup>29</sup> and empowered the Federal Reserve to achieve its monetary policy objectives with language the established much more concrete goals. Rather than resorting to the vague and difficult to use “public interest,” Congress directed that:

“The Board of Governors of the Federal Reserve System and the Federal Open Market Committee shall maintain long run growth of the monetary and credit aggregates commensurate with the economy's long run potential to increase production, so as to promote effectively the goals of maximum employment, stable prices, and moderate long-term interest rates.”<sup>30</sup>

Because “stable prices” and “moderate long-term interest rates” effectively collapse into the same thing, this is known as the Fed’s dual mandate.

To apply this concept to the NGA, Congress could direct the DOE to ‘promote effectively the goals of maximum employment and responsible development of U.S. energy resources.’ Such a dual mandate could be easier to maintain and apply than the present public interest standard.

There are other advantages to a ‘dual mandate’ standard. Chief among these is the explicit directive for the DOE to consider the impact of their decisions on U.S. employment. While most would have assumed that the longstanding national objectives of full employment and stable prices<sup>31</sup> were close to the core of the New Deal intent of “public interest” when Congress chose those words in 1938, the results of their own NERA study combined with their subsequent licensing decisions indicate that domestic employment is not a priority of the DOE. A ‘dual mandate’ standard also comes equipped with the implicit flexibility to allow the DOE to monitor and periodically adjust the LNG export licenses, as needed to achieve both objectives.

In any event, while some could have strong concerns with changing the NGA from a “public interest” standard to a sort of “dual mandate,”<sup>32</sup> we believe it is an idea that would be interesting to explore as part of the rulemaking discussed herein.

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<sup>29</sup> Steelman, Aaron, “The Federal Reserve’s “Dual Mandate”: The Evolution of an Idea”, The Federal Reserve Bank of Richmond, December 2011.

<sup>30</sup> 12 USC 225a. As added by act of November 16, 1977 (91 Stat. 1387) and amended by acts of October 27, 1978 (92 Stat. 1897); Aug. 23, 1988 (102 Stat. 1375); and Dec. 27, 2000 (114 Stat. 3028).

<sup>31</sup> Steelman describes the “Employment Act of 1946” (p.1) and the “Full Employment and Balanced Growth Act or the Humphrey-Hawkins Act of 1978” (p.3).

<sup>32</sup> Those who claim that the DOE must never alter an Order on LNG export once issued, claim that by doing so, the DOE would introduce great uncertainty into the capital investment plans supporting the LNG export terminals and contracts and would undermine the entire enterprise. The facts do not support this. The entirety of investment in LNG terminals and contracts is but a small fraction of the global commerce and long-term investment decisions impacted by the value of the U.S. dollar. Yet, due to the “dual mandate,” the value of the U.S. dollar is always subject potential adjustment. The US Federal Reserve continuously monitors economic conditions and meets at least 8 times per year to decide whether to make any adjustments. The Federal Reserve does this, in part, because Congress gave it the “dual mandate”.

***Question 2: Beyond defining public interest, what other approaches do you suggest Congress take to protect domestic manufacturing and American consumers from the potential negative impacts of increased natural gas exports?***

We appreciate this timely question. Since 1938, the Natural Gas Act (NGA), with a few amendments, has guided our country's development and use of this valuable but finite natural resource. Natural gas is a high-value fuel that is a primary driver of the U.S. economy in applications including residential and commercial cooling and heating, manufacturing, power generation, and even transportation. Study after study confirms that a unit of natural gas utilized in manufacturing will yield 4 to 8 times the economic value as the same unit of natural gas exported as a commodity. Entire industries have been built on the long-term expectation of reliable and affordable natural gas, including many that have recently announced plans to leverage recent increases in natural gas production to grow their U.S. operations. Unfortunately, if LNG exports are not either governed within a Free Trade Agreement or otherwise prudently managed consistent with the "public interest," LNG exports could actually subsidize the decline of American manufacturing.

We believe that the NGA, as well as other law, presently contains sufficient provisions to encourage the continued utilization of natural gas as a high-value fuel in a robust and growing domestic economy, while supplementing that economic growth with a vigorous, but prudently monitored volume of natural gas or LNG exports. Our concern is that the DOE is not implementing the NGA in a manner consistent with the original intent of Congress.

**Therefore, we believe it best for Congress, with your leadership, to take to two-phased approach to encourage domestic manufacturing and protect American consumers from the potential negative impacts of increased natural gas exports.** First, Congress should intensify and sharpen its monitoring and oversight of DOE in a few focused areas of concern. Second, and only if oversight efforts do not return DOE to implementing the will of Congress, Congress should pass legislation amending the NGA in a way that makes its expectations clear.

Our concerns focus on four areas:

1. DOE's definition and application of the "public interest";
2. DOE's continued role in monitoring the impact of natural gas exports;
3. FERC's role in ensuring the reliable operation of the energy delivery infrastructure surrounding LNG terminals – both natural gas and electricity; and
4. Ensure that trade agreements do not allow countries that purchase U.S. natural gas to use the natural gas to subsidize their manufacturers.

We discussed our concern with DOE's definition and application of the "public interest" standard at some length in our response to your first question. We believe Congress should encourage DOE to conduct a rulemaking to address these concerns, and if that fails to address the concerns, we suggested how Congress could replace the "public interest" standard with a version of the "dual mandate" standard Congress gave the Federal Reserve.

Similarly, our response to your first question also discussed how DOE's October 17, 2013 letter to Senator Murkowski<sup>33</sup> contained commitments contrary to the NGA. Fortunately, concerns raised by a

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<sup>33</sup> Letter, Paula A. Gant, Deputy Assistant Secretary, DOE Office of Oil and Natural Gas to The Honorable Lisa Murkowski, Senator Alaska, October 17, 2013.

letter can also be cured by a letter. Congress, perhaps a number of Senators under your leadership, could request a statement from the DOE in which DOE reconciles Congress's intent in the NGA, as detailed in our response to your first question, with their commitments to Senator Murkowski. If this or similar oversight efforts fail to address the concern, Congress could pass legislation amending the NGA to clarify its intent.

The third area involves the role of the FERC in ensuring that the operation of a new LNG terminal does not adversely affect the reliable operation of the interstate natural gas pipelines and electric power grid in the surrounding region. The increasing use of natural gas as a power generation fuel has created a growing number of complex interrelationships between interstate pipelines and regional electricity grids. It has also identified a growing number of strains in the U.S. energy infrastructure, particularly serious questions as to whether or not there exists sufficient pipeline capacity.<sup>34</sup> In response, FERC has seen fit to exercise its various authorities under the NGA, as well as under the Federal Power Act, to open investigations, convene technical conferences, initiate rulemakings, and issue orders that address these interrelationships and how it regulates pipelines and electricity systems.<sup>35</sup> An LNG export terminal could easily draw as much or more natural gas from its surrounding network of interstate gas pipelines as an electric generation station.<sup>36</sup> If there are concerns arising from the impact of electricity generation on the operation of surrounding gas pipelines, the operation of an LNG export terminal should raise similar concerns.

Moreover, precisely because these systems are interconnected, the operation of an LNG export terminal should also raise concerns on the durability and reliability of the surrounding electricity grid. While we do not assert the existence of a problem with any specific application, we certainly believe that these are concerns that FERC should include in its review of LNG terminal applications. Despite this, we cannot find where FERC has addressed these concerns in their review processes. Consequently, we believe that Congress should ask FERC to explain how it assesses these concerns, how FERC addresses and documents its conclusions on them in their review of LNG terminals applications, as well as what could cause FERC to withhold approval or recommend modifications to an LNG export terminal application. Again, if this or similar oversight efforts fail to address the concern, Congress could pass legislation amending the NGA to clarify its intent.

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<sup>34</sup> "Gas-Electric Coordination Quarterly Report to the Commission" FERC Docket No. AD12-12-000, Sept 18, 2014.

<sup>35</sup> On November 20, 2014, FERC issued an order directing regional electric power market operators to file reports on their efforts to address the need for fuel assurance. Fuel assurance describes the broad set of issues in RTOs and ISOs associated with generator access to sufficient fuel supplies and the firmness of generator fuel arrangements. FERC said that "while issues surrounding increased reliance on natural gas acts as an important driver of current fuel assurance concerns, the need to address fuel assurance continues to apply to all resources, regardless of fuel type." FERC said that a failure to address this issue now could lead to volatile and high fuel prices or costly RTO/ISO actions to ensure reliability. The RTOs/ISOs must file reports within 90 days (or by February 18, 2015) that describes the nature of the fuel assurance concerns specific to the region, comprehensive strategies the RTO/ISO has implemented to address market and system performance, and the specific programs and mechanism the RTO/ISO will use to carry out the strategies. Upon issuing this Order, Chairman LaFleur said: "We learned from the technical conferences, the events of last winter, and our efforts on gas-electric coordination that fuel assurance is critical to ensuring energy markets support reliability at just and reasonable rates."

<sup>36</sup> In 24 hours of operation at 100% power, an efficient 500 MW electric generating station will produce 12,000 MWH of electricity and will require 84,000 MMBtu of natural gas. A LNG Export terminal operating at 1 BCF/day, will demand 1,000,000 MMBtu/day of natural gas or 11.9 times as much as the 500 MW electric generating plant.

Fourth, under free trade agreements, U.S. natural gas should not be sold to countries that subsidize the price of natural gas to their industrial consumers. It does little good to have a free trade agreement with a country that gives them access to a finite U.S. resource that is then subsidized to provide unfair competitive advantage over U.S. manufacturers who are not subsidized and defeats the underlying purpose of a free trade agreement.

### **RESPONSE TO SENATOR FRANKEN**

***Question 1: The economic studies commissioned by the Department of Energy predict that liquefied natural gas exports could lead to natural gas price increases of 14 to 36 percent. What is the expected impact of such price increase in the manufacturing sector?***

We appreciate your insightful question. As you know, the manufacturing sector is characterized by energy-intensive operations and, as such, we share several attributes:

- We are the only sector of the economy that requires globally competitive energy;
- Small changes in energy price, both natural gas and electricity, become large changes in cost;
- We compete globally and in an environment of unfair competition – in several cases, our competitors benefit from government assistance with energy and other costs; and
- Our companies are able to shift production to more welcoming locations that value manufacturing jobs.

The intuitive answer is correct: increases in natural gas prices will harm the manufacturing sector. This is the essential fact. But, there are also other embedded costs on which the increased price of natural gas is additive. We believe it important for policymakers to appreciate a more complete picture that is more complex, more dynamic, and worse than one would assume intuitively.

The manufacturing sector does not come to this discussion with a level playing field versus our global competitors. Rather, we have a burdensome costly and disadvantaged background from non-energy costs. For example, the expense of complying with federal regulations is steep. Manufacturers spend an estimated \$192 billion annually<sup>37</sup> to comply with environmental, and workplace safety regulations, and ensure tax compliance—equivalent to an 11 percent.

As an example, U.S. industry is faced with the highest pollution abatement costs compared with its major trading partners—even higher than the so-called “green economies” of Western Europe. In 2007, U.S. manufacturers spent an estimated 6.2 percent of value-added complying with air and water emissions standards (which are among the strictest in the world), compared with 6 percent in France and Germany, 5.5 percent in Canada, and 3.5 percent in the UK. When compared to major manufacturing companies from non-OECD countries, the comparison gets substantially worse.

Furthermore, we arrive at today’s discussion still struggling against a wide array of headwinds that have been opposing our progress for years, if not decades. The following quote from Richard McCormack’s

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<sup>37</sup> Cost of Regulatory Compliance, NAM, <http://www.themanufacturinginstitute.org/Research/Facts-About-Manufacturing/Costs/Regulations/Regulations.aspx>.

article entitled, “The Plight of American Manufacturing” is lengthy, but important (we recommend the entire article to your attention).

“For American manufacturers, the bad years didn't begin with the banking crisis of 2008. Indeed, the U.S. manufacturing sector never emerged from the 2001 recession, which coincided with China's entry into the World Trade Organization. Since 2001, the country has lost 42,400 factories, including 36 percent of factories that employ more than 1,000 workers (which declined from 1,479 to 947), and 38 percent of factories that employ between 500 and 999 employees (from 3,198 to 1,972). An additional 90,000 manufacturing companies are now at risk of going out of business.

Long before the banking collapse of 2008, such important U.S. industries as machine tools, consumer electronics, auto parts, appliances, furniture, telecommunications equipment, and many others that had once dominated the global marketplace suffered their own economic collapse. Manufacturing employment dropped to 11.7 million in October 2009, a loss of 5.5 million or 32 percent of all manufacturing jobs since October 2000. The last time fewer than 12 million people worked in the manufacturing sector was in 1941. In October 2009, more people were officially unemployed (15.7 million) than were working in manufacturing.

When a factory closes, it creates a vortex that has far-reaching consequences. The Milken Institute estimates that every computer-manufacturing job in California creates 15 jobs outside the factory. Close a manufacturing plant, and a supply chain of producers disappears with it. Dozens of companies get hurt: those supplying computer-aided design and business software; automation and robotics equipment, packaging, office equipment and supplies; telecommunications services; energy and water utilities; research and development, marketing and sales support; and building and equipment maintenance and janitorial services. The burden spreads to local restaurants, cultural establishments, shopping outlets, and then to the tax base that supports police, firemen, schoolteachers, and libraries.

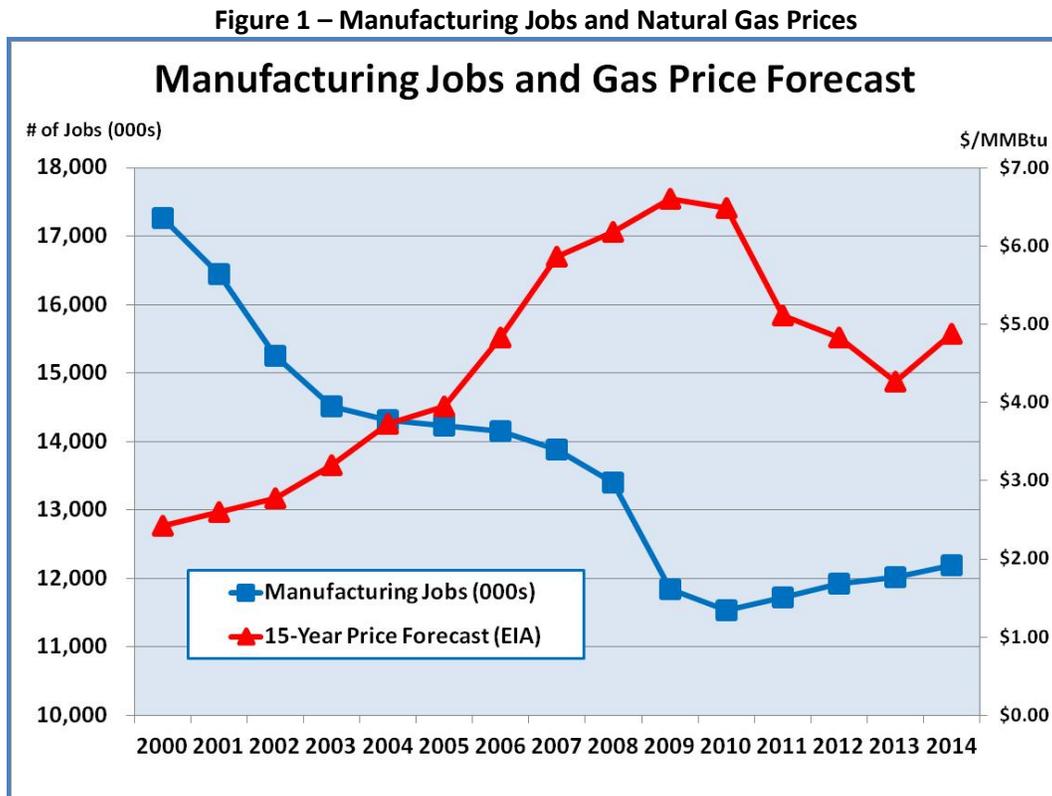
Has U.S. manufacturing declined because its companies are not competitive? Hardly. American companies are among the most efficient in the world. The nation's steel industry, for instance, produces 1 ton of steel using two man-hours. A comparable ton of steel in China is produced with 12 man-hours, and Chinese companies produce three times the amount of carbon emissions per ton of steel. The same kinds of comparisons are true for other industries.

But American companies have difficulty competing against foreign countries that undervalue their currencies, pay health care for their workers; provide subsidies for energy, land, buildings, and equipment; grant tax holidays and rebates and provide zero-interest financing; pay their workers poverty wages that would be illegal in the United States, and don't enforce safety or environmental regulations.

Proponents of free trade and outsourcing argue that the United States remains the largest manufacturing economy in the world. Yet, total manufacturing gross domestic product in 2008 (at \$1.64 trillion) represented 11.5 percent of U.S. economic output, down from 17 percent in 1999, and 28 percent in 1959. As for our balance of trade, U.S.

imports of goods totaled \$2.52 trillion in 2008, while exports came to \$1.29 trillion -- creating a goods deficit of \$821 billion. Those imported goods represented 17.6 percent of U.S. GDP. The U.S. trade deficit in goods and services in 2008 stood at \$700 billion -- or more than \$2,000 for every American.”<sup>38</sup>

Figure 1 charts manufacturing jobs<sup>39</sup> and the price of natural gas.<sup>40</sup> While the decline in manufacturing jobs is the result of all of the headwinds mentioned by McCormack, when one critical input changes direction – lower natural gas prices – the U.S. manufacturing employment begins to build.



To be clear, none of the other factors listed by McCormack changed in 2009-2010. This should highlight the importance – the leverage – of natural gas prices to U.S. manufacturing.

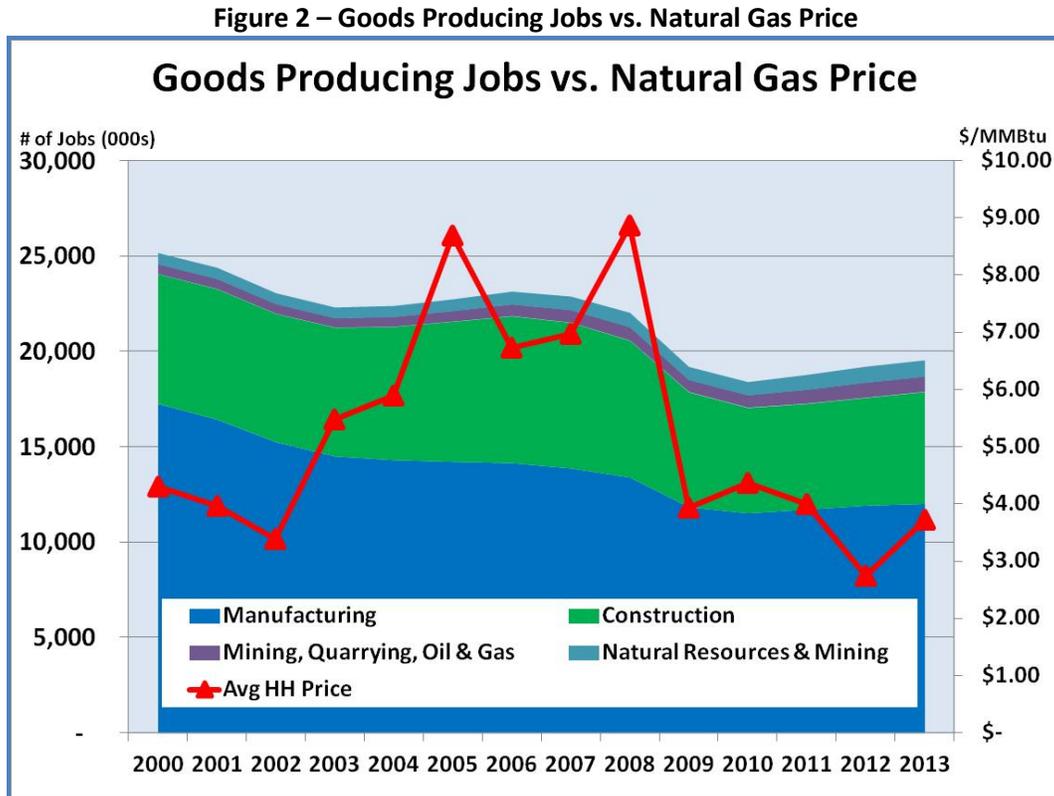
We also pause to note that, while some advocates of unlimited LNG export justify their position by resorting to the all-encompassing slogan “Free Trade,”<sup>41</sup> the array of headwinds opposing the U.S. manufacturing sector listed by McCormack could hardly be characterized as *Free Trade*.

<sup>38</sup> McCormack, Richard, “The Plight of American Manufacturing” *The American Prospect*, December 21, 2009.

<sup>39</sup> Total annual average manufacturing jobs from monthly data reported by US Bureau of Labor Statistics.

<sup>40</sup> Manufacturing decisions are long-term decisions, made with expectations of conditions over several years. Instead of a single-year price, each point along the “15-Year Gas Price Forecast” is a representation of the Reference Case, long-term natural gas price forecast published by US EIA. To simplify the appearance of the chart, each point is the arithmetic average of the first 15 years of the forecast published for that year. While these forecasts could be simplified into single points using different methods, any method, consistently applied, would yield roughly the same line.

The manufacturing sector is critical to the U.S. economy. Figure 2 charts all “Goods Producing Jobs”<sup>42</sup> and “Natural Gas Price”<sup>43</sup> and illustrates a number of important facts. (The blue area in Figure 2 represents the same manufacturing jobs represented by the blue line on Figure 1.)



- Even in 2014, the manufacturing sector represents almost 61% of all Goods Producing Jobs, which is down from 69% in 2000, but still the foundation of the U.S. economy, and more than 14 times the number of jobs in the “Mining, Quarrying, Oil & Gas” sector.
- The entire “Mining, Quarrying, Oil & Gas” sector, of which the Oil & Gas jobs touted by natural gas industry advocates are only a small part, increased by 29% from 2010 to 2014, but the actual job growth in this sector (189,000) is only about 11% of the total increase in Goods Producing Jobs over the same period (1,660,000). Over this same period, growth in manufacturing jobs (660,000) accounted for almost 40% of job growth in Figure 2.

<sup>41</sup> This was essentially the position repeated by Mr. Ross E. Eisenberg, Vice President, Energy and Resources Policy National Association of Manufacturers and Mr. Martin J. Durbin, President and CEO America’s Natural Gas Alliance during January 29, 2015 Hearing on LNG Export Legislation by The Senate Energy and Natural Resources Committee.

<sup>42</sup> Goods Producing Jobs (high-paying jobs) is total of Manufacturing; Mining, Quarrying, Oil & Gas; Construction; and Natural Resources and Mining Jobs, reduced to annual average totals from monthly data reported by US Bureau of Labor Statistics.

<sup>43</sup> Annual average natural gas price published by U.S. EIA.

- The entire “Mining, Quarrying, Oil & Gas” sector never accounts for more than 4.5% of all U.S. Goods Producing Jobs (in 2104). Despite the enthusiasm of energy industry advocates, part of 4.5% of U.S. Goods Producing Jobs could never be considered foundational to the U.S. economy.

It has been said, and we repeat that without manufacturing jobs, the U.S. has no middle class. From all of the above, we see the vulnerability of the manufacturing sector to increases in natural gas prices. By extension, and despite the flawed way DOE uses overall GDP to represent the “public interest,” we believe these charts also show just how vulnerable the entire U.S. economy is to unlimited LNG exports, which will never be reviewed once licenses are approved.<sup>44</sup>

Hence, our two primary recommendations on optimizing the economics of LNG export<sup>45</sup> are:

1. Update the manner in which the “public interest” standard is defined and applied (see our responses to Senator Manchin); and
2. Supplement the domestic economic growth enabled by affordable energy with a carefully balanced volume of LNG exports that is reviewed and adjusted periodically.

We are grateful for your questions, and would be happy to address others if you require our assistance. I can be reached at 202-223-1661.

Sincerely,

Paul N. Cicio  
President

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*The Industrial Energy Consumers of America is a nonpartisan association of leading manufacturing companies with \$1.0 trillion in annual sales, over 2,900 facilities nationwide, and with more than 1.4 million employees worldwide.*

*It is an organization created to promote the interests of manufacturing companies through advocacy and collaboration for which the availability, use and cost of energy, power or feedstock play a significant role in their ability to compete in domestic and world markets. IECA membership represents a diverse set of industries including: chemical, plastics, steel, iron ore, aluminum, paper, food processing, fertilizer, insulation, glass, industrial gases, pharmaceutical, building products, brewing, independent oil refining, and cement.*

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<sup>44</sup> See statement DOE makes to Senator Murkowski regarding its stance on reviewing export licenses once they are issued. Letter, Paula A. Gant, Deputy Assistant Secretary, DOE Office of Oil and Natural Gas to The Honorable Lisa Murkowski, Senator Alaska, October 17, 2013.

<sup>45</sup> We also have concerns with FERC’s attentiveness to how LNG export terminals could affect the operational reliability of the surrounding energy delivery infrastructure that we describe in our response to Senator Manchin.