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To whom it may concern:

Please accept the attached file as a reply to the LNG study's initial comments posted on the DOE's website. Our reply comments respond to matters specifically addressed in the initial comments, per the instructions of the federal register notice. We have reviewed the initial comments and drafted this report in order to clarify US trade rules regarding exports and add context to concerns raised in the initial comments about potential US exports of LNG.

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## **Trade Rules and LNG Exports**

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## **Introduction**

Unconventional extraction techniques have changed the face of world energy production, consumption, and trade. Only within the last decade has the production of oil and natural gas from shale become economically feasible on a large scale, owing to improved techniques in horizontal drilling used in combination with hydraulic fracturing (also known as fracking). This made shale oil and gas commercially viable for both domestic use and for export as liquefied natural gas (LNG).

The United States is a major player in the shale revolution, following a dramatic shift in current energy production and future projections. In 2007, shale gas accounted for just 8 percent of annual natural gas production in the United States. In 2011, it accounted for 30 percent (EIA 2013). Still, as recently as 2008, the United States had 7 regasification plants in place for LNG *imports*, and 60 additional LNG import projects were on the drawing boards. Only in the past year have companies begun to file permits to transform nine of those existing and planned plants into *export* facilities.<sup>2</sup> Updating its projections, the United States Energy Information Administration (EIA) now forecasts that domestic natural gas supply will exceed demand by 2020. Furthermore, the 2012 Annual Energy Outlook projects that natural gas production will grow at twice the rate of natural gas demand at least through 2035.

US natural gas producers are eager to take advantage of tremendous price differentials between the United States and foreign markets.<sup>3</sup> However, under current US law domestically produced natural gas may not be exported without the approval of the Department of Energy (DOE). The DOE will automatically approve LNG exports to any US partner in a free trade agreement (FTA). However, exports to non-FTA partners must be reviewed and meet a national interest test. The DOE approved the first LNG export

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<sup>2</sup> A list of permit applications can be found on the DOE's website: <http://fossil.energy.gov/programs/gasregulation/>.

<sup>3</sup> US prices are around \$3 per mmBtu (million metric 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 considering the cost of liquefaction and ocean transport at \$3.50-\$9.00 mmBtu, producers can export LNG and earn a significant profit over domestic sales. (Conversions and explanations of units can be found in Table 1).

terminal in May 2011, but subsequently put a hold on all other export applications (over 20 are awaiting approval), pending a large scale review of the impact of LNG exports on the US energy market, as well as environmental and commercial concerns.

We conclude that denying export permits is the wrong way to address these concerns. Prohibiting LNG exports is not only contrary to international norms agreed in the World Trade Organization (WTO) and bilateral free trade agreements (FTAs), but would also destroy value in the United States by creating artificially low prices for the domestic consumption of natural gas.

### **Five Unique Characteristics**

The characteristics of natural resources differ from manufactures and services, and the differences are reflected both in national export policies and in the rules of the WTO and US FTAs with partner countries.

- First, natural resource prices fluctuate to a much larger extent than manufactured goods and services.<sup>4</sup> Sharp price fluctuations can trigger intense public reaction, in turn prompting governments to impose special controls on both exports (when prices soar) and imports (when prices plunge). But special controls do not allow markets to function properly in response to price signals.
- Second, some natural resources offer a handy springboard for downstream manufacturing activity. Vertical supply relationships tempt governments to limit exports as a means of encouraging downstream production even though such policies may run afoul of trade rules that limit industrial subsidies.
- Third, some natural resources are non-renewable, and production entails a tradeoff between income today and income tomorrow. Governments sometimes

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<sup>4</sup> The general explanation for greater price fluctuations in natural resource products is a less elastic supply response than for manufactured goods. For example, a 10 percent price increase might elicit only a 2 percent increase in the quantity supplied of iron ore, but the same price increase might elicit an 8 percent increase in the quantity supplied of steel pipe. Hence a given demand shock exerts a larger impact on the price that clears supply and demand for iron ore than the price that clears supply and demand for steel pipe.

fear that private markets will deplete non-renewable resources too rapidly; accordingly they place limits on production or exports. However, the resulting production path can also be less efficient for consumers.

- Fourth, natural resource production sometimes creates “negative externalities” -- social costs not reflected in market prices. While negative externalities are not unique to natural resources, a common response is to impose rules that limit the costs. An obvious example is the regulation of industries to limit air pollution.
- Fifth and finally, some natural resources – particularly petroleum and hard minerals – are unevenly distributed or unevenly explored across the globe. This concentration abets the formation of cartels that seek to lift prices above competitive norms.

### **Natural Gas as a Traded Commodity**

Natural gas attracts some of these special considerations but not all. Price volatility and the impact of price spikes on downstream users are primary concerns. The record of U.S. domestic natural gas prices over the past decade is a record of large fluctuations around a descending trend: prices peaked between \$10/mcf (thousand cubic feet) and \$11/mcf in October 2005 and July 2008; since then, prices have plunged and averaged about \$3/mcf in 2012 (EIA 2013). Downstream users, particularly chemical firms, fear that abrupt shocks in world supply or demand for natural gas could be transmitted through export markets into future US price spikes. To be sure, the shale revolution has vastly increased the quantity of recoverable natural gas, and has probably stabilized prices at low levels. But since nothing is certain, downstream users seek the assurance of continued export controls in the event of future price spikes.

Turning to the third characteristic, like many other natural resources, natural gas is non-renewable. Critics of LNG exports argue that opening natural gas for exportation will more rapidly exhaust the US supply. However, reports from industry, government, and third party entities dismiss these concerns, both because the estimated supply is large (up

to 95 years)<sup>5</sup> and because, even in optimistic scenarios, exports will not exceed 18 percent of production.<sup>6</sup> In any event, if the underlying fear is “market failure” -- namely that market forces will too rapidly deplete the supply -- the appropriate response is to control production, not to control the destination of natural gas sales, discriminating between consumption abroad and consumption at home.

As for the fourth concern, in the absence of proper regulation, an expansion of natural gas production may increase the scope of negative externalities. To be sure, natural gas is cleaner than many other fuels used around the world. However, the concerns raised around extracting natural gas from shale include the risks of methane release (a greenhouse gas and the largest component of natural gas), groundwater pollution and earth tremors. But these risks are no greater for consumption abroad than for consumption at home; they are inherent in the production process.

Turning to geographic concentration and the potential formation of cartels, the uneven distribution of natural gas worldwide ranks low on the list of concerns. Taking shale

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<sup>5</sup> Estimates of the US supply of natural gas vary greatly. The US EIA estimates that there are 2203 tcf (trillion cubic feet) of natural gas reserves in the United States and, at the 2011 rate of natural gas consumption of 24 tcf, this will last 92 years. Similarly, in April 2011, the Potential Gas Committee, a group of petroleum engineers and geoscientists, released a report that calculates the supply at 95 years (estimating American reserves at 2170 tcf). (see Potential Gas Committee, “Potential Gas Committee Reports Substantial Increase in Magnitude of US Natural Gas Resources Base,” <http://potentialgas.org/press-release>, accessed on February 4, 2013). However, critics point out that, of the 2170 tcf figure, only 273 tcf (12.5 percent) are “proved” reserves. An additional 537 tcf are “probable” reserves. The remainder are “possible” reserves. Reports differ on what fraction of natural gas reserves should be “counted” in supply calculations as well as how other factors, such as changes in usage rates and new technology, may eventually play out.

<sup>6</sup> A study conducted by the EIA (2012) examined four scenarios under which the United States would export natural gas: (1) 6 Bcfd (billion cubic feet per day) phased in at a rate of 1 Bcfd per year (low/slow); (2) 6 Bcfd phased in at 3 Bcfd per year (low/rapid); (3) 12 Bcfd phased in at a rate of 1 Bcfd per year (slow/rapid); and (4) 12 Bcfd phased in at a rate of 3 Bcfd per year (high/rapid). In 2011, the United States produced 66 Bcfd of natural gas. Accordingly an increase in the level of natural gas exported, as outlined in the scenarios above, represent between 9 percent and 18 percent of current US production.

reserves into account, natural gas is far more widely distributed than petroleum and most hard minerals. Moreover, the United States, Canada and Mexico – all with very large shale reserves – are hostile to cartels.

### **US Trade Law**

Under US Federal law the export of domestically produced oil and gas is regulated by the Departments of Commerce and Energy. The Department of Commerce's Bureau of Industry and Security (BIS) must authorize all exports of oil to a foreign country, including those countries with which the United States has a free trade agreement (FTA). While domestically produced crude oil has generally not been exported,<sup>7</sup> the BIS will grant export licenses for crude oil that:

- Is shipped on the Trans-Alaska Pipeline;
- Of foreign origin;
- Is from the Strategic Petroleum Reserve, if those exports will result in the import of refined products not available elsewhere.

Additionally, the Energy Policy and Conservation Act of 1975 enables the President to authorize oil exports if they are determined to be in the country's national interest. The export of refined oil products does not require a license, and is generally permitted.

The export of natural gas is regulated by the US Natural Gas Act of 1938. Under section 3, all exports of natural gas from the United States to a foreign country must be approved by the Federal Energy Regulatory Commission (FERC). According to section 3, §717b(a) (Exportation or importation of natural gas) the FERC:

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<sup>7</sup> The United States exports refined oil products such as petroleum fuels. More recently however, some US companies have applied for a license to export domestically produced crude oil. In 2012, BP received a license to export crude oil to Canadian refineries. Shell also applied for an export license in 2012 (Gregory Meyer and Ed Crooks, "Oil groups set to export US crude," *Financial Times*, October 11, 2012).

[S]hall issue such order upon application, unless, after opportunity for hearing, it finds that the proposed exportation [...] will not be consistent with the public interest.

In determining whether or not such exports are in the public interest, the FERC follows certain parameters, as outlined in the Secretary of Energy's New Policy Guidelines and Delegation Orders of 1984. These guidelines include a consideration of the domestic need for the natural gas to be exported, and other factors found.<sup>8</sup> In addition, the DOE has the authority to impose conditions on exports if a license is granted. Two types of licenses may be granted depending on the nature of the exports. A blanket authorization permits exports on a short term or spot market basis for a two year period. Long-term authorization is granted when an exporter has a sales contract for a period longer than two years.

Currently the United States has a bifurcated natural gas trade policy. Under US Federal law, natural gas trade with countries with which the United States has an FTA is given special consideration, compared to non-FTA countries. In 1992, the US Energy Policy Act amended the 1938 Natural Gas Act by adding section 3(c), which expedited 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 determination by the DOE regarding the impact on the national public interest of exporting LNG. At the time, the rationale for distinguishing between FTA and non-FTA countries was to bring US law into compliance with the US-Canada FTA, which mandated "national treatment" for

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<sup>8</sup> Although the 1984 Policy Guidelines were intended for LNG *imports*, the Department of Energy subsequently ruled that they apply also to exports.



natural gas trade. Additionally, natural gas exports at the time were not a major concern for US energy policy. In the early 1990s, the United States was a net importer of natural gas, and the small fraction of exports involved natural gas piped to eastern Canada and Mexico.<sup>9</sup>

The US-Canada FTA, however, set an important precedent for the facilitation of global energy trade. Prior to the FTA, both the United States and Canada employed policies such as quotas, price controls and taxes to restrict bilateral energy trade. During the oil shocks of the 1970s, Canada cut its oil and natural gas exports to the United States in order to meet growing domestic demand and conserve reserves (Verleger 1988). In the 1980s, Canadian efforts to increase its share of the US natural gas market were hindered by changes in contract terms permitted by the US FERC.<sup>10</sup>

Reacting against such impediments, the US-Canada FTA included provisions to limit export controls and ensure that trade in energy is governed by the same rules as trade in other commodities. Article 902 of the agreement affirms Canadian and US rights and obligations under GATT with respect to trade restrictions in energy products. The agreement, however, goes beyond GATT obligations by establishing “national treatment” as the governing principle at the state and provincial levels, as well as the national level, thereby ensuring two things: energy imports will be treated no less favorably than energy produced domestically, and energy exports will be treated no less favorably than energy consumed domestically. The agreement thus included precedent setting limits on export

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<sup>9</sup> In 1992, US exports of natural gas accounted for less than 10 percent of total natural gas (imports plus exports of LNG and pipeline gas). Some 76 percent of those exports went to Canada and Mexico. The remaining fraction was LNG exported from Alaska to Asia.

<sup>10</sup> FERC Order 380, issued in 1983, removed contract obligations that required gas distribution utilities to pay pipelines for a specific volume of gas, regardless of whether it could be used. FERC Order 436, issued in 1985, established an open-access transportation program that required pipelines to act as common carriers in order to qualify for a blanket transportation certificates. Order 436 also allowed distribution utilities to convert purchase contracts to transportation-only contracts, and reduced the minimum size of purchase contracts. The Orders collectively transformed the US gas market from a long-term to a spot basis, enabling a large volume of gas to be sold under short-term spot contracts. This made it difficult for Canadian gas producers to sell their supplies, because they were customarily sold under long-term contracts.

restrictions. Article 903 prohibits the use of taxes on energy exports, unless the same tax is applied to energy consumed domestically, while Article 904 requires that any reduction in supply be shared proportionally between the domestic and export market (Calzonetti 1990: 174).

Similar provisions were included in the North American Free Trade Agreement (NAFTA). However, Mexico is exempt from certain prohibitions on the restriction of exports. Annex 603.6 gives Mexico the authority to restrict the granting of export licenses for specific energy and petrochemical goods, such as ethane, butanes, petroleum oils and oils obtained from bituminous minerals.

Limitations on export controls are included in all US FTAs. However, these provisions are not specific to trade in energy, or any particular good. Instead the agreements prohibit contracting parties from adopting or maintaining any restriction on the export of any good, except in accordance with GATT Article XI (General Elimination of Quantitative Restrictions).<sup>11</sup> US FTAs also prohibit the use of taxes on exports, unless the same tax is applied to the same good consumed domestically.<sup>12</sup> Exceptions to these rules are included in certain FTAs. For example, FTAs with Australia, Colombia, Korea, Morocco, Peru and Singapore allow the United States to implement controls on the export of logs.<sup>13</sup>

The United States has FTAs with 20 countries and FTA partners accounted for 41 percent of US exports in 2010. These FTAs provide national treatment for trade in natural gas, except in the case of Israel and Costa Rica (under the CAFTA-DR agreement). Among US FTA partners, Chile, Korea, and Mexico have regasification plants in place to accept

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<sup>11</sup> Article XI of the GATT allows export restrictions if they are: (a) applied to prevent or relieve critical shortages; or (b) necessary to the application of standards or regulations. These provisions are discussed later.

<sup>12</sup> Article I section 9 of the US Constitution prohibits the federal government from imposing taxes or duties on exports from any state. This limitation is discussed later.

<sup>13</sup> In an effort to conserve limited supplies of western red cedar for domestic lumber mills, the United States invoked the Export Administration Act of 1979 to limit exports of western red cedar logs from state and federal lands, found mostly in Washington State. By 1982 exports were completely phased out.

LNG imports, and plants are proposed in Singapore. Korea is the second-largest market for LNG imports, behind only Japan. Two US FTA partners, Australia and Oman, are currently exporting LNG; while a third FTA partner, Canada, is scheduled to begin exporting LNG in 2015. None of these countries are prospective markets for the United States.

As its top priority in 2013, the US Trade Representative (USTR) is negotiating the Trans-Pacific Partnership (TPP). If concluded, the TPP would expand the US FTA network to include Brunei Darussalam, Malaysia, New Zealand and Vietnam (the other six TPP partners already have FTAs with the United States).<sup>14</sup> Two of the four prospective TPP members that are not already linked to the United States in FTA pacts will likely become LNG importers in the near term. Malaysia has a regasification terminal scheduled to become operational in the second half of 2013, and Vietnam has plans to construct two LNG import terminals that could be operational as early as 2015.

In the medium-term the United States could potentially establish FTA relations with major prospective LNG importers, namely the European Union (EU) and Japan. The possibility of an FTA with the European Union gained momentum on February 12, 2013, with President Obama's announcement, in his State of the Union Address, that the United States would launch negotiations for a Trans-Atlantic Partnership. Such an agreement could have a large impact on LNG markets. EU member countries are eager to diversify their natural gas supplies. This is especially true in Eastern Europe, where countries rely almost exclusively on imports from Russia. Currently the EU regasification terminals have a capacity of 160 bcm (billion cubic meters). However, plans to expand existing terminals and construct new terminals would add another 80 bcm of capacity by 2020 (Natali 2012).

Japan is eager to tap the growing US LNG market. Following the earthquake and tsunami disaster of March 2011, and the movement away from nuclear energy, Japan

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<sup>14</sup> TPP partners that currently have an FTA with the United States are Australia, Canada, Chile, Mexico, Peru and Singapore.

faces the prospect of replacing some 12,000 megawatts of generating capacity.<sup>15</sup> In the short-run Japan was able to meet its energy needs from European and Asian suppliers who diverted contract LNG cargos to Japan. However, in the long-run, Japan wants assured access to US LNG exports. The abundant US supply and the discount at which North American LNG trades compared to European LNG makes the United States an ideal source. Japanese efforts to import US LNG would be facilitated if Japan established a free trade relationship with the United States, in the context of the TPP agreement.

In the medium to long-run, the United States does not have plans to establish free trade agreements with other major prospective LNG imports like China and India. Accordingly, US exports could be limited by the absence of free trade agreements – unless one of two events occurs: US law is further amended to provide LNG export parity to all WTO members, whether or not US FTA partners; or the DOE determines that the benefits of exports to such countries outweigh any negative side effects.

Currently the United States has just one LNG exporting facility, located in Kenai, Alaska. The facility, with Conoco as a majority partner in the venture, was built in the 1960s, but has been inactive since December 2011. A second facility is under construction on the US Gulf Coast by Cheniere Energy Partners LP and was approved by the DOE in 2011 and the FERC in early 2012. Additionally, three LNG terminals are authorized to re-export LNG. In January 2013, approximately twenty export applications were pending at the DOE, including those that would allow for the reconfiguration of existing regasification plants.

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<sup>15</sup> “Country Analysis Briefs: Japan,” United States Energy Information Administration, June 4, 2012. Available at [www.eia.doe.gov](http://www.eia.doe.gov) (accessed on January 14, 2013).

## **WTO Trade Rules**<sup>16</sup>

Article XI(1) (General Elimination of Quantitative Restrictions) of the GATT prohibits export restrictions “other than duties, taxes or other charges”, but allows exceptions when a country imposes temporary export restraints to alleviate critical shortages of foodstuffs or other essential items, or when the restrictions are necessary to enforce standards for the classification, grading or marketing of commodities in international trade.

The basic text of GATT Article XI(1), allowing export duties and taxes, does not create an avenue for the United States to limit LNG exports because Article I section 9 of the US Constitution proclaims that “[n]o Tax or duty shall be laid on Articles exported from any State.” Owing to their reliance on agricultural exports, this was an important clause for the southern states when they ratified the Constitution in the 18<sup>th</sup> century. The exception in GATT Article XI(1) for critical shortages cannot be invoked because the shale gas boom means that the United States cannot plausibly claim a critical shortage of natural gas. The exception in Article XI(1) for ensuring proper standards would, of course, allow proper safety and greenhouse gas emission regulations for LNG exports, but not a blanket prohibition.

However, GATT Article XX (General Exceptions) allows a country to ignore Article XI(1) (as well as other GATT articles) and impose export restrictions if they meet very specific requirements. To invoke GATT Article XX, a country must satisfy the “chapeau” of Article XX which demands that export restraints not constitute a “disguised restriction on international trade” or a means of “arbitrary or unjustifiable discrimination between countries where the same conditions prevail.” Provided restraints are consistent with the chapeau they can be imposed under GATT Article XX(b) if they are “necessary to protect human, animal or plant life or health,” or under GATT Article XX(g) if they relate “to the conservation of exhaustible natural resources.” However, as an additional requirement, in order to qualify for an exception under either Article XX(b) or Article

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<sup>16</sup> See “LNG Export Restrictions Could be Difficult to Defend Under WTO Rules,” *Inside US Trade*, February 1, 2013. Available at [www.insidetrade.com](http://www.insidetrade.com) (accessed on February 1, 2013).

XX(g), the United States would also have to impose restrictions on domestic production or consumption of natural gas. The logic is straightforward: without a parallel reduction in domestic production or consumption of natural gas, any negative impact on human, animal or plant life, and any efforts at conservation would be undercut. In sum, these escape hatches cannot be used to limit LNG exports while allowing natural gas production for domestic consumption.

### **Short History of US Export Restraints**

The United States has long imposed export controls for national security purposes (and these are permitted under GATT Article XXI (Security Exceptions)). US federal laws restrict the export of “dual-use” items, defense-related articles, and goods that are considered to be in short supply. Short supply goods include crude oil, petroleum products and certain species of trees. While the short supply restrictions have never been challenged in the GATT or the WTO, they are suspect, especially since they are permanent, not temporary as GATT Article XI(1) requires.

Despite its own selective (and perhaps dubious) use of export controls, the United States has generally been a harsh critic of export controls imposed by other countries and, as mentioned, has generally insisted on limits conforming to GATT Article XI(1) in US FTAs. Below we recount some well-known examples and, in the next section, summarize cases that illustrate long-standing US policy.

During the oil shocks of 1973/74, when Arab oil producers implemented an embargo, the Nixon Administration discouraged other oil consumers – mainly Western Europe and Canada – from restricting their own oil exports. The United States urged countries to distribute their oil supplies in an equitable way, including on an *ad hoc* basis to the United States (Scott 1994). These efforts proved unsuccessful and the OECD nations failed to effectively coordinate the use of oil stocks.

In 1973, the Nixon Administration implemented a complete embargo on US exports of soybeans, cottonseeds and related products in an effort to tame inflation, which spiked in

the early 1970s. The United States faced harsh criticism. Japan, one of the largest importers of US soybeans at the time, was highly critical of the US policy, especially since there was no consultation with importing countries prior to implementing the embargo. Japan also criticized the United States for not giving preferential consideration to countries like Japan – which relied almost entirely on imports to meet domestic demand and was one of the largest importers of US soybeans at the time.

The 1973 embargo stands in stark juxtaposition to the US stance on food export restrictions that were implemented during the 2006-2008 food shock. In a 2008 report to the US Congress Joint Economic Committee, US Department of Agriculture’s chief economist Joseph Glauber criticized countries like Argentina, China, India, Russia, the Ukraine and Vietnam for imposing additional export taxes or other restrictions on the export of grains, rice, oilseeds and other products. Glauber stated that export restrictions “only exacerbate the surge in global commodity prices” and are “ultimately self-defeating, reducing the incentive for producers to increase production” (Glauber 2008).

### **Precedents set by WTO Decisions**

*Canada: Lumber Wars.* Thirty years of US-Canada disputes over lumber trade – often referred to as “lumber wars” -- began in the early 1980s. At the instigation of US lumber mills, the US Department of Commerce launched an investigation into Canadian timber practices in the provinces of Alberta, British Columbia, Ontario and Quebec. Ever since, the United States and Canada have engaged in periodic battles over the conditions of lumber trade.

At issue are two aspects of the Canadian lumber industry: Canadian stumpage practices and restrictions on exporting raw logs. “Stumpage” is the name given to fees collected for harvesting timber. Stumpage fees are set by provincial governments since the majority of timber is located on provincial land. The United States argues that stumpage fees are often at below market rates, thereby favoring Canadian lumber companies. The second issue relates to the Canadian system of forestry management which requires Canadian logs taken from public land to be sold exclusively to provincial sawmills. The United

States argues that export restrictions on logs give Canadian lumber mills a second unfair advantage.

The Department of Commerce's initial assessment, issued in 1983, determined that Canadian export restrictions did constitute a subsidy, but that the subsidy was *de minimis*. The Department of Commerce also ruled that the stumpage fee system did not constitute a subsidy (Rahman and Devadoss 2002). A subsequent assessment by the Department, issued in 1986, reversed the initial ruling and determined stumpage practices did constitute a subsidy, allowing the United States to levy a 15 percent countervailing duty on imports of Canadian lumber.

The case went through several hearings in US courts and NAFTA arbitration panels before landing on the doorstep of the WTO in 2001. An initial WTO ruling in 2004 determined that the United States did have the right to impose both anti-dumping and countervailing duties (AD/CVD) on Canadian lumber, but that the duties imposed were miscalculated and therefore in violation of WTO rules.<sup>17</sup>

The lumber dispute continued at the WTO and through the NAFTA dispute settlement system until an agreement was reached in 2006. Under the framework agreement, the United States promised to return 80 percent of the duties US Customs had collected over the last four years (roughly \$5 billion). Both countries agreed that Canadian-sourced lumber exports would be capped at 34 percent of the US lumber market. Additionally, Canada would be allowed to collect an export tax on lumber exported to the United States, if prices drop below \$355 / thousand board feet.<sup>18</sup>

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<sup>17</sup> The United States used the so-called "zeroing" methodology to calculate duties. Under zeroing, a value of zero is used for the dumping margin when the export price is *higher* than the home market price (rather than taking an average of the differences between the home market price on all sales) – a practice that can artificially inflate dumping margins. (See US – Softwood Lumber III (DS236). Available at [www.wto.org](http://www.wto.org)).

<sup>18</sup> "Softwood lumber dispute," CBC News Online, August 23, 2006. Available at [http://www.cbc.ca/news/background/softwood\\_lumber/](http://www.cbc.ca/news/background/softwood_lumber/) (accessed on January 8, 2013).



***China: Raw Materials Exports.*** In 2009, the United States filed a dispute with the WTO regarding China's trade practices as an exporter of several raw materials. The United States, joined by Argentina, Brazil, Canada, Chile, Colombia, Ecuador, the European Union, India, Japan, Korea, Mexico, Norway, Chinese Taipei, Turkey, and Saudi Arabia claimed that Chinese limits on exports of bauxite, coke, fluorspar, magnesium, manganese, silicon carbide, silicon metal, yellow phosphorus and zinc violated GATT Articles VIII (fees and formalities connected with importation and exportation), X (publication and administration of trade regulations), and XI (general elimination of quantitative restrictions), as well as China's Protocol of Accession to the WTO. The WTO Appellate Body agreed with the complaint and recommended that China bring its measure into conformity with WTO rules.

Article VIII of the GATT states that fees imposed in connection with imports and exports should be simple, minimal, and reflect actual costs associated with trade. The level and administration of fees should not serve as a source of income or as a method of protecting domestic industries. Article X states that all laws, regulations, and judicial decisions that apply to imports and exports or any aspect of their sale must be published promptly, except when doing so is contrary to the public interest. Laws must be applied fairly and uniformly, and member countries must maintain tribunals and procedures to review administrative action related to customs matters. Article XI calls for the general elimination of quotas, and outlines certain exceptions where quotas are appropriate.

The United States and other petitioners argued that China's export restraints created scarcity and higher prices in global markets, while downstream Chinese industries enjoyed an advantage from access to cheaper domestic raw materials. China defended its trade measures, insisting that export limits were necessary to conserve exhaustible natural resources, citing GATT Article XX. Article XX establishes general exceptions in which a WTO member may decide to ignore other GATT rules. Specific to the raw materials case, Article XX(g) states that the GATT is not intended to prevent measures "relating to the conservation of exhaustible natural resources if such measures are made effective in conjunction with restrictions on domestic production or consumption." China also

claimed that restrictions were “necessary to protect human, animal or plant life or health”, citing Article XX(b) of the GATT.

The WTO panel ruled in favor of the United States and other petitioners, finding that China’s export quotas are inconsistent with WTO rules, as well as China’s Protocol of Accession. China was unable to demonstrate that it had imposed restrictions on domestic production or consumption in order to preserve natural resources. China was also unable to prove any causal relationship between production of raw materials and any short-term or long-term effect on pollution or the health of its population.

The Appellate Body of the WTO upheld the panel’s ruling, with one exception: according to the WTO summary, “the Appellate Body saw nothing in the text of Article XX (g) to suggest that, in addition to being ‘made effective in conjunction with restrictions on domestic production or consumption’, a trade restriction must be aimed at ensuring the effectiveness of domestic restrictions.” China notified the WTO of its intention to implement changes in accordance with the ruling. The US and China mutually agreed that the changes should be implemented by the end of 2012.

***China: Rare Earths Exports.*** In March 2012, the United States requested consultation with China, with respect to its restrictions on the export of rare earths.<sup>19</sup> The United States alleges that China imposes export restrictions, including export duties, quotas, minimum export price requirements and export licensing requirements. The United States claims these export restrictions are inconsistent with Article VII (valuation for customs purposes), Article VIII, Article X and Article XI, as well of some aspects of China’s Protocol of Accession to the WTO. The European Union, Japan and Canada subsequently joined the consultations, and in July 2012, the WTO’s Dispute Settlement Body established a panel.

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<sup>19</sup> See WTO case DS431 at [www.wto.org](http://www.wto.org), for more details.

China accounts for roughly 97 percent of the global rare earths markets, but restricts market access through its export policies. China argues that its policies on rare earths are “aimed at protecting natural resources and achieving sustainable economic development” and that it has “no intention of protecting its domestic industry through means that would distort trade.”<sup>20</sup> In our own view, the WTO panel and Appellate Body are likely to find China in violation of its obligations, just as in the Raw Materials case.

### **Lessons from Trade Rules and Cases and Policy Implications**

From this history and the cases, three important policy implications can be drawn for current US policy towards the domestic production and sale of LNG. First, the use of export restraints runs contrary to the central US stance. Historically, the United States has more often than not been a vocal opponent to the use of export restraints. This is embodied in Article I section 9 of the US Constitution, which proclaims “[n]o Tax or duty shall be laid on Articles exported from any state.” It is also embodied in US actions in international trade negotiations. For example, during the WTO Doha Development Round of negotiations, the United States was a vocal proponent of imposing disciplines on the use of export controls. Along with South Korea, the United States led an initiative to improve transparency with regards to export licensing (Kim 2010). The United States has also included disciplines on export controls through its bilateral FTAs, starting with the US-Canada FTA and later NAFTA, which include provisions to ensure that trade in energy products is governed by the same rules as trade in other commodities. What’s more, the United States was a harsh critic of the use of export controls during the oil shocks in the 1970s and the 2006-2008 food shocks.

Another important policy implication relates to WTO rules and dispute settlement. If the United States continues to impose restraints on the export of LNG while permitting unfettered domestic consumption of natural gas, the restraints will be in violation of WTO rules. As discussed, Article XI of the GATT permits export controls to “prevent or

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<sup>20</sup> “China blocks panel request by the US, EU and Japan on “rare earths” dispute,” *WTO 2012 News Items*, World Trade Organization, [www.wto.org](http://www.wto.org) (accessed on January 11, 2013).

relieve critical shortages,” but that exception does not countenance the long-term subsidization of downstream domestic users (e.g., manufacturing firms) by restricting exports so as to reduce the domestic price of natural gas. Permanent US export restrictions on LNG – if imposed – would be principally designed to encourage greater domestic industrial use and household consumption (Levi 2012). Such restrictions contradict WTO rules, and member countries would likely bring a case in the WTO if the United States does not allow reasonable LNG exports. Indeed, the WTO ruling in the *China Raw Materials* case was a major victory for the United States and other petitioners and stands as a landmark against export restrictions. In light of this precedent, it would be hypocritical and contrary to WTO rules for the United States to impose its own restraints on the export of LNG.

Finally, if US policy towards LNG production and exports has a restrictive tone, that could deter future investment. Investment in the natural gas industry is long-term and capital intensive. Without the possibility for domestic natural gas producers to compete fairly on the global LNG market, the incentive to continue investing in and increasing domestic production will be reduced. What’s more, if the United States delays the removal of export restraints, potential major importers will likely find alternative suppliers such as Canada and Australia, which have abundant natural gas, both conventional and from shale, and allow unrestricted exports.

**Table 1. Energy Definitions and Conversions**

| <b>UNITS OF POWER</b>                               |  |   |
|---|--|---|
|   | <b>Definition</b>  | <b>Conversion (energy to volume)</b>  |
| <b>British thermal units (Btu)</b>                  | Measures the energy content of fuels. 1 Btu is the quantity of heat required to raise the temperature of 1 pound of liquid water by 1 degree Fahrenheit.   | 1 Btu = 0.000001 Mcf<br>1 Btu = 0.000028 bcm  |
| <b>Million metric British thermal units (mmBtu)</b> | Measures the energy content of fuels.  | 1 mmBtu = 0.9737 Mcf<br>1 mmBtu = 28 bcm  |
| <b>Megawatt hour (MWh)</b>                          | Measures the energy expended per hour in terms of electrical power. A watt hour is the electrical energy unit equal to one watt of power supplied to, or taken from, an electric circuit for one hour. | 1 MWh = 3.345 Mcf<br>1 MWh = 0.08 Mt<br>1 MWh = 0.00000008 bcm                                  |
| <b>UNITS OF VOLUME AND WEIGHT</b>                   |  |   |
|   | <b>Definition</b>  | <b>Conversion (volume/weight to energy)</b>   |
| <b>Thousand cubic feet (Mcf)</b>                    | Unit of volume commonly used to measure production, consumption and prices of natural gas (prices are expressed in dollars per mcf).   | 1 Mcf = 1,023,000 Btu<br>1 Mcf = 0.301278 MWh   |
| <b>Billion cubic feet per day (Bcfd)</b>            | Unit of volume commonly used to measure exports and imports of natural gas.  | 1 Bcfd = 1,023 billion Btu per day<br>1 Bcfd = 301,278 MWh per day                              |
| <b>Trillion cubic feet (Tcf)</b>                    | Unit of volume commonly used to measure reserves of natural gas.   | 1 Tcf = 1,000 billion cubic feet (Bcf)<br>1 Tcf = 1,023 trillion Btu<br>1 Tcf = 301,277,778 MWh |
| <b>Billion cubic meters (bcm)</b>                   | Metric unit of volume use to measure exports and imports of natural gas.   | 1 bcm = 35,314,700 Mcf<br>1 bcm = 36 trillion Btu<br>1 bcm = 1,313 MWh                          |
| <b>Metric ton (Mt)</b>                              | A unit of weight often used to measure greenhouse gas emissions such as methane and carbon dioxide.  | 1 Mt = 48.7 Mcf<br>1 Mt = 52,000,000 Btu (from natural gas)<br>1 Mt = 15 MWh (from natural gas) |

Sources: EIA Energy Calculators, [www.eia.gov](http://www.eia.gov); bp conversion factors, [www.bp.com/conversionfactors.jsp](http://www.bp.com/conversionfactors.jsp); MIT Units and Conversions Fact Sheet, [http://web.mit.edu/mit\\_energy](http://web.mit.edu/mit_energy); authors own calculations.

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