

UNITED STATES OF AMERICA
BEFORE THE
FEDERAL ENERGY REGULATORY COMMISSION

Natural Gas Interchangeability

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Docket No. PL04-3-000

**COMMENTS OF JOHN HRITCKO, JR.
ON BEHALF OF SHELL US GAS & POWER, LLC**

Introduction

Good afternoon. My name is John Hritcko, Jr. I am Vice President of Strategy & Development for Shell US Gas & Power, LLC and its affiliates (“SUSGP”) are the subsidiaries of Shell Oil Company responsible for the business of importing LNG into the U.S. in support of the Royal Dutch/Shell Group (“Shell”) activities to develop and market its worldwide natural gas production. SUSGP has obtained capacity rights at existing LNG terminals located at Cove Point, Maryland and Elba Island, Georgia, and has filed an application under the Deepwater Port Act for a license to construct and operate an offshore LNG storage and regas facility to be located 38 miles offshore Louisiana in West Cameron Block 213. In addition, Shell companies have recently begun construction of a regas terminal at Altamira, Mexico and announced their joint venture participation with Sempra Energy in a regas terminal project to be built in Baja, California, Mexico. The Baja regas facility will be able to supply natural gas to markets in both Mexico and southern California. Shell US Gas & Power appreciates the opportunity to participate in this public conference about policy issues arising from natural gas interchangeability.

Shell and SUSGP and their Interest in Interchangeability Policy

In the January 15th Notice announcing this public conference, the Commission referenced the findings and recommendations of the National Petroleum Council’s (“NPC”) recent report on Natural Gas with regard to interchangeability. The NPC report highlighted a need for the adoption of new standards by the nation’s natural gas delivery system including interstate natural gas pipelines, local distribution companies (“LDC’s”), natural gas equipment manufacturers and consumers of natural gas. As the NPC report

points out, the North American resource base is maturing and, although it is still anticipated that it will be capable of supplying the majority of the market's demand for natural gas, it will become increasingly important to develop new, non-conventional supplies, including imported LNG.

The underlying composition of LNG is no different from the natural gas produced here in the United States; however, the specifications established throughout the world that apply to this natural gas have developed differently from those in the U.S. As the U.S. prepares to become a more significant market player in the international LNG trade, if the U.S. wants to diversify its gas supply base, it is imperative that our domestic interchangeability standards align with those of our future supply partners.

SUSGP has been in the forefront of the interchangeability issue due to its broad array of activities in delivering LNG into the U.S. SUSGP has made deliveries of "spot" cargoes to the regas terminal at Lake Charles, Louisiana; is a firm import capacity customer now delivering LNG to the Cove Point terminal; is planning to be a future gas supplier to and, therefore, is in discussions with numerous customers located downstream of the Elba Island terminal and, similarly, with customers in the southern California gas market who may one day choose to purchase regasified LNG delivered by Shell from the proposed Baja regas facility.

Each of these terminals and the market that is directly served by them has unique characteristics and requirements. Shell, as the world's leading producer of LNG, holds a portfolio of supplies that may be delivered to these and other markets throughout the world. Shell's global understanding of the specifications of both the LNG suppliers and the various markets served is a long-held, unique characteristic attributable to Shell. The settlement of the interchangeability issue at Cove Point and the constructive discussions currently underway with customers in the southeast and southern California market regions stands as testament to this understanding. As a result, SUSGP has gained insight into this issue, which it would like to share with the Commission today.

Current Tariff Specifications Based upon Heating Value Do Not Adequately Address the Interchangeability Issue

The current specifications found in most gas pipeline tariffs are based upon the overall heating value of the natural gas. Heating value alone is not a true indication of

interchangeability since it does not address the important aspects of burner performance. An index such as the Wobbe, which adjusts the heating value for the relative density of the gas, does address burner performance. A specification based on the Wobbe Index is, for example, a much more meaningful indicator for end-users than the current specifications based upon heating value.

Nevertheless, while this convention has long been adequate for most of the U.S. market (since most gas supplies came from interstate transmission pipelines with very homogeneous gas compositions), as the U.S. moves to supplement its natural gas supply base with alternative supplies such as LNG and smaller local gas reserves, it is imperative that the issue of interchangeability be addressed and that our pipeline standards be updated to ensure that the market has access to new and safe, reliable sources of supply.

Since much of the world's LNG supplies are produced in remote locations far from natural gas liquids markets, the components of the gas, especially ethane, are not separated from the feed gas, but are liquefied along with the methane. At the same time most of the inert gases such as nitrogen and carbon dioxide are removed prior to the liquefaction process. This results in a gas having a higher heating value than that commonly found in the U.S. where the ethane is routinely stripped from the gas stream and sold to process gas customers in the supply region and the inert components remain in the gas.

The gas markets in the U.S. (e.g., California and Colorado) and most systems outside of the U.S. are typically served with multiple supplies with varying gas compositions. Those gas markets have all adopted interchangeability parameters to ensure end-user protection while dealing with multiple supply sources.

Practically all global gas markets (and even some regions of the U.S). have adopted the use of interchangeability parameters in their contractual terms and conditions. The most commonly used index is the Wobbe Index. Weaver and AGA indices, similar in nature to Wobbe, have also been used in various parts of the U.S.

Figure 1. **Interchangeability Indices Used in Various Gas Markets**

<u>Market</u>	<u>Index</u>	<u>Allowed Range</u>
•Cove Point	Weaver	
•California	Wobbe + AGA	+/-10%

•Wyoming	Wobbe	+/-4%
•Colorado	Wobbe	+/-4%
•Europe	Wobbe	+/-5-10%
•Australia	Wobbe	+/-6%
•New Zealand	Wobbe	+/-6%
•Brazil	Wobbe	+/-6%
•Elba proposal	Wobbe	+/-1.5%

Figure 1 shows some of Indices in use in markets in the U.S. and throughout the world. The figure also indicates the allowable range within the index with respect to a reference gas. It is notable that California, as well as Wyoming and Colorado, have long established specifications for interchangeability, primarily due to local gas production that serves these markets. This is particularly important also because the Commission must remain mindful of the conditions that currently exist within these regions of the U.S., so as not to formulate any policy or actions in relation to LNG imports that may be detrimental to these established tariff provisions.

Security of LNG Supplies Necessitates a Change in the Current Specification

As discussed above, a determination of whether a particular LNG supply may be substituted for traditional pipeline gas cannot be accurately made through the use of the heating value specifications currently found in most gas tariffs. There must be an adjustment of the heating value of the gas for its relative density (as is done in an interchangeability index calculation) in order to establish a specification that directly relates to the performance of a gas burner. Only then may two gases of varying composition (e.g., pipeline gas and regasified LNG) be compared on an “apples-to-apples” basis. The adoption of a true interchangeability parameter such as Wobbe would not only result in a more meaningful interchangeability specification, but also significantly broaden the number of available supply options to U.S. natural gas customers.

Under the current heat content-based tariff specifications common in the U.S., few supplies of LNG meet the restrictive gas quality provisions. In fact, currently only one existing Atlantic Basin supply source can be directly delivered into most gas markets along the East Coast of the U.S. However, if the U.S. pipelines were simply to translate

their current heat content specification into a corresponding Wobbe Index, most LNG supplies throughout the world, when blended with an inert gas such as nitrogen, would meet the tariff specification for interchangeability.

The following two diagrams illustrate this point. Diagram 1 below shows a bar chart of the representative (average) heat content of a variety of LNG supplies. The red band across the lower section of the chart shows the range of heat content of typical pipeline gas. Even after blending the regasified LNG with nitrogen within the contractually allowed limits, most of the LNG supplies do not meet the heating content limits of the typical pipeline gas. In other words, the heating content restricts the number of potential LNG supplies that can be considered “interchangeable” with pipeline gas when heating values are used as the indication of interchangeability.

Diagram 1. Heating Values of various LNG supplies

Current limits based upon Heating Value significantly limits the LNG supply options.

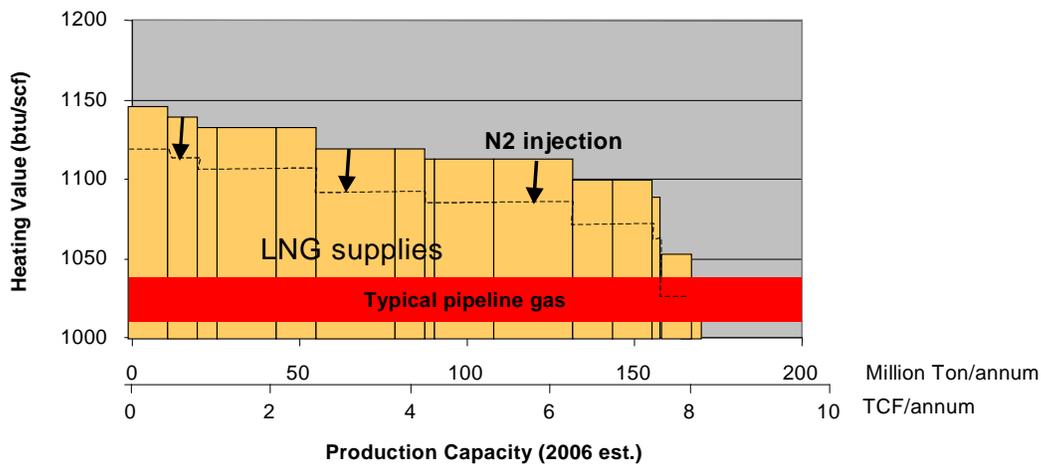
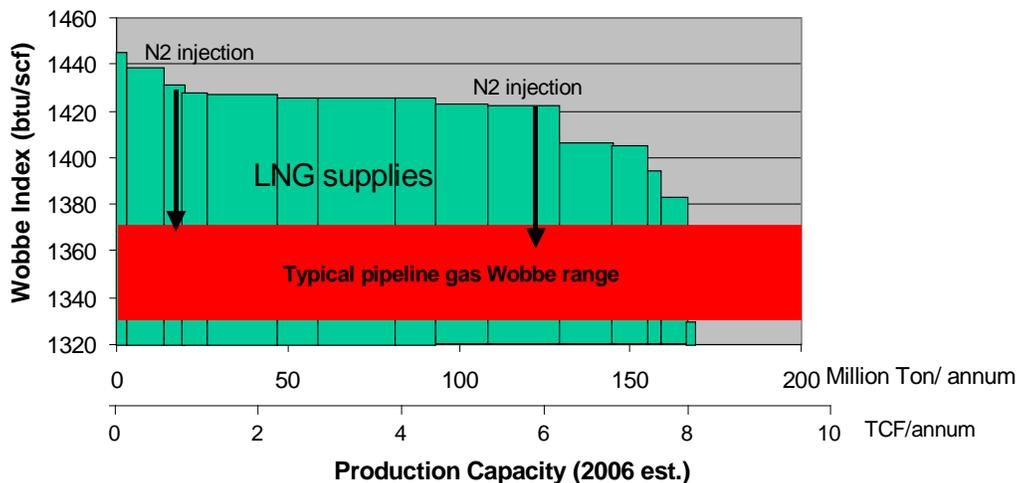


Diagram 2 below shows the same LNG supplies as in Diagram 1; however, the chart expresses the supplies and band of typical pipeline gas in terms of Wobbe Index rather than heating value. The Wobbe Index, which is a more accurate measure of interchangeability, broadens the typical pipeline gas specification and allows more of the

LNG supplies, after blending with nitrogen (in this case an assumed 3% by volume), to meet the pipeline standard. The direct result of employing the more applicable Wobbe Indices (rather than heating value) to determine interchangeability is a marked increase in the choice of LNG supplies that may be made available to the U.S. gas market. As the United States moves to supplement its domestic gas resources with imported LNG, this increase in the number of supplies capable of substituting for pipeline gas translates into a more secure supply situation for the U.S. gas market. Therefore, allowing the implementation of Wobbe Indices as the pipeline tariff interchangeability specification broadens the range of supply options, is clearly in the public interest and should be actively promoted by the Commission.

Diagram 2. Wobbe Index of LNG Supplies

Specifications based upon equivalent Wobbe Index, combined with nitrogen blending significantly increases the number of acceptable LNG supplies.



The Commission should avoid prescriptive “One Size Fits All” solutions

In order to address the interchangeability issue at the Cove Point regas facility, the terminal owner/operator, the LNG suppliers, and the LDC directly served from the Cove Point pipeline jointly agreed upon a solution that incorporates the Weaver Index into the Cove Point tariff. This allows the terminal operator to blend nitrogen into the regasified

LNG stream resulting in a gas that is interchangeable with the domestic natural gas previously delivered to the LDC. While the inclusive engagement of all the affected parties led to a mutually beneficial settlement, this same result may not be suitable for other LDC's because of the different composition of their customer base, operating considerations or other considerations.

Southern Natural Gas is actively discussing a proposal from SUSGP to replace its current tariff specification based upon heating value with an equivalent limit on Wobbe index with all the customers downstream of the Elba Island regas facility. However, certain process gas and feedstock customers make the situation markedly different from the Cove Point market conditions. Likewise, similar engagement by SoCal Gas with parties in southern California entails many other issues unique to that market. With this experience as a guide, SUSGP urges the Commission to avoid seeking uniform, across the board "fixes" to this issue. Proposals calling for NAESB-style uniform tariff provisions may, in fact, result in inadequate remedies or unintended consequences for those pipeline systems that already incorporate interchangeability indices in their tariff provisions that are tailored to their market.

Recommended actions

SUSGP urges the Commission to promote the use of interchangeability indices, particularly the Wobbe, over heating value specifications currently found in the gas tariffs of interstate pipelines. As discussed, the Wobbe index provides a more meaningful measure of the ability to substitute one gas supply for another. It is widely accepted and used throughout the world by gas system operators familiar with the issues surrounding multiple gas supplies of varying composition. Adopting the Wobbe index will broaden the choices of gas supplies available to consumers in the U.S. The use of Wobbe as a specification in the pipeline tariffs will not result in increased safety concerns for gas consumers.

In order to broaden the gas industry's knowledge base regarding this complex issue of interchangeability, the Commission should implement a program to identify and gather existing information about the issue from such sources as equipment manufacturers, pipeline and utility operators, research institutions, etc. Making such a

database publicly available would greatly assist all parties in their deliberations over how best to incorporate these new interchangeability standards into suitable tariff provisions.

The Commission should allow interchangeability standards to be set on case-by case basis rather than establishing well-meaning generic provisions that may not be suitable to the market circumstances. While common standards may be efficient and effective for some tariff provisions, interchangeability is a highly technical matter best suited to deliberate and thoughtful adoption by all affected stakeholders.

Additional general testing of appliances and burners is not required at this juncture. Instead, focused, well structured research programs designed to fill-in the knowledge gaps or address very specific issues would offer more meaningful data to the gas industry.

I thank you for this opportunity to share Shell's experience in this matter and look forward to further interaction with the Commission staff as the industry addresses this most important matter.

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