



June 3, 2010

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1001 "I" Street
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Re: Compressed Natural Gas (CNG) Motor Vehicle Fuel
Specifications; May 19, 2010 Workshop Comments

Sempra LNG welcomes the opportunity to provide the following comments concerning the matters discussed at the May 19, 2010 workshop held by the Air Resources Board ("ARB") concerning revisions to the ARB's specification for compressed natural gas ("CNG") used in motor vehicles in California (13 CCR, §2292.5).

Sempra LNG supports the concept of a CNG fuel specification based on a performance-based standard such as Methane Number ("MN"). We note that the preliminary evaluation by ARB staff indicated nitrogen oxides ("NOx") and non-methane hydrocarbons ("NMHC") emissions levels could actually be lower under a new more flexible CNG specification. More specifically with regard to heavy duty engines recent studies concluded that a performance regulation based on MN 75/80 and Wobbe Index ("WI") 1385 does not have potential to increase emissions above levels that could already occur under existing CNG specifications.¹

¹ ARB Workshop Presentation, May 19, 2010, Compressed Natural Gas (CNG) Motor Vehicle Fuel Specifications, slide 45; http://www.arb.ca.gov/fuels/altfuels/cng/05192010cng_presentation_bw.pdf

We agree with the staff's approach to reevaluate the current specification, which was adopted in 1993 based on gas supplies and engine technologies then available. We also agree that the current standard is relatively inflexible and limits the expansion of natural gas vehicle markets. Operational data and studies indicate an MN 80 limit could be implemented immediately with a transition to a MN 75 limit in the future as older heavy duty natural gas vehicles ("NGV") are replaced by newer lower emissions vehicle.² Based on the characteristics of their NGV fleets, some specific regions could be allowed to implement the MN 75 or lower limit initially rather than wait. We do not believe any additional gas quality specifications beyond MN 80 or MN 75 are required for CNG fuel as the California Public Utilities Commission ("CPUC") regulated gas specifications provide sufficient coverage.

Sempra LNG would like to cover three additional topics in these comments. First, the analysis of potential variability of gas supplies that may not meet the existing specification should not be focused exclusively on LNG since other sources of natural gas for California also do not meet the current specification. Second, the analysis of environmental effects of the regulation should center on vehicle emissions since supplies of gas used by other sources are not affected by the current regulation, nor would they be affected by any revised CNG regulation. Third, we provide some information concerning potential sources of LNG reaching California.

² SwRI Heavy-Duty Natural Gas Engine Study, April 2009; SwRI Light-Duty Natural Gas Vehicle Study, January 2010

Analysis of Alternative Natural Gas Supplies

The focus of the proposed revision to the CNG fuel specification should be forward looking and improve access by California CNG markets to multiple sources of natural gas supplies.

Increased fuel options can only increase reliability and stabilize cost by allowing for greater competition from a wider source of gas supplies. One of the goals should also be to facilitate the increased usage of CNG as a vehicle fuel in support of California's Low Carbon Fuel Standard. The current CNG specification not only impedes such progress but could actually interrupt natural gas supplies to currently operating CNG refueling stations. ARB staff have pointed out that some in-state natural gas supplies do not comply with the current CNG specification but indicated there were no major issues with interstate natural gas supplies. Yet Kern River Pipeline supplies from the Rockies consistently do not comply with the CNG specification and Canadian supplies delivered to California frequently do not comply with the specification.³

Some stakeholders focus on the historical composition of gas supplies for California but changes in pipeline infrastructure and U.S. gas supply basins are likely to result in changes in the pipeline gas composition in the future. This is a primary reason for moving from the current prescriptive component specifications to a more flexible performance based specification. For example, a recent check of the GTN Pipeline found the gas supply failed to comply with CNG specification on eleven days in May.⁴ El Paso's Ruby Pipeline may exacerbate the issue as it supplements or replaces Canadian supplies with non-compliant Rockies sourced natural gas. As noted by staff, some California-produced natural gas supplies also do not meet

³ Kern River Gas Transmission - Informational Postings - Gas Quality Report (5/1/10 – 5/31/10)
<http://www.kernrivergas.com/InternetPortal/FrontDesktop.aspx?>

⁴ GTN - Informational Postings - Gas Quality Report (5/1/10 – 5/31/10)
http://www.gastransmissionnw.com/info_post/

the current CNG standard. A recent discovery by Occidental Petroleum in the Bakersfield area could result in a significant increase in California sourced natural gas production potentially distributed to a larger portion of the gas distribution network.⁵ Initial indications are this natural gas is “rich” and high in natural gas liquids (“NGL”) content.⁶ Although some processing will be available, California lacks the necessary infrastructure to remove and market all NGLs and the resultant pipeline gas may exceed the ethane limit under the current CNG specification.⁷ This is the same issue faced by some LNG supplies that contain ethane in excess of the current limit but which would meet an MN 80 limit.

As in other parts of the U.S., California has potential for the future development of unconventional shale gas. Shale gas and other unconventional gas are expected to account for an ever increasing portion of U. S. gas supplies.⁸ Some shale gas supplies in the U.S. contain high levels of ethane, even after processing, and would not comply with the CNG specification.⁹ The Low Carbon Fuel Standard may spur the development of biogas as a potential source of CNG fuel. Replacement of the current CNG specification should remove any potential impediments to the future development of this alternative vehicular fuel. Also, some current CNG fuelling stations are supplied by trucked LNG. The liquefaction process typically removes

⁵ Occidental Petroleum Announces Significant California Oil and Gas Discovery
http://newsroom.oxy.com/portal/site/oxy/?ndmViewId=news_view&newsId=20091028005987&newsLang=en

⁶ 2010 Oxy Analyst Meeting Presentation (Slides 33-34)
http://www.oxy.com/Investor_Relations/Documents/Complete%20Presentation.pdf

⁷ Post Workshop Comments of Occidental of Elk Hills, CPUC Docket No. R.04-01-025

⁸ Department of Energy, Modern Shale Gas Development In The United States: A Primer, 2009, Page 8.

⁹ Texas Eastern Transmission, LP : Gas Quality Collaboration, October 14, 2008 Presentation (Slide 37) <https://infopost.spectraenergy.com/infopost/default.asp?pipe=TE>

all contaminants meaning the resultant LNG and CNG would not comply with the CNG specification.

Scope and Methodology for Analysis

Sempra LNG believes ARB staff should focus on those emissions and environmental effects related to the potential change in the CNG specification. Because the CNG specification only impacts the fuel consumed by vehicles, the composition of natural gas delivered to stationary sources would not be affected by a new CNG specification. Also, the analysis of emissions for mobile sources should include an examination of the difference between effects of allowable fuel under the current regulation and the allowable fuel under the proposed new regulation. Incremental emissions to currently delivered natural gas are not controlling since as noted above, gas supplies are variable in composition and are likely to change going forward. The characteristics of supplied gas could change under either the existing or a new CNG specification. As noted earlier, the preliminary evaluation by ARB staff indicated emissions levels could actually be lower under a new more flexible CNG specification. Finally, the environmental analysis should consider the incremental emissions between natural gas and diesel vehicles for those regions that are supplied with non-compliant natural gas under current CNG specifications including those regions that are under “temporary” exemptions going back many years. It is primarily because of these exemptions that the current regulation has not impeded the past growth in the use of natural gas vehicles.

Sources of LNG Deliveries

The May 19th presentation by ARB identified three potential LNG supply sources (Tangguh, Sakhalin & Malaysia) and their associated compositions. The Tangguh and Sakhalin LNG supplies represent the primary sources for shippers with capacity at the Energia Costa Azul LNG Terminal. Malaysia LNG has a very low probability of being delivered to the west coast of North America due to its higher Wobbe Index level (significantly exceeding the CPUC limit) and

primary sales commitments to Asian customers. Other LNG supply sources such as Peru, Qatar (lean) and Trinidad are more likely options for spot LNG supplies. Environmental analysis related to imported LNG should take into consideration that any spot LNG supplies are likely to be delivered into the U.S. for a limited time period and will have little if any impact on future emissions.

Thank you for the opportunity to present these comments. Sempra LNG appreciates staff's effort to update the existing regulation to add more flexibility while at the same maintaining air quality. We look forward to working with you throughout the regulatory process. Please let myself or Taylor Miller ((916) 492-4248) know if Sempra LNG can provide any assistance you may need to develop the revised motor vehicle fuel specification.

Sincerely yours,


Les Bamburg

Cc: Robert Fletcher
Mark Nelson

Attachment A

LNG Composition Information

	Peru	Trinidad
Methane	89.05%	96.10%
Ethane	10.56%	3.40%
Propane	0.02%	0.40%
Butane	0.00%	0.10%
Nitrogen	0.37%	0.12%

“Comments of Peru LNG S.R.L. for Consideration in the Natural Gas Quality Standards Workshop on February 17-18, 2005” (R.04-01-025) dated February 9, 2005