

**BEFORE THE PUBLIC UTILITIES COMMISSION
OF THE STATE OF CALIFORNIA**

Order Instituting Rulemaking to Establish)
Policies and Rules to Ensure Reliable,)
Long-Term Supplies of Natural Gas to) R. 04-01-025
California)

**POST-WORKSHOP COMMENTS OF SEMPRA LNG
ON NATURAL GAS QUALITY ISSUES**

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March 4, 2005

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Pursuant to the California Public Utilities Commission's ("CPUC") Rules of Practice and Procedure and the Presiding Administrative Law Judges' ("ALJs") December 23, 2004 ruling, Sempra LNG respectfully submits these post-workshop comments on natural gas quality issues.¹ Sempra LNG wishes to thank the CPUC and the CEC for hosting the gas quality workshops on February 17, 2005 and February 18, 2005. Sempra LNG also appreciates the active participation in the workshops of the Air Resources Board ("ARB") and the California Department of Conservation – Division of Oil, Gas, and Geothermal Resources.

The information presented during the workshops and in comments establishes a significant record on which the commissions can rely to provide the timely guidance developers of liquefied natural gas ("LNG") need in order to finalize their commercial arrangements with potential suppliers of LNG, which currently are ongoing. In this regard, Sempra LNG would urge the commissions, after issuing the workshop report on

¹ Appendix A of the ALJs' December 23, 2004 ruling (at p. 4) directs parties to file their comments at both the CPUC and the CEC (in the IEPR Docket – 04-IEP-1), which Sempra LNG has done.

April 4, 2005 and receiving comments thereon by April 25, 2005,² to promptly issue decisions adopting the workshop report, say by no later than June 30, 2005.

The workshop report and the commission decisions should express the State agencies' firm intent to:

- Eliminate the ARB's current compressed natural gas ("CNG") fuel specification;
- Adopt in lieu of ARB's current CNG fuel specification, if necessary, a Methane Number measure – to address engine operability issues – that will be targeted to reach a level of 73 by no later than the end of the third quarter of 2007; and
- Address air emissions issues through the adoption of a reasonable Wobbe number.

Sempra LNG discusses each of these points in more detail below.

**I.
THE CURRENT ARB CNG FUEL SPECIFICATION SHOULD BE
ELIMINATED**

Consistent with the positions advocated by a number of parties at the workshops and in comments,³ Sempra LNG believes the current ARB CNG fuel specification should be eliminated.

First, the current ARB CNG fuel specification is not a good way in which to address engine operability issues (adoption of a Methane Number is a more appropriate measure for this) or air emissions issues (adoption of a Wobbe Number is a more appropriate measure for this).

Second, because CNG used for transportation represents less than 1% of statewide consumption,⁴ it does not make sense for all natural gas consumers to pay the additional

² *Id.* (p. 3).

³ *See, e.g.*, the February 11, 2005 comments of Chevron (pp. 4-5) and Peru LNG (pp. 2, 4-5) and the workshop presentation slides of Occidental (p. 2), GTI (from Panel 2 presentation), Shell Trading (last slide) and WSPA/CIPA (p. 9).

⁴ *See, e.g.*, ARB's workshop presentation slides (p. 5).

processing costs that are incurred to meet the special requirements and specifications addressing such a limited market. Moreover, as a number of parties demonstrated at the workshops and in comments, the failure to eliminate ARB's current CNG fuel specification will reduce supply options to California.⁵ For example, as Chevron observes in its comments (pp. 4-5 and 12), LNG suppliers may well elect to serve markets in China, India, South Korea and Japan – instead of California – if changes are not made to ARB's current CNG fuel specification. Such an outcome would be inconsistent with the State's goal, as set forth in the Energy Action Plan (p. 2), to “[e]nsure a reliable supply of reasonably priced natural gas.” Continued adherence to the current ARB CNG fuel specification also would drive up costs to consumers, as Questar has demonstrated in its comments (p. 3).

The good news is that ARB expressed a willingness at the workshops to consider alternatives to its current CNG fuel specification. For example, in its workshop presentation (p. 7), ARB stated that a “Performance based standard may increase available fuel supply without risking engine damage or significant increase in emissions.” In its presentation (*Id.*), ARB indicated that the alternate measurement indices it is considering are “methane number, Wobbe Index, and heat value.” Sempra LNG would like to work with ARB and other stakeholders to timely resolve this issue.

⁵ See, e.g., the February 11, 2005 comments of Chevron (p. 12), Peru LNG (pp. 4, 6) and Questar (pp. 2-5) and the workshop presentation slides of Occidental (p. 3), Shell Trading (second to last slide) and WPSA/CIPA (p. 7).

II.
**ADOPTION OF A METHANE NUMBER TO ADDRESS ENGINE
OPERABILITY ISSUES COULD SERVE AS AN ALTERNATIVE TO
ARB'S CURRENT CNG FUEL SPECIFICATION**

As indicated above, ARB is considering alternatives to its current CNG fuel specification. A number of parties suggested at the workshops and in comments the adoption of a reasonable Methane Number (which addresses engine operability issues) to replace the current CNG fuel specification. The adoption of a Methane Number in lieu of the current CNG fuel specification would make sense assuming there is a firm commitment to achieve a reasonable target level (e.g., 73) by the time LNG begins to flow on or about January 1, 2008, which is the date on which contracted supplies will begin to arrive at the Sempra LNG - Shell LNG facility (Energia Costa Azul) in Baja, California. In fact, because of required pre-operational testing at Energia Costa Azul, it will be necessary to have the revised specification in place by no later than the end of the third quarter of 2007.

Achieving a Methane Number of 73 by the end of the third quarter of 2007 does not appear to be an issue for most newly manufactured natural gas vehicles ("NGVs"). With respect to the "legacy" NGV fleet, the commissions should consider the following facts presented during the workshops and in comments, or which are available from other public sources of information:

- Over 80% of NGVs are light-duty vehicles⁶ and through testing have indicated no problems operating with lower Methane Number fuel.⁷

⁶ December 20, 2004 presentation of the California Natural Gas Vehicle Coalition to the CEC titled "Natural Gas Vehicle Role in Fuel Diversity for California" (p. 12).

⁷ December 21, 2001 ARB Staff Report: "Initial Statement of Reasons Proposed Amendments to the Alternative Fuels for Motor Vehicle Regulations," Appendix B (pp. B-2 through B-7).

- Data from testing performed by the Clean Air Vehicle Testing Center (“CAVTC”) on heavy duty NGVs in 2000 did not indicate any problems with fuel gas down to Methane Number 73.⁸
- Testing by CAVTC also shows both light duty and heavy duty NGVs have better fuel economy with lower Methane Number indicating higher efficiencies.⁹

In summary, adoption of a reasonable Methane Number to address engine operability issues could make sense if there is a firm commitment to achieve a reasonable target level such as Methane Number 73 by the time LNG begins to flow to California. Sempra LNG would urge ARB to request vehicle manufacturers to demonstrate which, if any, current engine models require special grades of natural gas fuel.¹⁰

III. ADOPTION OF A REASONABLE WOBBE NUMBER WOULD ADDRESS AIR EMISSIONS ISSUES

There was a significant consensus at the workshops and in comments that the Wobbe Number represents the single best standard addressing gas interchangeability and air emissions. In this regard, Sempra LNG believes the 1400 maximum Wobbe Number proposed by the National Gas Council (“NGC+”) could be a workable target.¹¹

With respect to concerns expressed that LNG may increase NOx emissions compared to existing supplies of gas, this impact, if it exists, has not been demonstrated and to the extent that there is any impact, it appears to be immaterial. Residential gas

⁸ *Id.* (pp. B-9 through B-21).

⁹ *Id.* (pp. B-7 through B-18).

¹⁰ Sempra LNG observes that increasing the Methane Number of landed LNG through extraction of liquid petroleum gas (“LPG”) is not a reasonable option when one considers the volumes of LPG that would be implicated and the lack of infrastructure to transport these liquids, among other issues.

¹¹ NGC+ submitted its report for consideration to the Federal Energy Regulatory Commission (“FERC”) on March 2, 2005.

fired appliances account for only approximately 1.9% of California NOx emissions (ARB database). Similarly, natural gas fired turbines account for only 0.5% of California NOx emissions. Over 80% of the natural gas fired turbines at California power stations are equipped with exhaust Selective Catalytic Reduction (“SCR”) units, which typically reduce NOx emissions to less than 10 ppm. The presence of these control devices should avoid any material increase in NOx emissions associated with increased gas heating value.

The most economically efficient means of addressing any NOx concerns related to the approximately 1.9% of California NOx emissions related to residential gas-fired appliances and the 0.5% of California NOx emissions related to natural gas-fired turbines is through new equipment performance criteria or aftermarket controls. Another very effective means of addressing regional NOx increases is through the conversion of existing diesel engines to natural gas. It has been generally stated that natural gas engines have 50% lower NOx emissions than diesel engines. Thus, the conversion of only a percentage of the current diesel engine fleet to natural gas propulsion would provide permanent emission reductions. Regional decreases in these emissions would more than offset any potential increased NOx related to higher Wobbe gas.

IV. CONCLUSION

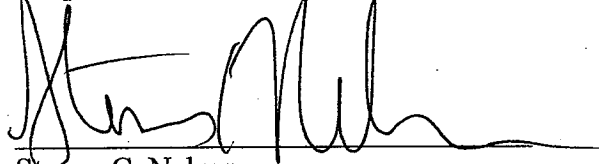
In conclusion, Sempra LNG urges the State to:

- Eliminate the ARB’s current CNG fuel specification;
- Adopt in lieu of ARB’s current CNG fuel specification, if necessary, a Methane Number measure – to address engine operability issues – that will be targeted to reach a level of 73 by no later than the end of the third quarter of 2007; and

- Address air emissions issues through the adoption of a reasonable Wobbe Index.

Above all, Sempra LNG urges the State to act in a timely way so as to permit parties with an interest in developing projects capable of delivering LNG into California to have a reasonable opportunity to conform, where necessary, the delivery specifications of their supplies to whatever regulations are adopted by the State. Sempra LNG is encouraged that the agencies appear ready to act contemporaneously and with the objective of enhancing the gas supplies available to the State's consumers.

Respectfully submitted,



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CERTIFICATE OF SERVICE

I hereby certify that a copy of **POST-WORKSHOP COMMENTS OF SEMPRA LNG ON NATURAL GAS QUALITY ISSUES** has been electronically mailed to each party of record on the service list in R.04-01-025. Any party on the service list who has not provided an electronic mail address was served by placing copies in properly addressed and sealed envelopes and depositing such envelopes in the United States Mail with first-class postage prepaid.

Copies were also sent via Federal Express to the Assigned Administrative Law Judges and Commissioners.

Executed this 4th day of March, 2005 at San Diego, California.


ADRIAN ELIZABETH SULLIVAN