

**Additional Letters**

**Item 232: *NIST Handbook 130*,  
Uniform Regulation for the Method of Sale**

Sections:  
2.27. Retail Sales of Natural Gas Sold as a Vehicle Fuel

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February 18, 2014

Mahesh Albuquerque  
CDLE-Oil and Public Safety  
633 17<sup>th</sup> Street, Suite 500  
Denver, CO 80202

**RE: Establishment of a Weights & Measure Standard for Dispensing CNG and LNG in Diesel Gallon Equivalent Units**

Dear Mr. Albuquerque:

The purpose of this letter is to urge you to support the establishment of a national standard for dispensing CNG and LNG in diesel gallon equivalent (DGE) units. ANGI Energy Systems, LLC is a leading OEM equipment manufacturer of CNG refueling equipment, including retail CNG dispensers and a longtime advocate for the increased adoption of CNG as a mainstream transportation fuel. We support adoption of rules that allow retailers to sell natural gas in units that make sense to consumers and that provide a ready means of comparison with gasoline and diesel fuel. Standards adopted by the National Conference of Weights and Measures (NCWM) in 1994 require CNG to be sold in gasoline gallon equivalents (GGE). From ANGI's perspective, that standard has benefited consumers and industry alike because it provides a common unit for comparing the average energy in CNG to the average energy in a gasoline gallon. It also provides a ready means of informing consumers as to the relative economic cost of natural gas compared to gasoline. Adoption of a DGE standard for CNG and LNG sold to trucks would complement the GGE standard.

NCWM is currently considering this issue and may vote on it later this summer. It is our understanding that some state officials support a proposal to require that natural gas be sold in kilograms, despite the fact that there is no industry support for such a standard and no fueling stations currently selling natural gas on a kilogram basis in the U.S. ANGI Energy Systems does not support a move to require natural gas to be sold in kilograms. We agree with others in the natural gas industry, that to move CNG and LNG to a metric mass unit would create confusion for consumers, fleets, retailers and other industry stake-holders and would unnecessarily hinder adoption of these fuels.

We urge you to support the adoption of a national DGE standard for CNG and LNG.

Sincerely,

Andy Grimmer  
President

Received

FEB 19 2014

Division of Oil and Public Safety

ECONOMIC  
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SOLUTIONS



## Sacramento Clean Cities

March 7, 2014  
John Gaccione, Chairman  
NCWM Board of Directors  
1135 M Street, Suite 110  
Lincoln, Nebraska 68508

Dear Chairman Gaccione,

Sacramento Clean Cities encompasses fleets in Sacramento, Placer, El Dorado, Yolo, Solano, Yuba, and Sutter counties, and develops cooperative joint ventures that help businesses and stakeholder agencies meet their petroleum reduction goals in a cost-effective manner.

Sacramento Clean Cities is writing in support of the Gasoline Gallon Equivalent for natural gas as well as Diesel Gas Equivalent for liquefied natural gas as the national measure of these fuels. The adoption of these two forms of measurement is crucial and important to our stakeholders and the general public adopting alternative fuel vehicles. By implementing your proposal to measure natural gas using the metric system will be complicated and not practical for consumers and business owners alike.

The practicality of maintaining the gallon equivalent is important and consumer friendly because it measures the energy content equivalent of a gallon of gasoline or diesel so the consumer can see their differences in fuel costs. In addition, gasoline and diesel are not sold in metric units which can only add more confusion as consumers and business owners must convert the units of CNG or LNG consumed to their desired units.

Our coalition urges you to strongly support this standard as it is more practical than the metric proposal.

Sincerely,

**Keith Leech**  
Chairman/Coordinator  
Sacramento Clean Cities Coalition



## California Natural Gas Vehicle Coalition

March 10, 2014

Mahesh Albuquerque  
Chair, NGV Steering Committee  
National Conference of Weights and Measures  
Via Email: mahesh.albuquerque@state.co.us

Dear Mr. Albuquerque:

I am writing on behalf of the California Natural Gas Vehicle Coalition to request that you support the establishment of a national standard for the sale of compressed natural gas (CNG) and liquefied natural gas (LNG) in diesel gallon equivalent (DGE) units, and oppose any proposal to require natural gas to be sold in kilograms.

The California Natural Gas Vehicle Coalition represents the state's natural gas vehicle industry and includes major automobile manufacturers, utilities, heavy-duty engine manufacturers, fueling station providers, equipment manufacturers, and fleet users of natural gas vehicles. We are working together to advance natural gas as a transportation fuel. I have attached a slide with the logos of our Board members so you can see who is active in our Coalition.

Our Coalition believes there are tremendous benefits to increasing the use of natural gas in transportation. These include reducing smog-forming and greenhouse gas emissions, providing significant cost savings to individual vehicle owners, trucking fleets, and businesses, improving energy security, and decreasing our dependence on foreign oil.

We strongly believe that establishing a national DGE standard that allows retailers to sell CNG or LNG in DGE units will significantly help the development and deployment of a growing domestic NGV industry. We also support maintaining the existing Gasoline Gallon Equivalent (GGE) which was established in 1994.

Natural gas has potential to be an increasing part of the transportation market for all classes of vehicles on the road. Today we are seeing the most rapid growth in the heavy-duty truck sector. In 2013 natural gas trucks were approximately 1% of new heavy duty truck sales in the United States. Analysts project natural gas trucks will

be 6% of heavy-duty trucks sales in 2014 and as much as 50% of trucks sales by 2025. To supply these vehicles the industry has already built more than 1,000 public natural gas refueling stations across the country. In California there are more than 150 public stations and we believe more than 400 private natural gas refueling stations.

Natural gas provides significant cost savings as a transportation fuel today but many consumers are still unaware of the financial benefits. Fuel retailers need to be able to promote and sell this fuel in units that customers can understand. Providing retailers with the authority to sell CNG or LNG in DGE units at their discretion will enable them to advertise the economic benefits of the natural gas options they provide. This will also empower consumers by enabling them to make a quick and simple evaluation of the cost of fuels available to them and then make an informed choice.

In contrast, the proposal to force sellers of CNG or LNG to sell natural gas in metric kilograms will confuse the average customer, cause significant market disruptions that may result in performance contract liabilities, limit the growth of a clean alternative fuel, and materially harm the natural gas transportation industry. This financial harm includes costly dispenser modification or replacement, revamp of internal accounting and information technology systems, the potential loss of fuel card systems because no one will pay the cost to change them. Americans have very little exposure to and familiarity with the metric system especially when it comes to fuels. Customers will likely avoid the fuel sold in unfamiliar units. The real competition for all alternative fuels is petroleum, gasoline and diesel, NOT other alternative fuels. Requiring natural gas to be sold in kilograms would create a competitive disadvantage for natural gas just as this clean fuel is starting to get a measurable share of the transportations fuels market.

Over the last two months I have communicated with dozens of companies in the natural gas transportation industry – fuel sellers, vehicle and engine manufacturers, and fleet users of this fuel. I have not spoken with or even heard of a single company that supports the NCWM's proposal that natural gas be sold in kilograms. Given this it seems untenable that the National Conference of Weights and Measures would continue to support such a proposal.

I have heard some compare natural gas to hydrogen. In this context we believe the comparison to hydrogen is not valid. The development of natural gas as a transportation fuel is in a very different place than the development of hydrogen as a transportation fuel. There are more than 150,000 natural gas vehicles on the roads in the United States and as noted above more than 1,000 public access refueling stations. For hydrogen it is a few hundred vehicles and a few dozen refueling pumps. Natural gas as a transportation fuel has not only left the station but is already down the road quite a ways.

In sum our Coalition strongly believes that California and the United States must establish a vibrant marketplace for transportation fuels or petroleum will continue to dominate for decades. A vibrant fuels marketplace requires a transparent, simple, and understandable system for consumers to make educated and informed choices. Establishing a national standard for selling compressed natural gas (CNG) and liquefied natural gas (LNG) in diesel gallon equivalent (DGE) units will help to create such a marketplace that benefits consumers, retailers, and the economy as whole.

We urge you to strongly support the creation of this standard as expeditiously possible.

I would appreciate you distributing this letter to the rest of the Steering Committee.

Sincerely,

A handwritten signature in cursive script that reads "Tim Carmichael".

Tim Carmichael  
President

Cc Kristin Macey, Director, Division of Measurement Standards, California

Attachment



# CA NGV Coalition 2014



# Maine Clean Communities = MC<sup>2</sup>



***A Clean Cities Program Promoting Clean Fuel Vehicles, Energy Independence and Clean Air  
Administered by the Greater Portland Council of Governments***

February 21, 2014

Mahesh Albuquerque, Chairman  
National Conference on Weights and Measures (NCWM)  
Natural Gas Vehicle (NGV) Steering Committee

Dear Chairman Mahesh;

I am writing to urge you to support the establishment of a national standard for dispensing CNG and LNG in diesel gallon equivalent units. Standards adopted by the National Conference of Weights and Measures (NCWM) in 1994 require CNG to be sold in gasoline gallon equivalents (GGE). That standard has benefited consumers and industry alike because it provides a common unit for comparing the average energy in CNG to the average energy in a gasoline gallon. It also provides a ready means of informing consumers as to the relative economic cost of natural gas compared to gasoline. All of the retail pumps used today in the U.S. use the GGE unit for dispensing CNG and all retail stations price CNG in GGE units. Moreover, many states increasingly are using the GGE as the most appropriate unit for taxing CNG.

The natural gas industry has requested that NCWM adopt a diesel gallon equivalent unit for CNG and LNG that is sold to truckers and other users who typically use diesel fuel. From the purchaser's perspective, the pump display and readings would show the number of DGE units dispensed and information would be provided on the pump to show how natural gas is converted to DGE units. We think that this is the only rational way to offer CNG and LNG when sold to truck operators. Under the proposal, LNG would only be sold in DGE units since LNG is expected to be used exclusively as a heavy-duty vehicle fuel. CNG would be dispensed in GGE units at retail outlets serving the general public and would be sold in DGE units on pumps selling to trucks and heavy-duty vehicles.

The need for this action is driven by the fact that there currently is significant national interest in promoting increased use of natural gas in heavy-duty vehicles where diesel fuel has traditionally been used. The federal government and many state governments currently have in place policies intended to expand the use of natural gas as a transportation fuel. Private firms are investing hundreds of millions of dollars establishing a national network of retail fueling stations to supply this fuel to motor vehicles. Development of a weights and measures standard for a diesel gallon equivalent of natural gas will complement the effort made 20 years ago to create the GGE standard.



NCWM is currently considering this issue and may vote on it later this summer. A number of key state weights and measures officials do not support adoption of a DGE unit or the continued use of the GGE unit as the primary methods of selling natural gas. Instead, these officials support a proposal to require that natural gas be sold in kilograms -- despite the fact that there is no industry support for such a standard and no fueling stations currently sell natural gas in kilograms in the U.S. These state officials say that all fuels should be dispensed in metric units but currently only plan to require this for natural gas. This proposal is not only discriminatory but will put natural gas at a significant disadvantage to other fuels by creating confusion for consumers who are not used to purchasing motor fuel in mass units let alone kilograms. This standard will increase the cost of new pumps and it will impose costly retrofit of existing pumps.

For all of these stated reasons, we support adoption of a national DGE standard for CNG and LNG and do not support the alternative approach that would require the use of mass (kilograms or pounds) as the primary unit for selling CNG and LNG. Having to sell in kilograms or pounds as a stand-alone unit or even a secondary unit will cause confusion, unnecessarily increase the cost of retailers providing this fuel to market, and create inequity among fuels.

Thank you in advance for your support.

Steve Linnell, Coordinator

*Steve Linnell*

Maine Clean Communities  
Greater Portland Council of Governments



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brad.markus@questar.com

Brad Markus  
General Manager,  
Customer Service, Community Relations & NGV's

February 24, 2014

Mr. Mahesh Albuquerque  
CDLE-Oil and Public Safety  
633 17<sup>th</sup> Street, Suite 500  
Denver, CO 80202

Subject: Adverse Comments on using Kilograms for units of Selling Natural Gas for Vehicles

Dear Mr. Albuquerque:

Questar Gas Company (Questar Gas) is a local distribution company (LDC) serving 950,000 natural gas customers in Utah, southwestern Wyoming and southeastern Idaho. Questar Gas also operates 29 CNG fueling stations and dispensed over 6,000,000 GGEs in 2013.

Questar Gas is a strong advocate for promoting the use of natural gas for transportation. Natural gas is a domestic fuel, costing nearly half the price of gasoline and providing great environmental benefits. At a time that Wasatch front communities are struggling with air quality issues, natural gas for transportation is always mentioned as part of the solution that would provide great impact.

Questar Gas is very concerned with the proposal to require that natural gas be sold in kilograms. Questar Gas believes that the requirement would create confusion for customers who are not used to purchasing motor fuel in mass units, let alone kilograms. The dispenser technology currently measures mass which is automatically converted to Gasoline Gallon Equivalent (GGE) based on an approved conversion factor of 5.660 lbs/gge. If natural gas is sold in kilograms, the consumers would have no knowledge of how to compare that to gasoline and therefore they would not realize the economic benefit of using natural gas.

As an example, if the cost of natural gas at a fueling station is given as \$0.532 per kilograms (no taxes included), how many customers (businesses, retailers) would be able to determine their savings compared to gasoline? Whereas when the GGE method is used, the cost would be posted as \$1.367 per GGE (no taxes included). This number could be directly compared with the cost of a gallon of gasoline without any further calculations by the customers.

In addition, the change to kilogram standard would result in costly retrofits of existing pumps, without providing any benefits to the consumer.

At a time that there is significant national interest in promoting the use of natural gas as a transportation fuel, the kilogram standard would create confusion and hinder the efforts of the federal government and state governments in achieving this goal.

Received  
FEB 28 2014  
Division of Oil and Public Safety

Based on these concerns Questar Gas strongly urges that the NCWM does not consider the kilogram proposal and continue to use the GGE method that has worked well for both the consumers and the industry for many years.

Thank you for your consideration of this matter.

Sincerely,

A handwritten signature in blue ink, appearing to read "Brad Masten". The signature is written in a cursive, flowing style with a long horizontal stroke at the beginning and a sharp hook at the end.



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February 18, 2014

Mahesh Albuquerque  
CDLE-Oil and Public Safety  
633 17<sup>th</sup> Street, Suite 500  
Denver, CO 80202

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Sincerely,

Andy Grimmer  
President

Received

FEB 19 2014

Division of Oil and Public Safety

ECONOMIC  
ENERGY  
SOLUTIONS



## Sacramento Clean Cities

March 7, 2014

Raymond Johnson, Chairman  
Laws and Regulations Committee  
1135 M Street, Suite 110  
Lincoln, Nebraska 68508

Dear Mr. Johnson,

Sacramento Clean Cities encompasses fleets in Sacramento, Placer, El Dorado, Yolo, Solano, Yuba, and Sutter counties, and develops cooperative joint ventures that help businesses and stakeholder agencies meet their petroleum reduction goals in a cost-effective manner.

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**Keith Leech**  
Chairman/Coordinator  
Sacramento Clean Cities Coalition