

**Agenda Item 337-1: OWM's Technical Analysis of Agenda Item 337-1.
The Following OWM Technical Comments and Recommendations Were Provided in
Written Form to Members of the S&T Committee on July 15, 2015**

OWM believes it is essential to establish and follow a method of sale (MOS) for natural gas that provides uniformity, transparency, and accuracy, as has historically been the case with all other commodities offered for sale in the U.S. The community is preparing for increased sales in a fueling application (CNG) first recognized by weights and measures in the mid-1990s and a new alternative fuel application (LNG). Since the 1990s, CNG sales have been largely made in the arena of fleet operations that have invested in CNG-fueled vehicles. In these applications the very livelihood of the fleet customers rests on their being informed consumers who are intimately familiar with budgeting; making value comparisons based on mileage per unit of fuel cost; and bargaining on the price of fuel. New fueling operations opening to the general public will be represented by existing and new stations and offer service to general consumers and distance haulers. Regardless of the MOS, this new customer base will face learning curves as the drivers, the stations, and the officials become familiar with these fuels and their characteristics.

There has been much in-depth thought, consideration, and discussion of what is the most appropriate method of sale for compressed natural gas (CNG) and liquefied natural gas (LNG) vehicle fuel. Various proposals have been put forth before the NCWM for consideration of adoption into NIST Handbook 44 and NIST Handbook 130 to establish the MOS of these products. Whatever proposal is chosen, it must fully satisfy the basic principles of measurement and philosophies of weights and measures that include promoting and ensuring equity in the marketplace; traceable standards; uniformity; a basis for value comparison; transparency of the transaction; consumer protection; and fair business practices and competition.

OWM offers the following brief list of considerations based on its technical analysis of the issues surrounding this item. This brief list is followed by a more in-depth discussion of each point.

- ***Weights and Measures Principles.***
A fundamental legal metrology principle is to ensure that equity prevails in any commercial weighing or measuring transaction. This includes ensuring that not only is a measurement based on a traceable unit of measure, but the practices surrounding the measurement and its application provide for clear and understandable transactions that facilitate value comparisons and promote fair competition. Equivalent “units” are not traceable units and their use and implementation may frustrate value comparison and affect the ability of businesses, including other types of fueling applications, to fairly compete.
- ***Sale by Mass with Supplemental Information.***
OWM believes that the best option is to require the sale of all natural gas in mass units (kg or lb) as measured by the metering technology and as outlined in the “Mass Compromise Proposal.” This option ensures a technically correct solution, yet still provides the flexibility to provide consumers with comparison information on multiple other fuels and potentially create less confusion than permitting sales in multiple different “equivalent” values as “units” of measure. The inclusion of supplemental information is a longstanding, valid practice and can provide valuable information to assist consumers in making purchase decisions, but that information should not be used as the basis of measurement and sale.
- ***Limited Data to Support Equivalent “Units.”***
There is limited current data to support the proposed equivalent “units” for the various fuels. Industry acknowledges that the reports/studies referenced as basis for the energy content used to arrive at the diesel equivalent values are not supported by scientific data gathered in the same manner as the natural gas data that was the basis for the GGE. In the 1990s, the weights and measures community acknowledged that fuel energy analysis was not practical and that is still the case today. However, metering technology currently exists and has been type approved for commercial use that is capable of making traceable natural gas fuel measurements based on mass that provides an alternative to the proposed, inexact methodology. Note also that there are errors (as previously noted by OWM) in the report that should be corrected in the final report.

- ***Fixed Conversion Values Not Representative of Fuel.***
 Establishing fixed “equivalent values” does not reflect the variation in natural gas or the energy content of the fuels the “equivalents” are based upon. Fixing these values for use as a measurement unit would limit information about natural gas supplies in a consumer’s area. Some states have reported companies using different conversion factors for existing CNG applications (i.e., factors other than the 5.660 lb value established in 1994 for 1 GGE), and struggling to get uniformity in the values programmed into dispensers. Over the last two decades, a large number of CNG applications have provided services to (relatively-informed) fleet operations rather than the general public.
- ***Frustrating Value Comparisons.***
 Devices that dispense natural gas as an engine fuel will serve a broad base of customers who may need to compare natural gas multiple different fuel types, including diesel, biodiesel, gasoline, fuel ethanol, electric, hydrogen, LNG, and others not yet considered. If used as the basis of measurement, the use of different equivalent “units” (e.g., GGE, DGE, and others) at competing stations could frustrate value comparison and limit the ability to make value comparisons with multiple different fuel types.
- ***Proliferation in “Equivalent Units “and Lack of Uniformity.***
 Permitting use of an approximate value as the legal unit of measurement for trade encourages the creation of additional equivalent units for fuels and other products. This will lead to a lack of uniformity; affect the ability of businesses to compete; and lead to consumer confusion and frustrate value comparison, potentially discouraging the use of alternative fuels. Unlike most of the world, the U.S. is creating a new industry practice through the usage of new terms based on *marketing* practices rather than using a formal, technically sound approach, potentially putting U.S. industry at a disadvantage internationally.
- ***Impact on Existing Equipment.***
 Existing NTEP Certificates of Conformance issued for metering systems dispensing LNG only address dispensers displaying in mass. The impact on the continued acceptance of this equipment including costs and the need for re-evaluation should be considered in discussing any proposed changes.
- ***Conflict with L&R Proposals.***
 The S&T proposals in this item were modified during the January 2015 Interim Meeting. However, corresponding modifications were not made in all of the L&R proposals on natural gas. Consequently, there are conflicts between the S&T and L&R proposals that could lead to confusion in the marketplace if both sets of proposals are adopted as currently presented.
- ***LNG Code Development – Additional Work.***
 Additional work is needed to modify NIST Handbook 44 to fully recognize LNG applications so that there is a uniform basis for inspection/test and type approval procedures. NIST is developing a plan to present to the community for the development of proposed requirements to address LNG measuring devices.
- ***Additional Action Needed if the Current Proposal is Adopted.***
 Some states were encouraged to enact legislation that included specific DGE values for both CNG (6.380 lb) and LNG (6.06 lb) in their laws and regulations and may already have installations in use where fuel deliveries are in equivalent “units.” These jurisdictions should revisit their policies and field sites to determine if the fuel equivalent values conflict with those included in the current proposals.

Additional details and information on these issues are included below.

Weights and Measures Principles.

A fundamental legal metrology principle is to ensure that equity prevails in any commercial weighing or measuring transaction. The delivery of full weight or measure and the elimination of fraud and misrepresentation (intentional and unintentional) have been issues in commercial transactions throughout history. The weights and measures official stands between the buyer and the seller to help ensure fair, accurate, and transparent transactions and must represent the best interests of both parties. Not only does the official verify the accuracy of a commercial measurement, but the official must consider the business practices surrounding the transaction to ensure that

consumers fully understand their basis and that competing businesses have a level playing field. Businesses offering competing fuel types may be put at a disadvantage and have difficulty competing with sales based on a non-traceable measurement “unit.”

To ensure the accuracy of commercial measurement transactions, those transactions must be based on units of measurement traceable to the SI. CNG and LNG measurement and sales in known and traceable units of mass (e.g., kilogram or pound) is not only verifiable, but also provides for clear and transparent transactions for consumers and businesses; can be supported and provide for traceable measurements from a metrological standpoint; and provides a fair basis for businesses to compete.

The proposed equivalent “units” are not traceable units. Equivalent units should only be presented as supplemental information; their purpose, to provide consumers with additional information to help facilitate an informed purchasing decision. They must not be used as the basis for the measurement transaction. While not intended to mislead consumers, these equivalents may give the false impression that they accurately represent the energy content of the specific product being dispensed relative to another fuel, which is not the case. Consumers and businesses alike rely on the use of traceable units as the basis for transactions to ensure that value comparisons can be made (in this case among different fuel types as well as different businesses) and that businesses are competing based on the same standards. Marketing practices, such as the creation of equivalent units, should be used to only promote and inform consumers about features of a potential purchase.

Sale by Mass with Supplemental Information.

The use of *supplemental* information to assist consumers in making value comparisons in the process of making a purchase decision is a widely accepted practice within the weights and measures community. For example, laundry detergent is often advertised with information about the approximate number of loads that might be obtained from the product. The actual number of loads may vary based on factors such as the characteristics of the water used; how dirty the clothes are that are being washed; how fully the washing machine is loaded; the efficiency of the machine; and even the quality of the detergent. What does not vary is the *quantity* of the product that is received; the quantity is required to be provided in traceable units of measure such as kilograms or pounds (for dry detergent) and liters or gallons (for liquid detergent) and that can be verified by officials and service providers during routine testing. And it is this verifiable quantity information that consumers can depend on as being accurate representations of the amount of product received in a purchase and can, thus, be used to make an informed value comparison among competing products. This quantity information is also what helps to ensure manufacturers and businesses are provided with a level playing field and the ability to fairly compete since marketing, advertising, and the sales transaction itself must be based on the same standard, verifiable, measured quantities for all businesses.

There are many other examples of products where supplemental information is provided such as paint that is accompanied by information about the approximate number of square feet that might be covered; fertilizer with the approximate area of lawn; and even some food products with the approximate number of servings that a consumer might expect for use in a recipe. There are also examples in the transportation arena where supplemental information is provided outside of the measurement/sales transaction. For example, mileage estimates are provided to consumers making new vehicle purchases and this information can also be found on transportation websites to assist consumers in making not only vehicle purchase decisions, but ongoing comparisons of fuel types. As with the laundry detergent example and other examples, actual results may vary. A specific vehicle may actually travel less or more than the estimated miles per gallon based on the speed of the vehicle, the number of stops, the use of air conditioning, whether the windows are up or down, the pressure in the tires, and the driving habits of the operator.

The proposed equivalent “units” for natural gas provide supplemental information that can be useful to consumers, but like other supplemental information, they provide only an approximation and, if used as the basis for measurement, would limit information provided to consumers about comparison with other fuel types. Under the “Mass Compromise Proposal,” customers could still be provided with supplemental information through mechanisms such as pump toppers that provide information about approximate energy values that correspond to deliveries indicated in mass. As an alternative to pump toppers, this information could be included on labels or on websites such as those that already provide information about fuel economy. This also opens the opportunity for the development of “apps” that might enable a consumer to use a smart phone to quickly calculate and compare a purchase (or potential purchase) with *multiple* fuel types. And, as with mileage estimates, this information could be posted on transportation websites and possibly even updated more easily as supplies change. Using mass as the

basis for measurement and sale might also help reduce complaints from suppliers concerning the accuracy of equivalent values used to represent deliveries of their product rather than the metered mass value. It has been acknowledged that “The Mass Compromise Proposal” might be more comprehensive and palatable if it also included corresponding street price signage requirements in NIST HB 130.

Limited Current Data to Support Proposed Equivalency Values.

In the 1990s, the weights and measures community acknowledged that fuel energy analysis was not practical at the retail level. The scientific community at NIST has indicated that sales of fossil and alternative fuels by energy content is appropriate when the constituent values of a fuel offered for sale can actually be determined at the time of sale. The energy a buyer can glean from fuel right now must factor in the variables in fuel supplies (well location, seasonal blends, etc.), engine efficiency, and vehicle and road conditions. Industry acknowledges that the reports/studies referenced as basis for the energy content used to arrive at the diesel equivalent values are not supported by scientific data gathered in the same manner as the natural gas data that was the basis for the GGE. The proposal currently presented in the “Item Under Consideration” sets a new precedent for a MOS using an inexact method for making fuel comparisons by averaging a fuel’s energy content and then further averaging that information to arrive at numerical values used in the determination of a fuel’s final cost. However, metering technology currently exists and has been type approved for commercial use that is capable of making traceable natural gas fuel measurements based on mass that provides an alternative to this inexact methodology.

The fuel property data in the current proposals is drawn from a transportation study rather than the agreed-upon process used in 1994. Additionally, the write up on the process in the current and previous S&T and L&R Interim Report Appendices includes mistakes such as the statement “Dividing gasoline’s 114.118 BTU/gal by natural gas’s 20,160.551 BTU/lb gives 5.660 lb of natural gas = 1 GGE,” which, when calculated actually equals 0.005660 lb. This information becomes the historical record of the process followed by the NCWM and should be corrected regardless of the overall decisions made by the NCWM on this issue.

The validity of the data supporting the process by which the conversion factors were derived should be vetted; undergo peer review; and be widely distributed. OWM suggested that FALS, with its standards network and history of expertise in fuel quality issues and field and laboratory standards as well as methods of fuel analysis, might be the best candidate to take on the necessary tasks of validating the values and the process used to arrive at the conversion factors. In January 2015, FALS tasked a small group of NCWM members to review the fuel data to determine if the data supports the conversion values in the proposals or some other numerical values and to report the group’s findings. Since January 2015, that sub group has met multiple times and recently (within the last two weeks) provided recommendations and information to be considered. OWM is currently reviewing this information and expects to provide its observations to the Committee prior to the 2015 NCWM Annual Meeting.

Fixed Conversion Factors Not Representative of Fuel.

Those in support of the proposed DGE/DLE have stated that gas supplies have remained relatively unchanged since the establishment of the GGE. However, others in industry, such as one measuring device manufacturer, have referenced the high degree of variability of the product. OWM notes there are opposing industry claims from the Clean Vehicle Education Foundation (CVEF) indicating that the heating value of natural gas is basically unchanged in 21 years, whereas Emerson Process Management stated in the NCWM 2014 Online Position Forum on Item 337-6 that “the specific gravity of LNG can vary as much as 12%, and that the constituents in natural gas (LNG) vary significantly and can be manipulated, thus impacting the measurement of the product. Although those comments were submitted under a separate item, the product being discussed, i.e., natural gas, is the same. The variability in gasoline was acknowledged in the 1992-1994 study and was so much so that “indolene” a standardized test gasoline that is free of additives, was used to establish the average energy content values for a gallon of gasoline. Even the previously agreed upon data may need revisiting given today’s gasoline can contain as much as 10 % ethanol. This point also needs to be considered in examining the data used to develop the proposed equivalent “units.”

Just like gasoline and diesel (the fuels on which the “equivalent values” are based), the energy content of natural gas varies. CNG and LNG are very different products than gasoline and diesel. CNG and LNG do not have the same physical characteristics as gasoline or diesel and they are measured using a different metering technology. Although vehicle fuel dispensers may look similar externally, a CNG or LNG dispenser has the capability to indicate the fuel delivery in mass units; in fact, this is a requirement for testing purposes.

Some have claimed that use of the GGE conversion factor value established in the 1990s is accepted without complaint. OWM has received periodic complaints and concerns over the years from fuel suppliers having no knowledge of the decisions made in the 1990s to adopt a conversion factor (5.660 lb CNG/gallon of gasoline) based on the fuel supply having a lower energy content. Some states have reported companies using different conversion factors for existing CNG applications (i.e., factors other than the 5.660 lb value established in 1994 for 1 GGE), and weights and measures officials struggle to get uniformity in the values programmed into dispensers in the field. Over the last two decades, a large number of CNG applications have not provided services to the general public (many provided service to fleet operations instead) and, therefore, may not have been routinely regulated by weights and measures. It should also be noted that the 1994 entry of what was then a fledgling industry into legal metrology applications was somewhat contentious because of the use of an approximate conversion factor used to calculate fuel delivery and sales in equivalent volume units. Furthermore, the factor was and remains based on comparison with the averaged energy content of a conventional fuel resulting in a method of sale other than the originally debated sale of fuel by mass units.

Frustrating Value Comparisons.

Devices that dispense natural gas as an engine fuel will serve a broad base of customers who may need to compare natural gas multiple different fuel types, including diesel, biodiesel, gasoline, fuel ethanol, electric, hydrogen, LNG, and others not yet considered. If used as the basis of measurement, the use of different equivalent “units” (e.g., GGE, DGE, and others) on different dispensers at competing stations could frustrate value comparison and limit the ability for consumers to make value comparisons with multiple different fuel types. The weights and measures community must carefully consider the most appropriate means to provide sufficient information to customers attempting to make a value comparison of natural gas with these different fuel types, whether at the same station or stations on adjacent street corners.

Since there are multiple different fuel types, it may be difficult to pick a single equivalent “units” that would provide adequate information to the majority of consumers and avoid confusing others. For example, a dispenser might serve vehicles that are conventionally powered by diesel or gasoline fuel. The consumer who switches from a diesel- fueled vehicle may need to make comparisons with diesel fuel. The consumer who switches from a gasoline-powered vehicle may need to make comparisons with gasoline. Those who run flex-fueled vehicles may want to make ongoing comparisons depending on the most current fuel formulation. A natural gas dispenser may also serve consumers who run a flex fueled vehicle that utilizes multiple fuel types. If an equivalent “unit” for one fuel type is used as the basis for the transaction, this may lead to confusion for consumers who have the need to compare with other fuel types. Likewise, a proliferation of equivalent units at the dispenser may not only lead to consumer confusion and frustrate value comparison, but may also have the unintended effect of discouraging the use of natural gas as an alternative fuel.

Consumers may have a variety of reasons for making a decision to purchase a vehicle(s) that runs on natural gas rather than conventional petroleum product or vice versa, but one common denominator is the cost of vehicle fuel as part of the operational expense of a vehicle or fleet. This figure can also be used to determine short- and long-term fuel costs and, at some point, be used to calculate fuel cost per mile (or kilometer). The ability to look at fuel costs in this manner is more accurately represented by what the meter measured. Consumers evaluating the driving distance or mileage consider the size of the fuel tank (which can be listed in any unit of measurement), the vehicle engine efficiency for a particular fuel type, highway driving conditions, vehicle load and a number of other factors to truly determine their individual driving range. The fuel efficiency is one determining factor under consideration prior to a purchase and when purchasing their next vehicle. For the first purchase of a vehicle type the buyer will already have done this “homework” before making such a large investment, even researching the convenience of fueling a vehicle. Once a consumer has purchased a dedicated fueled vehicle, the need to make value comparisons are expected to diminish sharply.

A point that has been raised by some in the community is whether or not “equivalent values” are as necessary as they might have been at one time to encourage consumer acceptance of natural gas as an alternative fuel. For example, the SWMA questioned whether, once a consumer has purchased a vehicle he or she has the need to make ongoing value comparisons or whether this information is more useful prior to purchasing a vehicle. Given the concerns about consumer confusion with a potential proliferation of “equivalent” values at the dispenser, perhaps

requiring mass units on the dispenser (with supplemental information about equivalents) is a more appropriate approach.

Proliferation in “Equivalent Units “and Lack of Uniformity.

OWM and others in the community are concerned that permitting use of an approximate value as the legal unit of measurement for trade encourages the creation of additional equivalent units for fuels and other products and will lead to a lack of uniformity and affect the ability of businesses to compete. For example, OWM has already received an inquiry about the possibility of an equivalent “unit” for LPG. A proliferation of different equivalent “units” in the marketplace may not only lead to consumer confusion and frustrate value comparison, but may also have the unintended effect of discouraging the use alternative fuels.

When the measurement transaction departs from traceable, verifiable units of measure, businesses will ultimately have difficulty fairly competing and consumers will become frustrated. For natural gas retail motor-fuel applications, the United States, unlike most of the world, is also creating a new industry practice through the usage of new terms based on *marketing* practices rather than using a formal, technically sound approach. The U.S. system continues to move away from standards applied to similar commercial applications in the international community, which could, in the long term be detrimental to U.S. industry.

Impact on Existing Equipment.

Currently, there are six LNG dispensers with NCWM NTEP Certificates of Conformance (CC). These CCs are issued to Bennett Pump Co., Cryostar, Chart Industries, and NorthStar, Inc., to dispensers that display in mass, were tested based on flowrates in pounds per minute, and in several cases depicted on the CC with indications in the pound unit of measurement. It isn’t clear whether or not any testing was conducted in conjunction with these CCs on the use of equivalent “units” and the impact on these CCs should be considered, including the need to retest and reissue these CCs.

Conflict with the L&R Proposal

The joint efforts of the S&T and L&R Committees and the subsequent work of the Natural Gas Steering Committee and Natural Gas Fuels Equivalent Values Work Group are to be commended. Having reviewed so many iterations of handbook language, the collaborative work of the two committees may have taken an unintended direction since the wording in each committee’s proposal differs and may not be aligned as originally intended.

The most current versions of the S&T and L&R proposals conflict with one another. The S&T proposal references permissible indications of CNG dispensed as an engine fuel in terms of the gasoline gallon equivalent (GGE) or diesel gallon equivalent (DGE) or in mass units. It does not include references to a diesel liter equivalent (DLE) or gasoline liter equivalent (GLE). The L&R proposal, in addition to GGE, DGE, or mass units, also recognizes indications in GLE and DLE. If the two proposals were to be adopted as written, this could create confusion regarding the appropriate action to take if a retail motor-fuel dispenser (RMFD) is set up to dispense CNG in gasoline liter or diesel liter equivalents.

While OWM recognizes that industry requested references to DLE and GLE be removed from the S&T proposal based on current trade practices, it is not clear if the S&T proposal as written was intended to restrict the sale of CNG in mass units to the pound, or, if kilogram units would still be permitted given that the changes proposed to paragraph S.5.2. require the gallon volume equivalent (for diesel or gasoline, whichever the case) to be marked on the dispenser. OWM notes that metric units are still legally permissible in the U.S. However, recognizes, as specified in the “Foreword” to NIST Handbook 44, that in some cases, where trade practice is restricted to the use of U.S. customary units, some requirements in Handbook 44 may only specify U.S. Customary units until the NCWM achieves a broad consensus on the permitted SI units. In this case, since these equivalent “units” are not actual recognized, traceable units of measure, this may not create a conflict, but OWM wants to be sure that the legality of metric units is understood. Additionally, caution should be taken to avoid a situation where the dispenser is set to measure in kilograms, but the dispenser is marked with an equivalent unit based on gallons rather than on liters since this would lead to consumer confusion.

With respect to the differences between the S&T and L&R proposals, OWM has developed a table titled “Discrepancies in the 2015 CNG and LNG S&T and L&R Proposals to Change HB 44 and HB130” and included it at the end of its analysis of this agenda item. The table provides recommendations based on the assumption that the

S&T proposals reflect the preferences of both Committees -- which may or may not be the case -- based on input received at the NCWM Interim Meeting and discussions among the two Committees. That is, to remedy any conflicts in the two proposals, it is suggested that the L&R HB 130 proposals be further modified to align that language with the corresponding S&T proposals for changes to language in HB 44.

With respect to the proposal's current provision of allowing states the option of choosing between mass units and volume equivalent units, OWM is concerned that if adopted, this might have the effect of dividing the country into a patchwork of different areas where natural gas dispensed as an engine fuel is offered for sale and sold in one of two acceptable methods, depending on each state's preference for one of those methods. If a state chooses to allow both units, such confusion could also arise among competing businesses in the same state. If this were to occur, consumers in need of purchasing the product, especially those who regularly travel over state lines, such as interstate truckers, could find it very difficult to make value comparisons of the product when having to refuel in different parts of the country that offer the product for sale in different, yet, legally-acceptable units.

OWM notes, too, that whereas the current proposal addresses the marking of supplemental fuel comparison information on the dispenser, neither the S&T or L&R proposals address the posting of advertised prices on street signs visible from the road, which are most often used by consumers in deciding where to refuel. Thus, the refueling stations in one particular state could advertise prices by the pound on the street sign, whereas, the refueling stations in one or more of the states adjoining it could advertise prices by volume equivalent units on the street sign. These two differing, yet, seemingly acceptable means of advertising might favor the refueling stations in some states over others just by virtue of the units in which the prices are advertised. Believing that the current proposal might pose a conflict with a key NIST OWM responsibility (i.e., to promote uniform standards of weights and measures to facilitate commerce), OWM continues to support the sale of natural gas by mass; permitting information on equivalent energy "units" to be displayed as "supplemental fuel comparison information."

LNG Code Development – Additional Work.

Additional work is needed to modify NIST Handbook 44 to fully recognize LNG applications so that there is a uniform basis for inspection/test and type approval procedures. . Currently, the only mention of LNG is in NIST HB 44 Section 3.34 Cryogenic Liquid-Measuring Devices Code in paragraph A.2.(c) which specifies that the code does not apply to devices used solely for dispensing LNG. Given an LNG RMFD may be equipped with either mass flow metering or possibly other measurement technology, the application of multiple codes might occur in the test and inspection of these devices. NIST is developing a plan to present to the community for the development of proposed requirements to address LNG measuring devices.

Additional Action Needed if the Current Proposal is Adopted.

Some States were encouraged to enact legislation that included specific DGE values for both CNG (6.380 lb) and LNG (6.06 lb) in their laws and regulations and may already have installations in use where fuel deliveries are in equivalent units. These jurisdictions should revisit their policies and field sites to determine if the fuel equivalent values conflict with those included (CNG 6.384 lb and LNG 6.059 lb) in the proposals before the July 2015 NCWM. The system allows for differences so that a jurisdiction can meet its special local needs, so we expect there will be exceptions and slight variations, but not to the designated value of a measurement unit. This work should be done in conjunction with other state and local regulators that overlap in regulating a commodity and represent different facets of the industry (suppliers, equipment OEMs, fuel tax bureau, etc.) to provide due process and disseminate information about tentative and approved code requirements.

Discrepancies in the 2015 CNG and LNG S&T and L&R Proposals to Change HB 44 and HB130

The recommendations listed below identify changes needed to the L&R proposals to align them with those in the S&T proposals. This makes the assumption that the S&T proposals reflect the preferences of both Committees -- which may or may not be the case. The following changes would remedy any conflicts between the S&T and L&R proposals and align the proposed changes to HB 44 with proposed changes to HB 130.

232-4 V Section 2.27 Retail Sales of Natural Gas Sold as a Vehicle Fuel

2.27.1.2 Gasoline...(GLE)	S&T is deleting all references to the term “gasoline liter equivalent (GLE)” and any corresponding definition for GLE in HB 44. This was done to avoid perpetuating or creating new non-traceable SI equivalent units.
2.27.1.4. Diesel ...(DLE)	S&T does not proposed to include a definition for the term “diesel liter equivalent (DLE)” in its corresponding Agenda Item 337-1. This was done to avoid perpetuating or creating new non-traceable SI equivalent units. Remove the term “diesel liter equivalent (DLE)” from the HB 130 paragraph.
2.27.2.1. Method ofSale	S&T proposes to delete all references to the term GLE and any corresponding definition for GLE in HB 44. S&T does not include a new definition for the term “diesel liter equivalent” in its corresponding Agenda Item 337-1. Remove both terms from the HB 130 paragraph.
2.27.2.2. Dispenser Labeling....Gas	S&T does not propose to include a new definition for the term “diesel liter equivalent (DLE)” in its corresponding Agenda Item 337-1. This was to avoid perpetuating or creating new non-traceable SI equivalent units. Remove the term diesel liter equivalent (DLE) from the HB 130 paragraph.
2.27.2.3 Method....Sale	S&T does not propose to include a new definition for the term “diesel liter equivalent” in its corresponding Agenda Item 337-1. This was to avoid perpetuating or creating new non-traceable SI equivalent units. Remove the term “diesel liter equivalent (DLE)” from the HB 130 paragraph.
2.27.2.4. Dispenser Labeling...Gas	S&T will not include a new definition for the term diesel liter equivalent in its corresponding Agenda Item 337-1. This was done to avoid perpetuating or creating new non-traceable SI equivalent units. Remove the term diesel liter equivalent (DLE) from the HB 130 paragraph.
237-1 V Section 3.11Compressed Natural Gas (CNG)	
3.11.2.2.2. Conversion Factor	Keep most of the current HB 130 text, but delete the text “either,” and “1 Gasoline Liter Equivalent (GLE) is equal to 0.678 kg of Natural Gas,” and amend the word “statements” to singular form. S&T is deleting all references to the term GLE and any corresponding definition for GLE in HB 44. This was done to avoid perpetuating or creating new nontraceable SI equivalent.
337-1 V Appendix D.... Natural Gas	
Item Title	Delete “DLE” from the title; it is no longer being addressed even though prior to January 2015 the term was being proposed as a new unit.
gasoline gallon equivalent (GGE)	The proposed HB 44 definition for “GGE” does not recognize SI mass units; whereas the definition for “GGE” in HB 130 specifies in 2.27.1.3. that the term “means 2.567 kg (5.660 lb).” As written, the HB 44 proposal does not meet the HB mandate to promote the SI system.