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National Conference on Weights and Measures
Joe Gomez, Laws and Regulations Committee Chairman
1135 M Street, Suite 110
Lincoln, Nebraska 68508

July 8, 2009

Dear Chairman Gomez:

On behalf of the Petroleum Marketers Association of America (PMAA), I would like to express my concerns regarding the upcoming voting items on automatic temperature compensation (ATC) at retail. PMAA believes national uniformity in retail motor fuels measurements benefits consumers and must be preserved. We strongly recommend that both the permissive and mandatory ATC at retail gas stations and truckstops be prohibited.

The retail petroleum business is one of the most competitive industries in the United States. Few industries advertise their prices on big signs that are visible to consumers from the highway. Because of competition, consumers are currently getting the best possible retail price everyday and fuel temperature is not a factor in retail pricing decisions. Proposals to mandate costly automated temperature compensation (ATC) equipped dispensers at retail outlets will only add most costs to consumers.

For over three years, PMAA has been actively engaged in the discussion of proposals to mandate or permit gasoline station owners to install ATC devices to compensate for temperature on a gallon of gasoline. PMAA supported the California Energy Commission's (CEC) thorough analysis which provides an independent review on the costs and benefits of ATC refueling pumps. It is our belief that NCWM officials might rely on the CEC's independent analysis in determining their decision to either vote for or against the two upcoming voting items on ATC.

PMAA applauds CEC's thorough report, which included these findings on ATC:

- The costs of ATC far outweigh the benefits, even when using the low-cost estimates. *"The cost-benefit analysis concludes that the results are negative or a net cost to society under all the options examined."* (pg. 1) *"Net costs to society amount to approximately $245 million . . . over a 20 year period."* (pgs. 76-77)

- Consumers will not receive larger gallons with no corresponding increase in retail price. *"But the perception by various stakeholders that the price of the retail fuel would not be raised to compensate for the selling of slightly larger-sized 'gallons is unrealistic'..."* (pgs 111-112)

- There will be no economic benefit to consumers. *"...it is unlikely that there are any plausible circumstances whereby some consumers could realize a small net benefit of ATC at retail in California."* (pg. 113)

- Retrofit costs would be expensive and small retailers might have to close up shop. *"If ATC was to be mandated at retail stations in California, it is possible that the expense to comply with the regulation could be onerous for some station owners. Some of these station owners may be unable to obtain adequate financing and could possibly close their business;"* (pg. 111) *"The closure of a retail station that was either the sole or one of only two sources of retail fuel for a community could create a local fuel supply availability problem."* (pg. 111)

- The NCWM should promote unity in the market-place, but under the two voting proposals, they are not supporting consistency. It is important to understand that there is consistency in fuel distribution from the rack to the customer right now. Gross gallons are distributed at the rack, gross gallons are distributed through the wholesale chain, and gross gallons are distributed at retail. What is changed (only at the rack) is the price. ATC implementation at retail will change dispensing from gross gallons to net physical gallons at the pump. This brings inconsistency into the distribution chain not greater consistency.

Permissive ATC Concerns

While states can currently mandate or permit retail ATC if they choose, it is more difficult to implement without references and guidelines from NCWM. We believe NCWM should not make it easier for states to adopt ATC because it will seriously disrupt national uniformity. Currently, mainland U.S. consumers benefit from exact measurements of the gallon. If states began mandating or permitting ATC, consumers could not compare prices and get the best price especially in state border markets. Both permissive and mandatory ATC will harm consumers rather than help them.

Mandatory ATC Concerns

Mandatory ATC will disadvantage the consumer as the costs associated with installing and maintaining ATC equipment must be passed on to the consumer with no net gain in energy. It is also important to note that one of the country's largest fuel consumer groups is on record opposing both mandatory and permissive ATC. In a letter to the NCWM dated January 14, 2008, the American Trucking Associations expressed its opposition to both ATC proposals citing that it would result in higher consumer costs.

Uncertainty regarding the first ATC Voting Proposal (232 – 1)

There is also uncertainty in the marketer community regarding the first ATC voting proposal (232 -1) – specifically, wholesale fuel transactions (Sec. 2.32.2.1). I understand that the provision would make ATC wholesale transactions permissive for ten years and then would require mandated ATC use at wholesale by January 1, 2020.

Several questions are raised by this confusion:

- What constitutes a wholesale transaction? Is that from the rack to the distributor or from the distributor to the final customer or both?
- Does this provision mean that ATC would be mandated on transports (bob trucks or tank wagons) when they deliver fuel to the customer's delivery point?
- If so, would the metering equipment for the wholesale transaction adjust the customer's price or the volume?
- Has any cost information been gathered regarding installation of temperature compensating equipment on fuel transport vehicles?

This information is needed so that I can respond accurately to the proposals being considered before the Committee.

PMAA represents over 8,000 independent petroleum marketing companies who are not "big oil." Of the 160,000 U.S. retail gasoline locations, over 97 percent are owned by independent businessmen and women. Because of the reasons stated above, I ask that you oppose both the permissive and mandatory use of ATC at retail.

PMAA would like to thank the Committee's work to date. If you have any questions or concerns regarding the comments given above, please do not hesitate to contact me.

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Motor Fuel Temperature Adjustment Fact Sheet

By law, since the early 1900's, retail sales of motor fuel in the US have been made based on a single-size volumetric gallon – defined as 231 cubic inches without reference to temperature. These standard size gallons are defined by law, reflected in dictionaries, and have long been used in the retail trade. Some parties have suggested that retail sales of gasoline and diesel be based on temperature-adjusted "gallons." Temperature adjusted gallons change in size, becoming larger or smaller as the temperature of the fuel sold rises or falls. The adjustment in the size of the gallon sold would be accomplished using an automatic temperature compensation (ATC) device installed at the retail motor-fuel dispenser.

Some propose that the NCWM mandate that every retailer install ATC equipment to adjust the measurement of all fuel dispensed. Others are against ATC and oppose any change to the current practice of retail sales of gasoline and diesel based on the standard volumetric gallon.

According to the Energy Information Administration in 2008, approximately 137 billion gallons of gasoline and 40 billion gallons of diesel (60B gallons of distillate) was consumed in the United States.[1] API believes that any analysis of temperature compensation by the NCWM should thoroughly address all aspects of ATC implementation, including economics, market issues, and potential consumer impact before any decisions are made.

The American Petroleum Institute members own about 5% of the 162,000 retail stations and operate less than half of the retail stations that they do own. When a station bears a particular API member's brand, it does not mean that the API member owns or operates the station. The vast majority of branded stations are owned and operated by independent retailers licensed to represent that brand. According to the National Association of Convenience Stores (NACS), more than half of the 162,000 retail stations in the US are owned by an individual or family. Through various branding agreements, approximately 40% of the retail stations in the US sell fuel under API members' brands.

Recently two states have released final reports on the issue of fuel delivery and metering: California and Alaska.

California

In March 2009 the **California Energy Commission** delivered a report, "Fuel Delivery Temperature Study," in response to California law AB 868. The CEC report has several important conclusions:

[1] www.eia.gov

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1. "If the ***only criterion*** for assessing the merit of mandatory ATC installations for use at California retail stations is a net benefit to consumers, the Transportation Committee (Committee) of the California Energy Commission concludes that ATCs should not be required since the results of the cost-benefit analysis show a net cost for consumers."[2]
2. "...[T]he perception by various stakeholders that the price of the retail fuel would not be raised to compensate for the selling of slightly larger-sized "gallons" is unrealistic if retail station owners are expected to maintain a similar level of profitability before and after a conversion to mandated ATC. Staff assumes that since the industry of retail station owners and operators will continue to grow and remain profitable. The conclusion is that retail station owners will in fact raise their fuel prices to compensate for selling fewer units, all other things being equal."[3]
3. "If the Legislature chooses not to mandate the use of ATC at retail stations, they should clarify if the current intent of the existing statutes is to permit or prohibit voluntary ATC at retail outlets for gasoline and diesel fuel."[4]
4. "The [CEC] recommends that the Legislature also consider whether the possible value of increased fairness, accuracy, and consistency of fuel measurement, in addition to the benefits quantified in the cost-benefit analysis, justify mandating ATC at California retail stations."[5]

CEC report conclusions regarding costs:

1. "If ATC devices are mandated, California businesses would incur a total first cost between $103.8 million and $127.4 million, or between $10,704 and $13,136 per retail outlet. Recurring costs for more expensive ATC-ready dispensers, maintenance, and higher inspection fees would total between $7.4 million and $20.6 million per year."[6]

CEC study conclusions regarding benefits to the consumer:

1. "California consumers could expect a slight financial benefit of approximately $258,000 per year due to this increased price transparency."[7] According to the website, EconomyWatch.com, the California gross state product is $1.543 trillion. Thus the benefit is essentially zero.

California Energy Commission, Fuel Delivery Temperature Study, CEC-600-2009-02-CMF, March 2009,
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CEC study conclusions regarding how fuel is purchased at wholesale and retail:

1. "According to a recent California Energy Commission (Energy Commission) survey of the distribution terminals serving California, transactions at the terminal are measured in gross gallons and then a software calculation is done using the API gravity and temperature of the dispensed fuel is used to calculate the quantity of net gallons. The net gallons are then multiplied by the posted net gallon price to calculate the total cost for that load of gross gallons of fuel."[8]
2. Thus, retailers purchasing product at the terminal receive a gross gallon that was paid for using a net calculation.
3. If ATC is implemented at the retail level, the consumer will purchase a differently sized gallon that is based on temperature.

Alaska

In July 2009 the Alaska state government released its final report, **"Alaska Fuel Metering Project"** that reviews the issue of ATC. The report has several important conclusions:

1. "The purpose of this report was to determine what definition of 'gallon' should prevail in Alaska petroleum retail markets. The conclusion of the report is that given present technology, there should be one retail petroleum gallon in Alaska – and it should be the standard 'gross' gallon already familiar to consumers. A requirement to sell 'net' gallons would force the statewide adoption of more expensive dispensing equipment, and the costs would outweigh the benefits.

   "Comment on the draft report suggested that the study may have pursued the objective of choosing the retail gallon that was the least expensive for the consumer. But that was not the objective of the study. It is tantamount to saying benefits were not considered. They were. But benefits did not justify the costs vis-à-vis a gross gallon standard."[9]
2. "It is more expensive to meter net gallons because it requires taking the temperature of the fuel and adjusting the size of the gallon, depending on that temperature. Ultimately, the cost of doing so will be borne by the consumer."[10]
3. "The gross gallon standard is not a perfect way of metering fuel, but it is the most economical. In all of the studies that were reviewed where gross gallon vs. net gallon standards were studied from a cost/benefit standard, the gross gallon

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orthern Economic Research Associates, "Alaska Fuel Metering Project, Final Report," State of Alaska partment of Transportation and Public Facilities, Measurement Standards and Commercial Vehicle forcement, July 5, 2009, p. 5
d, p. 7

proved to be superior. So it should not come as a surprise to find the same thing in Alaska."[11]

4. We are not concerned whether delivered fuel temperatures vary from 60F. We are concerned with how much temperatures variation there can be between retailers essentially across the street from one another and competing for the same customers. It makes no difference to temperature compensate fuels when temperature fluctuations are minimal between suppliers. It does not make sense to bear the cost of adjusting for something that as a practical matter makes no difference."[12]
5. "[The California Fuel Delivery Temperature Study] has now been completed and the upshot is that temperature compensation costs are not worth the limited and unclear benefits."[13]

Some have alleged that consumers are losing billions of dollars because there is no automatic temperature adjustment of retail gasoline sales. This allegation is incorrect. Consumers purchase motor fuel dispensed in a uniform measurement that is developed and approved by the NCWM, adopted by state laws and regulations, and sold in a competitive marketplace, in which prices reflect a range of factors, such as supply, demand, distribution logistics, temperature, etc. Consumers are able to compare advertising and signage at retail stations and decide which product they will purchase. By definition, consumers aren't "losing" money because they are receiving a gallon of motor fuel for every gallon of motor fuel they purchase--the very unit posted at the pump, and the very unit retailers are legally required to provide throughout the United States.

A common misconception is that temperature compensation would guarantee a uniform energy content for every gallon of gasoline. This misconception ignores many factors other than temperature that affect the energy content of gasoline.

In general, denser fuel contains more energy. Density is affected by the type of crude oil and the refining process used. The density of the gasoline also changes with the seasons where some areas use various winter-boutique fuel formulations designed in part to promote cold starts and better car performance by making the fuel more volatile, resulting in less energy per gallon. Conversely, some states mandate various summer-boutique formulations that are designed to lessen evaporation, making the fuel denser and helping to reduce ozone pollution. Further, fuels that contain ethanol contain less energy than gasoline without ethanol because ethanol contains about two-thirds of the energy of gasoline.

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[11] Id, p. 7
[12] Id, p. 12
[13] Id, p. 20

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For these reasons, among others, uniform energy content for gasoline is virtually impossible to achieve. Gasoline from different service stations will likely have different energy content per gallon even if the law was changed to mandate or permit ATC at the retail level.

Some have asked why temperature adjustment is used for wholesale gasoline transactions (supplier sales to retailers and exchanges between suppliers) but not for retail sales. Temperature compensation is **not** used in all supplier sales to retailers. By law, some states require temperature adjustment in wholesale transactions, some states allow it but do not require it, some states prohibit it altogether, and some states give the wholesale buyer the right to choose whether sales will or will not be adjusted for temperature. Thus, not all wholesale transactions are adjusted for temperature.

Certain gasoline suppliers and resellers buy and sell very large volumes of gasoline at different locations that may be hundreds or thousands of miles apart, often in markedly different climates, and at varying times of the year, all of which warrant accounting for the impact of temperature variations. In contrast, retail gasoline sales occur at far smaller quantities, in a local competitive market, at a specific time, and under specific conditions, including the specific fuel temperature.

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COMMENTS ON L&R NCWM MEETING AGENDA ITEM

Reference L&R 2.32.1.1. Quantity, Wholesale Transactions.

"Method" of Temperature Compensation is being specified as "Density". The Coefficient of Thermal Expansion Method also needs to be included.

The "method" of Temperature Compensation is being specified in paragraph 2.32.2.1 as "Density". The widely used and accepted electronic register method for Automatic Temperature Compensation is the Coefficient of Thermal Expansion Method. The Coefficient Method needs to also be included, and the coefficients of thermal expansion for the products defined along with the densities in table 2.32.1. The coefficient for Gasoline that is normally used is .00070 for degrees F and for Diesel 0.00045.

Note that the Coefficient Method is accepted per the S&T information U.R. 3.6.1

Extracted and noted:
L&R
2.32.2. Quantity.
2.32.2.1. Quantity, Wholesale Transactions.
(a)
Effective January 1, 2010, where not in conflict with other statutes or regulations all engine fuels and non-engine fuels shall may be sold, offered, or exposed for sale to wholesale customers either in terms of liquid volume in liters or gallons or barrels, or in terms of liquid volume automatically temperature corrected to 15 °C (60 °F) (15.56 °C) in liters or gallons or barrels.

(b)
Effective January 1, 2020, where not in conflict with other statutes or regulations all engine fuels and non-engine fuels shall be sold, offered, or exposed for sale to wholesale customers in terms of liquid volume automatically temperature corrected to 15 °C (60 °F) ~~(15.56 °C)~~ in liters or gallons or barrels.

(c)
When engine fuels and non-engine fuels are sold temperature corrected to wholesale customers:

(1)

Correction shall be made automatically for the fuel temperature either based on the fuel standard dens coefficient of thermal expansion) and reference tables specified in Table 2.32.1. or based on the actu measured density of the fuel and using reference tables specified in Table 2.32.1.

(2)

If using a measured density, the seller shall maintain records of the density determination for one year shall make those records available for inspection by a weights and measures official on request during r business hours.

(3)

All primary indications of net volume quantities on measuring devices and all receipts, invoices, bills of lading, and other transfer documents shall clearly and conspicuously identify net volume quantities wit unit of measure and the terms "Volume corrected to 15 °C" (60 °F)or"Volume corrected to 15.56 °C."

Table 2.32.1. Reference Tables and Fuel Densities for Temperature Correction

Fuel	Reference Table for Wholesale or Retail Temperature Correction	Standard Fuel Density for Retail Transactions (optional density for wholesale transactions)
Gasoline, gasoline-oxygenate blends (3.7 mass percent oxygen, maximum), gasoline ethanol blends (10 volume percent maximum)	API Table 6b	62 API (730 kg/m3)
Diesel Fuel (grade 2-D), biodiesel blends (20 volume percent biodiesel, maximum)	API Table 6b	37 API (840 kg/m3)
Other fuels TBD	–	–

Coefficient Here
0.0007 /Degree F

Coefficient Here
0.00045 /Degree F.

Note in S&T the coefficient method is allowed per UR.3.6.1

Refer to paragraph b-1 below.
Extracted:

UR.3.6.1.23. Recorded Representations (Invoices, Receipts, and Bills of Lading).

(a) A**n written** invoice based on a reading of a device **or recorded representation issued by a device or system** that is equipped with an **active** automatic temperature compensator shall show that the volume delivered has been adjusted to the volume at 15 °C **for liters or** (60 °F) **for gallons and decimal subdivisions or fractional equivalents thereof.**

(b) The invoice issued from an electronic wholesale device equipped with an automatic temperature-compensating system shall also indicate:

(1) the API gravity, specific gravity or coefficient of expansion for the product;

(2) product temperature; and

(3) gross reading.

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