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When Californians fill up at the pump, they on average receive less gasoline in each gallon than the amount of fuel the retailer purchased, gallon for gallon. As the Staff Report recognizes, this is because gasoline expands and contracts "like many other liquids." A "gallon" of warm gasoline actually contains fewer molecules of gasoline than a cooler "gallon" of the same gasoline. Petroleum fuels undergo relatively dramatic expansion and contraction as a result small changes in temperature, unlike other, denser liquid products consumers buy. Gasoline expands and contracts one percent for every 15° F change in temperature. In contrast, liquid water expands ***less than 1%*** from near freezing (just above 32° F) to near boiling (just below 212° F) — a spread of nearly 180º F. As the Staff Report recognizes, the retail sale of hot fuel on a non-temperature compensated basis ***costs California consumers $437,500,000 annually***.

The industry has long recognized the significance of taking temperature into account in all intra-industry transactions. Since the early 1900's, the industry has voluntarily corrected the measurement of petroleum products to 231 cubic inches at 60° F, a standardized gallon known as the U.S. Petroleum Gallon. Throughout the chain of distribution, with the exception of retail sales, the industry uses the U.S. Petroleum Gallon to make sure that every "gallon" of fuel that changes hands in a transaction contains exactly the same amount of fuel energy as every other "gallon." Hawaii mandates the use of a larger "gallon" — a 233.8 cubic inch "gallon" — to compensate for warmer fuel temperatures there. In Canada where average fuel temperatures are cooler do to the colder climate, oil companies ***voluntarily*** account for temperature when measuring fuel in retail consumer transactions. Their failure to do so there would cost them significant revenue. Thus, temperature is taken into account when measuring fuel throughout the industry — except at the retail level in the United States.

The very first page of the Staff Report identifies the first and presumably most significant issue facing the Commission:

> If temperature compensation has been instituted for most wholesale transactions for the purpose of removing the inequity of temperature variations from financial transaction, ***why has that practice not extended all the way to the California retail consumer?***

The Report does not attempt to answer that question, but the answer is glaring. It is no coincidence that, according to the industry, there is on the one hand a significant enough economic benefit to warrant temperature compensation at every other stage of the chain of distribution, and even at the retail level in Canada, but somehow little or no benefit to California retail consumers, notwithstanding the fact that each year hot fuel purchases cost them nearly a ***half billion dollars***. That position — the industry position — is indefensible and strictly self-serving, and rests on assumptions that have no basis in fact.

To begin with, there is no basis for any assumption that accuracy and precision is less important in retail fuel transactions. To the contrary, in a motorist society like ours, "ensuring that consumers

get the quantity that they pay for, and that businesses sell the quantity that they intend and advertise"[1] is at least as important in retail fuel sales as it is in any other retail consumer transaction.

Selling fuel without accounting for temperature ***always*** robs consumers of the ability to make intelligent and informed purchasing decisions. For a consumer to compare the price of a gallon of fuel at one station to that of any other station — including the station directly next door or across the street — he must know the temperature of the fuel at ***both*** stations. For example, two adjacent stations might both be selling their regular gasoline for $1.80 per gallon, but if one station has gasoline that is 15 degrees cooler than that of the other station, for the same money, the consumer could buy 1% more gasoline at the station with the cooler gasoline. In other words, the cooler gasoline would be nearly two cents per gallon cheaper (a 1% difference is $0.018). If the station with the warmer gasoline is charging ***more*** than the other station, the discrepancy is obviously larger. Similarly, a station selling hot fuel at a seemingly lower price than a competitor may actually be ***more expensive*** than a station selling cooler gasoline. Without temperature compensation, the cost-conscious consumer is powerless to make an informed decision to buy from the seller offering the lower price.

The failure to compensate for temperature obviously distorts normal market mechanisms, in as much as a retailer — just like consumers — has no way of comparing its fuel prices with those of competitors because temperature is crucial to ***any*** price comparison. Obviously this problem is acceptable to the retailer, however, because the net profit realized from selling hot fuel greatly exceeds any cost associated with this kind of market distortion.

The Staff Report discusses potential customer confusion arising from implementation of ATC while totally ignoring the status quo: Californian consumers are either ignorant of the hot fuel problem or, fully aware of the problem, entirely powerless to do anything about it. Even under a permissive ATC regime, however, a consumer may still be unable to reliably compare prices between retailers who use ATC and those who don't. But they would finally be able to accurately compare the prices among stations that use ATC. In addition, consumers would also be empowered to do business with only those retailers who sell consumers the same industry-standard size "gallons" used in the industry.

Since humans began trading and bartering, they have attempted to measure accurately the things they trade. This is the way human commerce has worked since the dawn of commercial transactions and across the globe for millennia. It is a universal expectation of buyers and merchants alike throughout the world that, when anything is sold in varying amounts at a price-per-unit, each unit will contain the same amount of product. That is reason enough to require use of ATC. A butcher may adjust his prices to cover some or all of the cost of a commercially accurate scale for weighing meats, but the butcher is nevertheless required to use a commercially accurate scale. These age-old, universal expectations are compelling reasons for requiring the use of ATC, even if the costs of ATC would offset any savings.

The self-serving industry claim that the costs of ATC will offset any savings to California consumers is suspect on its face. In every instance where the failure to compensate for temperature would cost the industry money, it voluntarily compensates for temperature. Yet in California alone, hot fuel costs consumers nearly a half billion dollars every single year, but according to the industry, any savings ATC might provide consumers would be offset by the costs of implementation

[1] Mission statement of National Institute of Standards and Technology (NIST) available at http://www.ncwm.net/about/index.cfm?fuseaction=mission.

of ATC. That, however, is no argument against the implementation of ATC. If the industry is right and the cost of implementing ATC equals the current costs associated with hot fuel, then ***for no net cost*** California consumers could realize the benefits of accurate fuel measurements. So, to quote the Report, even if the cost-benefit analysis shows the costs and any net savings to be a wash, then ***why has the practice of temperature compensation not extended all the way to the California retail consumer?***

If, on the other hand, the industry position is wrong and any portion of the costs of ATC are ***not*** recoverable through fuel price increases, the direct financial benefit to consumers begins to tally up. The "cost-benefit analysis" in the Staff Report is based on two false assumptions:

- that 100% of all costs associated with conversion to ATC will be borne by consumers ***in the first year of ATC implementation***; and

- that retailers will recoup ***100%*** of the per gallon ***revenue*** lost through ATC simply by increasing their fuel prices.

Those industry-backed assumptions, on which the Staff Report relies, are not supported by data or analysis.

The Report ***assumes*** that 100% of the costs to retrofit existing dispensers with ATC will be borne by consumers, and, significantly, that the entire cost would be passed on to consumers in the very first year. The Staff's own study demonstrates, however, that the cost to retrofit existing pumps ($1,700-$4,000 per pump + $800-$2,500 in labor costs per station) is much higher than the incremental cost to equip new pumps with ATC ($1,810 per pump). Moreover, as acknowledged in the Report, some percentage of dispensers is replaced with new dispensers each year (apparently 5% or more, see Report at p. 69). In light of the proposed implementation period of 5-6 years, the Report's cost-benefit analysis is flawed because it assumes that ***every*** ATC device will be a retrofit. The cost-benefit analysis makes no provision whatsoever for the reduced cost of ATC through the natural replacement of obsolete dispensers during the implementation period.

The Report also merely ***assumes*** that 100% of retailers will need financing for the retrofit costs. It further assumes that 100% of those retailers will recapture all ATC costs within the first year of implementation, rather than amortize the cost over a period of years. No justification is offered for either of these critical assumptions. These assumptions ignore the reality that 10% of retail stations in California are refiner owned and 46% are major leased dealers.

The Report also merely ***assumes*** that retailers will bear 100% of ATC costs and recover them through price increases. This unsupported assumption further assumes that refiners and distributors (i.e., the major oil companies) — who have significantly larger profit margins than retailers —will not absorb any of the ATC conversion cost in order to maintain or increase their market shares. Yet, as just noted, in California, 10% of retails stations are refiner owned, 46% are major leased dealers, and another 26% branded independent owned. Thus, the margins of 82% of all retail stations are controlled by major suppliers, either directly or through long term supply agreements. Unbranded, independently owned stations — the kind of retailers who might not receive any help from refiners and distributors — represent just 18% of the market. The Report's assumption that the costs of ATC will be recouped 100% through retail price increases does not take any of these realities into account.

Thus, the Staff Report is based upon critical assumptions that lack any factual basis and are at the very least questionable in light of known facts. If the Report's assumptions are unwarranted and if its cost-benefit analysis turns out to be wrong, the savings to California consumers could be substantial. For instance, if retailers are recover 50% of lost revenue and ATC costs, the benefit to consumers would be ***$218,750,000 annually***. Over the next 10 years, the present value of these savings to consumers totals nearly ***$2 billion***. If retailers recovered ***75%*** of the lost revenue through price increases, consumers would still come out ahead by the sum of ***$109,375,000 annually***. The present value of ten years' of these savings totals nearly ***$1 billion***.