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March 15, 2019

Regional Air Quality Council
1445 Market Street #260
Denver, CO 80202

RE: Draft Report "Denver Metro/North Front Range Fuel Supply Impacts and Compliance Costs"

To Whom It May Concern:

Thank you for this opportunity to provide preliminary comments on Energy Analysts International, Inc.'s draft report, "Denver Metro/North Front Range Fuel Supply Impacts and Compliance Costs For Refiners and Consumers" (the "Draft Report"). Growth Energy is the world's largest association of biofuel producers, representing 100 U.S. plants that each year produce more than 8 billion gallons of cleaner-burning, renewable fuel, including three of Colorado's four ethanol production facilities, Front Range Energy, LLC, Yuma Ethanol, and Sterling Ethanol, LLC, and retail partner Kum & Go. Together, our members are working to bring better and more affordable fuel choices at the fuel pump to consumers, improve air quality, and protect the environment for future generations. We remain committed to helping our country diversify our energy portfolio to grow more green energy jobs, sustain family farms, and reduce the costs of transportation fuels for consumers.

We understand that the Denver Metro/North Front Range area faces air quality challenges, specifically related to ozone precursor emissions, and appreciate the Regional Air Quality Council's deliberate and thoughtful approach to strategies to address these challenges, while taking into account consumer cost and the realities of the region's fuel supply network. Ultimately, we agree with the Draft Report's conclusion that elimination of ethanol from the region's summer gasoline supply would be the highest cost alternative, disruptive to fuel supplies, expensive for consumers, and highly detrimental to Colorado's ethanol producers, on top of being at odds with the federal Renewable Fuel Standard ("RFS") and engendering a host of RFS compliance challenges for refiners that sell into the region's gasoline market. In addition, an ethanol ban would adversely impact air quality in important ways that are not taken into account in the Draft Report. This would be an unprecedented move for a region to take to address air quality concerns, and one which, in all likelihood, would be a costly failed experiment.

We briefly provide below for your consideration a few additional thoughts on the Draft Report. First, we highlight and expand upon the main adverse impacts of elimination of ethanol from the

region's fuel supply during the summer months, and, second, we present preliminary thoughts on the primary, substantial legal hurdles to proceeding with this option.

We appreciate your consideration of these comments and look forward to engaging with the Council further on this important topic at the March 27th meeting.

Sincerely,

Chris Bliley
Vice President, Regulatory Affairs

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I. ADVERSE IMPACTS OF A SUMMERTIME ETHANOL BAN.

The Draft Report notes a number of drivers of increased costs associated with removal of ethanol from summertime gasoline supplies, and concludes that this option would be, by a considerable margin, the most expensive for consumers and refiners alike. In particular, the Draft Report importantly highlights the loss of octane (which would necessarily be replaced by dirtier hydrocarbons), increased consumer prices (as ethanol is typically less costly than gasoline), and adverse RIN-related impacts. We agree with the bottom-line conclusion that this approach would be substantially more costly than the alternatives. For the reasons noted below, however, the Draft Report may considerably underestimate both the costs of this approach and its adverse impacts:

- Impacts on Colorado's Ethanol Producers and Related Parties: The Draft Report notes that in-state biorefineries that are the primary ethanol suppliers to the region and supply *all* of their production to this market "**may** become economically disadvantaged" as a result of a summertime ethanol ban. Draft Report at BIO-9 (emphasis added). There is nothing hypothetical about it. To put a finer point on it, the state's domestic producers will face substantial financial hardship if confronted with the prospect of finding new, more distant markets for approximately a quarter of their entire year's ethanol production. Beyond this passing statement, the Draft Report unfortunately does not explore the consequences of a summertime blending ban on ethanol producers or the broader, related industries. Layered on the substantial direct impacts on in-state biorefineries and other biorefineries that supply the region's market are the adverse impacts on the over 2,000 ethanol-supported jobs in the state and the potential losses for Colorado's corn farmers, who already face considerable headwinds with respect to

commodity prices. Further, in-state retailers have invested millions of dollars in blender-pumps for E15 distribution, an investment which would be stranded for months out of the year. In short, additional consideration of these adverse impacts is warranted.

- Air Quality Impacts: We recognize that the focus of the Draft Report is primarily on the economic impacts of the various ozone precursor reduction strategies, however, it bears mentioning that consideration of a ban on summertime ethanol blending should comprehensively evaluate the air quality impacts of E0 vs. E10 and E15. For example, the scientific literature supports that ethanol-blended fuels have *lower* carbon monoxide emissions and *lower* THC and MNHC emissions.[1] There is additional evidence that ethanol blending decreases the potential to form ozone or photochemical smog.[2] More generally, studies support that ethanol blending removes toxic aromatic hydrocarbons in fuel, and that fuel aromatic content has a stronger impact on vehicle emissions than ethanol.[3] Any consideration of a summertime ethanol ban must take into account adverse emissions and air quality impacts of non-ethanol-blended fuels.[4]

- Gasoline Supply Loss: The Draft Report's assessment of gasoline supply loss associated with the various options appears to assume that the fuel economy/GHG standards promulgated by NHTSA and EPA during the Obama administration will remain in effect and drive down gasoline consumption in the region in coming years, thereby lessening strains on gasoline supply. This assumption may not be correct as the current administration has proposed to rollback the more stringent fuel economy standards in the Safe Affordable Fuel-Efficient Vehicles Rule. Removal of ethanol

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[1] Matthew A. Ratcliff et al., *Impact of Higher Alcohols Blended in Gasoline on Light-Duty Vehicle Exhaust Emissions*, 47 ENVTL. SCI. & TECH. 13,865, 13,868 (2013) (finding that "largest effect was that E16 produced a statistically significant . . . 29% reduction in CO emission"); Georgios Karavalakis et al., *Impacts of Aromatics and Ethanol Content on Exhaust Emissions from Gasoline Direct Injection (GDI) Vehicles* (2018) (unpublished, University of California CE-CERT) (finding E10 reduces CO emissions without adverse impacts to NOx and NMHC); Georgios Karavalakis et al., *Impacts of ethanol fuel level on emissions of regulated and unregulated pollutants from a fleet of gasoline light-duty vehicles*, Fuel 93 (2012) 549-588 (finding "THC and NMHC emissions were lower with the ethanol blends").

[2] Stefan Unnasch & Ashley Henderson, *Change in Air Quality Impacts Associated with the Use of E15 Blends Instead of E10*, Life Cycle Associates Report (2014) (literature review examining emissions of NOx; CO; PM; nonmethane HC; ozone potential; and cancer risk from air toxics); *id.* at 6 ("The most significant changes from a change from E10 to E15 include a reduction in cancer risk from vehicle exhaust and evaporative emissions, a reduction in the potential to form ozone or photochemical smog, and a reduction in greenhouse gas (GHG) emissions").

[3] Georgios Karavalakis et al., *Impacts of Aromatics and Ethanol Content on Exhaust Emissions from Gasoline Direct Injection (GDI) Vehicles* (2018) (unpublished, University of California CE-CERT) (finding E10 reduces CO emissions without adverse impacts to NOx and NMHC).

[4] Further technical consideration of the impact of requiring lower RVP gasoline via a summertime ethanol ban is necessary. For example, the MOVES model's use of equations generated from studies based on match-blended fuels distorts ethanol's impact on emissions, and current analyses support that modern vehicle technology has resulted in a fleet that is substantially *less* sensitive to gasoline RVP. This discussion is outside the scope of the Draft Report, but worthy of additional dialogue and deliberation.

from summertime gasoline entails an at-least 10 percent reduction in the volume of finished gasoline supplied in the region. To the extent that gasoline demand does not lessen in the manner anticipated in the Draft Report, the fuel supply constraints posed by elimination of ethanol from gasoline in the summer may be substantially greater than anticipated, with concomitant impacts on costs for consumers.

Additionally, Colorado and other Rocky Mountain states are differently situated due to their use of 85 octane regular gasoline, rather than the 87 octane used in the rest of the country. One strategy to increase fuel supply and reduce instances of price spikes would be to transition to 87 octane regular gasoline, which would also entail a tailpipe emission benefit.[5] Unfortunately, although Colorado's 85 octane regular gasoline is less than the national average price for 87 regular gasoline, when adjusting for the value associated with the increase in octane, the state's 87 octane equivalent is actually *more* expensive.

Further, it is noted that one way in which the market may mitigate gasoline supply challenges under the three alternative lower-RVP scenarios (with and without a waiver) is through additional ethanol blending, *i.e.*, through E15 sales. Of course, this relief-valve is unavailable to mitigate a supply pinch under the elimination-of-ethanol option, thus foreclosing a critical path to alleviating cost spikes, and removing consumers' ability to purchase a summertime fuel that is *more* favorable from an evaporative emissions perspective than E10. In any scenario, even the three other options studied here, ethanol blending including expanded use of E15 is critical.

- RIN Market Impacts and Octane Costs: Finally, it warrants underscoring that the Draft Report candidly notes it is "likely significantly understat[ing] the costs" associated with a summertime blending ban due to the largely unknown impact on RIN markets, and the Draft Report also may not appropriately account for increased costs associated with replacing the octane boost ethanol provides. Draft Report at ES-11 and BIO-10. Further exploration and econometric analyses of these factors is necessary to paint a full picture of the difference in cost impacts associated with this approach as opposed to the alternatives.

II. LEGAL CONSIDERATIONS

The Draft Report accurately notes that a summertime ethanol ban is at odds with, and undermines, the federal Renewable Fuel Standard. Nor is there a colorable legal argument that a waiver from the requirements of the Energy Independence and Security Act is appropriate under these circumstances. Thus, we agree with the Draft Report's conclusion that the possibility of obtaining a waiver from the RFS is "extremely remote." Draft Report at BIO-5. (As a factual matter, we observe that the Draft Report's discussion of a purported "E10 blendwall" is outdated and inaccurate. Colorado is one of over 30 states that blends more than 10 percent

[5] Although outside of the scope of the Draft Report, the Council might consider further that 85 octane fuel is outdated as it was intended for carbureted engines at altitude. Its use is no longer endorsed by the automobile manufacturing industry given today's electronic engine control systems. Moreover, it causes increased engine knock and less complete combustion resulting in higher tailpipe emissions.

ethanol into gasoline on-average. Currently, the state blend-rate is 10.35%. Nationally, the so-called "blendwall" was eclipsed years ago, and there are 25 E15 retailers and over a 100 E85 retailers in the state.)

Another legal consideration relevant to Colorado's potential adoption of a summertime prohibition on ethanol blending is EPA's authority under section 211(c)(4) of the Clean Air Act to approve such a regulation into the State Implementation Plan (SIP). Section 211(c)(4) expressly preempts states from prescribing or attempting to enforce, "for purposes of motor vehicle emission control, any control or prohibition respecting any characteristic or component of a fuel or fuel additive in a motor vehicle or motor vehicle engine" if EPA has, under section 211(c)(1), prescribed "a control or prohibition applicable to such characteristic or component of a fuel or fuel additive." 42 U.S.C. § 7545(c)(4)(A). This express preemption clause has two relevant exceptions, the second of which is relevant here: a state regulation is not preempted if EPA has incorporated the control or prohibition into the state's SIP based on a finding that it is "necessary to achieve the [NAAQS]." 42 U.S.C. §7545(c)(4)(C)(i).

EPA may find the control or prohibition "necessary" to achieve the NAAQS "*if no other measures that would bring about timely attainment exist*, or if other measures exist and are technically possible to implement but are unreasonable or impracticable." 42 U.S.C. § 7545(c)(4)(C)(i) (emphasis added). As a threshold matter, ethanol content is characteristic of gasoline that EPA regulates for purposes of emissions control. *See, e.g.*, 76 Fed. Reg. 4,662, 4,666-73 (Jan. 26, 2011). As such, a state may not enforce an ethanol ban unless EPA incorporates the state regulations into the state's SIP as necessary to achieve the NAAQS.

Under the legal framework set forth in the Clean Air Act, it borders on implausible that EPA would perceive a summertime ethanol ban as "necessary to achieve the [NAAQS]" in light of the numerous alternatives that could be pursued to "bring about timely attainment" that are not "unreasonable or impracticable." As the Draft Report notes, "banning ethanol during the ozone season will not provide any appreciable ozone reduction benefit beyond the benefit achieved through elimination of the 1 pound ethanol waiver." Draft Report at BIO-5. Given the high legal bar that would apply to an ethanol ban, it is understandable that no state has ever sought EPA approval of such an approach, whereas, the other three alternatives contemplated in the Draft Report have been implemented elsewhere.