American
Fuel & Petrochemical
Manufacturers

[redacted]
Washington, DC
20036

[redacted]
afpm.org

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Draft Scoping Plan Comments
NYSERDA
17 Columbia Circle
Albany, NY 12203-6399

scopingplan@nyserda ny.gov

Re: Scoping Plan Strategies T1and T12

Dear Sir/Ma'am:

The American Fuel & Petrochemical Manufacturers (AFPM) submits the following comments regarding Strategies T1and T12 of The New York State Climate Council Draft Scoping Plan (Scoping Plan), which are of particular importance to AFPM's members as suppliers of both conventional and renewable fuels.[1]

AFPM is a national trade association representing nearly all U.S. refining and petrochemical manufacturing capacity. AFPM members support more than three million quality jobs, contribute to our economic and national security, and enable the production of thousands of vital products used by families and businesses throughout the U.S. AFPM members are also leaders in producing lower carbon fuels, such as renewable diesel and sustainable aviation fuel. In fact, 82 percent of recently announced investments in renewable diesel were made by AFPM members.

AFPM welcomes good faith discussions about the future of transportation fuels and policies that would create lower life-cycle greenhouse gas (GHG) mobility options for consumers. Our members provide products essential for modern life and we engage in the development of sound policies that ensure growing global populations and economies have the affordable, sustainable fuels and petrochemical products they need to thrive in the years ahead. We support the adoption of policies that focus on consumers, strengthen America's energy security, improve collective standards of living, and protect our environment.

The details of any carbon policies are critical and AFPM looks forward to engaging with the State as it moves beyond the Scoping Plan phase. As it develops its strategy, New York should ensure its policy properly balances other important considerations, including preserving consumer choice and minimizing costs, preventing emissions leakage, maintaining competitiveness, promoting energy security, and ensuring achievability. Well-crafted climate policies should be transparent, flexible, and simple. They should harmonize with one another and with the broader market. Policies should take advantage of the market and allow all technologies to innovate and compete rather than enact sectoral mandates and product bans. The Scoping Plan

[1] Although AFPM has focused on T1 and T12 in these comments, it would evaluate other policies using the principles described herein.

offers few details about how some of these programs would work, either individually or as a comprehensive plan, so AFPM offers some broad observations for the State to consider as it embarks on this process.

I. The Refining and Petrochemical Industries are Indispensable to a Sustainable Future

Liquid hydrocarbon transportation fuels are unparalleled in their ability to deliver affordable, reliable, energy-dense, and abundant energy to consumers. They significantly improve the quality of life for billions of people globally. This is one reason the International Energy Agency (IEA) forecasts a foundational role for refined petroleum products and liquid fuels in the coming decades, even as the global energy sector evolves.[2] This holds true under the International Panel on Climate Change (IPCC) scenarios that align with the goals of the Paris Agreement to limit warming to "well below 2 degrees Celsius" (modeled by the IEA as the Sustainable Development Scenario (SDS)), and to "pursue a limit of 1.5 degrees Celsius" (modeled by the IEA as the Net Zero 2050 scenario (NZE)).[3]

Continued demand for refined petroleum products and liquid fuels will be driven by improved living standards and population growth, which the UN estimates will swell to include an additional two billion people by mid-century.[4] Research by the Brookings Institute further estimates that the world is experiencing a rapid expansion of the middle class, with 160 million people being lifted from poverty each year.[5] With middle class incomes come demand for modern conveniences, including mobility and products that define our modern life. Indeed, under the IEA SDS scenario, petrochemical demand is expected to grow even as the world consumes less petroleum for personal transportation.[6]

Meeting carbon reduction targets under the IEA SDS and NZE scenarios may lead to rationalizing global refining capacity, but the effects will not be uniform across countries or among companies.[7] The key to meeting global demand for affordable energy and petrochemical products is to utilize the most efficient assets, to find low-cost methods to abate carbon emissions, and to utilize the expertise of the U.S. refining and petrochemical sectors in scaling energy technology.

The U.S. refining and petrochemical industries are well positioned to lead the world in these respects. First, the U.S. refining industry is the most complex in the world; it has the flexibility to transform a wide range of crude oil qualities into a vast array of higher value products that help consumers save energy and lower emissions. Additionally, the U.S. refining and petrochemical industries have access to competitive energy and feedstocks a mature logistics network, highly skilled workforce, and access to export markets. These advantages position the U.S. industries

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[2] *See* Marathon Petroleum Corporation, *Perspectives on Climate-Related Scenarios* (June 2021), at 1, available at 2021-MPC-MPLX-ClimateReport.pdf (marathonpetroleum.com).
[3] *Id.* at 22.
[4] United Nations. (n.d.). *Global Issues Population*. United Nations. Retrieved June 28, 2022, from https://www.un.org/en/global issues/population
[5] Homi Khara, *The unprecedented expansion of the global middle class An update*, Brookings Institute, Feb. 17, 2017, available at https://www.brookings.edu/research/the-unprecedented-expansion-of-the-global-middle-class-2/.
[6] MPC at 19.
[7] *Id*. at 20.

well compared to our international competitors. In fact, over the previous decade the U.S. refining industry increased product exports by 217 percent compared to the previous decade, with even higher growth trending in 2019 and 2020.[8] Likewise, the petrochemical industry increased exports of ethylene by 317 percent over the previous five years and propylene by 11 percent.[9]

As they have grown global market share, the U.S. fuel and petrochemical industries have been hard at work on innovating to reduce emissions. In fact, U.S. refineries and petrochemical manufacturers invested more than $100 billion to improve refinery efficiency, reduce emissions, and produce cleaner fuels over the last decade alone.[10] The refining sector alone reduced the carbon intensity of its operations by 12 percent over the past decade.[11]

Not only are the U.S. refining and petrochemical industries reducing their own emissions, but they are critical components in making products and processes more efficient to help customers reduce their emissions. High-tech petrochemicals are key to light-weighting vehicles, and are core components of electric vehicles, wind turbines, solar panels, and thousands of everyday products including vaccines. They also help achieve other U.S. and U.N. Sustainable Development goals, including supplying the base materials for delivering clean water.

Within the refining sector, lubricants and other refinery products help improve the efficiency of the internal combustion engine (ICE) to help reduce Scope 3 emissions. AFPM seeks to work with policymakers to build on the doubling of efficiency (and horsepower) since 1975[12] and the 29 percent improvement in fuel economy since 2004.[13] The ICE has room to improve even more. As one example of our work with policymakers, AFPM supports legislation to implement a minimum 95 RON (Research Octane Number) octane standard for gasoline as part of reforming our nation's fuels and vehicle policy.

Recent geopolitical events have laid bare the consequences of pursuing policies that do not recognize the importance of a strong U.S. refining industry. Since the beginning of 2020, the U.S. has closed more than 1 million barrels per day of refining capacity in response to federal and state laws and regulations, taxes, economics, and anti-refining rhetoric. Although the U.S. can produce enough fuel to meet its own needs, the closure of U.S. refining capacity has left the U.S. with less spare capacity to meet global needs, contributing to the escalating prices currently facing consumers. Because refineries are long-cycle investments and require substantial capital to maintain, New York should be careful about sending market signals that may exacerbate the current situation.

II. Strategy T1 – Light Duty ZEV Adoption

AFPM recommends that New York withdraw from adopting the California Advanced Clean Cars (ACC II) rulemaking, which – as drafted – would phase out the sale of traditional vehicles by the

[8] AFPM analysis of Energy Information Administration data.
[9] AFPM analysis of S&P Global Platts Analytics.
[10] Industrial Info Resources.
[11] John Beath Environmental.
[12] *See* EPA Automotive Trends Report, https://nepis.epa.gov/Exe/ZyPDF.cgi?Dockey=P1010U68.pdf 2020, https://nepis.epa.gov/Exe/ZyPDF.cgi?Dockey=P1010U68.pdf.
[13] *See* U.S. Environmental Protection Agency, The EPA Automotive Trends Reports, https://www.epa.gov/automotive-trends.

year 2035.[14] As outlined in AFPM's comments to California on ACC II, the rulemaking suffers from numerous legal, process and analytical deficiencies and is among the most expensive and inefficient ways to reduce carbon emissions.[15] California, New York and other states have not considered many of the enormous costs of this rule that will be borne by low- and middle-income gasoline car buyers and electric ratepayers, not by the generally wealthy electric vehicle buyers. Although electric vehicles will be a growing part of the automotive fleet, it would be inappropriate to mandate that all consumers purchase one type of technology. AFPM recommends that New York consider evaluating vehicles on a technology-neutral, lifecycle basis and holistically consider their environmental, economic, and national security attributes.

A. ZEVs Have an Environmental Impact

Importantly, there is no such thing as a zero-emission vehicle (ZEV).[16] Significant GHGs are emitted during the lifecycle of a battery electric vehicle (BEV). A lifecycle perspective is required to understand any potential mitigation achieved by BEVs, since emissions are not eliminated, but rather shifted upstream in the fuel cycle (to mining, metal processing, battery production, the power plant, transmission lines and distribution grid) and potentially increased in the vehicle production supply chain. Proponents of BEV mandating proposals describe BEVs as "zero" emission vehicles that justify government mandates, subsidies, and credits. A close examination of the lifecycle analysis (LCA) of carbon emissions based on both ICE and BEV automobiles reveals this is not true. Further, the environmental footprints of BEVs are impacted by the sourcing of critical minerals, battery production, operations, and disposal. Quantifying these real-world GHG emissions is an issue of central relevance to New York's objective.

B. Policymakers Should Minimize the Cost of Abatement

It is helpful to benchmark estimated impacts to compare different policies, since there are many ways to reduce emission across many sectors of the economy. One such benchmark is the social cost of carbon (SCC). Resources for the Future defines SCC as, 'an estimate, in dollars, of the economic damages that would result from emitting one additional ton of greenhouse gases into the atmosphere."[17] At the end of February 2021, the Biden Administration indicated that they would use the interim values for the SCC of $51 per ton developed by the Interagency Working Group (IWG).[18] Proponents of using SCC as a policy tool explain that costs above this amount may not be warranted when weighing costs and benefits. New York should be transparent in its approach to using discount rates for SCC, as the chosen discount rate has a significant impact on whether a regulatory approach is cost-benefit justified. It is expected that the IWG will take comment on the science and economics for use in a more comprehensive update. More generally, to compare policies, analysts often develop a "cost of abatement," which is a calculation of the

[14] *California Air Resources Board*. Advanced Clean Cars II | California Air Resources Board. (n.d.). Retrieved June 28, 2022, from https://ww2.arb.ca.gov/rulemaking/2022/advanced-clean-cars-ii

[15] *See* AFPM WSPA Comments on California ACC II Rulemaking on May 31, 2022.

[16] *See* ConservAmerica, "Slow Down: The Case for Technology Neutral Transportation Policy," https://static1.squarespace.com/static/5d0c9cc5b4fb470001e12e6d/t/5fd1580999fe644e8a504a54/1607555090612/CA+Tech+Neutral+Paper+-+12.20+%281%29.pdf.

[17] Resources for the Future, "Social Cost of Carbon 101," https://www.rff.org/publications/explainers/social-cost-carbon-101/.

[18] *See* "Technical Support Document: Social Cost of Carbon, Methane, and Nitrous Oxide Interim Estimates under Executive Order 13990 Interagency Working Group on Social Cost of Greenhouse Gases," United States Government, February 2021, https://www.whitehouse.gov/wp-content/uploads/2021/02/TechnicalSupportDocument_SocialCostofCarbonMethaneNitrousOxide.pdf.

cost of the policy divided by the GHG reductions achieved by the policy. It is normally expressed in a dollars per ton figure.

Although not all BEV-inducing policies have been examined and the cost of abatement has not been calculated for every policy, it is a way to compare policies. New York should develop and present to the public its estimate of the cost of abatement if it adopts California's program. If it is like most BEV-inducing policies, then the cost of abatement is likely to be high. That is because the technology is relatively expensive and the reductions relatively modest. According to the ConservAmerica paper, the calculated range of costs encompasses about $300 to $1,100 per metric ton CO_{2e} (CO2-equivilent).[19] These costs are from 4 to 23 times the IWG's social cost of carbon. To be clear, the assessment does not consider dozens of additional federal, state, local and utility subsidy programs (for EV manufacturers, EV purchasers, EV charging stations, below-market utility rates, etc.). These further increase the cost of any emissions abatement.

New York's proposed rule to adopt the California ZEV mandate will also reduce the incentives for the automobile manufacturers to develop new ICE technology to further reduce emissions. The rule will further limit the ability to provide consumer choice and will not necessarily result in the emission reductions that the state is seeking to achieve. Most importantly, adopting California's ZEV standards will remove the opportunity for other powertrains to compete in the marketplace that can provide a significant contribution to the reduction of GHG and criteria pollution emissions and potentially at lower cost.

In a recent article published in Automotive News, Mr. Gill Pratt, CEO of Toyota Research Institute, said "research shows that [BEVs] may not be the best solution for all consumers, especially those with limited access to charging or who live in areas where power generation is still carbon-intensive… 'Depending on your needs and your circumstances, there are different vehicles for different circumstances that best lower carbon emissions.'" [20] AFPM could not agree more.

C. ZEV Mandates Harm U.S. National and Energy Security

U.S. energy security would also undergo a dramatic paradigm shift if vehicle technologies shifted from ICE vehicles to BEVs. We would be in danger of moving from being North American liquid fuel secure, to being dependent largely upon foreign sources for the minerals needed to make BEV batteries. As the U.S. Geological Survey has pointed out, although the U.S. produces roughly half of the lithium supply it currently consumes, it only has one lithium production operation in Nevada.[21] 97 percent of the lithium that the United States imports is sourced from Chile and Argentina.[22] Domestic production of other minerals required for rechargeable battery production is insufficient. China has disproportionate influence compared to other foreign nations that produce cobalt, molybdenum, and other minerals needed to produce electric vehicles. For instance, the U.S. Geological Service (USGS) reported that domestic

[19] ConservAmerica, "Slow Down: The Case for Technology Neutral Transportation Policy."
[20] Automotive News, "Toyota N.A. plans to introduce 2 EVs, 1 plyg-in hybrid this year," https://www.autonews.com/manufacturing/toyota-na-plans-introduce-2-evs-1-plug-hybrid-year.
[21] U.S. Geological Survey, "Mineral Commodity Summaries 2018" at 98, *see* https://minerals.usgs.gov/minerals/pubs/mcs/2018/mcs2018.pdf.
[22] *Id.*

primary aluminum production in 2017 (740,000 metric tons) was nearly a third of domestic production in 2013 (1,946,000 metric tons).[23] China, however, possesses over half of the entire world's aluminum smelting capacity.[24] 54 percent of the world's supply of cobalt comes from the Democratic Republic of Congo where eight of the largest 14 mines are Chinese owned.[25] Cobalt has seen U.S. domestic mining production decline (760,000 tons in 2015 compared to 700,000 tons in 2021).[26] Secondary cobalt production has largely remained flat over the same span while imports have increased (11,400,000 tons to 12,100,000 tons).[27] The United States imports all its graphite and manganese, having no domestic production of these minerals. China produces 67 percent of the world's graphite,[28] while Gabon, a less stable country, provides 73 percent of the United States' manganese.[29] For any one of these minerals, these mandates, taken to their logical end, put the United States into a situation resembling the oil embargoes of the 1970s, where foreign actors control majorities of the critical raw material supplies used in the manufacture of fuels, battery, and motor components designed to provide transportation mobility services for the U.S. consumer. Indeed, China has a dominant position in the global supply chain for battery production as detailed in a recent report by Securing America's Future Energy (SAFE).[30] Additionally, ongoing geopolitical events will always hinder the availability of such minerals.

III. Strategy T12- Lower Carbon Renewable Fuels

Clean Fuel Standards (CFS) generally aim to replicate and expand California's low carbon fuel standard (LCFS), which serves as a useful benchmark.[31] While California's LCFS sought a 10 percent reduction in transportation GHG emissions in its first 10 years and a 20 percent reduction by its 20-year mark, a prominent New York State Senate bill proposing a CFS is even more aggressive, targeting a 20 percent reduction in GHG emissions by 2030, with further reductions to be "implemented based upon advances in technology and to support achieving the goals of the climate action plan"[32]

The California LCFS was introduced in 2011, and according to its own studies, the state is still far from reaching their 10-year goal. This is despite heavy investments around the country to provide low-carbon fuels shipped to the state and an array of additional in-state incentive programs. As a result of demand for compliance fuels, LCFS credit prices have been as high as $200 per ton of CO_{2e} in the state. Importantly, the litany of indirect subsidies at the federal, state, and utility levels are notably not reflected in the LCFS credit price. These costs are a real and important consideration for New York, particularly given that the CFS will force the state to compete with California for this same limited pool of alternative liquid fuels. AFPM has serious questions about the feasibility of scaling a program like the California LCFS to other states given

[23] *Id.* at 20.
[24] *Id.* at 21.
[25] *See* "China Has a Secret Weapon in the Race to Dominate Electric Cars," Bloomberg, December 2, 2018, https://www.bloomberg.com/graphics/2018-china-cobalt/.
[26] 2018 Mineral Commodities Summaries at 50; U.S. Geological Survey, Mineral Commodity Summaries 2022, at 53 (Jan. 31, 2022), *see* https://pubs.usgs.gov/periodicals/mcs2022/mcs2022.pdf.
[27] *Id.*
[28] *Id.* at 72.
[29] *Id.* at 6.
[30] *See* Securing America's Future Energy, "The Commanding Heights of Global Transportation," https://secureenergy.org/wp-content/uploads/2020/09/The-Commanding-Heights-of-Global-Transportation.pdf.
[31] Draft Scoping Plan Appendix A, pages 41 -43.
[32] New York State Senate Bill 2962B

feedstock constraints, lack of commercial production of advanced biofuels, and consumer reluctance to purchase electric vehicles.

Furthermore, a recent audit of California's environmental policies, including its LCFS program, found that GHG reductions have been overstated and double-counted across programs.[33] The California Legislative Analyst's Office report concluded that the effects of the LCFS on GHG reductions are impossible to know and may be attributed to broader market shifts and other policies enacted around the same time, that may have much more cost-efficient carbon reduction records.

AFPM would not recommend that New York pursue the California LCFS, which would further balkanize the U.S. fuels market. Such approaches are better left for federal policymakers that would be able to harmonize multiple overlapping fuel and vehicle programs already in existence at federal and state levels. However, if the State opts for this pathway, fuels should be evaluated on a technology-neutral, lifecycle basis and holistically consider their environmental, economic, and national security attributes, including critical mineral production, and the upfront carbon deficit associated with electric vehicle battery production. Any LCFS programs should be based on informed analysis and set achievable targets. Eligible fuels should be evaluated using a respected model such the Argonne National Laboratory GREET Model.[34]

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Thank you for the opportunity to share our perspective. Should you have any questions, please contact me at [redacted]

Very truly yours,

Don Thoren
Vice President of State and Local Outreach

[33] California Legislative Analyst's Office, "Assessing California's Climate Policies – Transportation," December 2018

[34] A. Elgowainy, et al, *Argonne National Laboratory*, 2016, "Cradle-to-Grave Lifecycle Analysis of U.S. Light-Duty Vehicle-Fuel Pathways: A Greenhouse Gas Emissions and Economic Assessment of Current (2015) and Future (2025-2030) Technologies." *See* https://greet.es.anl.gov/publication-c2g-2016-report.