



TOYOTA MOTOR NORTH AMERICA, INC.

Sustainability and Regulatory Affairs

325 Seventh Street, NW #1000 Washington, DC 20004

April 15, 2021

Northeast States for Coordinated Air Use Management (NESCAUM)
89 South Street, Suite 602
Boston, MA 02111

Re: 45-Day Comment for Proposed Multi-State MD/HD ZEV Action Plan

To NESCAUM:

Toyota Motor North America, Inc. (Toyota) appreciates the opportunity to provide comments with respect to NESCAUM's proposal for a MD/HD ZEV Action Plan. Toyota's comments are related to proposed strategies and recommendations within the ZEV Action Plan.

Toyota agrees that regulation assists in providing certainty in the market. However, regulation alone does not guarantee market development, ZEV interest, or the achievement of the climate goals of the Northeast states. There must be parallel initiatives to support regulatory mandates. Toyota's comments are focused upon three parallel initiatives: education and outreach, incentives, and infrastructure development.

EDUCATION AND OUTREACH

Zero-emission (ZE) technologies may be seen by some customers as novel and intimidating because zero emission powertrains, performance, maintenance, and infrastructure requirements are different from those of traditional diesel/gasoline vehicles. Fleets and drivers must be educated about the benefits of ZE powertrains or else the regulations risk not being successful.

In the light-duty ZEV market development, NESCAUM has organized various ride-and-drive events to showcase and educate consumers on the merits of ZEVs. Toyota believes similar efforts are needed for HD/MD zero emission trucks. Toyota recommends that NESCAUM and the states fund pilot demonstration programs that provide fleets and truck drivers opportunities to experience ZE trucks and have comparable "real-life user experiences to those that have been successful in developing the light-duty ZEV market.

The HD/MD zero emission pilot program would showcase both battery electric and hydrogen fuel cell trucks. The pilot program would also showcase plug-in and hydrogen infrastructure. The pilot program should allow owner-operators to utilize ZE trucks for an extended amount of time to evaluate not only how these vehicles drive, but more

importantly how ZE trucks can fit into their business operations and day-to-day processes. Additionally, an “extended evaluation” program can highlight opportunities/challenges with infrastructure development and allow proper planning before fully committing to ZE trucks. Furthermore, it would provide opportunities for NESCAUM and the states to develop private/public partnerships to fund such initiatives.

California recently concluded a series of short-term demonstration programs called ZANZEFF (Zero and Near Zero Emission Freight Facility). Under ZANZEFF, private and public funds were utilized for projects designed to accelerate adoption of clean transportation technologies for goods movement. Some of the initiatives were six months long and allowed the state, OEMs, and fleets to collect data on vehicle utilization and charging/fueling experience. We recommend a similar approach for pilot programs across the Northeast states as these states have differing topographies, climates, energy resources, types and weights of freight, frequency of movement, and population density than California, and therefore need customized approaches.

INCENTIVES

Another possibly challenging aspect of ZE trucks is the upfront cost. Owner-operators may desire to purchase or lease ZE trucks, but upfront costs could be prohibitive with initial purchase/lease prices are often more than twice the price of traditional diesel vehicles with comparable range today. The ZE Action Plan talks about lower total cost of ownership (TCO), but TCO is not a feasible metric for market success if there isn't enough capital available to acquire, own, and operate ZE trucks.

States can mitigate some upfront cost barriers by developing state-sponsored incentive programs to help bridge the upfront cost gap. Toyota recommends a combination of incentives that may appeal to various parts of the owner-operator spectrum to support adoption of ZE trucks:

- **Purchase vouchers:** Similar to California's Hybrid and Zero-Emission Truck and Bus Voucher Incentive Project (HVIP) program, owner-operators can apply for vouchers to be used on certified ZE trucks and help off-set some upfront purchase cost. Additional voucher amount should be made available to fuel cell technologies given the (current) additional cost of fuel cell powertrains compared to battery powertrains for HD/MD applications.
- **Government-backed truck loan assistance program:** Similar to SBA loans, states can create funding mechanisms to guarantee loans or residual values on leases. This provides surety to lending institutions on new technologies with an unknown track record and provides security for owner-operator that the state government supports their investment in new, unproven technologies.
- **Sales tax and registration fee support:** Sales tax and yearly registration fees can significantly increase the total cost of ZE trucks due to their significantly higher price. States should consider sales tax and registration fee support in which ZE trucks can be exempt from sales tax and registration fees, or ensure parity between ZE trucks and their comparable diesel/gasoline version.

INFRASTRUCTURE

Infrastructure needs to arrive before the vehicles. Without hydrogen refueling or charging, the zero emission MD/HD market will not develop, and regulation will fail.

We believe that fuel cell powertrains provide the best path forward for heavier truck classes needing significant range due to the higher energy density and faster refilling times of hydrogen. As a result, MD/HD ZEV infrastructure should not be limited to electric charging, but also include hydrogen infrastructure. Furthermore, fueling infrastructure needs to be redundant and provide a predictable and reliable charging/fueling experience.

Strong upfront support, in terms of financial and manpower resources, is the best way to accomplish this. Recently, California announced its multi-year, multi-billion budget to support clean transportation. A significant component of the budget proposal is funding for MD/HD ZE infrastructure (both electric charging and hydrogen). NESCAUM states need to make comparable investment toward development of public infrastructure.

States should also develop mechanisms to encourage private sector investment into infrastructure development. One of the widely known and successful programs is the Low Carbon Fuel Standard (LCFS). California, Oregon, and Washington have already adopted the LCFS and harvested the benefits of this initiative. LCFS creates incentives for private entities to invest in electric charging and hydrogen infrastructure and drives progress towards lower carbon intensity fueling pathways. Furthermore, with capacity credits, the program enables investment in larger stations designed to meet future demand growth and not just initial demand. Capacity credits are pivotal in motivating private industry investment into ZEV infrastructure as they help station providers bridge the financial gap between stations coming online and sustaining enough vehicle volume throughput (or demand) to be financially sustainable. States should adopt LCFS with capacity credits, or an equivalent initiative, to support ZEV mandates.

Given the various duty cycles and use cases for commercial trucks, public infrastructure needs to be readily available in urban, suburban, and rural areas. Furthermore, as noted within the ZEV Action Plan, investments in disadvantaged communities are critical for success in reducing air pollution and ensuring equity. We recommend that states consider adding further incentives or support programs to help bring zero emission infrastructure and vehicles specifically to disadvantaged communities where they are often needed most. This could be accomplished via activities including designated economic development zones with relaxed permitting, public-private land development partnerships, vehicle purchase assistance or tax incentives for vehicles to be used within disadvantaged communities.

Mandates alone will not achieve the Northeast states' goals of decarbonizing the MD/HD transportation sector. Toyota believes investment into outreach/education, incentives, and infrastructure are just as critical as proposing regulatory mandates to meet customer needs and create a market demand from end users. There needs to be continuous investment of resources by NESCAUM and the states to make regulations successful. Toyota is willing

and interested in having further dialogue on our comments. For further questions, please contact Glenn Choe, Principal Engineer, at glenn.choe@toyota.com or 502-542-9078.

Sincerely,

A handwritten signature in black ink, appearing to read "F. Turatti". The signature is fluid and cursive, with a prominent initial "F" and a long, sweeping tail.

Fred Turatti

General Manager Environmental Regulation
Sustainability and Regulatory Affairs