



August 28, 2023

Lynne Cayting
Mobile Sources Section in the Bureau of Air Quality
Maine Department of Environmental Protection
17 State House Station Augusta, ME 04333

Re: Rulemaking Comments for Chapter 128, Advanced Clean Trucks Program

Chief Cayting,

Please accept this letter on behalf of the Associated General Contractors of Maine (AGC Maine) as our official comments for Rulemaking of Chapter 128, Advanced Clean Trucks. AGC Maine is a statewide commercial construction trade association representing contractors, suppliers, and service providers. We are opposed to Maine's Adoption of the proposed rule as petitioned and within this letter describe our primary concerns with the policy.

AGC Maine has been and continues to be engaged with efforts to improve our environment and specifically reduce greenhouse gas emissions within our industry and through the infrastructure we build. Since the creation of the Maine Uniform Building Codes, AGC has been a leader in the statewide code adoption to improve the quality of built structures and create consistency in the market, including the energy code. Additionally, we've actively participated and have representation on the Maine Climate Council and the Transportation Working Group.

For decades, members have constructed renewable energy generation infrastructure, including 100% of our land-based wind. AGC Maine has supported emerging renewable markets and upgrades to our transmission and distribution network that delivers power in our state and in the ISO New England Region. Members and the AGC Maine team participated in the offshore wind roadmap and the offshore wind port decision-making process. We are also a part of the Governor's Energy Office Clean Energy Partnership, training the workforce for clean energy jobs. I mention that information to demonstrate that we are and will continue to be involved as Maine pursues both climate and energy goals. We recognize the unique balance of economic and environmental policy that can coexist and be mutually beneficial to the people of Maine.

California's Advanced Clean Trucks places a difficult challenge on the construction industry. We are keenly aware that the policy is not a mandate to purchase but instead creates increasing sales percentages for the medium and heavy-truck market. But it's critical to consider the real and significant limitations of the equipment that we need to build Maine's infrastructure and the practical outcomes that will result from this policy. More importantly, understanding the consumer requirements before placing mandates should be part of the consideration.



Equipment

AGC Maine is a Chapter of AGC America, founded in 1918, and through that relationship attends a national expo every three years known as Con Expo, in Las Vegas, the largest construction trade show in the world. Each year new equipment is presented by manufacturers who continue to make advancements in zero-emission technology. While the majority of construction equipment in the ZEV market is smaller machines, additional larger units continue to be unveiled. They have some advantages, less noise, emission elimination or reduction during operations but they also require available electricity charging locations or portable charging units. I mention this to share that the market is evolving, and technology continues to improve, including new models that offer drone-style options where operators control units from onsite or offsite offices.

When AGC Maine was first presented with the efforts in California through conversations at the Maine Climate Council, the Transportation Working Group deliberated the initiative. Associations, including AGC Maine, which represents equipment operators, strongly felt the path forward is to explore “bridge solutions” such as biodiesel to cut GHG emissions until the market can meet the demands of any given job. This discussion continued past the official working group where stakeholders met with manufacturers, advocates, and other entities in North America who were putting ZEVs into use.

As stated by a medium and heavy-duty truck dealer during the hearing, the market for construction vehicles is not planned for the near future. During our stakeholder discussions, we only found one instance where a dealer in Canada retrofitted a ZEV cab with a diesel-generated dump body. In the construction industry, most vehicles require power to control the equipment added to the cab and chassis. The list of additional equipment is extensive, but some examples include dump bodies, truck-mounted cranes, pumps, boom trucks, material handlers, snow removal equipment, service bodies, and many other unique uses. Each of these requires power, and given the current run-time for battery technology, there isn't a current solution on the market.

The range discussion is also problematic for the construction industry. We have received various reports, and while some studies indicate the range will fall between 100-200 miles for vehicles in Chapter 128, our concerns are numerous. Since construction sites vary in many ways, location, type, distance, remoteness, and during all weather conditions the available onsite resources for charging are non-existent. In fact, during new construction permanent power to the site is often completed in the final phases, meaning no or limited power capacity for charging options. That doesn't include the necessary charging components for vehicles that would be required. For instance, the construction of a hydropower facility in a rural location would require a diesel generator to charge ZEVs—undermining the intent.

What does that mean for the industry and the end consumers, both public and private? If the limited range continues to exist for ZEVs, construction firms will need to accommodate by having backup units. With the current costs two to three times higher for ZEVs, the expected operator downtime, Maine's



construction projects will face much higher costs. Both public and private project owners have lamented over the recent inflation related to construction. Year over year ~20%+ inflation has reduced the capacity to repair and build public infrastructure and placed constraints on investment. Because construction is reliant on both human skills and equipment, this expense will be extraordinary and more evident in areas where limited power resources exist. For instance, rural renewable energy projects, agricultural facilities, and rural transportation projects. But getting power to our sites in urban areas during construction is also a barrier.

Run time for units is especially important during unplanned construction projects or long-duration scenarios. It's best to share examples that occur throughout Maine. When a water main break occurs, crews remain on-site to repair and make the infrastructure passable for the traveling public. A break that occurs on a busy morning could last overnight. Snowplowing operations, which can last days, require equipment to be operational throughout a storm and even days following for cleanup and removal. In some situations, such as the Verana Street Bridge, general construction operations run 24 hours. Today, fueling a truck today can be measured in minutes, not hours.

Transmission and Delivery

According to the U.S. Department of Energy Information Administration, Maine is the most rural state in the United States¹, "Overall, Maine has more than three-fifths of its population living in rural areas, the largest proportion of any U.S. state." The apparent barrier to converting to ZEVs is the capacity to meet changing demands at all corners of the state coupled with range limitations. Simply stating, as heard during proponent testimony at the rulemaking hearing, that the system will adjust to new demands is shortsighted.

A study by Bates White Economic Consulting² estimated the "Incremental costs of new generation capacity needed to meet demand from electrification of heating will require investment on the order of \$40 billion in New England alone, and additional costs for required upgrades to the transmission and distribution systems in excess of \$10 billion."

The American Society of Civil Engineers (ASCE Maine) conducts a review of the state's infrastructure every three years in a report that assigns grades, but more importantly, provides documented details of what data was used to determine the assessment, and noted: "Much of the electricity infrastructure in the state was built between 1970 and 1990, meaning the original transmission and distribution network has begun to reach its useful service life."

In the 2020 report, the summary concluded that "Investments on the order of \$1 billion to \$2 billion annually will be needed to begin to meet the state's RPS and increase system reliability," and "As a follow up to the MPRP, an ISO-NE needs assessment studied the Lower Maine transmission system and

¹ <https://www.eia.gov/state/analysis.php?sid=ME>

²² <https://www.bateswhite.com/work-2023-clean-heat-policy-efficacy-in-NE-United-States.html>



showed various time-sensitive needs (thermal capability, voltage level, stability response, or other performance criteria) on the 115 kV system and high voltage needs under minimum-load conditions on the 345 kV system at minimum-load levels. A separate Upper Maine solutions study was initiated to solve the time-sensitive criteria violations identified in the Upper Maine needs assessment. The study found the Upper Maine 115 kV lines are exceeding their ability to serve load efficiently and effectively. The study also found the lines are insufficient to reliably integrate the multiple proposed northern Maine wind generation projects.”

Estimates in California³ project the state will need \$50 billion for T&D upgrades to meet the demands of their 2035 goals. In a recent news article, the need for reliable generation and delivery was highlighted when California Energy Commissioner Siva Gunda said, “Reliability keeps you awake,”

For construction, the industry would require charging units for nearly every operating vehicle. A Global Consulting Group, BCG, used this example⁴ to demonstrate grid capacity:

“To understand why, imagine a fleet of 200 public-transit buses charging simultaneously. If they were all to charge overnight using an 80-kilowatt (kW) charger, which charges at a relatively slow rate, they would demand 16 megawatts (MW) of grid capacity. However, if even 20% of those buses needed to charge quickly during the day (using 450 to 500 kW chargers for roughly 10 to 15 minutes), they would require 18 MW of grid capacity. That is the same amount of capacity demanded by roughly 3,000 homes at their peak capacity needs.”

The public resistance to new transmission delivery, and upgrades, has been well documented and publicized. Ironically, one of the chief proponents of this rule has ceremoniously objected to the delivery of new transmission lines that would deliver energy into our market. Besides the permitting barriers, timeline, and public objection the costs for upgrades will receive criticism from ratepayers who will seemingly pay for upgrades.

The construction industry has an additional obstacle to consider. Many workers are assigned vehicles that are brought home after a shift. That will require additional charging units at their residence. That has several open questions:

- Will the home have the capacity for a charging unit?
- Does the employee accept the installation of the charging unit?
- How is the employee compensated for the cost of charging and of course installation of the unit?
- What insurance liability must be considered for home charging?
- During a work separation what process will be used to recoup the cost of the charging unit or remove the unit and who owns the unit?

Each home installation will have unique circumstances, and each charging unit has expenses related to that specific location. Today the employee can simply use a fuel card or company credit card for fueling

³ <https://www.cnbc.com/2023/07/01/why-the-ev-boom-could-put-a-major-strain-on-our-power-grid.html>

⁴ <https://www.bcg.com/publications/2019/costs-revving-up-the-grid-for-electric-vehicles>

or in some cases fuel at the company's depot. The new scenario has added management responsibilities and distinct complications that do not exist today.

While the Commission discussed fire safety, and some have dismissed concerns, both the National Fire Protection Association and local fire departments have shared publicly the problems extinguishing EV car fires. It's not the rate of fires when compared to traditional vehicles, it is the ability to put out the fire. Some departments are encasing units in steel con-ex boxes and sealing the units after a fire. Lithium-ion batteries generate their own heat and oxygen, and the battery case must be cooled down to stop the fire.

Saltwater interaction with the battery can cause a fire. The NFPA⁵ recommends moving vehicles 50 feet from any structures or flammable material when encountering saltwater. This is a serious concern during construction activity along our coastline or storage of vehicles at a residence.

EV fires can re-start after putting out the fire and require monitoring by public safety. Since the firefighters have to place water directly on the battery unit it creates a higher risk and more water resources. In one case a fire reignited five days⁶ after the unit was towed to a salvage yard. Moving an EV vehicle is also a new challenge for responders. First, the vehicle cannot be loaded easily on a town truck and requires a dolly system since the vehicle cannot be moved into neutral. When storing in a salvage yard companies will need to ensure the vehicles have 50' clearance of other vehicles and structures and that will significantly change the design of those yards, especially in urban areas with space restrictions.

For heavy and medium-duty trucks these risks are elevated because of their size. It's likely that public safety will need to acquire new rotator trucks to lift and move vehicles. The NFPA studied the water required, the firefighting approach, and the time required to put out a fire. The primary challenge was the location of the EV battery, which varies among models, and is often protected from water being applied directly to the unit.

We mention this because it's a new concern, and before adopting a policy that places more units in operation investment should be made in our fire departments in education and equipment.

Costs

During the public hearing, the costs for EVs were touted as lower when compared to the life cycle of traditional vehicles, and while we know the units are currently 2-3 times more expensive there are other considerations. We question the calculation of that when applied to commercial applications like construction, with several questions:

- Does this include the individual charging units required at the company offices and homes for operators?

⁵⁵ <https://www.usfa.fema.gov/blog/jg-102022.html>

⁶⁶ <https://www.nfpa.org/ev>

- What additional liability insurance will be required to operate under these scenarios?
- Is the cost of additional transmission and delivery resources required included?
- What financial considerations were used to determine charging downtime and backup units to ensure range doesn't compromise the ability to perform their job?
- What investments will be made to train mechanics and was that calculated?

Alternatives

During our coalition working group meetings, we discussed the possibility of hydrogen and biofuels for use in medium and heavy-duty vehicles. Currently, hydrogen units are limited, and access to fuel is non-existent but some promise that it could be similar to the current system of fueling with diesel if investments were made in new infrastructure. Some believed that hydrogen would be a good alternative if the technology and fuel could be sourced as it would provide the necessary power for operating the vehicle and accessory equipment.

Biodiesel is currently being used and tested by the Maine Department of Transportation. While the resources are limited in Maine right now, our wood resources show promise that Maine could be a potential leader in the industry. It would also be beneficial if our current network of fuel distribution could be utilized to deliver biodiesel to the market.

A study by Bates White Economic Consulting⁷ determined that “Based on data from California’s successful Low Carbon Fuel Standard (LCFS) Program, we can estimate that incorporating renewable diesel and biodiesel for heating in the Northeast could result in net emissions reductions of around 7 million metric tons of CO₂ annually.”

Conclusion

We appreciate the ability to comment on this proposed rule and the direct questions during the public hearing by members of the Commission. It’s our opinion that the market is evolving, and new technology will provide additional consumer choices, but mandated sales as proposed in the rule are problematic and unnecessary. After years of participating in discussions on the emerging ZEV market, we still have many unanswered questions and, in the end, the construction industry needs to have access to the tools to build infrastructure.

In other states and Quebec, the government prepared for the transition with investment incentives, and education programs for mechanics that accompanied their policies. Maine is proposing mandatory sales percentages without the additional funding required to prepare. As reported by proponents during the hearing, Maine is studying the need for our grid to meet future electrification demands.

⁷ <https://www.bateswhite.com/work-2023-clean-heat-policy-efficacy-in-NE-United-States.html>



AGC MAINE
THE CONSTRUCTION ASSOCIATION

AGC Maine supported a bill in the most recent session titled LD 122 “An Act to Authorize the Efficiency Maine Trust to Establish a Program to Support the Uptake of Medium-duty and Heavy-duty Zero-emission Vehicles by Maine Businesses and to Establish a Medium-duty and Heavy-duty Zero-emission Vehicle-to-grid Pilot Project.” The bill was carried over but demonstrates we are committed to exploring new options, but we should complete the necessary due diligence before adopting these rules.

AGC Maine will continue to participate and assist as our state continues reducing greenhouse gas emissions and we will work to improve our industry. We strongly encourage the Commission to reject the current proposal, allow the market to evolve, and slowly introduce the units so our systems can accommodate change.

Sincerely,

Kelly Flagg

Executive Director

Associated General Contractors of Maine