

Public Hearing – March 5, 2020
Energy and Technology Committee

Testimony Submitted by Commissioner Katie S. Dykes

Senate Bill 10 – An Act Concerning Certain Recommendations Regarding Climate Change

Good morning Senator Needleman, Representative Arconti, Senator Formica, Representative Ferraro and members of the Energy and Technology committee. Thank you for the opportunity to present testimony regarding Senate Bill 10 – An Act Concerning Certain Recommendations Regarding Climate Change. The purpose of this bill is to ensure Connecticut is able to meet its air quality and climate change goals, and to put Connecticut on a pathway to achieve a 100% zero carbon electric sector by 2040. The Department of Energy and Environmental Protection (DEEP) **supports** this bill and thanks Governor Lamont for proposing it.

Section 1

Section 1 of the proposal would require DEEP to assess the California Air Resources Board (CARB) medium and heavy-duty vehicle emission standards and determine if adoption of the CARB standards are necessary to meet Connecticut's air quality and climate change goals. Further, the proposal would grant DEEP the authority to adopt such standards by regulation, provided they are identical to those adopted by CARB as required by the federal Clean Air Act (CAA). This section also includes a provision if necessary, to adopt medium and/or heavy-duty inspection and maintenance standards by regulation after consultation with the Connecticut Department of Motor Vehicles, to ensure emissions reductions achieved from the vehicle standards are maintained throughout the life of the vehicle.

DEEP supports these provisions because Connecticut is in nonattainment with the 2008 and 2015 ozone National Ambient Air Quality Standards. Oxides of nitrogen (NO_x) are a central component to the formation of ozone, a harmful air pollutant that contributes to poor air quality and exacerbates both acute and chronic respiratory problems such as asthma, chronic obstructive pulmonary disease, and other lung diseases. Connecticut air quality monitors record some of the highest ozone levels in the eastern United States, especially along heavily trafficked transportation corridors where criteria air pollutant emissions are most densely concentrated. Mobile sources account for sixty-seven percent of NO_x emissions in Connecticut.¹ Of that, heavy-duty vehicles account for forty percent of emissions, the largest single source within the mobile source inventory, and are projected to account for as much as sixty-six percent of mobile source emissions of NO_x by 2045.²

In 2016, Connecticut joined with several other jurisdictions to request that EPA undertake a rulemaking to adopt heavy-duty standards for emission of NO_x by January 1, 2024 at the latest,

¹ 2014 National Emission Inventory, available at <https://www.epa.gov/air-emissions-inventories/2014-national-emissions-inventory-nei-data>

² CT Department of Transportation Ozone and PM_{2.5} Air Quality Conformity Determination of the 2019-2045 Metropolitan Transportation Plans and the 2018-2021 Transportation Improvement Programs. February 2019, revised April 2019.

as a critical and necessary step to mitigate the harmful effects ozone.³ In the request, the petitioners highlighted the need for federal heavy-duty emission requirements, in part because many states will not meet the 2008 and 2015 NAAQS ozone standards without federal action to reduce air pollution beyond their jurisdiction. On January 20, 2020, EPA announced intent to adopt heavy-duty standards. However, under a recently published advanced notice of proposed rulemaking, potential EPA regulations would not go into effect until 2027 or possibly as late as 2030. In contrast, CARB is anticipated to adopt regulations in the 2020-21 timeframe and would begin the phase-in of new standards as early as 2024.

DEEP is requesting the authority to assess the energy, environmental and air quality impacts of emission standards under development by CARB for medium and heavy-duty vehicles. The authority to assess and potentially adopt these standards is needed now due to lead time requirements set forth in CAA section 177, which require vehicle manufacturers be provided at least two model years (i.e., four calendar years) notice prior to implementation. Connecticut will not meet its air quality and aggressive greenhouse gas reduction targets without addressing the medium and heavy-duty vehicle sector. Based on recent federal action, it is abundantly clear that EPA will not adopt and implement sufficiently stringent standards in a timely manner.

The states of California, Connecticut, Maine, Massachusetts, New Jersey, Oregon, Rhode Island, and Vermont, and the District of Columbia signed a statement of intent on December 12, 2019 to signal their interest in regional adoption and implementation of the California Clean Trucks program, similar to the 2013 multi-state ZEV MOU.

Section 2

Section 2 of this bill codifies a critical goal articulated in Governor Lamont's Executive Order 3 of achieving zero greenhouse gas emissions from the electric generation serving Connecticut's electricity consumption by 2040. Establishing a statutory target of zero greenhouse gas emissions (GHGs) for the electricity grid by 2040 assures that the electric grid's trajectory of significant GHG reductions will not only continue but accelerate over the next two decades. More than a dozen states have adopted some form of 100% clean, zero-carbon, or renewable goal in recent years. With this legislation, Connecticut would join seven other states and Washington D.C. in making these commitments in statute.

Connecticut is already well on its way to electric sector decarbonization. Since 2012, DEEP has procured the equivalent of 80.2% of the load of the electric distribution companies from zero carbon resources, including 54.8% under PURA-approved contracts (Revolution Wind, solar, energy efficiency, and nuclear energy from Millstone and Seabrook), 14.4% from contracts currently under negotiation from Park City Wind that await PURA approval, and 11% in additional environmental attributes from Millstone. Energy efficiency programs have also enabled the state to reduce overall energy consumption, another cost-effective step bringing Connecticut closer to the target of a zero.

Collectively, these projects are not only advancing our goal of a zero-carbon electric grid, but also boosting clean energy jobs and driving economic development in our state. They are also helping our state and our region end dependence on fossil-fueled power plants that endanger the

³ Petition for Rulemaking to Adopt Ultra-Low NOx Exhaust Emission Standards for On-Road Heavy-Duty Trucks and Engines

climate and pollute the air we breathe. Over the last several years, Connecticut has been able to leverage falling prices for renewable energy through the use of competitive RFPs

The regional grid from which Connecticut draws power has become markedly less carbon intensive as most coal- and oil-based generation has been displaced, and as the New England states have incentivized more solar and wind resources. Although Connecticut has made significant progress in electric sector decarbonization, the electric sector remains one of the largest contributors of GHG emissions.

Unlike some of the other sectors (e.g., industrial), the electric sector has a clear path to zero carbon via deep penetration of zero-carbon energy resources. Costs of renewables, battery storage, and other technologies have come down significantly in recent years, and are expected to continue to decline. Electric grid decarbonization also creates important decarbonization opportunities for the transportation and thermal sectors. Deep greening of the electricity grid is the linchpin of a multi-sector decarbonization strategy that includes the electrification of the transportation and heating sectors. By following this strategy, Connecticut can allocate the majority of its 2050 emissions to segments and sectors where decarbonization is more expensive or technically challenging: aviation, heavy-duty vehicles, industry, agriculture, and waste.

Section 3

Section 3 allows DEEP to competitively procure up to 300,000 MWh of electricity (equivalent to approximately 1% of Connecticut's load) from passive demand response measures, active demand response measures, and energy storage systems. These resources are critical for Connecticut to achieve its emissions reduction goals as they enhance the grid's stability and reliability to balance the deployment of intermittent resources such as wind and solar.

This procurement authority will secure resources that support Connecticut's path toward grid decarbonization in three basic ways, by: (1) statically reducing overall electricity demand (passive demand response); (2) dynamically reducing demand more deeply during periods of greatest grid stress (active demand response); and (3) storing clean energy when it is readily available, then rapidly deploying it during periods of grid stress (storage).

Together these resources will help minimize the need for carbon-based generation, especially during peak demand. They will also strongly complement Connecticut's procurement of solar and wind energy to help satisfy a larger proportion of the state's electricity needs with zero carbon energy for more hours and enhance the grid's stability and reliability by helping to tame the daily and seasonal swings of the demand curve.

DEEP supports each of these resources for their unique benefits and contributions to a clean energy grid:

- *Passive demand response* provides energy-efficiency measures that suppress demand [KW] on an ongoing basis and reduce consumption [KWh]. Examples of passive demand response measures include installation of LED lightbulbs and high-efficiency appliances. Connecticut has already seen the direct benefits of investing in passive demand response in the success of its regarded energy-efficiency programs. Through the implementation of these programs, Connecticut has experienced a steady decline in energy demand and

peak demand, even as projections indicate that energy usage should be increasing.⁴ According to the ISO-NE, passive demand response will continue to reduce Connecticut's energy demand by an average of 3 percent per year in the next decade.

- *Active demand response* temporarily suppresses demand during specific periods of high grid demand (daily and/or seasonal). It does so by financially rewarding customers who voluntarily agree ahead of time to respond to utility signals to reduce demand during particular hours when demand across the grid is expected to be high. Active demand response helps reduce peak energy needs, when high demand would otherwise require dirty fossil generators to turn on.
- *Energy storage systems* can absorb excess clean energy during periods of renewable generation. Generation from resources like wind and solar are intermittent and otherwise create pockets of high energy production when there may not be enough demand to use it all. Additionally, during periods when they are not producing energy, fossil fuel resources need to fill the gaps. With energy storage, excess energy produced by renewable generating resources can be absorbed and stored to use during the hours when fossil generation would otherwise be needed.

By enabling DEEP to procure these resources as complements to existing procurement authority, Connecticut will be able to better optimize the grid in furtherance of the goal in Section 2 of this bill.

DEEP recommends two minor changes to this bill. See Attachment A for proposed language. In subsection (a) of Section 3, DEEP proposes removing the words “of electricity” from the last sentence, since energy efficiency and demand response constitute reductions of electricity rather than electric generation. In subsection (e) of the proposed language, DEEP recommends excluding resources selected pursuant to this section from the Class III source definition in order to avoid upsetting the balance of the current Class III Renewable Energy Certificate (REC) market. This recommended change follows discussions with stakeholders with existing Class III sources. These resources would still count towards our progress in meeting the state's climate goals, but they would not disrupt the Class III REC market.

Thank you for the opportunity to present testimony on this proposal. Should you have any questions, please do not hesitate to contact Mandi Careathers, the Department's legislative liaison, at Mandi.Careathers@ct.gov.

⁴ ISO New England. 2019. *2019 Forecast Data*. <https://www.iso-ne.com/system-planning/system-forecasting/load-forecast/>