Public Hearing – Monday, February 27, 2023
Environment Committee

Testimony Submitted by Commissioner Katie S. Dykes

Senate Bill No. 979 - An Act Promoting Energy Affordability, Energy Efficiency and Green Cities

Thank you for the opportunity to present testimony regarding House Bill No. HB 979 – An Act Promoting Energy Affordability, Energy Efficiency and Green Cities. HB 979 includes critical provisions that will lower electricity bills for ratepayers, advance Connecticut's climate commitments by helping decarbonize buildings and the power sector and address environmental justice by rectifying inequities in urban tree cover. This legislation will further ensure Connecticut is able to take advantage of unprecedented federal funding under the Bipartisan Infrastructure Law and Inflation Reduction Act.

The Department of Energy and Environmental Protection (DEEP) strongly supports this bill for the reasons stated below.

Transmission

Section 1 authorizes DEEP to procure the electric transmission infrastructure needed to support renewable resources so that Connecticut can reach its legislative goal of a zero-carbon electric supply by 2040. DEEP plans to pursue a comprehensive approach in conjunction with other New England states to address electric transmission infrastructure upgrades and deployment. Increased transmission capacity will, in turn, unlock clean energy resources, diversify our energy supply, lower overall costs, improve resiliency and reliability, and reduce reliance on supply-constrained natural gas that has caused significant price increases and threatened winter reliability.

Hydropower and offshore wind are essential to decarbonizing Connecticut's electricity system.[1] Large-scale hydropower is a lower-cost and emission-free resource. To access it, we need new transmission infrastructure. Offshore wind also generally performs well during the winter and is a key resource for improving the winter reliability of our electric grid. To take advantage of this opportunity, Connecticut and other New England states are coordinating efforts to plan for new transmission capacity to connect offshore wind farms to the New England grid, with fewer, larger lines that involve fewer environmental impacts compared to siting many, smaller lines.

DEEP has deployed its existing clean energy procurement authority to build out smaller scale renewable projects constructed on land and the initial offshore wind projects, with associated transmission, selected by the State. However, this existing authority will likely be exhausted

[1] *See* Connecticut Integrated Resources Plan, https://portal.ct.gov/-/media/DEEP/energy/IRP/2020-IRP/2020-Connecticut-Integrated-Resources-Plan-10-7-2021.pdf

soon and is not flexible enough to meet all of the challenges presented by offshore wind development, one of New England's highest capacity renewable resources. A different paradigm on transmission infrastructure procurement, as authorized by this bill, would better enable DEEP to cost effectively deploy offshore wind and other resources, such as hydropower, in sufficient quantities to meet the State's greenhouse gas reduction goals and to ensure reliability during the transition away from fossil fuels as the dominant source of energy in New England.

Critically, transmission investments are necessitated by the scale of planned and proposed offshore wind development in the region. The first few large offshore wind projects being developed in the region will interconnect to existing points on the regional grid where fewer transmission upgrades are required. However, the New England states have now contracted for more than 4,000 MW of offshore wind, with more being considered. This new volume would need significant transmission improvements.

Experience has shown that it takes 8-10 years to design and build a major new transmission project, while offshore wind turbine projects can be built in 3-5 years. It is essential to act now. Massachusetts' Department of Energy Resources has express authority to procure transmission already and, should we want to work collaboratively with our sister New England states to capture even greater efficiencies, Connecticut should have similar clear and express authority.

Expanded transmission authority will also allow DEEP to act more nimbly when presented with significant federal funding opportunities focused exclusively on transmission infrastructure under the Bipartisan Infrastructure Law (BIL). Connecticut is leading the regional effort to secure these federal transmission funds, and full applications under the first opportunity are due in May 2023. While existing transmission procurement authority is sufficient for now, the proposed additional authority here would ensure the state can leverage the opportunities to the greatest extent possible.

Home Energy Labels

Sections 2 and 3 require landlords to provide prospective renters with a home energy label, a tool that promotes transparency regarding energy use and cost, before renters sign a lease. Disclosing this information will help people choose residences they can afford to heat and cool and will give an incentive to residents and landlords to increase buildings' energy efficiency. DEEP will develop a label that landlords can produce cost-effectively and without professional assistance.

Advantages for both renters and landlords. Renters use home energy labels to get the information required to compare how much it may cost to heat and cool a home and the relative affordability and comfort of a home. Without the home energy label or an energy efficiency score, renters have no means of knowing if the building or the equipment is inefficient and likely to lead to high energy costs.

This information is particularly important for low to moderate income households who face the highest energy burden and often get locked into a lease or purchase that results in unexpectedly high monthly energy bills. For many Connecticut residents, energy bills are the highest annual housing cost outside of mortgage payments or rent. On average, the annual cost for electricity alone for single-family homes in Connecticut is approximately $3,156, approximately 30% higher than the national average.[2] Renters are particularly at risk of facing high energy burdens; the nationwide median energy burden of renters is 13 percent higher than that of owners.[3] Inability to pay can result in utility shutoffs, a primary cause of homelessness in the United States. Landlords can use the information on the home energy labels to find ways to improve their building's envelope, heating and cooling systems, and to market energy efficiency investments to prospective renters.

Complementary programs. Incentive and rebate programs support property owners in improving the energy efficiency of their buildings. These programs provide incentives and rebates for getting a home energy audit, obtaining a Home Energy Score, and making upgrades to the insulation, replacing lighting fixtures to LED, and upgrading heating and cooling equipment to more energy efficient systems.

The DOE's Home Energy Score, currently offered through the HES and HES-IE programs, allows for an apples-to-apples comparison of single-family homes. It is an asset-based score, meaning it only accounts for the efficiency of a home's envelope, roof, HVAC equipment, and other characteristics. It does not account for the behavioral preferences of an occupant, such as thermostat settings. The Home Energy Score also provides homeowners a list of recommended, cost-effective energy efficiency upgrades that will improve their score further and reduce energy costs. To date, Connecticut has generated over 46,000 Home Energy Scores, most of them through the Conservation and Load Management Plan's flagship Home Energy Solutions program, which is delivered by over 30 different contractors statewide.

This bill adopts a phased approach to implementation. Labeling requirements would begin in areas with the highest energy burdens. This will give residents and the associated workforce time to adapt to the new requirements while prioritizing the areas of greatest need.

Several jurisdictions across the country have adopted similar energy disclosure or labeling requirements. Since 1987, Chicago has required the disclosure of energy information to prospective tenants. Austin, Texas also has a successful home energy labeling program for prospective renters. Many cities and states are opting for some form of mandatory residential energy disclosure requirements, including Alaska, Hawaii, Kansas, Maine, Colorado and South

[2] *See* Energy Sage, Cost of electricity in Connecticut, updated 2/19/2023 at https://www.energysage.com/local-data/electricity-cost/ct/

[3] *ee* ACEE, How High Are Household Energy Burdens? An Assessment of National and Metropolitan Energy Burden across the United States, September 2020, available at: https://www.aceee.org/sites/default/files/pdfs/u2006.pdf

Dakota. Data shows that adoption of disclosure legislation has not had any negative impact on the cost and time of real estate transactions.

This proposal will not only improve housing affordability but also reduce building sector greenhouse gas emissions and help the State in meeting its declared climate goals.

Building Stretch Code

Section 4 authorizes municipalities to require compliance with the zero energy provisions of the latest International Energy Conservation Code (IECC), also known as the Zero Code Appendices. Connecticut's building code, last updated in October 2022, incorporates the 2021 IECC, which allows, but does not mandate, individual construction projects to adopt these appendices. Federal grants are available through section 50131 of the IRA to support local governments in adopting and implementing a building energy code that "meets or exceeds the zero energy provisions in the 2021 [IECC] or an equivalent stretch code." This proposed bill would allow municipalities to take advantage of these federal funds.

The building sector accounted for about 31 % of total greenhouse gas emissions in Connecticut in 2021. Heating, ventilation, and air conditioning comprise 60 % of all building energy consumption, and over 80% of our households and commercial and industrial buildings are heated with fossil fuels.

The Zero Code Appendices, if adopted by a municipality, would offer that locality a tool, through sustainable building practices, to combat excessive energy consumption, rising energy costs, and greenhouse gas emissions. These appendices would apply greater efficiency standards than base code to new buildings and substantial renovations of existing buildings to. It would also require enough onsite or offsite renewable energy production to achieve an Energy Rating Index of zero, or annual net zero energy usage.[4]

This stretch code proposal varies from past proposals that have come before this Committee. DEEP has previously proposed that the state grant towns the authority to adopt a stretch code that allowed for a greater percentage of efficiency over the base code. However, this year's approach is different.

> In the past, stakeholders have voiced concerns that a stretch code could result in 169 different codes in the state, leading to confusion among the home building community. With this proposal, there would only be two types of building codes in the state: those municipalities that decide to follow the base code, and those that decide to add the Zero Code appendices.

Numerous other states have taken this step. Since Massachusetts developed its stretch code in 2009, 90% of towns have voluntarily adopted it. In New York, municipalities can choose to

[4] *See* International Code Council, Net Zero Energy webpage at https://www.iccsafe.org/advocacy/net-zero/.

adopt the NYStretch Energy Code, which is designed to save 10-12 %in energy costs compared to the base code. Several other jurisdictions, including Maine, Vermont, the District of Columbia, and Maryland also have some version of a stretch code, with additional states considering adoption. Analysis of the NYStretch Energy Code found that for a large office building, the incremental first cost is $0.31 per square foot with a simple payback from energy savings of 3.27 years.

If adopted by municipalities, a net zero code could play a critical role in achieving the state's greenhouse gas targets. Given the very long life of a building, it makes sense to build efficient and sustainable buildings from the outset, avoiding emissions and providing energy savings for decades.

Education for Building Professionals

Sections 5 and 6 will require accredited professional education of electricians, plumbers, and heating and cooling professionals who install decarbonized heating and -cooling systems.

DEEP supports this section because a shortage of professionals who are qualified to install modern, highly efficient air source heat pumps is an ongoing barrier to broad employment of such heat pumps – a technology that is key to the state's efforts to decarbonize residences and businesses and meet the state's greenhouse gas emission reduction targets.

Heat pumps represent the leading edge of building thermal decarbonization. These electrical appliances replace or displace conventional air conditioners as well as conventional boilers, furnaces, and water heaters. A cold-climate air-source heat pump typically operates 3-4 times more efficiently than an electric-resistance heater (and remains efficient even below 0 degrees); and a ground-source heat pump does so 4-7 times more efficiently.

A report by Northeast Energy Efficiency Partnerships (NEEP) in 2016 identified several installer-related market barriers, including a shortage of experienced contractors and installers and inadequate familiarity with the technology in the HVAC professional community.[5] Installer training and other kinds of heat pump workforce development will improve heat pumps' ability to compete with traditional fossil-fueled heating technologies and reduce installation costs for consumers. And it will help workers active in businesses that have focused on fossil fuels and fossil fuel technologies to realign their skills and their careers for the 21st-century clean heating and cooling economy.

The federal Inflation Reduction Act's generous financial incentives for adoption of clean energy technologies will supercharge demand for heat pumps in the coming months and years. Connecticut households will receive thousands of dollars in rebates and tax credits on heat pumps, on top of incentives provided by Energize CT. Connecticut's electricians, plumbers, and

[5] Northeast Energy Efficiency Partnerships, "Northeast/Mid-Atlantic Air-Source Heat Pump Market Strategies Report 2016 Update," https://neep.org/sites/default/files/NEEP_ASHP_2016MTStrategy_Report_FINAL.pdf.

HVAC professionals need to be better equipped to engage in that market and in the clean energy transition.

Urban Tree Cover:

This section sets a goal of increasing urban tree canopy cover by 5% in environmental justice residential neighborhoods by 2040. This increase will be measured against a data set and map created by January 1, 2024 to establish a baseline tree canopy cover.

DEEP supports efforts to increase tree canopy cover in environmental justice residential neighborhoods, which are often among the most vulnerable to excessive summer heat and climate change impacts.[6] Trees provide important benefits including improved air and water quality, improved health outcomes for urban populations, and protection of biodiversity.

Trees also help to mitigate the impacts of climate change and urban heat island effect, which can cause cities such as Hartford to be up to 19° warmer than surrounding areas.[7] Research suggests than a minimum canopy cover of 40% is needed to significantly reduce temperatures[8] but in Bridgeport and Hartford, urban tree cover is just 20% and 26%, respectively.[9] Even within cities with relatively high tree cover such as New Haven (38%), low-income neighborhoods have just 23% tree cover. These disparities among communities based on income, temperature and tree canopy cover in Connecticut are among the highest in the nation.[10]

Thank you for the opportunity to present testimony on this proposal. Should you have any questions, please do not hesitate to contact Harrison Nantz at Harrison.Nantz@ct.gov.

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[6] See Governor's Council on Climate Change January 2021 Report, https://portal.ct.gov/-/media/DEEP/climatechange/GC3/GC3_Phase1_Report_Jan2021.pdf

[7] Climate Central. Hartford Climate at a Glance, https://www.climatecentral.org/news/urban-heat-islands-threaten-us-health-17919

[8] Ziter CD, Pedersen, EJ, Kucharik, CJ, Turner, MG (2019) Scale-dependent interactions between tree canopy cover and impervious surfaces reduce daytime urban heat during summer. PNAS 116(15).

[9] Pelletier K. O'Neil-Dunne J. Spatial Analysis Laboratory, University of Vermont.

[10] McDonald RI, Biswas T, Sachar C, Housman I, Boucher TM, Balk D, et al. (2021) The tree cover and temperature disparity in US urbanized areas: Quantifying the association with income across 5,723 communities. PLoS ONE 16(4): e0249715.