



February 17, 2021

VIA ELECTRONIC MAIL

Commissioner Katie Dykes
Connecticut Dept. of Energy and Env'tl. Protection
79 Elm Street
Hartford, CT 06106
Email: DEEP.EnergyBureau@ct.gov

RE: Draft 2020 Integrated Resources Plan

Dear Commissioner Dykes:

On behalf of its 40,000 members and supporters in Connecticut, Sierra Club respectfully submits the following comments in response to the Department of Energy and Environmental Protection's (DEEP's) December 16, 2020 Notice of Release of Draft IRP and Notice of Opportunity for Written Comments on the 2020 Integrated Resources Plan. While the Draft IRP reflects a commendable effort to shape the planning for Connecticut's zero carbon future, the document lacks ambition in select areas that could limit the state's progress in achieving its climate goals and mitigating the impacts of climate change. Connecticut's greenhouse gas (GHG) emission reduction mandates under the Global Warming Solutions Act (GWSA) require a 45 percent reduction in GHG emissions by 2030 and an 80 percent reduction by 2050. In addition, Governor Lamont's Executive Order 3 directed DEEP to identify pathways as part of the IRP to achieve a 100 percent zero carbon electric supply by 2040. Achieving these targets is critical to avoiding the damaging and life-threatening impacts caused by climate change and improving the state's air quality and health of Connecticut's residents. With Connecticut's climate commitments and the urgency of mitigating the impacts of climate change in mind, Sierra Club offers the following recommendations regarding the Draft IRP.

First, Sierra Club supports the Draft IRP's recommendation to codify the requirement to achieve a 100 percent zero carbon electric supply by 2040 but urges that Connecticut must also require 100 percent zero carbon in-state generation by 2040 to ensure the state is truly achieving GHG emissions reductions. With only a commitment to procure 100 percent zero carbon energy, Connecticut could succeed in procuring 100 percent clean energy by 2040, yet still have dozens of gas-fired power plant units emitting GHGs in the state to power other states in the region, thereby undermining the climate benefits of Connecticut's zero carbon procurements.

Second, Sierra Club urges Connecticut to enact a moratorium on new fossil gas generation in the state effective immediately. In order to achieve emissions reductions and mitigate the impacts of climate change in a manner that maximizes benefits and minimizes costs to consumers, the state must stop siting new fossil-fuel projects that are incompatible with the commitments embodied in the GWSA and will be unusable before the end of their economic life.

Such upcoming projects include the proposed 650 MW gas-fired power plant at Killingly and the proposed 375 MW replacement of a gas generator in Middletown.

Third, as the Draft IRP recognizes, the ISO-NE wholesale market design is incompatible with state decarbonization policies and Connecticut must continue its push to reform the wholesale markets to acknowledge and account for resources procured pursuant to state policies. If ISO-NE fails to make significant progress towards submitting a filing to fully accommodate state policies to the Federal Energy Regulatory Commission (FERC) by the end of 2021, Connecticut should consider filing a complaint with FERC directly under Section 206 of the Federal Power Act to eliminate the Minimum Offer Price Rule (MOPR), set a course for broader market reform, and enact changes in governance at ISO-NE to give states more of a voice.

Fourth, the Draft IRP should recommend that Connecticut begin building renewable generation now in anticipation of Millstone's eventual retirement. Rather than accepting that the state will have a large deficit in renewable energy supply and will miss its annual targets once Millstone retires, the IRP should recommend that the state begin building out sufficient renewable resources now to avoid the drop-off in zero-carbon resources reflected in the modeling.

Fifth, Sierra Club cautions that Connecticut cannot rely on additional hydroelectric imports to meet its 100 percent zero carbon electric supply target as such procurements would result in new impoundments which are highly carbon intensive. Procuring hydroelectric imports from new impoundments would not advance Connecticut's objective to achieve zero carbon electric supply by 2040.

I. Legal standard

Pursuant to Conn. Gen. Stat. § 16a-3a, DEEP is required to conduct a biennial assessment of the state's energy and capacity resources and develop an IRP with the stated purpose of "meet[ing] the projected requirements of customers in a manner that minimizes the cost of all energy resources to customers over time and maximizes consumer benefits consistent with the state's environmental goals and standards, including, but not limited to, the state's greenhouse gas reduction goals established in section 22a-200a." Conn. Gen. Stat. § 16a-3a(a). The statute further specifies that DEEP's assessment shall include analysis of:

- (1) Approaches to maximizing the impact of demand-side measures;
- (2) the energy and capacity requirements of customers for the next three, five and ten years,
- (3) the manner of how best to eliminate growth in electric demand,
- (4) how best to level electric demand in the state by reducing peak demand and shifting demand to off-peak periods,
- (5) the impact of current and projected environmental standards, including, but not limited to, those related to greenhouse gas emissions and the federal Clean Air Act goals and how different resources could help achieve those standards and goals,
- (6) energy security and economic risks associated with potential energy resources, and
- (7) the estimated lifetime cost and availability of potential energy resources."

Conn. Gen. Stat. § 16a-3a(b).

In developing the IRP, DEEP is directed to consider:

- (1) Approaches to maximizing the impact of demand-side measures;
- (2) the extent to which generation needs can be met by renewable and combined heat and power facilities;
- (3) the optimization of the use of generation sites and generation portfolio existing within the state;
- (4) fuel types, diversity, availability, firmness of supply and security and environmental impacts thereof, including impacts on meeting the state's greenhouse gas emission goals;
- (5) reliability, peak load and energy forecasts, system contingencies and existing resource availabilities;
- (6) import limitations and the appropriate reliance on such imports;
- (7) the impact of the Integrated Resources Plan on the costs of electric customers; and
- (8) the effects on participants and nonparticipants.

Conn. Gen. Stat. § 16a-3a(d).

II. The IRP Should Recommend Enacting Both a 100% Zero Carbon Electric Supply Target and a 100% Zero Carbon In-State Generation Target for 2040

Sierra Club supports the Draft IRP recommendation to codify the requirement to achieve a 100 percent zero carbon electric supply by 2040 but cautions that this commitment only addresses part of the state's contribution to electric sector GHG emissions—Connecticut must also commit to 100 percent zero carbon in-state generation by 2040 to ensure the state is truly achieving GHG emissions reductions.¹ As noted in the Draft IRP, Connecticut's grid is integrated with the rest of New England, and other states in the region vary in the ambition of their electric sector emissions reductions targets beyond the current stringency of the Regional Greenhouse Gas Initiative (RGGI) cap trajectory.² Connecticut, which is already a net exporter of power generation,³ could succeed in procuring 100 percent clean energy by 2040, yet still have dozens of gas-fired power plant units emitting GHGs in the state to power other states in the region, thereby undermining the climate benefits of Connecticut's zero carbon procurements. Connecticut needs to ensure that it is ratcheting down emissions from in-state sources at the same time it is procuring the zero emission attributes of generation that may be generated out of state. Connecticut's 100 percent zero emission electric sector commitment must therefore contain both a consumption and a generation obligation.

In addition to enacting these zero carbon targets, Connecticut must work with other New England states to ensure sufficient buildout of renewable generation in the region to enable states to meet their zero carbon electric supply targets and to ensure that fossil fuel plants in other states do not increase their run times to make up for the decrease in generation from Connecticut.

¹ As the Draft IRP notes, Massachusetts has already implemented a cap on in-state generation emissions to help the Commonwealth achieve its 2050 decarbonization goals. Connecticut Department of Energy and Environmental Protection, Integrated Resources Plan, December 2020, p. 109 [hereinafter "2020 Draft IRP"].

² 2020 Draft IRP, at 19.

³ Connecticut currently consumes only 73 percent of the electricity generated in the state. 2020 Draft IRP, at 104.

This entails supporting transmission that will unbottle both land-based and off-shore wind. It also entails reforms to the regional wholesale markets that have discouraged renewable energy development.

III. The IRP Should Recommend a Moratorium on New Fossil-Fuel Generation in the State

In addition to a commitment to winding down existing fossil-fuel generation in the state by 2040, Connecticut should enact a moratorium on new fossil-fuel generation in the state effective immediately. The state must stop siting new fossil-fuel projects that are incompatible with the commitments embodied in the GWSA and will be unusable before the end of their economic life. Such upcoming projects include the proposed 650 MW gas-fired power plant at Killingly and the proposed 375 MW replacement of a gas generator in Middletown. These plants are in addition to the 54 large fossil fuel-powered generating units already in operation in the state.⁴

While Connecticut has pointed to flaws in the wholesale electricity markets as encouraging the proliferation of gas plants in Connecticut in recent years,⁵ the state also bears responsibility for continuing to site and permit fossil fuel plants despite its recognition that such generation conflicts with the state's emissions reduction mandates. The Connecticut Siting Council has continued to grant determinations of need to fossil fuel projects because these projects obtained capacity supply obligations (CSOs) in the ISO-NE Forward Capacity Auction (FCA).⁶ However, a CSO for an unbuilt power plant is not a determination that a particular plant is necessary. As the Draft IRP acknowledges, "ISO-NE has consistently over-procured resources in the market," leading to "concern about relying on the ISO-NE capacity market to determine need."⁷ Because ISO-NE consistently over-procures capacity, a capacity supply obligation obtained in the FCA need not be the determining factor in the Siting Council's determination of need. In the case of Killingly, the FCA 13 results indicated that 1,089 MW of surplus supply over the capacity requirement cleared the auction, signaling the lack of need for the 650 MW that would be supplied by that plant.⁸ In addition, the ISO has revised their forecast of necessary capacity down by 1,000 MW from when Killingly cleared the capacity market, further rendering the generation that will be supplied by the Killingly plant unnecessary.⁹ This year the FCA 15 cleared with a reported 1,351 MW surplus,¹⁰ which does not account for additional capacity

⁴ 2020 Draft IRP, at 104.

⁵ 2020 Draft IRP, at 67.

⁶ 2020 Draft IRP, at 108.

⁷ *Id.*

⁸ ISO-NE Press Release, New England's Forward Capacity Auction Closes with Adequate Power System Resources for 2022-2023, https://www.iso-ne.com/static-assets/documents/2019/02/20190206_pr_fca13_initial_results.pdf.

⁹ See Commissioner Dykes response at minute 9:35:30, Energy & Technology Committee August 27th Informational Forum on Tropical Storm Isaias Response and July 2020 Electric Utility Rate Increases, August 27, 2020. ("...I would also note that after the results of that capacity market that cleared the Killingly gas plant and selected it to be funded in the generation mix by the ISO, the ISO then came out and revised their forecast of how much capacity we need in the region to be about 1,000 MW less than what they had assumed in the capacity market that cleared the Killingly plant.")

¹⁰ ISO-NE Press Release, New England's Forward Capacity Auction Closes with Adequate Power System Resources for 2024-2025, https://www.iso-ne.com/static-assets/documents/2021/02/20210211_pr_fca15_initial_results.pdf.

procured pursuant to state policies that is prevented from obtaining capacity supply obligations by Forward Capacity Market rules. Recognizing these flaws in the market and ISO-NE's consistent over-procurement, the Connecticut Siting Council should cease granting determinations of need solely based on a proposed project obtaining a CSO.

In addition, as explained in the Draft IRP, the region is already over-reliant on gas-fired generation, exposing the region to "serious reliability and fuel security concerns."¹¹ Additional gas-fired capacity cannot help with reliability when the New England system actually needs it, as evidenced by shortages and extreme price volatility during cold snaps.¹² A moratorium on new fossil-fuel generation would require the Siting Council to prioritize the state's climate commitments and would allow Connecticut to shift away from this overreliance on gas generation.

IV. Connecticut Must Work with Other New England States to Achieve Reform of Wholesale Electricity Markets

Sierra Club applauds Connecticut's leadership in collaborating with other New England states to work toward a regional solution to the wholesale electricity market. As stated in the Draft IRP, "the conflicts between the ISO-NE wholesale market design and decarbonization policies of states like Connecticut have undermined confidence that the ISO-NE's markets are efficiently and effectively determining resource needs in a manner that is aligned with the New England states' collective clean energy goals."¹³ Connecticut must continue to push ISO-NE to reform the wholesale markets to acknowledge and account for resources procured pursuant to state policies. A voluntary residual capacity market design would be relatively simply to implement and would accommodate state planning and clean energy procurements. In addition, this construct would allow states to pursue decarbonization policy in ways that are sensitive to other social values, instead of a singular focus on cost.

If ISO-NE fails to make significant progress towards submitting a filing to fully accommodate state policies to the FERC by the end of 2021, Connecticut should consider filing a complaint with FERC directly under Section 206 of the Federal Power Act to eliminate the MOPR, set a course for broader market reform, and enact changes in governance at ISO-NE to give states more of a voice. The current FERC is strongly supportive of wholesale market reform, and Connecticut should not miss the opportunity to seek a remedy from FERC if ISO-NE is unwilling to adapt.

IV. The IRP Should Recommend Build-Out of Renewable Generation in the Near-Term to Plan for an Eventual Millstone Retirement

Connecticut must begin building renewable generation now in anticipation of Millstone's eventual retirement. As the Draft IRP recognizes, "With the ten-year contract in place, the State now has time to implement strategies that ensure that it has more zero-carbon options available by the contract's end."¹⁴ Connecticut must use this opportunity to build out renewable resources

¹¹ 2020 Draft IRP, 76-77.

¹² *Id.*

¹³ 2020 Draft IRP, at 108.

¹⁴ 2020 Draft IRP, at 147.

so that when Millstone retires the state will not be left without sufficient carbon-free resources to replace that generation. In all modeled scenarios in the Draft IRP in which Millstone retires in 2029, the model assumes Connecticut will miss its annual targets after the retirement before ultimately achieving 100% zero carbon electricity supply by 2040. The Draft IRP acknowledges that “[e]arlier procurements of renewables would be needed to avoid this temporary dip [in emissions reductions], in the event a Millstone retirement becomes likely.”¹⁵ Rather than accepting that the state will have a large deficit in renewable energy supply and will miss its annual targets once Millstone retires, the IRP should recommend that the state build out renewables now to avoid such an extreme drop-off in renewable supply.

V. The IRP Relies on Canadian Hydroelectric Imports to Meet Zero Carbon Electric Supply Targets Without Full Consideration of Potential Climate Impacts

To the extent the modeling in the Draft IRP relies on additional hydroelectric imports from Canada to meet 100 percent zero carbon electric supply target, Sierra Club cautions that such imports are unlikely to supply Connecticut with energy that is truly zero carbon. Hydro Quebec has already promised any surplus capacity to Massachusetts through the New England Clean Energy Connect line and to New York through the Champlain Hudson Power Express. It is not clear that Hydro Quebec can meet its commitments through both those lines without backfilling with non-zero carbon generation,¹⁶ indicating that Connecticut cannot assume that Hydro Quebec can also provide energy to Connecticut without creating new impoundments. New impoundments are highly carbon intensive as they inundate natural landscapes that function as carbon sinks; inundation not only causes a loss of these natural sinks, but also results in emissions from biomass decomposition, resulting in energy that is not zero-carbon.¹⁷ The carbon footprint is further amplified by ongoing net differences between the carbon uptake and respiration of the pre-flooding and post-flooding biomes and water columns.¹⁸ Given the significant concerns surrounding Hydro Quebec’s ability to supply energy to Connecticut without creating carbon intensive new impoundments, the state should not rely on additional hydroelectric imports to meet 100 percent zero carbon electric supply target.

V. The IRP Correctly Declined to Implement a Thermal RPS

Sierra Club applauds the Draft IRP’s conclusion that a thermal RPS should not be created in Connecticut to support biodiesel blended into fuel oil at this time. As the Draft IRP recognizes, subsidization of biodiesel would support continued reliance on fossil fuel infrastructure given current blend levels and is unlikely to provide significant GHG reduction benefits relative to other renewable thermal resources.¹⁹ Indeed, depending on the production process, feedstock, and timeframe of the analysis, biodiesel may be responsible for even more

¹⁵ 2020 Draft IRP, at 29.

¹⁶ NorthBridge Energy Partners, Canadian Hydropower Exports to the Northeast U.S. New Transmission Corridors Linked to Potential New Dams, at 4.

¹⁷ William Steinhurst, et al., Synapse Energy Economics, Inc., Hydropower Greenhouse Gas Emissions: State of the Research, February 14, 2012, p. 2.

¹⁸ *Id.*, at 2.

¹⁹ 2020 Draft IRP, at 168.

GHGs than fossil fuels on an energy-equivalent basis.²⁰ The Draft IRP also correctly notes that biodiesel combustion would potentially increase NOx emissions, harming both the human respiratory system and the atmosphere as a precursor to ozone.²¹

Regarding the structure of a thermal RPS, Sierra Club also supports the Draft IRP's determination that a thermal RPS as an expansion of Connecticut's existing RPS would result in inappropriate cross-subsidization by electric ratepayers of those heating with fossil fuels and would undermine the state's climate policies. The Draft IRP further correctly concludes that structuring a thermal RPS as a carve-out within the existing RPS would undercut RPS support for expansion of renewable resources on the electric grid, thereby reducing the carbon emissions reduction benefits of electrification of the buildings and transportation sectors and undermining the GC3's central decarbonization strategy.²²

VI. Conclusion

Sierra Club appreciates the significant effort that went into developing the Draft IRP. Sierra Club supports several of the draft's recommendations but believes that the draft does not go far enough to ensure Connecticut meets its climate commitments and achieves the necessary GHG emissions reductions to mitigate the impacts of climate change. The final IRP must build on the draft's recommendations to advise that Connecticut: pursue 100 percent zero carbon in-state generation by 2040; enact a moratorium on new fossil gas generation in the state; ensure the ISO-NE wholesale market is reformed; build out sufficient renewable generation in preparation for the retirement of Millstone; and does not rely on new hydroelectric impoundments to meet 100 percent zero carbon supply targets.

Respectfully submitted,

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²⁰ US EPA, Economics of Biofuels, <https://www.epa.gov/environmental-economics/economics-biofuels> (accessed on January 6, 2020). ("Depending on the feedstock and production process and time horizon of the analysis, biofuels can emit even more GHGs than some fossil fuels on an energy-equivalent basis.") See also, International Council on Clean Transportation, *Biodiesel carbon intensity, sustainability and effects on vehicles and emissions* (January 2012) ("In actuality most biodiesel pathways result in higher net emissions than the combustion of conventional diesel fuel.").

²¹ 2020 Draft IRP, at 166-167.

²² 2020 Draft IRP, at 170.