Restructuring Connecticut's Renewable Portfolio Standard

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EXECUTIVE SUMMARY

Connecticut's existing Renewable Portfolio Standard (RPS) does not align with the Governor's goal of providing cheaper, cleaner, and more reliable electricity for the state's citizens and businesses. The present RPS framework has resulted in the State's Renewable Energy Credits (RECs) coming largely from out of state and not-very-clean biomass burning and landfill gas. The present framework leaves ratepayers exposed to potential price volatility from inadequate supply of renewable power to meet the targets that have been set and to saddle the state with a potential for high "alternative compliance" payments (self-inflicted penalties that do not correspond to renewable power gains). Connecticut's commitment to expanded electricity generation from renewable sources needs to be updated and restructured to ensure that the state will continue to be a driving force in the emerging clean energy economy while recognizing the imperative to hold down electricity costs for ratepayers – protecting family budgets and business competitiveness.

This draft study recommends a new approach to renewable electricity generation. It calls for a revised RPS that would ensure that renewable resources supply an increasing share of Connecticut's electricity, maximize the benefits of a more diverse power supply, improve our electric system's reliability, advance greenhouse gas and air emission controls, and support local renewable projects that bring jobs and revenue to Connecticut's economy while at the same time minimizing the costs for electric ratepayers. Specifically, the draft study proposes to deepen our commitment to renewable energy by raising Connecticut's RPS goal from 20% renewable, class I power generation by 2020 to a target of 25% by 2025, while spurring innovation in the renewable power marketplace by creating a flexible "contracted-tier" structure that will ensure that Connecticut ratepayers are paying as little as possible for this strengthened renewable energy commitment.

This draft study also proposes to reform the existing standards to ensure that the cleanest and most cost-effective renewable energy is being procured for Connecticut ratepayers -- and that Connecticut residents will see the in-state economic benefits associated with the emerging clean energy economy. In particular, the draft study reinforces the commitment to in-state deployment of solar power, fuel cells, and other renewable projects. The draft study also calls for the standards that apply to biomass burning to be tightened and the phase out of REC credit for landfill gas – creating a broader regional incentive for new renewable power projects. It further recommends discontinuing Class III incentives for utility-administered energy efficiency programs that are already ratepayer funded. The policy logic for awarding Class III RECs to these programs (de-funding of the conservation load and management program) no longer holds and the flow of resources to energy efficiency from a various sources is increasing.

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This draft study does not change the basic policy framework of the RPS, which establishes a financial incentive for developers to bring renewable power projects into the marketplace by requiring electricity providers to purchase an escalating percentage of the power they supply from renewable sources. Connecticut's existing RPS thus requires that the state's electricity providers procure 10% of their total electricity from renewable sources this year, rising to 20% by 2020. Owners of electricity generation projects that qualify as renewable under one of the three classes of Connecticut's RPS receive one renewable energy certificate (REC) for every megawatt-hour (MWh) of electricity they produce. These RECs have a dollar value attached to them as power suppliers must reconcile each year the electricity they supply to the marketplace with the RECs they have purchased.

Connecticut's existing RPS dates to 1998, and has escalating commitment to renewable generation designed to achieve several objectives: reduce dependence on fossil fuels, create a hedge against volatile oil and natural gas prices, lower air emissions, and promote clean energy jobs and economic development. The RPS approach was designed to allow more expensive renewable technologies to secure the financing necessary for their development by guaranteeing a market for the power they generated. While these technologies were in their infancy in 1990s, the belief was that the RPS support would spur deployment and innovation in renewable generation that in turn would produce economies of scale and lower prices.

The vision that motivated the launch of the RPS in 1998 remains valid, but the incentives and framework need to be updated and their focus sharpened. In particular, the state needs a refined approach to renewable energy that sets the state up to push past an era of subsidies for clean energy and reward those technologies that are able to compete with and ultimately out-compete conventional fossil fuel electricity generation. For example, the per-kilowatt-hour installed cost of solar photovoltaic (PV) systems has declined by 35% in the past decade, and some experts expect solar PV systems to cost less than retail rates for electricity purchased from utilities within the next five years, even without subsidies.[1] The strategy proposed in this document reflects the need to better harness market forces, and to use policy to drive innovation in the market and maximize deployment by rewarding the lowest cost renewable generation.

An analysis of compliance with the current RPS reveals that Connecticut ratepayers are in immediate danger of shouldering a growing economic burden while receiving little of the environmental or economic benefits envisioned when the original RPS was adopted. This draft study, prepared by the Department of Energy and Environmental Protection (DEEP) in accordance with Public Act 11-80, concludes that there are numerous steps that can be taken to re-craft Connecticut's RPS so as to better achieve those objectives and do so in a more cost-effective way. Among the issues with the status quo:

[1] Black & Veatch, Cost and Performance Data. Available at http://bv.com/docs/reports-studies/nrel-cost-report.pdf.

- In-state renewable projects account for only 11% of Connecticut's Class I RPS standard. This means that 89% of the investment that is being made in renewable generation is being spent outside of the state, and Connecticut does not enjoy the economic benefits associated with in-state projects.
- A total of 76% of Connecticut ratepayer's investment in Class I resources is going to support biomass plants located primarily in Maine and New Hampshire. These plants are among the least "clean" Class I resources and (because many were already in operation when the RPS was enacted).
- Another 13% of Connecticut's Class I requirement is currently supplied by landfill gas projects located primarily out-of-state. The clean energy produced by a few of these projects is already counted towards New York's renewable goals. Consequently, although Connecticut subsidizes those plants through its RPS, the output from these resources is being double counted. In addition, the investment costs for these facilities have long since been recovered which means the REC purpose of supporting investment has already occurred.

The markets for Class II and Class III Renewable Energy Credits (RECs) are also falling short of Connecticut's RPS objectives. These classes within the RPS were designed to drive growth of cleaner and more cost-effective generation as well as energy conservation measures. Both Class II and Class III are oversupplied with eligible resources, resulting in low prices and limited incentives that do little to support new or existing investments. This problem of oversupply is compounded by the fact that Connecticut's Class III tier currently provides incentives for efficiency investments made through the state's Conservation and Load Management programs, which are already supported by ratepayer funds and increasingly leveraged with private capital through the Clean Energy Finance and Investment Authority (CEFIA). To ensure the cost-effectiveness and greater environmental impact of the state's RPS program, this draft study recommends the following changes designed to drive innovation in the marketplace, more strategically align our RPS requirements with those of other states, address the oversupply in some markets, restore meaningful incentives to project developers, secure increasing amounts of clean renewable energy, and reduce overall program costs:

- **Continue commitment in existing programs to maximize deployment of cost-effective in-state renewable power.** As of 2011, Connecticut produced only about 5% (66 MW) of New England's renewable capacity, while accounting for more than a third of the Class I RPS demand in the region. As a result of newly launched renewable energy programs such as the funding coming from the nation's first "Green Bank" and the Low Emissions and Zero Emissions Renewable Energy Credit programs, Connecticut has increased its deployment of in-state Class I resources ten- fold since 2010: the State is on track to deploy an additional 55 MW of clean, Class I electricity in 2013, and 5% of the state's total electricity demand will be supplied by in-state renewables by 2020.**Support gradual transition away from subsidies for older biomass**

plants and landfill gas that do not provide optimal economic or environmental benefits. This draft study recommends a phase-in of more stringent standards that will either ensure that biomass plants deliver cleaner energy justifying ongoing qualification as Class I renewable power or allow their replacement with new cleaner resources such as wind power, solar arrays, or other zero-emissions renewables.

- **Expand support for small hydropower, anaerobic digesters, and biologically-derived methane.** Under current RPS rules, to qualify for Class I a hydro project must be built after 2003, be run-of-river, and have a generating capacity of less than 5 MW to qualify. This study recommends increasing the definition for Class I hydro eligibility from 5 MW to 30 MW to conform with Massachusetts and replacing "run-of-the river" with Low Impact Hydro Institute certification. Connecticut allows "methane from landfill gas" as a Class I resource, as do each of the other New England states. The Class I resource definition should also be modified to allow all methane/biogas that is biologically derived—i.e., from sources such as yard and plant matter, food waste, animal waste and sewage sludge— and produced by new technologies such as anaerobic digesters to qualify as a Class I source.

- **Allow less expensive large-scale hydropower to qualify as a Class I resource (in a separate "contracted tier" without RECs) to complement in-state and regional renewable energy procurements.** Large scale hydropower resources, such as those found in Quebec and the Canadian maritime provinces offer a source of renewable power at very competitive costs. This study thus recommends that a set portion (or contracted tier) of Connecticut's Class I RPS percentage requirements be allowed to be filled by large-scale hydropower, beginning at 2% of the Class I target in 2014 and gradually increasing by 1% annually up to a maximum of 4.5% in 2020 and 7.5% in 2025. Large-scale hydropower would only be eligible within this "contracted tier." It would not compete within the rest of the Class I market nor would it have a REC attached to it. This power would be procured under a long-term contract, with large-scale hydro and all other Class I projects being eligible to compete.

- **Provide a flexible mechanism for the state to procure low-cost renewable supply.** DEEP should be given authority to participate in a regional procurement for Class I resources, and to conduct a procurement of large-scale hydro (greater than 30 MW). The resources selected from the first procurement would be done in conjunction with other New England states in 2013 and would be used to meet the existing Class I requirements. The second procurement would target the "contracted tier" of large scale hydropower or other low-cost renewable, beginning in 2014.

- **Discontinue Class III incentives for efficiency programs that are already ratepayer funded.** As is the case with Class II resources, there is a significant oversupply of Class III

resources. Since the programs provided through the State's Conservation and Load Management Plan are already supported through ratepayers, this draft study recommends that any efficiency programs supported by ratepayer funding not be eligible to qualify for additional ratepayer support through the Class III market. Eliminating these resources would open up the market to more combined heat and power (CHP) projects.

The recommendations described above will enable Connecticut to achieve a more balanced and flexible approach to renewable power development, continue support for in-state renewable power projects that benefit the local economy while working with neighboring states to procure the cheapest possible regional renewable resources in the near term, and maintain the flexibility to purchase large amounts of low-cost, large-scale hydropower in the event that cost-competitive regional Class I resources are in short supply. By taking structured steps to procure renewable electricity, Connecticut can also help to drive smart investments in transmission that will reduce greenhouse gas emissions, improve the flexibility and reliability of the electricity grid, achieve rate suppression in Southern New England, provide a hedge against spikes in natural gas prices, and potentially secure greater supplies of clean, low-cost power during times of peak demand. This strategy would also provide a flexible glide path toward the day that Connecticut's nuclear plants shut down.

Simply put, the restructuring proposed of the Connecticut RPS framework would position the state to be a leader in the pursuit of renewable power on a basis that promotes innovation, drives cost reductions, and advances the emerging clean energy economy on a sustainable basis. The new RPS structure would reinforce the policy direction of Connecticut's new Comprehensive Energy Strategy – and advance the Governor's commitment to cheaper, cleaner, and more reliable electricity.