A Climate Strategy with Short- and Long-Term Economic Benefits

Proposed: March 2020

Proposed by The Maine Pellet Fuels Association and The Professional Logging Contractors of Maine

Recently reviewed and amended in 2019, MRSA §3210 dictates that it is State policy "to encourage the use of renewable, efficient and indigenous resources" and further that "wood or wood waste" are renewable resources for Maine to utilize.[1]

The Maine Pellet Fuels Association (MPFA) and the Professional Logging Contractors of Maine (PLC) jointly propose that to achieve the climate goals set forth by Governor Mills, the state should convert 15% of Maine's homes and businesses from fossil fuels to efficient wood heating by 2030.

- **Maine's forests are renewable and are certified as responsibly managed lands (8.5 million acres),[2] with 100 logging companies harvesting 5.5 million tons annually under third party certification by the Rainforest Alliance, working collaboratively to sequester over 60% of the state's carbon emissions.[3]**
- **Wood energy production using existing Maine-based infrastructure and technology would reduce net carbon emissions by 85%.[4]**
- **Maine would increase income tax revenue by approximately $22.9 million annually. Further, the state would retain or create about 48,000 jobs due to this policy.[5]**

To achieve these outcomes, there are three main goals that need to be pursued. Maine, in its last legislative session, enacted MRSA §3210 "to encourage the use of renewable, efficient and indigenous resources" including "wood or wood waste"[6] and should now seize on this opportunity to:

1. **Substantially reduce CO_2 emissions created by fossil fuels for building heat in Maine;**
2. **Nurture a homegrown energy economy that grows the fuel and builds, installs, and maintains the infrastructure;**
3. **Encourage increased certification of Maine's forests and logging practices, capable of producing a never-ending source of energy**

MPFA and PLC jointly believe that there are multiple solutions to our climate challenges and support all forms of green and renewable energy production. This is consistent with those energy solutions already identified in Maine statute (MRSA §3210). Therefore, we should be working to stimulate the uses of those energy sources in all that we do.

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[1] Maine State Legislature, MRSA §3210 - https://www.mainelegislature.org/legis/statutes/35-A/title35-Asec3210.html
[2] USDA Forest Service Forest Inventory EVALIDator web-application Version 1.6.0.03.
[3] Maine Climate Council Scientific and Technical Subcommittee, *Scientific Assessment of Climate Change and Its Effects in Maine,* Phase I "Working Document" - https://www.maine.gov/future/sites/maine.gov.future/files/inline-files/MCC_STS_PhaseI_FINALWORKINGDOCUMENT_2.18.20.pdf
[4] Strauss, William (PhD) - How Maine can Transition to a More Energy Self-sufficient Future and Significantly Increase Employment.
[5] Ibid.
[6] Maine State Legislature, MRSA §3210 - https://www.mainelegislature.org/legis/statutes/35-A/title35-Asec3210.html

Goal 1: Substantially reduce CO_2 emissions created by fossil fuels for heat in Maine

According to the Maine Climate Council Scientific and Technical Subcommittee, Maine's forests "sequester over 60% of the state's annual [carbon] emissions, while the forest industry sector is statewide, multi-faceted, and provides between $8-10B in direct economic impact."[7] With proper management, Maine has the opportunity to increase this sequestration significantly and essentially work towards a carbon-neutral status as a state by 2045[8] and have 100% of retail sales electricity come from renewable resources by 2050 pursuant to the goals stated in MRSA §3210.[9]

It has been well established that in order to properly manage a forest for its maximum health, harvesting is necessary[10] although logging can initially seem counter-intuitive to forest growth and carbon sequestration. Responsible forest management practices have shown that when a tree is cut and another replanted or room is made for younger trees to grow, the forest as a whole can sequester far more carbon than if old trees are left to rot or burn.[11] When trees are left to die naturally, they release methane which is "second only to carbon dioxide in its importance as a greenhouse-gas emission linked to global warming."[12]

Premium sawlogs are a vital component of the forest industry in Maine, but other parts of the tree and the residuals from sawmill operations are equally important and should also be utilized for higher value products, rather than decomposing and producing methane. Wood pellets, chips, and other wood byproducts are commonly made from sawmill residuals. "Significant energy benefits accrue from using wood products, which commonly are underestimated or uncounted in project-based carbon offset accounting rules."[13] And, these products are renewable per state policy already.[14]

Wood is a sustainable replacement for millions of gallons of oil, propane, and natural gas. And, this replacement can be a constant source of central heat and domestic hot water that is made without the negative impacts from refining and burning fossil fuels.[15] Modern pellet consuming furnaces and boilers achieve efficiency rates well above 80%, with some condensing boilers reaching 96% efficiency.[16]

By building markets for non-sawlog quality wood for energy, Maine can improve its forests' health, sequester more carbon,[17] and have significant environmental and economic benefits statewide and regionally.

If 15% of Maine homes[18] switch to wood from fossil fuels, it would mean approximately 195,000 Mainers would be using renewable Maine-made fuel, contributing to Maine's forests' health, and putting 100% of each dollar spent on heating back into the Maine economy. "Given the carbon benefits of Maine made pellet fuel, accounting for the carbon footprint from the transportation and production of wood pellets, pellet boilers reduce net carbon emissions by at least 85% compared to heating oil."[19]

Maine easily has the capacity to provide efficient wood fuel for 15% of Maine homes and businesses. That demand for low-grade wood would only somewhat offset losses in demand in recent years due to permanent closing of a number of Maine paper and biomass energy facilities.[20]

Click Here to View the Policy

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[7] Maine Climate Council Scientific and Technical Subcommittee, *Scientific Assessment of Climate Change and Its Effects in Maine,* Phase I "Working Document" - https://www.maine.gov/future/sites/maine.gov.future/files/inline-files/MCC_STS_PhaseI_FINALWORKINGDOCUMENT_2.18.20.pdf
[8] Ibid.
[9] Maine State Legislature, MRSA §3210 - https://www.mainelegislature.org/legis/statutes/35-A/title35-Asec3210.html
[10] Science Findings, United States Department of Agriculture Forest Service - https://www.fs.fed.us/pnw/sciencef/scifi155.pdf
[11] Ibid.
[12] Trees release flammable methane – here's what that means for climate. National Geographic - https://www.nationalgeographic.com/environment/2019/03/trees-release-methane-what-it-means-climate-change/#close
[13] Science Findings, United States Department of Agriculture Forest Service - https://www.fs.fed.us/pnw/sciencef/scifi155.pdf
[14] Maine State Legislature, MRSA §3210 - https://www.mainelegislature.org/legis/statutes/35-A/title35-Asec3210.html
[15] Desulfurization and demineralization of asphaltite using combination of froth filtration and aqueous caustic leaching, Energy Exploration and Exploitation. Vol. 26, No. 2., (2008). Pp. 133-1142. https://journals.sagepub.com/doi/pdf/10.1260/014459808785260481
[16] Maine Energy Systems - http://maineenergysystems.com/
[17] Facts & Figures, Forest Stewardship Council - https://us.fsc.org/en-us/what-we-do/facts-figures
[18] US Census - https://www.census.gov/quickfacts/fact/table/ME/PST045219
[19] Strauss, William (PhD) - How Maine can Transition to a More Energy Self-sufficient Future and Significantly Increase Employment.
[20] Ibid.

Goal 2: Nurture a homegrown energy economy that grows the fuel and builds, installs, and maintains the infrastructure

When Maine transitions just 15% of its heating dependency to sustainable forest resources instead of fossil fuels, it will see an increase in income tax revenues of approximately $22.9 million annually based on job retention and creation, and the multiplier effects associated with no longer sending money out of the state to pay for heating oil and propane imported from refineries in other states.[21] Building wood energy markets will sustain key components of the Maine forest products sector that are challenged by the decline in demand for wood by pulp and biomass electricity markets.

> "Maine's loggers are a vital part of the state's forest products sector, which is worth an estimated $8.5 billion annually. Maine's logging industry contributes $882 million to the state's economy each year and supports more than 7,300 direct and indirect jobs in the state."[22]

Already, Maine's forest products sector and those that support it are and have been contributing considerably to the Maine economy. The contributions to the market with well-tested and proven efficient wood heating technologies will enable Maine to emerge as a frontrunner amongst U.S. states in terms of contributions to its economy from its own natural resources. It will no longer be dependent on foreign fuel sources, or their volatile prices.

Currently, Maine's heating relies very heavily (over 80%) on fossil fuels with 61.3% using heating oil, 11.4% propane, and 7.7% natural gas.[23] "Data from the US Department of Energy shows that about two-thirds of Maine households use fuel oil for home heating, the highest level of dependency in the US."[24] Contrast that with the fact that wood is a lower cost source of heating energy.[25]

Using renewable Maine-made wood fuel, as stated previously, will keep virtually 100% of each dollar spent on heating costs within Maine, unlike fossil fuels which export about 68% of every dollar outside the state. Tens of millions of dollars would be kept in Maine and this will contribute to a strong and more independent energy economy. It will also support the retention and creation of tens of thousands of Maine jobs.[26]

With a policy encouraging home and business owners in the state to convert to wood heating, we will be able to utilize Maine-produced wood fuel from Maine's sustainably managed forests. The infrastructure for each of these steps exists currently to support this change to a homegrown energy economy.[27]

Click Here to View the Policy

[21] Strauss, William (PhD) - How Maine can Transition to a More Energy Self-sufficient Future and Significantly Increase Employment.
[22] Recommendations on Timber Harvesting for Consideration by the Maine Climate Council – Natural and Working Lands Group, Presented by the Professional Logging Contractors of Maine and the Trust of Conserve Northeast Forestlands. (17 January 2020).
[23] Strauss, William (PhD) - How Maine can Transition to a More Energy Self-sufficient Future and Significantly Increase Employment.
[24] Maine Climate Council Scientific and Technical Subcommittee, *Scientific Assessment of Climate Change and Its Effects in Maine,* Phase I "Working Document" - https://www.maine.gov/future/sites/maine.gov.future/files/inline-files/MCC_STS_PhaseI_FINALWORKINGDOCUMENT_2.18.20.pdf
[25] Ibid.
[26] Strauss, William (PhD) - How Maine can Transition to a More Energy Self-sufficient Future and Significantly Increase Employment.
[27] Existing pellet industry in Maine - http://www.mepfa.org/directory_of_pellet_retailers_and_manufacturers.php

Goal 3: Encourage continued certification of Maine's forests and loggers capable of producing a never-ending source of efficient wood energy

Maine has the responsibility and ability to continue to manage its forests responsibly to benefit the environment and the state's economy. Its greatest natural resource is its forests. Maine is approximately 89% forested. 93% is privately owned land,[28] and the 10 largest entities that manage forests account for nearly 8 million acres.[29]

Further, 50% of Maine's forests are certified to one of the three major forest certification standards (Forest Stewardship Council (FSC),[30] the Sustainable Forestry Initiative (SFI)[31], and the American Tree Farm System (ATFS)). Additionally, there are 100 logging companies in Maine, Master Logger certified. These 100 companies employee over 1,200 people in rural Maine, harvest 5.5 million tons of wood annually and are 3rd party certified through the Rainforest Alliance. The Rainforest Alliance is a certification body and is one of the founding members of FSC.

Sustainable forest management is critical to addressing climate change and Maine is an international leader. By using wood for heat and domestic hot water, Mainers are putting their money where their mouth is. When wood fuel is consumed, the carbon that it releases is directly offset by the carbon stored in our forests when trees regrow. "In contrast, returning carbon released by burning fossil fuels to its source would require millennia."[32] Through the process of photosynthesis, our forests sequester carbon on a daily basis.

Using local wood instead of fossil fuels directly supports rural communities as well as healthy, sustainable forests by maintaining a carbon balance or a net carbon sink and it's one way that individuals can contribute to solving our climate crisis. Maine Wood Pellets in Athens maintains FSC on its product because nearly 100% of its raw material comes from certified forests.

The case for good forest management and a healthy forest products industry is that without it, forests stagnate. Good forest management maximizes the forests' health, yield, and carbon sequestration capabilities. With declining demand for forest products, forests are lost to decay or fire which does not help reduce net carbon emissions in the long run. In fact, "over the entire forest you'll eventually reach a plateau, after which the net in-forest growth and carbon accumulation rates decline—eventually to zero"[33] which means that by managing the forests we can do much better than zero. By responsibly managing forest health and sustainability, forests can provide the traditional products such as lumber but also can provide a source of clean low-carbon energy forever.

Managing forests for long-term sustainability is the responsibility of the landowners, the loggers, the consumers, the pellet and chip producers, and each person within the carbon cycle. It's not just one industry, but the combination of several. Producers of wood products (loggers, landowners and mills) should be encouraged to pursue or maintain 3rd party certification for the sources that they receive their raw materials from.

"The world's forests store 283 billion tons of carbon in their biomass."[34] And in the U.S. specifically, the EPA has stated that, "forests have been historically and are currently a net sink of carbon…Use of biomass for bioenergy can support the management of U.S. forests and can lead to increased carbon sequestration from U.S. forests over time" which led the EPA to the conclusion that from the point of combustion, wood pellets and chips are a carbon neutral fuel[35] in direct contrast to burning fossil fuels. All fuels, prior to consumption, have a carbon footprint.

We recommend adopting a policy to promote and stimulate Mainers to utilize homegrown energy because it capitalizes on Maine's natural resources. Furthering this policy doesn't require importation or invention of any new technology or capabilities for the state. It will allow Maine to reduce net carbon emissions by using wood for efficient energy production and to increase state revenue and benefit the labor market – all while providing a never-ending source of energy.

Click Here to View the Policy

[28] United States Forest Service
[29] The Nature Conservancy, Maine
[30] One Simple Action - https://advocate.us.fsc.org/one-simple-action/
[31] Sustainable Forestry Initiative - https://www.sfiprogram.org/
[32] Science Findings, United States Department of Agriculture Forest Service - https://www.fs.fed.us/pnw/sciencef/scifi155.pdf
[33] Science Findings, United States Department of Agriculture Forest Service - https://www.fs.fed.us/pnw/sciencef/scifi155.pdf
[34] Facts & Figures, Forest Stewardship Council - https://us.fsc.org/en-us/what-we-do/facts-figures
[35] Biomass Policy Statement, 23 April 2018, US EPA - https://www.epa.gov/sites/production/files/2018-04/documents/biomass_policy_statement_2018_04_23.pdf

Summary of the Value of Pricing Carbon Fuels

By Peter Garrett, Ph.D., Maine State Coordinator for Citizens Climate Lobby
peter.garrett@citizensclimate.org; 207-592-0004

First, we all agree on the general aspects of Earth's Climate Emergency, not only as it affects Maine, but also how Maine is connected to the rest of the world both by emissions and climatic effects.

Citizens Climate Lobby (CCL) is a national (now international) organization, with about 200,000 volunteers, that is narrowly focused on advocating for a carbon pricing bill before Congress using a policy called Carbon Fee and Dividend (CFD). In our Congressional advocacy, we have been instrumental in setting up a Climate Solutions Caucus in the US House, and very recently also in the US Senate, with a two-by-two membership rule (a prospective member must join with a member of the other party). In the House, CFD was prepared on a bipartisan basis as a bill, the Energy Innovation and Carbon Dividend Act (EICDA, HR 763). In brief HR 763 does the following:

1. A Carbon Fee is assessed on all fossil fuels (coal, oil, and gas) at the source, i.e. upstream of the entire economy, based on the carbon content of each type of fuel. The fee starts low, and grows over time. The rising fee will drive down carbon pollution because energy companies, industries, and consumers will be incentivized to move toward cleaner, options that will become cheaper with time.
2. A Carbon Dividend (from money pooled from the carbon fee) will be allocated in equal monthly shares to the American people to spend as they see fit. Administrative costs (~2%) are paid from the fees collected. The system is revenue-neutral.
3. To protect U.S. manufacturers and jobs, carbon-intensive imported goods are subject to a border carbon adjustment based upon the comparative carbon price in the country of origin. Likewise, goods exported from the United States to countries with a lower carbon price will receive a refund under this policy.
4. Effective current regulations, like auto mileage standards, are retained. But EPA authority to regulate the CO2 and equivalent emissions covered by the fee is paused for the first 10 years after the policy is enacted. If emissions targets are not being met after 10 years, EICDA gives clear direction to the EPA to regulate those emissions to meet those targets. The pause does not impact EPA regulations related to water quality, air quality, health or other issues. This policy's price on pollution will lower carbon emissions far faster than existing and pending EPA regulations.

In 2009, cap and trade was state of the art for carbon pricing, and of course, we in northeastern states continue to use it under RGGI to limit emissions from fossil-fueled power plants. But now, carbon fees are the current state of the art, as expressed in a very widely endorsed economists' opinion. Carbon fees are simpler to understand by both government officials and the public.

Summary of the Value of Pricing Carbon Fuels

Citizens Climate Lobby (CCL) collaborates on the climate issue with the Climate Leadership Council (CLC). Sorry about the confusing initials. CLC is led by former Republican Treasury Secretaries George Shultz and Jim Baker, and is funded by a wide variety of industries, including fossil fuel companies. CLC's carbon fee & dividend proposal is similar to CCL's, though not as yet developed into a bill for Congress to consider.

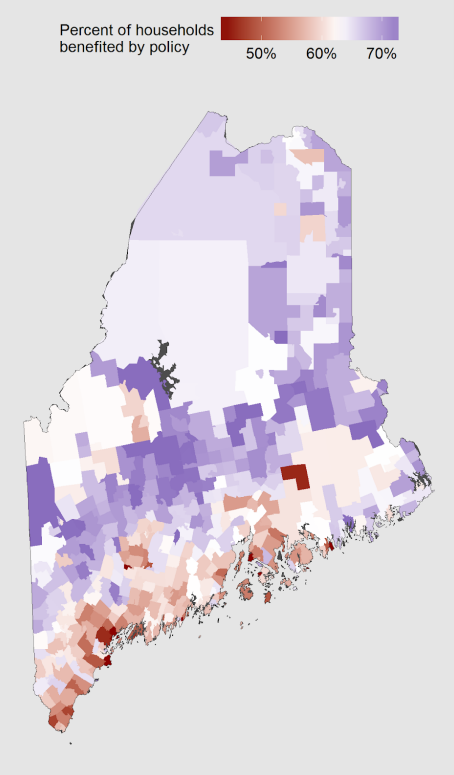
CLC leadership recently pointed out that there are only 3 approaches to limiting greenhouse gas emissions: regulation, subsidy, and carbon pricing. Given the necessity for instituting an approach that will gain bipartisan support, we consider the following:

Regulation and Subsidies can be helpful. However, regulation would take time, and huge subsidies would be required, both calling for a large expansion of the role of the federal government in the American economy, and tax increases.

Carbon pricing throughout the economy, however, is becoming more common throughout the developed world, and would incentivize creativity, dynamism, and ingenuity of the free market. With a Dividend incorporated to ensure that the money stays in the economy, it could appeal to a bipartisan consensus. Furthermore, the existing subsidies for fossil fuel production would soon be overcome by the rising carbon price. The "free market" would no longer include the free disposal of emissions into the atmosphere.

Given the clear and evident advantages of CFD, we believe there are 3 common concerns that cause legislative hesitation. They include the following:

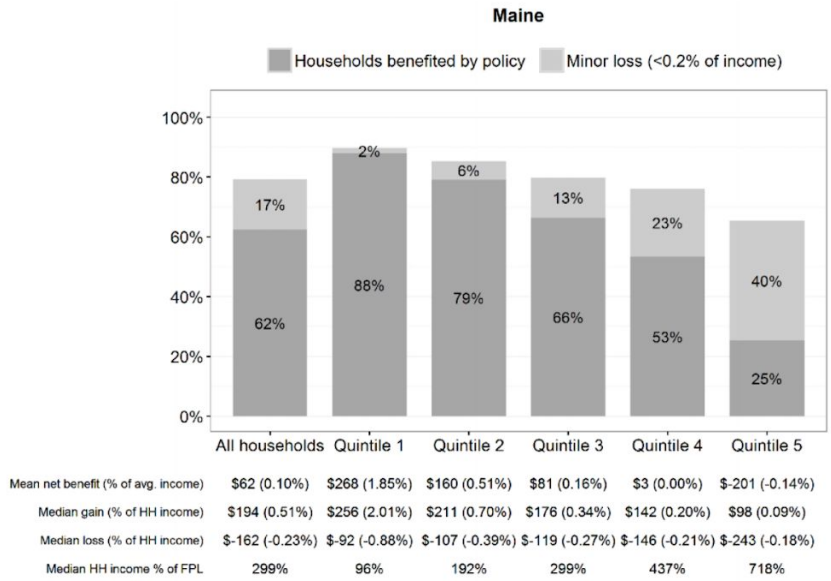
1. Will CFD hurt rural Mainers of more limited means?



CCL commissioned a large study to address this concern. The basic finding is that low-income Americans come out better than wealthier ones because they buy fewer goods and services to which carbon-based energy has contributed. Yet everyone gets the same size dividend check (equal for all adults and half shares for children in HR 763). So they are more likely to receive more money in their dividend check than they spend in higher prices.

A map of Maine (see left) shows that our State's inland rural areas do better than our (wealthier) coastal towns. Below is also tabular data specific both to Maine as a whole, and the 2nd District. As you can see, the lower the quintile of income, the less likely that increased expenses will exceed the monthly Dividend check.

Summary of the Value of Pricing Carbon Fuels



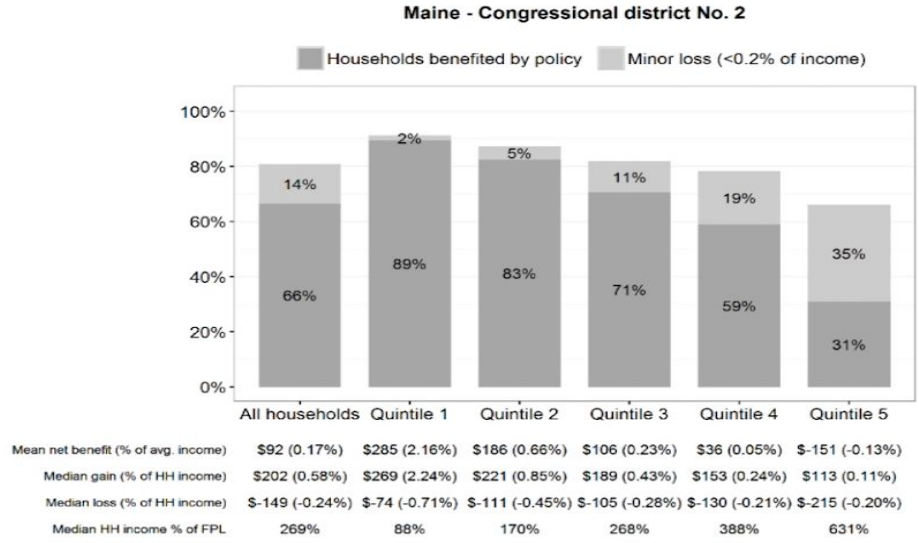


Figure 2: Impact by Quintile for Maine - District 2. Looking at the categories on the bottom of this graph, only the numbers for "Mean Net Benefit" and "Median HH income % of FPL" include all households in a given quintile (FPL = Federal Poverty Line). Only those households who receive a financial gain are included in calculating the "Median Gain" figures, and likewise, only those households which experience a loss are included in calculating the "Median Loss" figures.

These reports and those for the country as a whole and for other States and Congressional Districts can be found here, with extensive documentation of method and rationale.

Summary of the Value of Pricing Carbon Fuels

The point of CFD is to incentivize and spur energy innovation. Please note that the above data in both map and tables do not include the downstream economic benefits of that innovation to Maine citizens and families. It is expected that industry leaders, anticipating the rising costs of fossil fuels, will innovate in a variety of ways to keep prices of both manufacturing and marketing down. But it's certainly important to make sure that the household budgets of our Maine citizens will mostly be covered during the transition. CCL's analyses have documented that. For checking on expenses compared to dividends for particular individuals we use CCL's Carbon Dividend Calculator.

Other relevant questions include:

2. Will CFD hurt economic growth? In a word: no. CCL commissioned a report that allays this concern. Furthermore, when all costs and benefits related to climate change are considered, it is crucial to assess the already high and rising costs of inaction, costs that are paid out in recovery from extreme storms, floods, droughts and wildfires (documented in the GAO report "Climate Change: Potential Economic Costs and Opportunities to Reduce Federal Fiscal Exposure" co-commissioned by Sen. Collins), as well as costs related to adaptation (e.g. rising sea levels for coastal states like Maine), and carbon capture and sequestration.

3. Will CFD hurt the competitiveness of American business abroad? Again, in a word: no. Both CCL's and CLC's carbon pricing proposals contain a border fee adjustment, which levels the playing field and incentivizes citizens of other countries to lobby for their own carbon pricing (which would limit the collection of border adjustment tarrifs at the US border). Furthermore, CFD overall incentivizes American companies to get ahead in the transition to a decarbonized economy that world citizens and governments increasingly demand. CLC has an excellent discussion of this issue on pages 6-7 of this report.

March 30, 2020

Dear Maine Climate Council Energy Working Group Members

First, thank you for contributing your time and expertise to the Maine Climate Council. We are writing to ask you to give serious consideration to a proposal for revenue-neutral carbon pricing as the most efficient means of reducing CO2 emissions. The proposal, called Carbon Fee & Dividend, originated in collaboration between Nobel Economist Gary Becker, and former Treasury Secretary George Shultz. It has recently won support from more than 3500 US economists as "The Economists' Statement." Carbon pricing is taking root (though slowly) around the world according to the World Bank. Surprisingly 80% of US imports come from countries that already have carbon pricing (albeit at a low level).

Citizens Climate Lobby (CCL) has been promoting Carbon Fee & Dividend to Members of Congress for 11 years. The bipartisan Climate Solutions Caucus in the US House wrote it into the Energy Innovation and Carbon Dividend Act of 2019 (H.R. 763), which was prepared by staff of Republican and Democratic offices and is now under review by three Congressional Committees in the House. CCL's summary is here.

Economic modeling of the proposal, most recently by Columbia University, shows it to be not only efficient at reducing emissions but also in building a clean economy. The policy is revenue-neutral, with all (net) funds returned in equal shares to people (like the current stimulus checks), rather than using less efficient subsidies for clean energy solutions.

Most notably for Maine, the concept has been put into effect for Canada. In New Hampshire, a plan for its enactment was given the endearing title of "Cashback Carbon Pricing."

Carbon pricing is not a complete solution to the developing climate crisis, as can be demonstrated using the MIT climate policy simulation software En-ROADS. Nevertheless, it is the most powerful policy, which must be joined by many other policies to keep global temperature rise below 2° or 1.5°C, including some that you are considering.

Current policy, as you well know, allows the disposal of CO2 emissions at no expense, creating costs from climate disruption that are borne publicly and privately by all. While Maine cannot by itself invoke a national carbon fee and dividend, recent experience shows that rather than waiting for action at the Federal level, State and Municipal efforts are raising a grassroots movement to recognize and address the scientific realities of climate change. State-level action or encouragement on carbon pricing is needed to move the agenda forward, with huge opportunities for innovation in energy production, distribution, electrification and other technologies, and adaptation tools for weather-sensitive industries.

Senator Angus King reminded us recently that "Dirigo" does not mean "But we've always done it this way!" There has never been a more important opportunity for Maine to live up to its credo and lead the nation with bold policy directives.

The Maine Climate Council is well suited to be an incubator for such a policy direction, and yours is the most appropriate Working Group to advocate for it. So we urge you to seriously consider and then promote a revenue-neutral carbon pricing solution for Maine and for the Nation in your recommendations to the Maine Legislature and Governor in December 2020.

Sincerely, from leaders in the several groups of Citizens Climate Lobby that meet monthly:

Peter Garrett, Citizens Climate Lobby Maine State Coordinator

Sarah Braik, David Morin, Peter Monro, Peter Dugas, Jan Froelich, Adam Pontius, Ed Pontius and Allen Armstrong from Portland.

Connie Potvin, Jeff Jones, Theresa Hainer, Ron Davis, Ron Russell, Glen Koehler and Paul Potvin from Bangor.

Tracy Weber, Caroline Karnes and Fern Sterns from Augusta.

Dorothy Jones, Jill Standish, Sam Saltonstall, Nancy Hasenfus, and Paul Perkins from Brunswick.

Bonnie Sammons, Chris Beeuwkes, Annie Sheble, Bob O'Connor and Lindsey Tweed from Waterville.

Steve Ouillette and Paul Robie from Belfast.

Laurie Sproul and Sue Griffith from Dover-Foxcroft.

Philip Osgood from Blue Hill.

Roberta Hill, Michael Newsom, Scott Vlaun and Cynthia Stancioff from Western Maine.

Marnie Sinclair and Ali Stevenson from Mid-Coast Maine.

Wes Tator of Kittery

Maine Climate Council Energy Working Group

Recommendation submitted by Jeff Marks, Acadia Center

Describe the strategy: Maine has committed to significant cuts in economy-wide greenhouse gas emissions by 2050. Despite setting these ambitious goals for climate, Maine has not yet empowered the agencies who can impact carbon emissions to prioritize climate, including climate justice and adaptation concerns, in their decisions. By reforming the agencies' enabling statutes we can empower Maine's state agencies to work together in response to the climate crisis, and in support of Maine's climate goals.

Which MCC goal does the strategy help to achieve?

- Mitigation of greenhouse gas emissions in the State: 45% reduction by 2030, 80% by 2050

What are the additional benefits?

- Is there an opportunity to create jobs in Maine? Yes.
- Are there co-benefits associated (public health, ag/forestry, etc.)? The decisions that Maine's agencies make will create the building stock and energy infrastructure of 2030, 2050 and beyond. Maine's agencies must prioritize climate now and create efficient buildings, powered by clean, renewable heating, and electrified transportation, and stop approving investments in fossil fuel infrastructure that that ratepayers will still be paying off in 2050, even if we have since abandoned it.

What are the costs? No direct costs of making the change.

What is the timeframe for implementation of this strategy? Short term, mid-term or long term? Short-term.

- When does implementation begin and what is the expected duration? Maine Public Utilities Commission and other enabling statutes can be revised in the next legislative session.
- When is the outcome realized? How is it measured? Achieving Maine's climate goals will require electrification of all vehicles and building heating, eliminating use of fossil fuels like natural gas and oil, switching to renewable electricity, and strengthening and modernizing the distribution and transmission grids to accommodate the additional electric demand. In this future, the electric system is going to be called into service as an affirmative agent of change – not only minimizing its own greenhouse gas emissions, but also providing a platform for minimizing the emissions currently produced by other sectors like heating and transportation. Currently, the monopoly utilities planning and operating the distribution and transmission systems are not required to consider the carbon impacts of their planning decisions, nor the need for adaptation to climate change. Both considerations are crucially important if we are to tackle climate change, but neither will be integrated into the utility's business processes unless regulators require such progress. Unfortunately, under current statutory frameworks, the PUC that regulates the utilities cannot require such reforms.

What populations, communities, or sectors will benefit from the strategy? Who might be disadvantaged by the strategy? Ratepayers would benefit in the long term.

How might the strategy address issues of equity? Under current statutory frameworks, PUC decisions are biased in favor of objectives like delivering a fair return for utilities and keeping immediate and short-term rates low. This means that, even if a utility wanted to engage in proactive planning for the future and install enough grid-side infrastructure to enable the electrification of all the heating and vehicles in a neighborhood, the state PUCs would not be allowed to approve this if the short-term rate impacts were too steep. Even though such a plan would achieve long-term savings and avoid the costs of inaction on climate, because the PUC's focus is, by statute, confined to short-term impacts, it would likely have to reject the plan. Reforms to the agency enabling statutes would empower the agencies not only to make decisions that incorporate considerations of the costs and benefits of climate change, in alignment with states' priority goals, but would also give the agencies the authority to push achievement of those goals and others like climate justice, equity, and transparency forward. These changes would be long-lasting updates to the agencies' mission, serving as a tempering force against the preferences of different administrations by integrating climate and justice considerations into law as simply and completely as possible.

Are there examples of this strategy, either in or outside of Maine? Are relevant studies available?

MA S.1940/H.2894 (FUTURE Act)) assigns PUC New Responsibilities to:

- Actively promote implementation of global warming statute
- Reduce GHG emissions by reducing energy use
- Encourage renewable sources of energy
- Actively encourage a transition from the use of natural gas

Please prioritize the questions presented on the first page. The following questions will aid in discussion during our meeting but are less substantive than those in the previous section.

Questions/Criteria	Yes/No
Are additional research and data needed? Are there major data gaps related to this strategy?	Yes.
Are there statutory and/or regulatory changes needed to implement this strategy?	Yes.
Is there a risk of stranded investments and/or reduced flexibility, etc.? If YES, how can these be avoided or minimized?	Does not "solve" cost issue or prioritization of duties
Would there be positive impacts on workforce?	Yes
Is an adequate workforce available to implement this strategy?	Yes
Does the recommendation use Maine-based resources?	Yes
Does this recommendation create an opportunity for regional collaboration? Are there other regional impacts that should be considered?	Yes
Are there public/private partnerships that could be accessed?	Yes
Does this recommendation provide an opportunity for innovation?	Yes
Would the recommendation increase reliability/resilience?	Yes
Is the recommendation scalable?	Yes
Is the recommendation feasible to implement?	Yes
Is the recommendation a prerequisite needed for progress, even if it does not have emission reduction benefits on its own?	Yes

Maine Pellet Fuels Association

Professional Logging Contractors of Maine

March 13, 2020

To Working Group members, Maine's Climate Council.

Enclosed is a strategy document which we have just provided to the Maine Climate Council's Buildings, Infrastructure, and Housing Working Group. We believe our proposal also should be distributed to the attention of additional Working Groups as well for consideration in future discussions.

Because efficient modern wood heating was only a nascent technology earlier this century when Congress created the 30% investment tax credit for other "renewable" energies, wood heat has not benefited from the rapid growth afforded to solar, wind, geothermal, and other sectors. While Maine's Congressional delegation has worked hard in a bi-partisan manner to correct this disadvantage, we remain excluded (heating technology is not important to many states).

We urge that Maine's Climate Council not similarly exclude consideration of this technology, which is the "heating system of choice" in forested parts of Europe (Austria, southern Germany, northern Europe, and Scandinavia). Because efficient modern wood heating is not represented specifically with a seat on the Climate Council or its Working Groups, we can only ask that you give full consideration to our enclosed document. The importance to Maine's forest products sector of economic usage of "waste wood" and the incredible economic and environmental gains to Maine if we were to heat 15% of our buildings with efficient modern wood technology cannot be overstated in your conversations.

Thank you for your time and consideration and please do not hesitate to contact us if you have any questions.

Sincerely,

William Bell
Executive Director
Maine Pellet Fuels Association

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February 5, 2020

VIA ELECTRONIC MAIL

Commissioner Katie Dykes
Connecticut Department of Energy and Environmental Protection
79 Elm Street
Hartford, CT 06106-5127
Email: DEEP.EnergyBureau@ct.gov

RE: Clean Energy Advocates' Comments on January 22, 2020, IRP Technical Meeting

Dear Commissioner Dykes:

The Natural Resources Defense Council, Sustainable FERC Project, Sierra Club, Acadia Center, Conservation Law Foundation, Union of Concerned Scientists, and Vote Solar (Clean Energy Advocates) appreciate the opportunity to provide comments on the Connecticut Department of Energy and Environmental Protection's (DEEP) examination of the strengths and weaknesses of the existing regional wholesale electricity market, and its impacts on Connecticut's ratepayers and energy policies. In the notice for its January 22nd technical meeting on these issues, DEEP posed two questions:[1]

1. What is the long-run compatibility of deregulation of Connecticut's electric energy utilities and associated market rules, administered by ISO New England, Inc. and regulated by the Federal Energy Regulatory Commission, with Connecticut's public policies and goals?

2. Are there alternative market designs that would better-align with Connecticut's public policies and goals? If yes, what are the strengths and weaknesses of each alternative?

As discussed further below, and as several of our organizations commented at the January 22nd meeting, we believe the existing wholesale market construct—and in particular the Forward Capacity Market (FCM)—operated by ISO New England (ISO-NE or ISO), the region's federally-regulated grid operator, is incompatible with and detrimental to achieving Connecticut's clean energy and climate policies and goals. While we outline potential fixes below that could better align the ISO's markets with Connecticut's policies, such as giving states control over resource adequacy, transforming the current mandatory FCM into a voluntary, residual capacity market, and expanding the region's energy and ancillary services markets to facilitate higher levels of renewable energy generation, we also raise significant concerns that ISO-NE and its regulator, the Federal Energy Regulatory Commission (FERC), may be unwilling partners in this effort. In particular, the ISO's history of adopting market rules adverse to state environmental policies and a recent FERC order undermining state environmental policies in PJM, the nation's largest grid region, exhibit a disturbing pattern of lack of respect for state regulatory authority and climate action. Rather than facilitating state and local efforts to

[1] Connecticut Department of Energy and Environmental Protection, "Integrated Resources Plan: Notice of Technical Meeting and Opportunity for Public Comment" (Jan. 8, 2020), https://egov.ct.gov/PMC/Agenda/Download/7057.

reduce carbon emissions, the ISO is actively frustrating them, which increases customer costs and carbon emissions, and impedes economic development and technology innovation.

Connecticut has adopted and is implementing some of the most ambitious climate and clean energy programs in the country, which are critical to protecting the health and well-being of the state's citizens and addressing the climate threat. These efforts must not be frustrated or delayed. Notably, the state's climate and clean energy programs will increasingly contribute to the state's resource adequacy, whether or not the ISO recognizes their value. Accordingly, while it makes sense for the state to continue exploring ways to fix the existing wholesale markets, ideally in coordination with other New England state partners, we also urge Connecticut to explore simultaneously alternative electricity market frameworks outside the existing wholesale market structure. This exploration could take place in a new proceeding that focuses on the steps that would be required under state and federal law to remove Connecticut's utilities from the existing wholesale markets, either in whole or in part (e.g., just the FCM).

A two-pronged approach is necessary to ensure Connecticut remains on course to achieve its policy commitments and does not lose valuable time fighting for wholesale market reforms that may never occur. If ISO-NE and/or FERC are unable or unwilling to fix the wholesale markets to accommodate and actively facilitate the state's policy goals, then Connecticut must communicate and exhibit resolve to leave these markets altogether.

I. Why We Need to Solve These Issues

A. State policies are critical in addressing the climate crisis

The destructive and dangerous impacts of the changing climate are upon us, and as these impacts increase as predicted, the Northeast U.S. will experience them disproportionately, especially in coastal states like Connecticut. Scientific consensus tells us our time to make the significant, necessary changes to our energy system is limited, and the next decade is especially important. The costs of delay and inaction will be significant, making the urgency of policy success even more imperative. For the time being, state policies to reduce carbon emissions are the most important driver along the path toward clean, renewable energy and away from fossil fuels. These policies are needed to give us a chance at averting the looming climate crisis.

Connecticut has made long-standing policy commitments to transition the electricity system away from fossil fuels through energy efficiency programs, a renewable portfolio standard, programs supporting solar and other distributed generation, and more recently, significant commitments to new offshore wind generation and nuclear retention through direct contracts. Connecticut has prioritized the use of state policy tools to achieve the important goal of decarbonizing electricity generation as part of the effort to decarbonize the state's economy. The state acknowledged the necessity of reducing climate-altering carbon emissions when it passed its Global Warming Solutions Act (GWSA) in 2008. The importance of deeply decarbonizing electricity generation to achieve Connecticut's greenhouse gas emissions reduction targets has been reinforced in recent years by Governors, Executive Branch agencies, the General Assembly, and the Governor's Council on Climate Change, including under:

- Executive Order No. 3: On September 3, 2019, Governor Ned Lamont issued Executive Order No. 3, which required DEEP to "analyze pathways and recommend strategies for achieving a 100 percent zero carbon target for the electric sector by 2040," in part as a way to "ensure that strategic electrification strategies for decarbonizing the transportation and buildings sectors will result in real emission reductions." In his February 5, 2020 State of the State address, Governor Lamont pledged to codify the order's commitments in statute.

- Executive Order No. 1: On April 24, 2019, Governor Lamont issued Executive Order No. 1, which established a Steering Committee on State Sustainability. The Committee's duties include a directive to "establish specific subordinate goals and targets to meet the overall goals identified in Section 1 of this Order," which entail a 45 percent reduction in GHG emissions below 2001 levels by 2030."

- Public Act 18-82, "An Act Concerning Climate Change Planning and Resiliency," requires the state to achieve greenhouse gas reductions of at least 45 percent below 2001 levels by January 1, 2030.

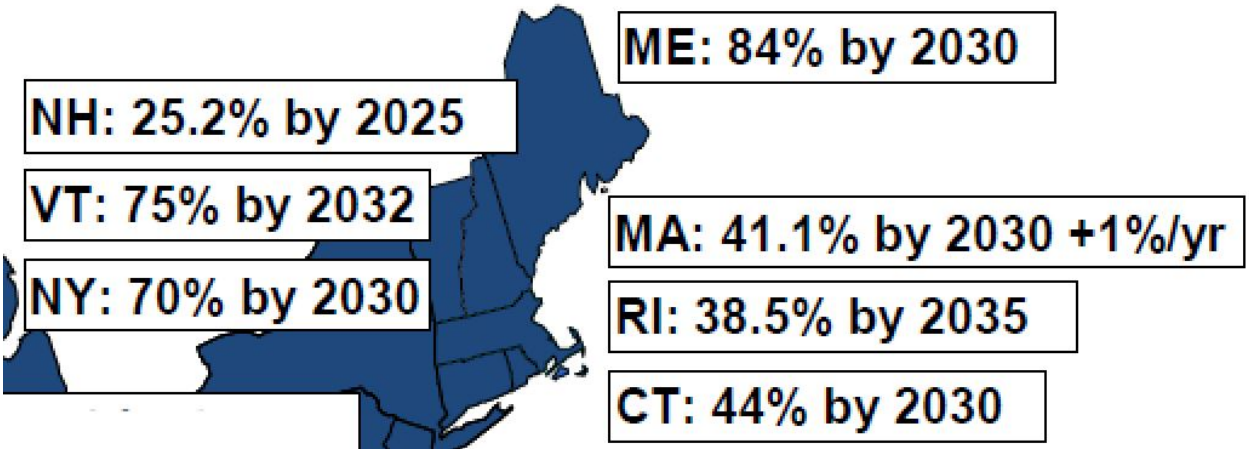
- Executive Order No. 46: On April 22, 2015, Governor Dannel Malloy issued Executive Order No. 46, creating the Governor's Council on Climate Change (GC3). Subsequently, in its December 2018 report, the GC3 identified the competitive procurement of zero-carbon energy, maintaining zero-carbon nuclear generation, and long-term replacement of nuclear generation as necessary climate change mitigation strategies.

Connecticut is in excellent company, as most other states in the Northeast are also making significant commitments to reduce carbon emissions on timeframes consistent with scientific consensus. As recently as mid-January of this year, Governor Gina Raimondo of Rhode Island issued an executive order committing her state to 100 percent clean electricity by 2030, and Massachusetts' Governor Charlie Baker announced his administration's commitment to achieving a net-zero economy by 2050. Just last week, the Massachusetts Senate passed a legislative package aimed at updating that state's Global Warming Solutions Act with a net-zero target. In the last several months, Maine's Governor Janet Mills committed her state to achieving 100 percent renewable energy by 2050, and 80 percent by 2030. Last summer, New York Governor Andrew Cuomo signed legislation requiring net-zero greenhouse gas emissions in New York by 2050, supported in part by a renewable energy target of 70 percent by 2030 and a 100 percent clean electricity requirement by 2040.

These commitments are driving a number of new policies, including the procurement of significant amounts of offshore wind (OSW), expected to reach roughly 15,000 MW by 2035. The combined OSW build-out for the Northeast states could produce as much as 60 TWhs of carbon-free electricity, reducing carbon emissions by about 29 million tons every year. Recently, ISO-NE released some preliminary results[2] of an ongoing economic study showing that the development of 6,000 MW of OSW would cut regional carbon emissions from electricity

[2] ISO New England, https://www.iso-ne.com/static-assets/documents/2019/12/a3_2019_economic_study_preliminary_nescoe_results.pdf.

generation by one third and reduce electricity production costs in half. Connecticut currently has 800 MW of OSW under contract, with authorization to contract for an additional 1200 MW. These commitments to OSW build upon the continuing contributions state renewable portfolio standards make to the region's growing renewable energy generation resources, as shown in the following figure.[3]



Beyond their contributions to addressing the climate crisis, Connecticut's policies that reduce fossil fuel use and decarbonize electricity also have numerous other benefits, from protecting human health by reducing other harmful emissions to providing significant economic development and employment benefits. The sooner these commitments can be realized, the sooner Connecticut and the region will experience these significant health and economic benefits. Connecticut has demonstrated its commitment to taking swift and immediate action to address the threat of climate change. With the present inquiry, Connecticut is acknowledging that it must simultaneously understand and address the institutional and market barriers that threaten its ability to achieve these commitments in a cost-effective, timely way.

B. Connecticut's restructured electricity system was intended to create consumer savings, but not at the expense of public health or environmental protection

In 1998, the Connecticut General Assembly passed "An Act Concerning Electric Restructuring."[4] The restructuring law and Connecticut utilities' subsequent participation in ISO-NE's organized wholesale electricity markets has produced many benefits. As summarized by the ISO in its testimony at the January 22nd meeting, these include lower costs through market

[3] Barbose, G., U.S. Renewables Portfolio Standards, 2019 Annual Status Update, Lawrence Berkeley National Laboratory, July 2019.
[4] Connecticut Public Act No. 98-28, https://www.cga.ct.gov/ps98/Act/pa/1998PA-00028-R00HB-05005-PA.htm.

competition and risk shifting from consumers to private developers.[5] The multistate grid has enabled efficiencies in dispatch, reserves sharing, renewables integration, and regional planning.

As recognized by the current proceeding, however, the ISO's wholesale markets—and in particular the Forward Capacity Market or FCM—as approved by FERC, are increasingly coming into conflict with Connecticut's state goals to address the climate crisis and expand clean energy. As Connecticut and other New England states seek to clean up the electricity sector and to run transportation and buildings on clean renewable energy, the ISO's wholesale market rules are standing in the way of and frustrating this transition. FERC-approved rules such as the Minimum Offer Price Rule (MOPR) in the FCM and the ISO's fuel security initiatives, further explained below, increasingly discount, ignore, or disadvantage the clean energy resources required under state law and favor instead a status quo grid that is dominated by polluting fossil fuels. Contrary to the intended cost savings of restructuring, these ISO and FERC actions are also unjustifiably raising the costs of state policies and raising costs to Connecticut's consumers who are being forced to pay for unnecessary dirty energy.

This is untenable. When Connecticut passed its restructuring law, it did so with the clear intent of preserving the state's authority to protect public health and the environment. Specifically, in adopting the restructuring act, the General Assembly found and declared that:

> (1) The provision of affordable, safe and reliable electricity is key to the continuing growth of this state and to the health, safety and general welfare of its residents;
>
> . . .
>
> (6) Those public policy measures under current law, including, but not limited to . . . conservation measures and incentives for using renewable energy sources, should be preserved;
>
> . . .
>
> (9) The generation of electricity must be achieved in a manner that does not endanger the public health or safety and that minimizes negative environmental impacts;
>
> . . .
>
> (12) It is in the best interest of the state for all customers to use electricity as efficiently as possible.[6]

Nowhere in the General Assembly's findings did it express an intent through restructuring to give up Connecticut's authority to protect the environment and the health of its citizens, nor did it sacrifice those authorities in the subsequent provisions of the law. Connecticut maintains these authorities under state law and likewise maintains its authority under the Federal Power Act over retail electricity sales and power generation.[7]

[5] ISO New England, *Comments of ISO New England* (Jan. 22, 2020), http://www.dpuc.state.ct.us/DEEPEnergy.nsf/c6c6d525f7cdd1168525797d0047c5bf/83a89dd7c3987c37852584fd004e3891/$FILE/CT%20DEEP%20tech%20conference-markets%20Jan%2022_2020_ISOcomments.pdf.
[6] Connecticut Public Act No. 98-28 § 2.
[7] 16 U.S.C. § 824(b)(1).

Connecticut should only remain within an ISO that facilitates rather than inhibits the cost-effective achievement of state policy goals when states are acting within their reserved authorities. This includes states' efforts to protect public health and advance environmental goals, such as laws intended to address pollution externalities in the competitive wholesale markets. The ISO's organized markets need to serve state interests. The "North Star" for guiding market design choices is that markets should actively facilitate and help to accelerate the state's energy and environmental priorities, rather than hinder them.

Unfortunately, as Connecticut has discovered, this is not the North Star of the current market design. Instead, New England's market rules remain stuck in the past, frustrating state policies in Connecticut and in neighboring states.

Through this proceeding, and parallel efforts, Connecticut must establish how the existing market construct can be reformed to accommodate and facilitate the state's policies. We encourage Connecticut to evaluate these prospects with other New England states, as a coalition of states demanding action from the ISO and from FERC may be better able to achieve the necessary change. Connecticut must also commit to leaving ISO-NE's markets if they are not reformed to support the state's environmental and energy goals. Given the urgency of the climate threat and the ambitious scale of the state's policies, Connecticut can best protect the state's interests and those of its citizens by establishing clear criteria that must be met if it is to remain in ISO-NE, a date that those criteria must be met by, and a path to exit if they are not.

II. Wholesale Market Threats to Achieving Connecticut's Climate Policies

A. ISO-NE's Forward Capacity Market unjustly favors polluting resources

The FCM was designed with the intention to be fuel neutral and to drive towards the most economically efficient means of achieving resource adequacy. In practice it has and will continue to favor fossil fueled generators, even when this is not the most economically efficient outcome. The FCM, as such, is a significant impediment in the ISO-NE markets towards a transition to a low-carbon electricity system.

The FCM favors fossil generation over clean generation in both small and large ways. First, and most importantly, the design of the FCM fundamentally drives the resource mix away from high capital cost low operating cost resources towards low capital cost high operating cost resources (i.e., away from clean energy resources and towards fossil resources).[8] Even were every proposed clean energy resource able to clear in an FCA, these clean energy resources would simply not be built absent state policies to enable them outside of ISO-NE's wholesale electricity markets. Even when these resources are the least-cost option for providing energy and meeting the region's resource adequacy needs, the ISO-NE wholesale electricity markets provide insufficient investment risk reduction to enable these high capital cost resources to be financed and built.

[8] Jacob Mays, et al., Asymmetric Risk and Fuel Neutrality in Capacity Markets, USAEE Working Paper No. 19-385, February 8, 2019, https://papers.ssrn.com/sol3/papers.cfm?abstract_id=3330932.

The FCM can make low capital cost resources like gas generators financeable by providing sufficient revenue certainty to reduce investment risk to an acceptable level. This is why the FCM has a seven-year price lock for new resources. For example, using all of the ISO's assumptions in the FCA 14 Offer Review Trigger Price (ORTP) calculation model, a combined cycle or simple cycle gas power plant would lock in approximately 67 percent of its capital costs by clearing in an FCA at its ORTP, its competitive breakeven price. This would leave only 33 percent of its capital costs to be recovered from capacity revenues after the seven-year lock in period or from energy or ancillary service market profits. Clearing in the FCA allows such a resource to dramatically reduce its investment risk and move forward with financing.

The FCM does not provide a comparable level of investment risk reduction for high capital cost resources like wind and solar. Again, using ISO's FCA 14 assumptions, an onshore wind or solar project would lock in only 13 or 21 percent of its capital costs, respectively, by clearing in an FCA at its breakeven capacity price. This would leave 79 to 87 percent of the resource's capital costs to be recovered through capacity revenues following the seven-year lock in period, the energy market, and environmental attribute markets, all subject to market volatility. Even when these resources are the least cost resources in the FCM, which they often have been and increasingly are despite all of the focus on the MOPR, they simply cannot be financed based on clearing in a Forward Capacity Auction as it does not provide a sufficient level of risk reduction.

Even if economy-wide carbon pricing were instituted, the MOPR were eliminated, and all of the other market biases described below were addressed, the FCM and the wholesale electricity markets would, on their own, continue to fail to incent new entry of clean energy resources. This is a fundamental market failure, when the least cost resource, if relying solely on the market, is not financially viable. Unless this fundamental failure of the markets is addressed, state actions outside of the market (e.g., long-term contracts) appear to be the only viable path towards decarbonizing the power supply and will therefor need to continue if state policy goals are to be achieved. Resolving the other concerns with the FCM described here would in no way alleviate the need for out of market state actions, but they would allow the states to take these actions to incent the new entry of clean energy resources that are necessary for decarbonization without causing consumers to pay twice for this capacity.

Second, the overlapping impact test[9], intended to ensure that new capacity is incrementally deliverable, prevents new capacity resources in transmission constrained areas from competing with existing capacity resources in that same area. All other parts of the ISO-NE market, most notably the energy market, are predicated on the idea that new resources should compete with existing resources and that the most economically efficient option should prevail. Yet the FCM does not allow for this when there are areas with transmission constraints, favoring instead the incumbents over new generation. The existing capacity resources on the system did not pay for the development of the regional transmission system, yet the overlapping impact test in the FCM gives these existing resources indefinite rights of first refusal to utilize the

[9] See ISO-NE Tariff Section III.13.1.1.2.3 and Planning Procedure 10 Section 5.8. All new capacity resources must pass the overlapping interconnection impact test in order to qualify to participate in the FCM. It tests whether the new capacity can be delivered to the load zone in which it is located at the same time as all existing capacity as well as all previously-queued new capacity seeking qualification at the same time, without causing any transmission overloads within the load zone.

transmission system for delivering their capacity, even if a new resource is willing to offer capacity at a lower price. As the majority of existing resources are fossil fueled generators and the majority of proposed new capacity resources are clean energy resources[10], this has the effect of favoring incumbent fossil generation to the detriment of state carbon policies and economic efficiency.

Third, there is a notable difference in how generators of different types are qualified for capacity. Wind, solar, and run-of-river hydro, which ISO-NE classifies as "Intermittent Generators," are qualified for capacity at only a fraction of their maximum capability based on their median output during pre-determined seasonal reliability hours. These resources are qualified and paid for capacity based only on their actual energy deliveries during expected times of system stress. Their qualified capacity is reduced if they do not deliver during these times, regardless of whether those deliveries weren't made due to fuel being unavailable (i.e., cloudy, dry, not windy), equipment outages, or curtailment by ISO. Conventional generation, on the other hand, is qualified at its maximum capability regardless of how often it actually delivers energy or reserves, whether it has fuel supply when the system needs it, its maintenance or forced outage schedule, or transmission congestion that may limit its output. The ISO's current Energy Security Improvements (ESI) project and related fuel security efforts over the last two years, which are discussed in more detail below, were born out ISO-NE's questionable fear that pipeline gas has become an intermittent fuel supply in cold weather. Yet the ISO has not reflected this perceived fuel constraint in the capacity qualification or compensation of gas resources. Rather than reflecting all resources' actual ability to deliver energy and reserves at the times they are needed, as with variable energy generators, the FCM qualifies and compensates conventional generation for its maximum capability and then purchases additional capacity, through the FCM's Installed Capacity Requirement calculation, to make up for all of the times that these conventional generators are unavailable.

Fourth, the FCM evaluates each generator's reliability contribution towards meeting peak load on an individual basis. While that approach might have been valid with a narrow and comparatively small range of conventional, utility-scale resources, it is ill-suited for today's transforming grid. Reliable electric service with a decarbonized grid emphasizes the combined contributions of complementary supply, demand, and storage resources. In its current form, the FCM simply does not support the innovative resource adequacy planning needed for large-scale decarbonization.

Fifth, the FCM timeline, in which the ISO conducts a Forward Capacity Auction (FCA) nearly three-and-a-half years before the start of the capacity commitment period, is designed around the construction schedule of a typical gas-fired power plant. This 3.5 year period allows these gas power plants to finalize their financing and construction following receipt of a capacity commitment in the FCA. The power plant can then begin receiving capacity revenues shortly after commissioning. This timing is totally mismatched, however, with the construction schedule of most clean energy resources, which typically take far less time to plan and build. The result is that these clean resources must take on high risk by clearing in a Forward Capacity Auction early in the development process or, as the FCM has steadily raised the risk of clearing early, they

[10] ISO-NE, "Resource Mix," https://iso-ne.com/about/key-stats/resource-mix (visited Feb. 4, 2020).

must wait until very late in the development process and forego significant capacity revenues during the first one to three years of operations.

Sixth, ISO-NE's 2019 PV Forecast[11] projects that 2,141.3 MW, nearly 32 percent of all solar installed by 2028, will be in the category known as "non-FCM Energy Only Generators" While some of these projects may be in this category due to the Minimum Offer Price Rule (see next paragraph), a sizeable share end up in this category due to the administrative burden of FCM participation exceeding the expected FCM revenues for small resources. These non-FCM Energy Only Generators are solar projects that are not participating in the FCM, but nonetheless have capacity value to the system. Yet these solar projects are completely ignored by the ISO in the capacity market, as though they do not exist. The ISO makes no accounting for these resources in the FCM's Installed Capacity Requirement even though, rationally, these solar resources should be expected to reduce capacity needs. Using ISO-NE's capacity derating rules described above, this is equivalent to 899 MW of capacity built and contributing to system reliability while being completely ignored by the FCM.[12] As of the end of 2018, that number had already reached 421 MW of capacity built and ignored by the FCM.

Seventh, the Minimum Offer Price Rule or MOPR disadvantages new clean energy resources by selectively "correcting" for certain government incentive programs and requiring resources receiving these incentives to bid in the FCM at high prices that reflect what they would have bid in the FCM (i.e., how much money they would have needed to receive from the FCM to be financially viable) had these government incentives not existed. Moreover, in the offer floor price calculations, the ISO Internal Market Monitor has the ability to substitute what it believes are reasonable market expectations for the resource developer's own market expectations (e.g., for energy or REC market pricing, for financing costs, or for project operating lifetime), artificially inflating the "competitive" offer price for new resources and in many cases preventing them from clearing an FCA despite their truly competitive economics.

These "state sponsored resources" are being built as a result of state decarbonization policies and thus reflect actual capacity being added to the system. Yet because the FCM consistently clears at price levels below these administratively-determined offer floor prices, the MOPR causes the FCM to ignore these clean energy resources and to instead procure duplicative new conventional resources and retain existing, often fossil, resources that are unnecessary to maintain system reliability.

When there were only a few hundred megawatts of capacity from these state sponsored resources, they could be excluded from the market with little impact. With increasingly ambitious and science-based state policies seeking rapid decarbonization of the power system, however, the MOPR is on track to cause New England to have an enormous excess supply of capacity, with consumers footing the bill for both, all in the name of "protecting" largely gas-

[11] ISO-NE, Final 2019 PV Forecast, slide 52, April 29, 2019, https://www.iso-ne.com/static-assets/documents/2019/04/final-2019-pv-forecast.pdf.
[12] ISO-NE, Update on the FCM Qualified Capacity Estimating Tool for Photovoltaic (PV) Resources, September 16, 2019, https://www.iso-ne.com/static-assets/documents/2019/09/a02_vrwg_2019_09_16_present.pptx. Slide 3 shows that the average qualified capacity of commercial PV projects is 42 percent of nameplate.

fired merchant power plants from the effects of a changing marketplace in which the need to decarbonize is recognized and realized through state policy. This is nonsensical.[13]

B. ISO-NE and FERC have been unwilling to address these issues

Rather than addressing these shortcomings, in recent years, ISO-NE has exacerbated the problems while showing little interest in working with New England states and stakeholders to ensure the clean energy resources we need to solve climate change are integrated in and incentivized by the wholesale electricity markets. Unfortunately, rather than acting as a check on the ISO to ensure it acts in the public interest, FERC has repeatedly ratified these actions.

1. Recent ISO actions are not aligned with achieving state policies

In 2016, Connecticut and the other New England states issued a "Problem Statement," via NESCOE, expressing concern that the FCM does not recognize, and often excludes, clean energy resources required under state laws.[14] The states requested discussions with the ISO and NEPOOL stakeholders to address these concerns, including the need to achieve cost-effective near-term integration of state clean energy procurements and meet long-term state energy and environmental policy goals.[15] This led to a series of meetings at NEPOOL, with the ISO as a participant, on "Integrating Markets and Public Policy" or IMAPP from late 2016 to early 2017.[16]

Rather than achieving the states' goals, however, the IMAPP discussions ended when ISO-NE proposed and subsequently adopted, with FERC approval, new FCM rules that have continued to exclude state policy resources from the market. These rules—known as Competitive Auctions with Sponsored Policy Resources or CASPR[17]—were ostensibly developed to enable new clean energy resources, such as Connecticut's procurements of offshore wind, to enter the FCM. They have not.

In practice, CASPR has reinforced the status quo and enacted new barriers to integrating clean energy, continuing the market's preferential support for incumbent fossil fuel generation at the expense of consumers and the climate. CASPR eliminated the Renewable Technology Resource (RTR) exemption that states had previously negotiated in the FCM. This exemption, while insufficient to integrate all state policy goals, provided a guarantee that at least 200 MW of new renewable energy capacity could enter the FCM each year without being subject to the

[13] As discussed in section II.B.1, *infra*, ISO-NE recently added a "substitution auction" to the FCM that purportedly allows state sponsored resources that were excluded from the auction by the MOPR to later buy out the capacity obligations received by legacy existing capacity resources. However, the substitution auction has to date not shown that it is an effective means of incorporating state sponsored resources into the resource adequacy picture at the scale required by state policies and necessary to address the climate threat.
[14] NESCOE, *Policies and Markets Problem Statement* (May 17, 2016), http://nepool.com/uploads/IMAP_20160517_Problem_Statement.pdf.
[15] NESCOE, *Policy and Markets: Goal Posts* (June 2016), http://nepool.com/uploads/IMAP_20160621_Goal_Posts_States.pdf.
[16] *See* New England Power Pool, "Integrating Markets and Public Policy," http://nepool.com/IMAPP.php (last visited Feb. 3, 2020).
[17] FERC, *Order on Tariff Filing*, 162 FERC ¶ 61,205 (Mar. 9, 2018), https://www.ferc.gov/CalendarFiles/20180309230225-ER18-619-000.pdf.

MOPR. When FERC phased out the RTR exemption in the order approving CASPR, it allowed the accrued balance to be used up over the next several auctions. Going into FCA-14, there are only 336 MW left in the RTR. Once this is used up, all new clean energy resources supported by state policy will be fully subject to the MOPR.

In place of the RTR exemption, CASPR created a "substitution auction" by which new clean energy resources kicked out of the FCM by the MOPR can attempt to buy out incumbent fossil generators that were able to clear the market. While the substitution auction provides a limited avenue for clean energy to participate in the FCM, these buyouts mean that CASPR creates a windfall for otherwise uneconomic polluting generators. CASPR further enables incumbent generators to control whether and the rate at which new clean energy can enter the market—regardless of what state policies seek to achieve—since the substitution auction only provides for clean energy's entry if those incumbent generators agree to retire.

In the first FCM auction held following CASPR's adoption, last year, fewer than 54 MW of state policy resources were able to enter through the substitution auction, compared to 850 MW of resources seeking to do so.[18] The FCA 14 initial results, released just hours before these comments are submitted, again reveal that the CASPR substitution auction was unsuccessful at allowing state-supported clean energy resources that are subject to the MOPR to receive capacity commitments.[19] Of the 336 MW that remained in the RTR exemption, 317 were used in this auction, leaving fewer than 20 MW for the next auction. No swaps at all were made in the substitution auction.[20] The data released today do not yet allow an assessment of why no substitution trades were made, but these results confirm our concerns that the substitution auction is a fundamentally flawed mechanism that simply does not work to incorporate state-supported resources into the ISO's resource adequacy construct.

ISO-NE takes the position that CASPR's performance must be assessed over a longer period.[21] However, the ISO has yet to provide any metric or standard by which it intends to judge CASPR's performance, nor has the ISO presented any timeline or plans for reviewing its CASPR rules. Notably, the ISO has never indicated that a measure of CASPR's success should be that the clean energy resources Connecticut is bringing online, which Connecticut customers are paying for, are able to enter the market within a reasonable timeframe. With the February 2020 FCM auction procuring capacity resources for the 2023/2024 capacity year, we are rapidly running out of time to ensure Connecticut's state grid and New England's regional grid decarbonize. The previous RTR exemption, while insufficient in size and scope, at least provided some guarantee that clean energy could gain access to the FCM. The ISO's lack of concern for the ineffectiveness of CASPR, and the overall impact of the MOPR on state clean energy resources requires Connecticut households and businesses to pay for the excess, unnecessary

[18] ISO New England, *Forward Capacity Market (FCA 13) Result Report*, https://www.iso-ne.com/static-assets/documents/2018/05/fca-results-report.pdf.
[19] ISO New England, Press Release, New England's Forward Capacity Auction Closes with Adequate Power System Resources for 2023-2024 (Feb. 5, 2020), at https://www.iso-ne.com/static-assets/documents/2020/02/20200205_pr_fca14_initial_results.pdf.
[20] *Id.*
[21] Letter from Gordon van Welie, President and CEO of ISO-NE, to 8 U.S. Senators (Nov. 21, 2019), https://www.iso-ne.com/static-assets/documents/2019/11/combined_iso_us_senate_nov_18_and_22_letters.pdf.

polluting resources procured by the ISO as well as for the clean energy resources the state's laws are bringing online to replace this dirty energy.

Worse still, the ISO has taken steps over the last two years to undermine even the inadequate potential benefits that CASPR could provide, further shrinking and closing off the FCM to clean energy. These measures have been enacted in the name of "fuel security"—the concern expressed by the ISO that New England could face future energy shortfalls during peak winter events. Balancing energy supply and demand to ensure reliability is a critical role of grid operators. Unfortunately, the specific fuel security measures adopted and implemented by ISO-NE continue the wholesale markets' tradition of discounting, ignoring, or disadvantaging the grid reliability and energy security services provided by fuel-free clean energy resources.

In January 2018, shortly after filing its CASPR proposal with FERC, ISO-NE released a highly flawed "Operational Fuel-Security Analysis" that identified fuel security as "the foremost challenge to a reliable power grid in New England."[22] Subsequent analyses by stakeholders as well as analyses performed by the ISO at the urging of New England states and stakeholders revealed numerous problems with the study. These included the use of incorrect assumptions that failed to capture accurately both the existing levels of clean energy resources already on the grid and the levels of new clean energy required to be built in future years under state laws.[23] When these errors were corrected, the analyses showed continued implementation of state clean energy laws is expected to fully or significantly eliminate the fuel security concerns the ISO raised.[24]

Instead of changing course, however, the ISO doubled and tripled down on its fuel security alarm. After a failed attempt to waive existing FCM rules,[25] ISO-NE adopted new rules in late 2018, with FERC's approval, to enable it to enter into out-of-market contracts with resources that would otherwise retire if the ISO concludes such resources are needed to ensure regional fuel security.[26] This has resulted in ISO contracts to retain the 1,700 MW gas-fired Mystic Generating Station units in Massachusetts, keeping those otherwise uneconomic resources on the system at a cost to consumers of hundreds of millions of dollars. The irony of the ISO objecting to and seeking to exclude from the FCM "out-of-wholesale-market" clean energy that has been competitively procured by the states yet seeking to retain uneconomic fossil units through non-competitive out-of-market contracts, based on a severely flawed fuel security model and analysis, is palpable.

Preventing the Mystic units from retiring has also had another adverse effect: it has removed a significant potential retiring resource from CASPR's substitution auction for two years, thus shrinking the substitution auction's market for new clean energy and undermining the one FCM rule the ISO has adopted to help integrate state policy resources in the market.

[22] ISO New England, *Operational Fuel-Security Analysis* (Jan. 17, 2018), at 6, https://www.iso-ne.com/static-assets/documents/2018/01/20180117_operational_fuel-security_analysis.pdf.
[23] *See, e.g.*, Synapse Energy Economics, *Understanding ISO New England's Operational Fuel Security Analysis* (May 3, 2018), https://www.synapse-energy.com/sites/default/files/Understanding-ISO-NE-OFSA-18-028.pdf.
[24] *Id.*
[25] FERC, *Order Denying Waiver Request, Instituting Section 206 Proceeding, and Extending Deadlines*, 164 FERC ¶ 61,003 (July 2, 2018), https://www.ferc.gov/CalendarFiles/20180702193957-ER18-1509-000.pdf.
[26] FERC, *Order Accepting Compliance Filing and Requiring Informational Filings*, 165 FERC ¶ 61,202 (Dec. 3, 2018), https://elibrary-backup.ferc.gov/IDMWS/common/opennat.asp?fileID=15109019.

The ISO's subsequent fuel security actions have only exacerbated these concerns. Last year, the ISO adopted an additional rule change—the "Inventoried Energy Program" or IEP—which provides hundreds of millions of dollars in new energy market payments to resources that rely on fuel or "inventoried energy" to generate electricity.[27] Fuel-free resources like renewable energy are ineligible for compensation. This is despite analysis from ISO-NE showing that fuel-free offshore wind can provide key wintertime energy security benefits[28] and the fact that during past winters, igniter failures, frozen coal piles, frozen boiler tubes, and other issues have kept fossil generators offline, even when these generators had fuel on-site.[29] As a comprehensive deficiency letter on the filing from FERC revealed, ISO-NE's IEP filing to FERC lacked any analysis to suggest that the additional proposed payments to fossil generators would improve the region's energy security.[30] ISO-NE's response to the deficiency letter was itself extremely lacking, with the ISO arguing the "interim" nature of the program obviated it from performing analysis to justify its decision to grant hundreds of millions of dollars in extra payments to generators at customers' expense.[31] As FERC Commissioner Glick pointed out, the IEP "will cost New England consumers as much as $300 million without any evidence to suggest that it will actually improve the region's fuel security or that any improvement is likely to be worth the cost."[32] Commissioner Glick further observed that the IEP will undermine the success of the CASPR substitution auction, by funneling money to generators in order to forestall their retirement.[33] Despite such concerns, however, due to a lack of a quorum at FERC, this highly controversial proposal took effect by operation of law and remains in effect today.[34]

In April, ISO-NE will file additional fuel security rule changes—its Energy Security Improvements or ESI proposal—with FERC. While this proposal is still being developed, ESI too appears to create new financial benefits and opportunities primarily for the region's fossil fuel-fired resources.[35] Notably, as with earlier corrected analyses, independent analysis of this most recent proposal, commissioned by the ISO, continues to show that New England, even

[27] ISO-NE, Section 205 Filing (Inventoried Energy Program) (Mar. 25, 2019), FERC Docket No. ER19-1428, https://elibrary.ferc.gov/idmws/common/OpenNat.asp?fileID=15194414.
[28] *See* ISO-NE, "High-Level Assessment of Potential Impacts of Offshore Wind Additions to the New England Power System During the 2017-2018 Cold Spell" (Dec. 17, 2018), https://www.iso-ne.com/static-assets/documents/2018/12/2018_iso-ne_offshore_wind_assessment_mass_cec_production_estimates_12_17_2018_public.pdf.
[29] NRDC, "Cold Temps Prove Value of Electricity Grid Markets, Planning" (Jan. 4, 2018), https://www.nrdc.org/experts/john-moore/cold-temps-prove-value-electricity-grid-markets-planning.
[30] FERC, Deficiency Letter (May 8, 2019), Docket No. ER19-1428, https://elibrary.ferc.gov/idmws/common/OpenNat.asp?fileID=15241639.
[31] ISO New England, ISO New England Response to Commission Request for Additional Information Regarding the Inventoried Energy Program (June 6, 2019), Docket No. ER19-1428, https://elibrary.ferc.gov/idmws/common/OpenNat.asp?fileID=15264016 ("[I]n its initial filing, the ISO readily acknowledged that it has not performed detailed analyses with respect to the inventoried energy program , , , But the ISO also explained why such analysis is not warranted or necessary in this case . . . [G]iven the interim nature of the program, it was appropriate to forgo the complex and time-consuming development of a robust methodology to estimate the program's expected reliability benefits.").
[32] FERC, *Statement of Commissioner Glick*, Docket No. ER19-1428-001 (Aug. 8, 2019), https://www.ferc.gov/media/statements-speeches/glick/2019/08-08-19-glick.pdf.
[33] *Id.* at P11.
[34] FERC, *Notice of Filing Taking Effect by Operation of Law*, Docket No. ER19-1428-01 (Aug. 6, 2019), https://www.ferc.gov/media/headlines/2019/2019-3/ER19-1428-001.pdf.
[35] Analysis Group, "Energy Security Improvements Impact Analysis" (Jan. 28, 2020), https://www.iso-ne.com/static-assets/documents/2020/01/a3_d_esi_impact_analysis.pdf, at slides 60-62 and 66-68.

without ESI, is not expected to experience energy shortages during the winter or other periods of the year as a result of fuel security.[36]

Despite the lack of evidence for a fuel security problem on the scale the ISO claims, ISO-NE continues to charge ahead with a multiyear fuel security effort that has thus far propped up fossil generation at the expense of clean energy. And despite the overwhelming evidence of a climate crisis and the critical role the electricity grid must play in decarbonizing the economy, the ISO continues to ignore or obstruct state laws intended to address this existential threat.

Connecticut's recent procurement of an 800 MW offshore wind project, which is scheduled to come online by 2025,[37] aptly illustrates how resources procured pursuant to the state's clean energy policies are not acknowledged, much less fully valued, by the ISO. The legacy quantity of the RTR exemption will likely be exhausted by the time Vineyard Wind's Park City Wind project would be ready to offer into FCM, and the offer floor price for offshore wind significantly exceeds recent FCM clearing prices.[38] Thus the Park City Wind project will not clear the FCM auction, and has a very uncertain ability to obtain a capacity commitment through the substitution auction. The result will be that Connecticut consumers will be required to purchase an equivalent amount of capacity from other resources, despite the offshore wind project's operation. At the same time, the ISO is likely to significantly devalue the offshore wind's contribution to winter energy security needs, as it has in recent proposals, possibly requiring Connecticut customers to pay additional revenues to fossil resources with so-called "firm" fuel supplies. In short, ISO-NE's recent policy changes, actions, and statements give no confidence that it will recognize the reliability value provided by state-supported resources without substantial and consistent pressure from states like Connecticut.

2. The ISO's response to states and others' concerns is inadequate

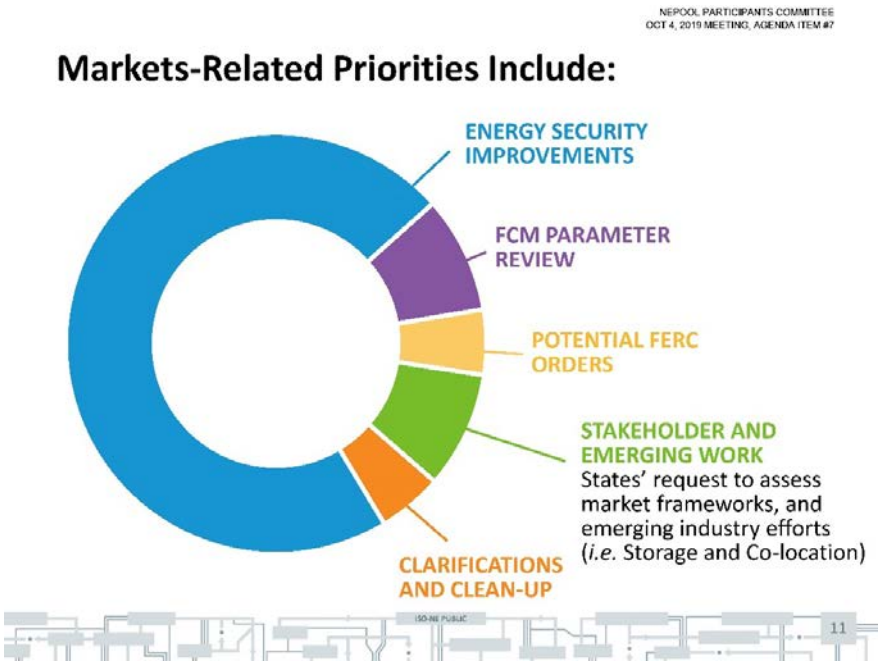
As ISO-NE has continued to chart a path that frustrates New England states' policy goals, New England states and others have rightly questioned the ISO's actions and priorities. In addition to the issues raised by DEEP in the notice for the January 22nd technical meeting and at the meeting itself, in July 2019, Connecticut and other New England states raised questions, via NESCOE, about the consistency of the region's wholesale markets with their state policies and requested the ISO's help in examining potential future market frameworks and goals in 2020.[39]

NESCOE is not alone in requesting such an examination. In November 2019, eight U.S. Senators representing five New England states—including both of Connecticut's Senators—raised concerns to ISO-NE President Gordon van Welie that "ISO-NE is not considering the region's environmental and climate goals" and that the grid operator's rules and practices appear

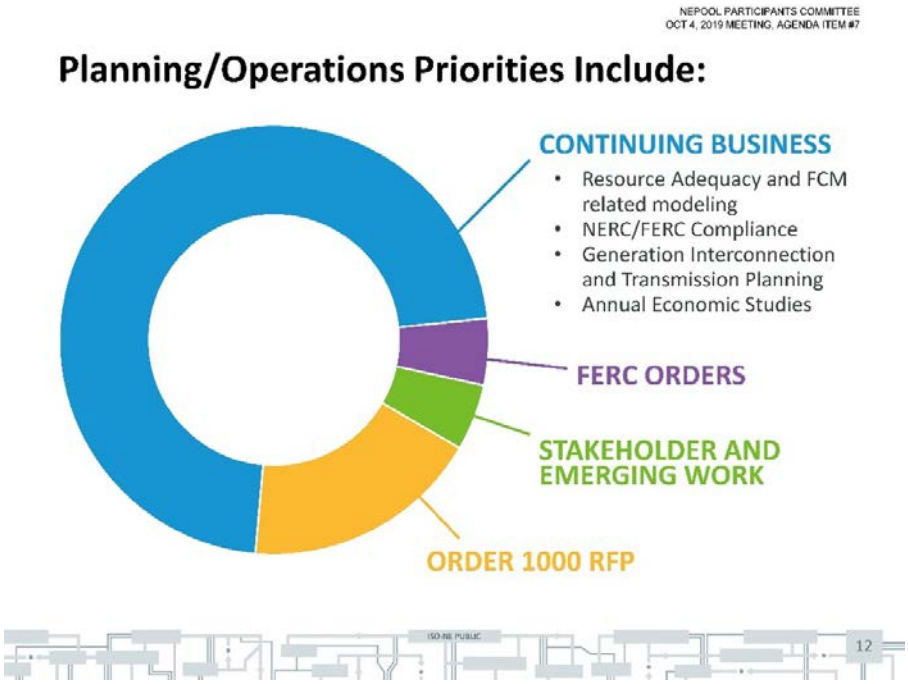
[36] *Id.* at 16-18.
[37] Jan Ellen Spiegel, New offshore wind award is largest renewable project ever for CT, CT Mirror, Dec. 5, 2019, https://ctmirror.org/2019/12/05/new-offshore-wind-award-is-largest-renewable-project-ever-for-ct/.
[38] *Compare* FCM Parameters by Capacity Commitment Period, CCP 2023-24, at https://www.iso-ne.com/markets-operations/markets/forward-capacity-market#2023-2024 (indicating that offer review trigger price for all resources not specifically listed, including offshore wind, as $13.099 per kW-month) with ISO-NE, Forward Capacity Market (FCA 13) Result Report, https://www.iso-ne.com/static-assets/documents/2018/05/fca-results-report.pdf (noting FCA 13 clearing price of $3.80 per kW-month).
[39] NESCOE, "ISO-NE 2020 Work Planning: Markets and State Laws" (July 16, 2019), http://nescoe.com/wp-content/uploads/2019/07/WorkPlan2020Request_16July2019.pdf.

to be "aimed at preserving the status quo of a fossil fuel-centered" electricity sector.[40] The Senators supported NESCOE's call for ISO-NE to work with the states and stakeholders to ensure its markets are consistent with state climate and clean energy policies, noting that ISO-NE has a legal responsibility under the Federal Power Act "to facilitate this clean energy transition and help achieve the region's climate goals in a cost-effective manner that ensures reliability and just and reasonable rates for consumers."[41] Stakeholders from diverse sectors have similarly expressed support for NESCOE's request.[42] In December 2019, the Massachusetts Attorney General launched a citizen petition recognizing that "New England's energy system is more expensive and more polluting than it should be" and calling on ISO-NE "to adopt energy market rules that promote affordable clean energy, healthy communities, and climate protection."[43]

The response from ISO-NE has been underwhelming. Six months after NESCOE's July 2019 request, the ISO does not appear to consider examining markets and state policy conflicts a major priority. To the contrary, in its 2020 work plan, the ISO intends to allocate only a small fraction of its planning and markets efforts to the states' and other "stakeholder and emerging work," as depicted by the green wedges below.[44] The ISO has provided no further details on any meetings, information, or analyses that it is prepared to undertake to support an examination of its current market frameworks or to ensure state policy resources are reflected in its markets.



[40] Letter from 8 U.S. Senators to Gordon van Welie, President and CEO of ISO-NE (Nov. 18, 2019), https://www.iso-ne.com/static-assets/documents/2019/11/combined_iso_us_senate_nov_18_and_22_letters.pdf.
[41] *Id.*
[42] *See, e.g.*, New England Power Generators Association, Inc., Letter to ISO-NE (Aug. 13, 2019), https://nepga.org/wp-content/plugins/custom-post-type-attachment-pro/download.php?id=MTUzNw==&file=MQ==; Conservation Law Foundation, Letter to ISO-NE (Aug. 21, 2019); Advanced Energy Economy, Letter to ISO-NE (Sep. 27, 2019).
[43] Massachusetts Attorney General, "Sign the Petition: Shape Massachusetts' Clean Energy Future," https://www.mass.gov/forms/sign-the-petition-shape-massachusetts-clean-energy-future (visited Feb. 3, 2020).
[44] ISO New England, "Discussion of the ISO's Draft 2020 Annual Work Plan" (Oct. 4, 2019), https://www.iso-ne.com/static-assets/documents/2019/09/2020_awp_9_9_19_officers.pdf, at slides 11-12.



The ISO's response to the Senators' November 2019 letter further exhibits the grid operator's lack of urgency and strategy in addressing market concerns and the need to mitigate climate change. ISO-NE President and CEO Gordon van Welie writes that "ISO New England understands and respects the policy objectives of the New England states with regard to the decarbonization of the bulk power system," yet provides no indication that the ISO is prepared to take additional steps to ensure that state policy resources are reflected in its markets.[45] And while Mr. van Welie claims the ISO is "actively working with states and stakeholders during the transition to the future grid," the fact remains that NESCOE's request remains unfulfilled.

In discussing ESI, Mr. van Welie writes that the ISO's proposal "may actually accelerate the transition to reliable zero carbon, renewable resources and storage technologies," yet provides no evidence that this will be the case.[46] We are unaware of any analysis by the ISO or anyone else that shows ESI will accelerate decarbonization of the New England grid at any rate, let alone the rate and trajectory called for by state policies and scientists to avoid climate disaster. Given that the ISO projects ESI to continue to consume nearly three-quarters of its market staff's and stakeholders' attention over the next year—and to continue to be a major focus in 2021—it is critical that the ISO justify this resource prioritization. To date, the ISO has not explained how much a role it believes ESI could play in decarbonization or what additional market changes might be needed. In response to the Senators' criticism of the ISO's IEP proposal, Mr. van Welie notes that these rules are temporary. He does not, however, respond to concerns that IEP is forcing customers to pay millions more for polluting energy or to Commissioner Glick's concern that IEP will undermine CASPR by delaying the integration of renewable energy in the FCM. As the climate crisis worsens, and as state commitments to decarbonize accelerate, delays of even a few years in responding could have dire effects.

[45] Letter from Gordon van Welie, President and CEO of ISO-NE, to 8 U.S. Senators (Nov. 21, 2019), *supra* note 20.
[46] *Id.*

With respect to CASPR, Mr. van Welie acknowledges the ISO's rules force state-sponsored renewable energy to wait for fossil fuel generators to retire before entering the FCM. He nevertheless defends the ISO's approach as a "second-best solution" to New England states adopting a regional carbon price.[47] As with ESI, we are aware of no ISO-NE analysis that shows a carbon price—and what level of carbon price—would be more effective or efficient than New England states' current policies of building out renewable energy, including offshore wind, through competitive procurements. Carbon pricing is a potential approach to cutting emissions and the New England states have in fact adopted a pricing strategy as part of their climate policy portfolio through their participation in the Regional Greenhouse Gas Initiative (RGGI). The states have also adopted many other complementary policies to incentivize clean energy that have proven effective and beneficial.

The ISO is not an environmental regulator and takes pains to cast its role within the limited lane of the region's grid operator tasked with maintaining reliability. We recognize and respect this vital function but are troubled that while the ISO is not an environmental regulator it appears to be attempting to dictate the environmental policy—carbon pricing—that New England states must adopt if they want to achieve their climate goals. By framing CASPR as the "second-best solution" to carbon pricing, the ISO appears to say that if Connecticut and the other states do not adopt carbon pricing, the ISO will use its market rules to mitigate and block the state's policy goals and substitute its own judgment on the primacy of climate versus other priorities. This is of course a false choice: climate policies can provide both environmental and other benefits, including economic savings and gains. ISO-NE's position is also a dangerous proposition that is at odds with the ISO's lack of environmental jurisdiction and mandate.

While Connecticut could at some point consider carbon pricing beyond what it is already implementing under RGGI, carbon pricing is not a panacea for state-supported resources and will not resolve tensions between the existing FCM and state policies. If carbon pricing is introduced and flows through to the energy market, it will partly address the "missing money" problem that the FCM was intended to address—i.e., the revenues over and above those earned from selling energy and ancillary services that are needed to provide market incentives for maintaining sufficient capacity margins to satisfy planning reliability criteria, such as the "one-day-in-ten-year" reliability standard. However, these extra energy revenues for the carbon avoidance attribute will likely exist in the short run only. Over the long term, when fossil resources are not on the margin, the carbon price value could be drastically lower. As Connecticut and other states have pointed out, there are also federal-state jurisdictional issues and concerns that a carbon price alone may not incentivize new clean energy (e.g., due to project financing issues) and/or that higher energy revenues from carbon pricing may flow largely to incumbent generators rather than new units, leading to insufficient consumer benefits.[48]

While a carbon price will raise energy prices in the short run, it will not necessarily do so in a way that enhances the reliability signal sent by energy market prices, as would a mechanism that incorporates reliability constraints into price formation. As discussed further below, transitioning to a clean energy grid will require reforms to energy and ancillary services markets

[47] *Id.*
[48] *See, e.g.*, NESCOE, "Feedback to NEPOOL on Long-Term 'Achieve'-style IMAPP proposals" (Apr. 7, 2017), http://nepool.com/uploads/IMAPP_20170517_NESCOE_Memo_20170407.pdf.

that better recognize and compensate resources for providing capabilities like fast ramping and incentivize new resources to be located where they are most needed to serve peak load. Improved scarcity pricing could also help better internalize reliability constraints into energy market price formation and reduce suppliers' reliance on revenues recovered through the capacity market.

Importantly, as also discussed below, FERC's recent PJM MOPR order raises questions about whether the current Commission would see a carbon price as compatible with the capacity market construct or would instead seek to mitigate it under an expanded ISO-NE MOPR.

Ultimately, however, environmental policy decisions and approaches are appropriately reserved to state regulators, not ISO-NE. It is not the role of the ISO, nor should it be, to dictate the ways in which Connecticut and other New England states exercise their authority in support of legitimate policy goals. Connecticut should reject ISO-NE's attempt to force the state's hand. ISO-NE must in turn live up to its Federal Power Act responsibility to facilitate achievement of state climate and clean energy goals cost-effectively within its mandate to ensure reliability.

3. FERC dysfunction in regulating ISO-NE's Forward Capacity Auction exacerbates Connecticut's struggles to implement state energy policies and highlights the risks of continued reliance on the FERC-regulated FCM

Connecticut's clean energy policies face implementation risks not only because of ISO-NE indifference and occasional FERC hostility, but also simple mismanagement or neglect by FERC. FERC's failure to meaningfully and responsibly supervise ISO-NE's FCA 13 dramatically illustrates the risks to Connecticut of prolonged reliance on the FERC-regulated wholesale capacity auction process. At each stage of the auction process, FERC inaction resulted in outcomes that undermined Connecticut's energy policy goals.

ISO-NE's FCA 13 was a tale of two resources. Two major new facilities both sought participation in FCA 13: the 800 MW Vineyard Wind offshore wind project and the 650 MW gas combined cycle Killingly Energy Center (KEC). The former is directly consistent with Connecticut's future resource goals, as evidenced by the State's ongoing investment in similar offshore wind projects[49]; the latter exacerbates New England's already-concerning over-reliance on gas to power the region.

Vineyard Wind sought to participate in FCA 13 utilizing the Renewable Technology Resource exemption to the Minimum Offer Price Rule.[50] Due to an "oversight" in the drafting of the RTR exemption, because the Vineyard Wind project is geographically located in federal waters offshore Massachusetts rather than in Massachusetts itself, the facility required a waiver from FERC to receive the RTR exemption.[51] Despite Vineyard Wind's filing of its waiver request on December 14, 2018, as of February 4, 2019—the date of the auction—FERC had not

[49] Jan Ellen Spiegel, New offshore wind award is largest renewable project ever for CT, CT Mirror (Dec. 5, 2019), available at https://ctmirror.org/2019/12/05/new-offshore-wind-award-is-largest-renewable-project-ever-for-ct/.
[50] *See* Petition of Vineyard Wind LLC for Waiver of Tariff Provisions and Expedited Commission Action, FERC Dkt. ER19-570-000 (Dec. 14, 2018).
[51] *See id*. at 3 (citing Joint Filing of ISO New England Inc. and New England Power Pool regarding Conforming Changes to ISO Tariff for CSAPR, Docket No. ER19-444-000 at 38 (Nov. 30, 2018)).

responded. Consequently, on February 4, 2019, Vineyard Wind filed an emergency motion for a stay of FCA 13, or in the alternative a requirement that the auction be reconducted subsequent to action by FERC.[52] However, FERC never ruled on the emergency motion, and FCA 13 went forward on February 4th without Vineyard Wind's participation in the primary auction.[53] Vineyard Wind subsequently went on to clear a mere 54 MW of its capacity in ISO-NE's CASPR substitution auction, which represented the entirety of capacity traded in that auction by resources seeking to exit the capacity market,[54] leaving the bulk of Vineyard Wind's capacity uncleared.

By contrast, KEC participated in and obtained a capacity supply obligation through ISO-NE's FCA 13 despite an Offer Review Trigger Price for new combined cycle gas facilities well above the auction clearing price. On April 12, 2019, a group of existing capacity suppliers[55] filed a motion to intervene and protest with FERC asking FERC to scrutinize how the Independent Market Monitor set KEC's minimum offer price for FCA 13 to "ensure conformance with [ISONE's] Tariff, including whether the FCA 13 Results are just and reasonable."[56] The protest noted that KEC had cleared at an auction price below $3.80/kW-month despite the offer review trigger price for a combined cycle unit in FCA 13 being more than double that level: $8.19/kW-month.[57]

FERC mishandling and inaction precluded satisfactory review of KEC's minimum offer price, to the detriment of Connecticut energy policy. On June 6, 2019, FERC responded to the capacity suppliers' protest by submitting a deficiency letter to ISO-NE notifying the ISO that its February 28, 2019 FCA 13 results filing "does not provide sufficient detail to enable the Commission to process the filing."[58] Specifically, FERC found that "additional information is required" regarding the data the Independent Market Monitor relied upon in establishing KEC's minimum offer price, and requested that ISO-NE provide this information within 30 days.[59] However, FERC then failed to take any action. Instead, on August 6, 2019, FERC informed ISO-NE that the FCA 13 auction results had gone into effect by operation of law "because of a lack of quorum at this time."[60]

The upshot of FERC's supervision of FCA 13 was a new gas plant retaining its capacity supply obligation despite an anomalously low minimum offer price that was never fully examined, and a major offshore wind facility having the bulk of its capacity uncounted, to the

[52] Vineyard Wind, LLC, Emergency Motion for an Immediate Stay of the ISO-NE Forward Capacity Auction, or, in the Alternative a Requirement that the Auction be Reconducted Subsequent to Commission Action, FERC ER19-570-000 (Feb. 4, 2019).
[53] ISO-NE, Press Release: New England's Forward Capacity Auction Closes with Adequate Power System Resources for 2022-2023 (Feb. 6, 2019), available at https://www.iso-ne.com/static-assets/documents/2019/02/20190206_pr_fca13_initial_results.pdf.
[54] New England capacity auction sees snubbed Vineyard Wind clear substitution round, S&P Global Market Intelligence (Feb. 7, 2019), available at https://www.spglobal.com/marketintelligence/en/news-insights/trending/2LLLQFIBrAScjOoPfMeXRA2.
[55] Great River Hydro, LLC, NRG Power Marketing LLC, Cogentrix Energy Power Management, LLC, and Vistra Energy Corp.
[56] Motion to Intervene and Protest of the Capacity Suppliers, FERC Dkt. No. ER19-1166-000 (Apr. 12, 2019), at 22.
[57] *Id.* at 1-2.
[58] FERC June 6, 2019 Deficiency Letter at 1.
[59] *Id.* at 1-2.
[60] FERC, Notice of Filing Taking Effect by Operation of Law, Dkt. No. ER19-1428-001 (Aug. 6, 2019).

detriment of Connecticut ratepayers. Connecticut's continuing participation in the FCM leaves it subject to the vagaries of a dysfunctional and increasingly politicized federal regulatory body to the detriment of its state energy policy goals.

C. FERC's PJM MOPR order suggests hostility to state policies

The capacity market barriers to Connecticut achieving its climate policies are not incidental effects of otherwise neutral market design principles. Unfortunately, FERC's December 19, 2019 Order establishing new rates for PJM's capacity market demonstrates that FERC's use of minimum offer price rules is specifically intended to counter the impacts of state policies.

While the Commission's June 2018 order on PJM's capacity market, which set aside PJM's prior rules as unjust and unreasonable, suggested a theory that any revenues received by resources outside of a FERC-jurisdictional market allowed for lower capacity market offers, the December 2019 order reveals that the Commission's only concern is revenues received as a result of state policies. Throughout the order, the Commission rejects comparisons to other sources of out-of-market revenue that might similarly allow for lower capacity market offers, such as federal subsidies or sales of byproducts such as coal ash or steam heat, for the circular reason that such revenues don't arise from a state policy.[61] As the Commission explains most directly in paragraph 17: "This order addresses the growing impact of State-Subsidized Resources because those subsidies reject the premise of the capacity market and circumvent competitive outcomes."[62] In other words, FERC asserts that the ISO capacity markets it supervises are to be the sole determinant of what resources are built to meet resource adequacy needs, and that any state policy that attempts to influence resource mix and thereby "reject[s] the premise of the capacity market" must be countered and nullified through the use of the MOPR.

This is a stunning turn from the Commission's previously asserted intention to allow state policies to have some impact on the resource mix procured through the capacity market and avoid consumers having to buy unneeded capacity through that market.[63] In light of FERC's demonstrated animus toward state policies, it is clear that Connecticut cannot rely solely upon the potential of yet another ISO-NE stakeholder process to fix CASPR. Where FERC has so clearly tipped the scales toward the profit interests of generation owners, and given no weight at all to the viability of state policies or consumers, compromise within the normal stakeholder and FERC process is unlikely to yield results that Connecticut requires to achieve its climate goals.

[61] Order Establishing Just and Reasonable Rate, Consolidated Docket Nos. EL16-49, EL18-178, ER18-1314 (Dec. 19, 2019) ("PJM MOPR Order"), P 66 (discussing and rejecting concerns from Institute for Policy Integrity that RECs and ZECs are not distinguishable from payments for other externalities like coal ash and steam heat sales); *id.* PP 10, 89 (explaining that federal subsidies will not be mitigated even though they also suppress capacity market prices).

[62] *Id.* P 17.

[63] *See, e.g.*, Order on Tariff Filing, ER18-619 (Mar. 9, 2018) (approving ISO-NE Competitive Auctions for Sponsored Policy Resources tariff in part on the basis that it would achieve objectives of capacity market while allowing some state policy resources to obtain capacity commitments); Order Rejecting Proposed Tariff Revisions, Granting in Part and Denying in Part Complaint, and Instituting Proceeding Under Section 206 of the Federal Power Act, ER18-1314 (June 29, 2018) P 159 (asserting that Commission does not take concerns about consumers "paying twice" for capacity, "or the states' right to pursue valid policy goals—lightly," in proposing a resource-specific capacity market opt out).

As such, the state must exert its authority to determine the type and mix of in-state generation resources, as expressly reserved to the states under the Federal Power Act.

The PJM MOPR order also calls into question whether the Commission would approve a carbon pricing mechanism for wholesale markets, especially where that mechanism is portrayed as a means to achieve state policy. Following the logic of the PJM MOPR order, increased revenues associated with state policy give an unfair advantage to specific resources over others, thus shifting the capacity market from its supposedly ideal competitive outcome. As Commissioner Glick noted in his dissent, the broad definition of State Subsidy in the PJM MOPR order would include even indirect benefits that low- or zero-carbon generators receive under the RGGI.[64] While carbon pricing mechanisms have been touted by certain RTO and ISO officials as a path to resolve state-federal conflicts in wholesale markets,[65] it is not at all clear that FERC will find capacity or energy prices influenced by state-driven carbon pricing to be just and reasonable.[66]

The same concern applies to a forward clean energy mechanism, such as that designed by the Brattle Group and advocated in various forms by different parties over the last several years.[67] The premise of the forward clean energy mechanism is to create a centralized market for entities with RPS compliance obligations or voluntary climate reduction goals to purchase renewable energy credits. As the theory goes, the revenues received for such credits would not trigger the MOPR, presumably because they flow from a market that is deemed sufficiently transparent and competitive.[68] However, there is no assurance that FERC would abstain from subjecting resources receiving revenues through such a centralized market to the MOPR, given that the prices in that market would be largely driven by demand for Renewable Energy Credits (RECs) created by state policies.

In short, FERC's hostility to state policies leaves few if any options for state policy to be accommodated by wholesale capacity markets, much less supported. While we believe that FERC's PJM MOPR order is likely to be reversed by the court of appeals, either on the grounds that it does not result in just and reasonable and nondiscriminatory rates, or because FERC overstepped its jurisdictional boundaries,[69] it will take several years for any judicial review to

[64] PJM MOPR Order (Commissioner Glick, dissenting, at P 17).
[65] *See, e.g.*, Robert Walton, *ISO New England chief presses for carbon price in response to Sanders, Warren and others*, UTILITYDIVE (Nov. 25, 2019), at https://www.utilitydive.com/news/iso-new-england-chief-presses-for-carbon-price-in-response-to-sanders-warr/567955/
[66] Aside from the question of whether FERC would approve carbon pricing in its wholesale markets, it is far from clear that ISO carbon pricing is an effective policy to achieve those climate goals, for reasons explained in a 2017 memorandum by the New England States Committee on Electricity. http://nescoe.com/resource-center/imapp-feedback-memo-april-2017/
[67] *See, e.g.*, Kathleen Spees et al., Brattle Group, How States, Cities, and Customers Can Harness Competitive Markets to Meet Ambitious Carbon Goals, Prepared for NRG (Sept. 2019), at https://brattlefiles.blob.core.windows.net/files/17063_how_states_cities_and_customers_can_harness_competitive_markets_to_meet_ambitious_carbon_goals_-_through_a_forward_market_for_clean_energy_attributes.pdf.
[68] *Id.* at 6 ("Our proposed approach is that clean resources receiving payments through the clean energy market should be considered "in-market" for purposes of interfacing with the wholesale capacity market, including for purposes of market power mitigation, such as the MOPR. Our design thus bridges the divide between state carbon goals and wholesale market reliability and least-cost planning criteria.").
[69] *See generally* Request for Rehearing of Clean Energy Advocates, EL16-49, EL18-178, ER18-1314.

occur given FERC's ability to prevent that review through its currently unlimited discretion to sit on requests for rehearing for years.

III. Connecticut's Options

A. Connecticut should continue working with other states to reform ISO-NE markets

Connecticut should continue to work with other like-minded states to reform ISO-NE's wholesale markets and explore ways to increase the state's leverage to effect change both within the ISO-NE governance process and outside of it.

1. Changes needed to ISO-NE market design

Connecticut must communicate clearly to ISO-NE what changes are needed to ISO-NE's markets to achieve the state's clean energy goals. First and foremost, the ISO must have a resource adequacy construct that acknowledges and accounts for resources procured pursuant to state policies. To do otherwise requires Connecticut ratepayers to buy unneeded capacity and increases the cost of state procurements. Second, the ISO must improve its energy and ancillary services (E&AS) markets to ensure that a high level of renewable energy can be fully integrated into the system while ensuring reliability. The improvement of these markets will also increase revenues from E&AS markets, thus substantially reducing reliance by generators and demand-side resources on the region's flawed capacity market construct.

a. States must reclaim authority for resource adequacy and demote the FCM to a voluntary, residual market

The numerous problems identified with the FCM in Part II *supra*, show that the capacity market is fundamentally incapable of supporting the level of renewable energy development required by state policy and the climate crisis. Tweaking a few design parameters or trying to fix CASPR will not alleviate the deeper incompatibility. As explained in one recent paper, the problems with capacity markets go beyond their incompatibility with state policy, and include their tendency to drive excessive capacity, failure to provide services actually needed for reliability, susceptibility to market power, and tendency to exclude newer technologies.[70]

One straightforward way to minimize the harm caused by the FCM is to allow load serving entities to meet their obligations for capacity through a combination of bilateral contracts and FCM purchases. In other words, the FCM would be a voluntary market in which load serving entities could buy any capacity they still need after procuring capacity through bundled long-term supply contracts or any other prudent bilateral contract. This would protect consumers against buying capacity through the FCM that is already be provided by state-supported resources. In the Midcontinent Independent System Operator (MISO) region, self-supply and bilateral contracts account for the majority of the capacity committed to meeting the region's resource adequacy requirements. In PJM, utilities can opt out of the centralized capacity market

[70] Rob Gramlich & Michael Goggin, Too Much of the Wrong Thing: The Need for Capacity Market Replacement or Reform (Nov. 2019), at https://gridprogress.files.wordpress.com/2019/11/too-much-of-the-wrong-thing-the-need-for-capacity-market-replacement-or-reform.pdf.

altogether, by showing that they can meet their reliability requirement entirely through owned or contracted-for resources. This mechanism, known as the Fixed Resource Requirement, is not an ideal model for New England, as it requires utilities to opt out for 100% of their load for a five-year period. A more flexible opt-out mechanism, that allows utilities to opt out for only that portion of their needs that are met through bilateral contracts, is preferable.

ISO-NE's tariff already contains some terms allowing for self-supply, but these are far from adequate for two reasons: (1) the MOPR still applies to self-supply resources, and (2) the ISO asserts that eligibility is limited to municipal entities. The tariff does not authorize *states* to opt out of the FCM or to self-supply capacity.[71] Although the tariff does authorize *load serving entities* to self-supply capacity,[72] the conditions placed upon self-supply using New Generating Capacity Resources render these provisions inadequate to address the fundamental incompatibility between the FCM and Connecticut's state policies. Critically, the ISO-NE tariff provides that "[e]ach new Self-Supplied FCA Resource shall be automatically entered into each round of the Forward Capacity Auction at its designated self-supplied quantity *at prices at or above the resource's New Resource Offer Floor Price*, such that the resource's designated self-supply quantity will be included in the aggregate supply curves as described in Section III.13.2.3.3."[73] Because the New Resource Offer Floor Price for new renewable resources is likely to exceed the clearing price, this provision effectively precludes self-supplied capacity secured via contracts with new renewable resources from reducing the total amount of capacity procured through the FCM.

To provide any benefit to customers of the load serving entity, the self-supplied capacity must clear at the New Resource Offer Floor Price, which as that floor price has been set, it cannot do. In order to make the self-supply option a viable alternative for Connecticut load serving entities seeking to support the state's energy policy goals, it would be necessary to change the ISO-NE tariff to remove the MOPR requirement on new renewable resources.

Further, ISO-NE asserts that the self-supply provisions are not available to all load serving entities, noting that "[t]he current self-supply provisions in the ISO New England tariff were contemplated with municipal electric utilities in mind" and that "[p]ursuing a broader self-supply option would require a regional discussion with the other New England states and stakeholders."[74] ISO-NE does not identify any provisions in its tariff that limit the scope of the self-supply provisions in the manner described. However, in addition to eliminating the MOPR requirement for new self-supply renewable generation resources, it would be necessary to ensure that there are no arbitrary limits on the scope of the existing self-supply provisions.

Improving the self-supply provision is one possible means to allow the capacity of state-supported resources to be recognized within the FCM, but it may be more effective, and less vulnerable to future administrative manipulation, to amend the ISO tariff to allow for capacity procurement wholly outside of the FCM. Connecticut should evaluate these two different

[71] ISO-NE, Comments of ISO New England for Connecticut Department of Energy and Environmental Protection Integrated Resource Plan Proceeding Technical Meeting (Jan. 22, 2020), at 5.
[72] ISO New England Transmission, Markets, and Services Tariff (2020), Section III.13.1.6.
[73] ISO New England Transmission, Markets, and Services Tariff (2020), Section III.13.2.3.2(c).
[74] ISO-NE, Comments of ISO New England for Connecticut Department of Energy and Environmental Protection Integrated Resource Plan Proceeding Technical Meeting (Jan. 22, 2020), at 5.

options in conjunction with other New England states, and promptly pursue the needed changes to the ISO's tariff to allow for state supported resources to be fully counted towards the region's reliability requirement.

Changing FCM to a residual market will go a long way towards supporting state policy, but still leaves many fundamental problems with capacity markets unaddressed. For example, it continues to allow the ISO to set capacity requirements, qualification and performance standards for all capacity resources, even those procured under bilateral contracts. In our experience, the ISO's rules concerning these details reflect a structural bias toward incumbent fossil fuel generators, which states should expect to continue. To avoid these more insidious barriers, Connecticut must work with other ISO-NE states to reassert a dominant role in defining and certifying resource adequacy. Fundamental structural change certainly is possible. For example, states in MISO and the Southwest Power Pool (SPP) have primary authority over resource adequacy, and the RTOs operate essentially "trust but verify" resource adequacy verification processes.

2. Energy and ancillary service markets must be expanded and accessible to all resources

Energy and ancillary service markets must send price signals that compensate resources for the full cost of producing and generating electricity, and for being available as operating reserves, at the right time and place.[75] As levels of variable renewable energy generation increase, so does the need for flexible resources, including demand response. ISO-NE must ensure that its E&AS market designs reflect and properly compensate for these services in order to integrate higher levels of renewable energy on the New England system as a result of the policies of Connecticut and other states. At the same time, E&AS markets that fully value resources for providing flexibility and ensuring reliability will provide additional revenue to the right resources, thereby reducing dependency on the capacity market to supply the "missing money," which often flows to resources that may or may not be able to perform efficiently in a high renewable environment.

While a comprehensive review of ISO-NE's current E&AS design is outside the scope of this proceeding, Connecticut should insist that ISO-NE not allow needed reforms to these markets to sit on the back burner, and to ensure that any changes allow all resources capable of meeting the needed service to provide it. ISO-NE's Inventoried Energy Program is an example of how reliability services should *not* be compensated—that program compensates for stockpiled or firm fuel sources rather than the ability to generate electricity during peak winter events. In doing so, the Inventoried Energy Program provides revenue primarily to fossil fuel generators, through a questionably effective mechanism, whereas offshore wind, which the ISO acknowledges performs extremely well during winter events, is ineligible for compensation. Future E&AS market enhancements must be truly technology neutral, by focusing on the service provided, rather than a particular attribute that the ISO thinks can provide a particular service. Part of ensuring the needed flexibility is to ensure nondiscriminatory access to markets by

[75] *See, e.g.*, Michael Goggin et al., Customer Focused and Clean: Power Markets for the Future (Nov. 2018), at https://windsolaralliance.org/wp-content/uploads/2018/11/WSA_Market_Reform_report_online.pdf (discussing various energy market reforms generally needed in wholesale markets including but not limited to scarcity pricing, reducing the extent of inflexible self-scheduling, and pricing inflexibility costs of conventional generators); see also

technologies such as energy storage, demand response, and distributed energy resources, which have faced barriers to participation either due to market rules, delayed interconnection, or unwieldy registration processes.

3. Governance reforms are needed to ensure long-term compatibility of ISO-NE's markets and Connecticut's environmental and restructuring objectives, but are not a short-term measure to address urgent conflicts

The current governance structure for ISO-NE gives states very little ability to sway outcomes in the stakeholder processes in which wholesale market rules are designed. To ensure long-term compatibility between Connecticut's policies and ISO-NE rules and practices, it would be ideal for Connecticut and other states to have a more significant say in governance, so as to avoid the development of ISO-NE rules that create unacceptable tension with state policies. However, governance reform is not a quick solution to the problems that Connecticut is currently confronting; there is not time to fix governance as a stepping stone to changing capacity market rules to support the cost-effective implementation of state policy. Nevertheless, we believe it is prudent for Connecticut to work with other New England states to seek governance changes that elevate not only the perspective of states, but of other consumer and load-side interests.

As described in a recent policy brief from the Duke Nicholas Institute for Environmental Policy Solutions, FERC has asserted an increasingly dominant role in resource adequacy through the capacity market rules it supervises.[76] However, "[t]he diminishing role of states in resource adequacy decisions is not a uniform trend across multistate RTOs."[77] For example, states in SPP have retained more influence over the resource adequacy rules than have states in other RTO/ISOs. Whereas SPP states "[p]rovide collective approval through state committee vote for the approach to resource adequacy," NESCOE only has a vote to approve the target reserve margin—a sliver of the overall resource adequacy construct.[78] In addition to a broader role for states in resource adequacy decisions, NESCOE could also seek a stronger structural role, such as obtaining the same ability that NEPOOL currently has to force the ISO to submit a NESCOE alternative to an ISO Section 205 filing. This so-called "jump ball" mechanism would require FERC to consider NESCOE's alternative as a Section 205 filing, which greatly increases the chance FERC would approve the states' proposal over the odds currently available to NESCOE and its members through filing a complaint under Section 206.

B. Connecticut should also take steps outside ISO-NE's stakeholder process to protect state authority, including exploring the possibility of pulling state utilities out of the FCM or other markets if the ISO and FERC refuse to act

We commend Connecticut for entering into this examination of the ISO's wholesale markets and their effects on and compatibility with the state's climate and clean energy goals. While we believe the best possible solution would be to reform the ISO's markets along the lines discussed above, there is no guarantee here of success. Without willing partners in ISO-NE and

[76] Jennifer Chen and Gabrielle Murnan. State Participation in Resource Adequacy Decisions in Multistate Regional Transmission Organizations. NI PB 19-03. Nicholas Institute for Environmental Policy Solutions, Duke University
[77] *Id.* at 6.
[78] *Id.* at Table 1.

FERC to address the current market flaws, Connecticut may have no choice but to consider other options, including withdrawing the state's utilities from the FCM or other ISO markets.

To be clear, this is a draconian choice. Connecticut's restructuring law and participation in the wholesale markets have created consumer savings and other benefits. Withdrawing from the regional market would risk losing the efficiency gains that are possible within a larger, multistate grid. However, these gains are also at risk today. Existing market rules ignore the resource adequacy contributions of the clean energy resources that Connecticut and other states need to decarbonize the grid, in accordance with state laws; continue to favor polluting resources that drive climate change; and are imposing unjust and unreasonable costs on consumers. We do not have years more to waste in addressing the climate crisis and it is unacceptable for Connecticut's public health protections and policies to be undermined by New England's wholesale market rules. Existing state policies have set ambitious decarbonization goals within the next decade, and new policies across the power, transportation, and building sectors are highly likely. If the ISO and FERC force Connecticut to choose between its state climate and clean energy policies or the wholesale markets, the state's policies must win.

We recommend that Connecticut consider two potential steps outside the ISO stakeholder process. First, Connecticut should consider filing a Federal Power Act section 206 complaint with FERC, alleging that ISO-NE's FCM is unjust and unreasonable and unduly discriminatory or preferential, for the reasons outlined above. Such a complaint could be filed together with other states, distribution utilities, consumer advocates, and clean energy companies, and would request that FERC mandate the types of changes to the FCM recommended in Part III.A.1. While this strategy still relies on FERC action, it has the benefit of spurring FERC action earlier than would be possible if Connecticut limited itself to working through the stakeholder process. By conveying to FERC the states' intention to require the withdrawal of their utilities from the wholesale markets should FERC not issue an order responsive to the state's concerns by a date certain, Connecticut and other states could deter FERC inaction on the complaint and gain more timely certainty of the prospects for fundamental reform within the markets.

Second, Connecticut should fully explore the legal steps that would be required under state and federal law, the ISO tariff, and the Transmission Operating Agreement to withdraw the state's utilities from the ISO, and analyze the implications of doing so. This proceeding should explore the possibility of withdrawing from some but not all ISO-NE markets, such as withdrawing from the FCM only while continuing to participate in the E&AS markets. As Connecticut continues to engage in the ISO stakeholder process, the state must make clear that it is unwilling to wait forever and will not simply watch the ISO process produce the same flawed outcomes of the last several years.

In taking both steps, we encourage Connecticut to engage with other New England states bilaterally or through NESCOE, and to encourage these states to engage in similar steps with Connecticut to explore and identify potential solutions that may exist outside the current ISO-NE market framework. We also encourage Connecticut to engage with states outside New England. The New York Public Service Commission, for example, is undertaking in its own examination

of resource adequacy and the relationship between New York's state policies and the New York ISO's markets, which may be informative to Connecticut's exploration of these issues.[79]

* * *

Thank you for the opportunity to provide these comments. We look forward to continuing to work with Connecticut on these critical issues to ensure the state's clean energy and climate goals are achieved.

Sincerely,

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[79] New York Public Service Commission, Case No. 19-E-0530, http://documents.dps.ny.gov/public/MatterManagement/CaseMaster.aspx?MatterCaseNo=19-E-0530. Some of our organizations have also submitted comments in that proceeding. *See, e.g.*, Comments of NRDC, Sustainable FERC Project, Sierra Club, New Yorkers for Clean Power, Environmental Advocates of New York and Vote Solar (Nov. 8, 2019), http://documents.dps.ny.gov/public/Common/ViewDoc.aspx?DocRefId={DF5785BF-00B2-4CAD-90D2-F5D5484E34A4}; Clean Energy Parties Resource Adequacy Reply Comments (Jan. 21, 2020), http://documents.dps.ny.gov/public/Common/ViewDoc.aspx?DocRefId={D851380C-ED21-463D-945F-273BABB2BB02}.

March 26, 2020

Maine Climate Council – Energy Working Group Members
c/o Cassaundra Rose, PhD, Administrator
cassaundra.rose@maine.gov

Re: The Forward Capacity Market as administered by ISO-NE appears to be incompatible with Maine's climate and clean energy goals and does not adequately protect the interests of Maine electricity consumers.

Dear Chairpersons Burgess and Colburn and members of the Energy Working Group,

Sierra Club Maine appreciates this opportunity to submit the following letter requesting that the Energy Working Group evaluate the impact that ISO New England's Forward Capacity Market rules including the method used to determine capacity needs for their auctions, and to include a recommendation on this large, but sometimes hidden, force on the State's goals for clean, renewable, energy.

On behalf of our more than 28,000 members and supporters in Maine, the Sierra Club respectfully submits the following recommendation to the Energy Working Group (EWG) of the Maine Climate Council (CC). For the reasons discussed below, the Sierra Club urges the CC to recommend that the Maine Public Utilities Commission (MPUC) open a docket to evaluate whether the Forward Capacity Market (FCM) administered by ISO New England (ISO-NE) is compatible with Maine's climate and clean energy goals and adequately protects the interests of Maine electricity consumers. As discussed below, the Sierra Club has serious concerns that, despite prior efforts at reform, the FCM continues to support the retention of polluting and climate-harming fossil fuel generation resources while thwarting state efforts to cost-effectively integrate new clean energy resources.

The Sierra Club recognizes that Maine, through the MPUC, undertook a substantial evaluation of its investor owned utilities' continued membership in ISO-NE between 2008 and 2009. Although that process resulted in a recommendation for Central Maine Power Company and Bangor Hydro-Electric Company to renew their membership,[1] much has changed since 2009, both with regard to the climate and clean energy goals of Maine, and also with regard to the FERC-regulated capacity markets, that warrants a careful review of the MPUC's prior conclusions.

[1] Order, MPUC Dkt. No. 2008-156 (June 30, 2009) [June 2009 Order].

Since 2009, our collective understanding of the severity and immediacy of the climate crisis has greatly increased. This recognition is reflected in recent legislation in Maine increasing the state's climate goals and renewable portfolio standard (RPS) requirements. In 2019, the Maine legislature updated the state's RPS to require 80 percent of the state's energy supply from renewable resources by 2030 and 100 percent by 2050.[2] In addition, in 2019, Maine also extended and strengthened the state's greenhouse gas (GHG) reduction goals, codifying a goal of reducing statewide GHG emissions by 45 percent below 1990 levels by 2030 and 80 percent below 1990 levels by 2050.[3]

Similarly ambitious climate and clean energy goals have been adopted by other New England states including Connecticut, through Public Act 18-82 (requiring GHG reductions of at least 45 percent below 2001 levels by 2030) and Executive Order No. 3 (targeting pathways to 100 percent zero carbon electricity by 2040); Massachusetts, through Governor Baker's commitment to achieving a net-zero economy by 2050 and pending legislation aimed at adopting a net-zero climate target; and Rhode Island, through Governor Raimondo's executive order committing her state to 100 percent clean electricity by 2030. These commitments are driving a number of new policies, including the procurement of significant amounts of offshore wind (OSW), expected to reach roughly 15,000 MW by 2035. The combined OSW build-out for the Northeast states could produce as much as 60 TWh of carbon-free electricity, reducing carbon emissions by about 29 million tons every year.

In its January 2009 Order the MPUC discussed the state's objectives in having its investor owned utilities participate in a regional transmission organization.[4] The MPUC noted that participation in an RTO should encourage, among other things:

- "efficient development of transmission and generation resources to ensure fuel diversity and state RPS and RGGI objectives";
- development of "renewable and low carbon resources"; and
- "[g]reater priority to cost impacts on consumers in decision making and planning."[5]

ISO-NE's FCM, as approved by FERC, increasingly conflicts with each of these goals of RTO participation. As detailed in the attached comments submitted by a number of organizations (the Clean Energy Advocates) last month to the Connecticut Department of Energy and Environmental Protection, as the New England states seek to clean up the electricity sector and to shift transportation and buildings energy uses to clean renewable

[2] LD 1494, https://www.mainelegislature.org/legis/bills/bills_129th/chapters/PUBLIC477.asp.
[3] 38 MRSA § 576-A(1), (3).
[4] Order, MPUC Dkt. No. 2008-156, at 38-39 (Jan. 2009) [Jan. 2009 Order].
[5] Jan. 2009 Order at 38.

energy, ISO-NE's wholesale market rules are standing in the way of and frustrating this transition. FERC-approved rules such as the Minimum Offer Price Rule (MOPR) in the FCM and the ISO's fuel security initiatives, increasingly discount, ignore, or disadvantage the clean energy resources required under state law and favor instead a status quo grid that is dominated by polluting fossil fuels.

The Clean Energy Advocates' comments explain how the FCM favors polluting resources in numerous ways.[6] For example:

(1) by allowing new resources to lock in capacity revenue at the initial FCM clearing price for seven years, the FCM makes low capital cost, high operating cost resources like gas plants financeable, while disadvantaging high capital cost low operating cost resources like solar and wind, which must rely on long-term contracts for energy and/or green attributes to obtain financing;

(2) ISO-NE's overlapping impact test[7] advantages incumbent (largely fossil) generators by requiring new generators to demonstrate deliverability to a load zone at the same time as all existing and previously-queued new capacity without causing transmission overloads;

(3) variable generators such as wind and solar are not only qualified at a fraction of their nameplate capacity, but (unlike fossil generators) are further penalized for any deficiency in actual delivery by having their qualified capacity further reduced;

(4) FCM's evaluation of resource's reliability contribution on an individual basis fails to adequately value the reliability contribution of portfolios of variable generation resources; and

(5) by aligning the FCM's 3-year-ahead auction schedule with the construction schedule of a typical gas-fired power plant, the FCM supports financing and construction of gas-fired power plants while disadvantaging renewable resources, that often have shorter construction schedules and are forced to choose between the risk of clearing early or clearing late and forgoing capacity revenues during initial years of operation.

In addition, ISO-NE's MOPR selectively disadvantages state-incentivized renewable resources by requiring them to bid into the FCM at elevated prices that often preclude them from clearing.[8] Coupled with the fact that a large fraction of solar photovoltaic (PV) projects in New England are currently failing to receive capacity supply obligations or have their capacity recognized by ISO-NE, New England electric customers are paying to support far greater amounts of capacity than is needed to satisfy resource adequacy requirements.[9] The amount of un-cleared and un-recognized capacity from clean energy resources will continue to grow as Maine and other New England states work to fulfill their RPS mandates,

[6] Clean Energy Advocates' Comments at 6-10.
[7] ISO-NE Tariff Section III.13.1.1.2.3.
[8] *See* Clean Energy Advocates' Comments at 9.
[9] *See id.*

unjustifiably increasing the burden on ratepayers who are paying double for all of this uncounted capacity.

ISO-NE's actions to date evidence no meaningful interest in accommodating state policies. The addition of Competitive Auctions with Sponsored Policy Resources (CASPR) to the FCM continues to allow existing fossil generator to control (and restrict) the entry of new renewable generation resources into the capacity market and, despite two years of implementation, has enabled only 54 MW of clean energy resources to obtain capacity supply obligations.[10] ISO-NE's Inventoried Energy Program provides hundreds of millions of dollars in new energy market payments to resources that rely on fuel or "inventoried energy" to generate electricity, while rendering fuel-free resources like renewable energy as ineligible for compensation, despite ISO-NE's own analysis showing that fuel-free offshore wind can provide key wintertime energy security benefits and the fact that during past winters, igniter failures, frozen coal piles, frozen boiler tubes, and other issues have kept fossil generators offline, even when these generators had fuel on-site.[11]

As the MPUC presciently noted in its January 2009 Order, "[r]egional institutions do not have institutional mechanisms to ensure responsiveness to state goals."[12] At that time, MPUC explained that, "[a]lthough ISO-NE performs a number of functions well, given the serious flaws in the [transmission cost allocation] methodology, lack of transmission cost containment and overall lack of attention to cost and consumer impacts, we conclude that the status quo is unacceptable and in need of significant reforms."[13] While advocating for reforms within the existing system rather than withdrawal of the state's utilities from ISO-NE, the MPUC recognized that "there is no guarantee that such reforms will be adequately addressed."[14] Eleven years later, it has become clear that the reforms that MPUC sought have not materialized. The FCM now pumps billions of dollars to aging and climate-damaging

[10] ISO New England, *Forward Capacity Market (FCA 13) Result Report*, https://www.iso-ne.com/static-assets/documents/2018/05/fca-results-report.pdf; ISO New England, Press Release, New England's Forward Capacity Auction Closes with Adequate Power System Resources for 2023-2024 (Feb. 5, 2020), at https://www.iso-ne.com/static-assets/documents/2020/02/20200205_pr_fca14_initial_results.pdf.

[11] ISO-NE, Section 205 Filing (Inventoried Energy Program) (Mar. 25, 2019), FERC Docket No. ER19-1428, https://elibrary.ferc.gov/idmws/common/OpenNat.asp?fileID=15194414; ISO-NE, "High-Level Assessment of Potential Impacts of Offshore Wind Additions to the New England Power System During the 2017-2018 Cold Spell" (Dec. 17, 2018), https://www.iso-ne.com/static-assets/documents/2018/12/2018_iso-ne_offshore_wind_assessment_mass_cec_production_estimates_12_17_2018_public.pdf; NRDC, "Cold Temps Prove Value of Electricity Grid Markets, Planning" (Jan. 4, 2018), https://www.nrdc.org/experts/john-moore/cold-temps-prove-value-electricity-grid-markets-planning.

30 FERC, Deficiency Letter (May 8, 2019), Docket No. ER19-1428, https://elibrary.ferc.gov/idmws/common/OpenNat.asp?fileID=15241639.

[12] Jan. 2009 Order at 10.

[13] Jan. 2009 Order at 49.

[14] Jan. 2009 Order at 56.

fossil fuel generators while failing to account for the capacity value of significant amounts of renewable resources. Moreover, one of the most primary benefits of continued participation in ISO-NE in 2009—ensuring regional allocation of the costs of the Maine Power Reliability Project (MPRP)—is no longer a factor, as the MPRP was completed in 2015.

We believe it is time for Maine to revisit the requirements that ISO NE uses to compensate certain electricity generators (especially those mentioned above), and evaluate if the negative impact on new renewable resources and the added expense ratepayers pay for fossil fuel capacity that is not needed, is in the Maine ratepayers best interest.

The time is right for Maine to revisit whether ISO New England is going to reform the FCM to benefit Maine electric customers and achieve the state's climate and clean energy goals. If ISO-NE is not responsive, it may be time to reconsider our investor owned monopoly utilities' continued participation in ISO-NE's FCM.

Thank you for your consideration. We look forward to continuing to provide information and support to the EWG as you consider this issue.

Respectfully submitted,

Dot Kelly

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