U.S. International Trade Commission
Investigation No. 332-574, *Renewable Electricity: Potential Economic Effects of Increased Commitments in Massachusetts*

Comments from New England Power Generators Association

August 14, 2020

The New England Power Generators Association (NEPGA)[1] appreciates the opportunity to provide written comments on the U.S. International Trade Commission's (USITA or Commission) Investigation No. 332-574, *Renewable Electricity: Potential Economic Effects of Increased Commitments in Massachusetts* (Investigation). The Investigation responds to a January 23, 2020 request from the Committee on Ways and Means of the U.S. House of Representatives requesting the USITC to conduct an investigation and prepare a report "regarding the potential economic effects of increased renewable energy commitments in New England and Massachusetts and the role of renewable electricity imports in meeting these commitments."[2]

NEPGA is a trade association representing competitive electric power generators in New England. Its member companies are responsible for generating and supplying electric power for sale within the New England wholesale power system and play a significant role as active participants in New England's competitive wholesale electric markets. NEPGA's member companies account for nearly 90% – roughly 25,000 MW – of all generating capacity throughout New England. In Massachusetts, NEPGA represents around 8,662 MW of generation capacity located in 25 cities and towns and across a diverse portfolio of fuels and technologies. Its member companies employ over 1,000 workers in the Commonwealth and contribute tens of millions of dollars in annual state taxes.

To assist the USITC in its fact-finding effort, NEPGA provides this overview of New England's competitive wholesale electricity markets, its unique perspective on the cumulative impacts of increasing state renewables and environmental policies on the competitive markets, as well as recent and proposed market reforms to help Massachusetts and other New England states achieve their policy commitments and goals.

New England's Competitive Wholesale Electricity Markets

In the late 1990s, Massachusetts and all other New England states (except Vermont) enacted legislation to restructure the electricity industry for the benefit of consumers. Prior to restructuring, the monopoly electric utilities that owned and operated power plants were largely insulated from competition and could rely on ratepayers to finance generation facilities through utility rates, effectively guaranteeing cost recovery and a rate of return. Utilities had little or no incentive to build and maintain efficient and cost-effective generation resources to reliably supply the region's electricity needs.

Once implemented, utilities across most of the region chose to divest themselves of their generation assets to focus on transmission and distribution services, introduced competition

[1] The comments expressed herein represent those of NEPGA as an organization, but not necessarily those of any particular member.
[2] https://www.usitc.gov/research_and_analysis/request_letter.pdf

between generators for more cost-effective and efficient outcomes, shifted risk from utility ratepayers to private investors, and allowed electric customers to choose products from competing retail electricity suppliers rather than only rely on their utility's default service. Restructuring – in conjunction with crucial Federal wholesale electricity market reforms[3] [4] – ushered in a new era of competition in Massachusetts and the region, along with numerous consumer benefits that continue today.

In 1999, ISO New England (ISO-NE) launched the wholesale electricity markets, creating an open and transparent means for competitively procuring electricity to reliably meet the region's near and long-term energy needs. Today, the wholesale electricity markets are comprised of three separate but interrelated markets: The Energy Market; the Forward Capacity Market; and the Ancillary Services Market. The Energy Market is the largest of the wholesale markets and includes a Day-Ahead Energy Market and a Real Time Energy Market. Buyers and sellers in the Day-Ahead Energy Market can make their commitments one day ahead before the operating day to mitigate energy price volatility. The Real Time Energy Market allows buyers and sellers to make transactions throughout the operating day to maintain a balance between commitments made in the Day-Ahead Energy Market and actual supply and demand in real time.

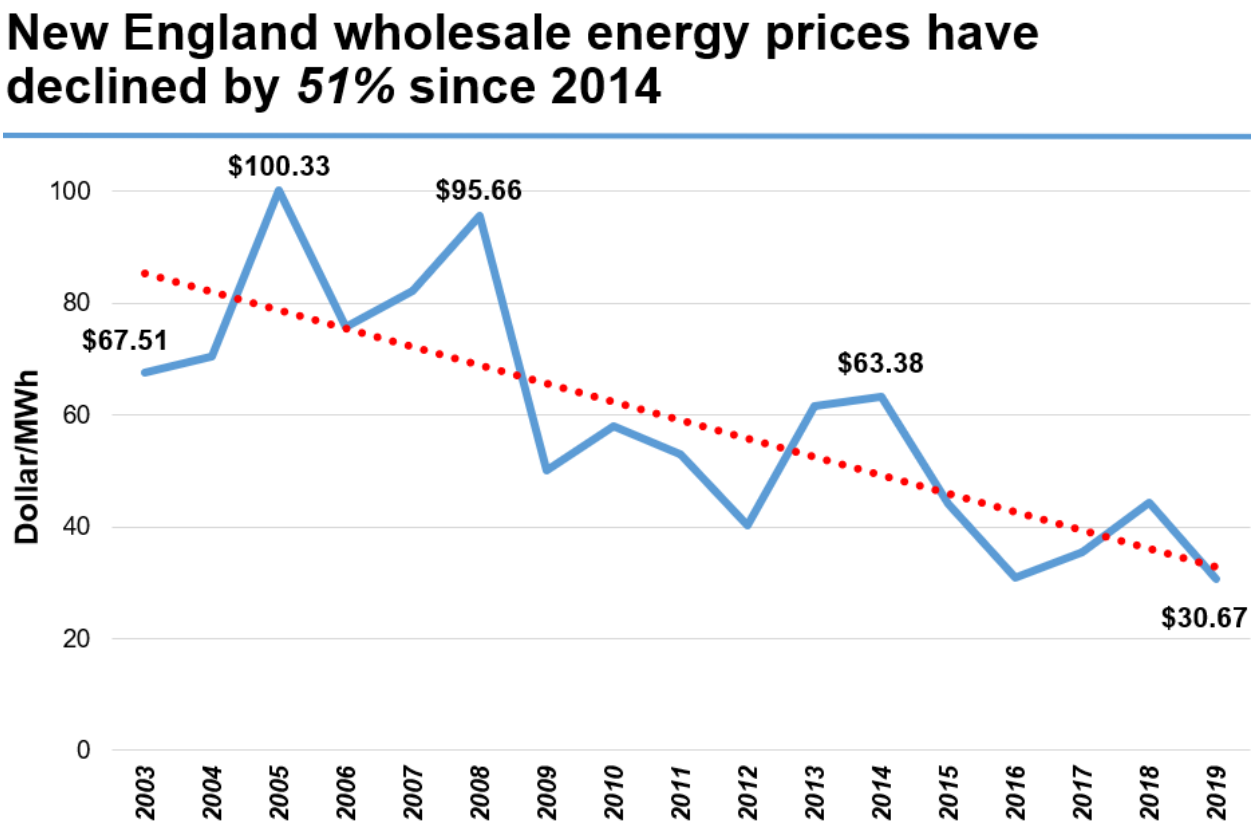
The Forward Capacity Market (FCM) secures long-term reliability by paying resources selected in an annual auction to commit to deliver energy when and where needed, three years in the future. A key component of the FCM is the ability to attract new entry as older, less-efficient plants permanently retire from the system. Over the last several years, over 8,000 MW of new electric generating capacity has been brought in, without any state carve-out or subsidy, through the FCM with the most recent facilities at historically low prices.[5] The FCM also serves as an important complement to the Energy Market by providing a requirement to be available and perform when the electric system is under the most stress. This is particularly important for those plants that run less often during the year or are not able to recoup sufficient revenues in the Energy Market, which is explained below.

Since restructuring of the electricity industry, participants in New England's competitive wholesale electricity markets have invested tens of billions of dollars of private capital in facilities to ensure a reliable supply of electricity, all without exposing consumers to the risks of cost overruns or guaranteed rates of return. Market participants rely on transparent price signals to guide investment decisions to supply electricity when and where it is needed. And because fuel costs represent the bulk of a generator's production cost, investors have a natural incentive to develop the most innovative and efficient means to convert fuel to electricity in order to seek a competitive advantage. This dynamic has resulted in significant reductions in wholesale electricity prices and provided a reliable power supply in New England.

Since 2004, wholesale energy prices have declined by 51% – a remarkable result made possible by investments in an open, competitive marketplace. In fact, the average annual

[3] *Promoting Wholesale Competition Through Open Access Non-discriminatory Transmission Services by Public Utilities; Recovery of Stranded Costs by Public Utilities and Transmitting Utilities,* Order No. 888*,* 75 FERC ¶ 61,080 (1996).
[4] *Regional Transmission Organizations*, Order 2000, 89 FERC ¶ 61,285 (1999).
[5] https://www.iso-ne.com/about/key-stats/markets#fcaresults

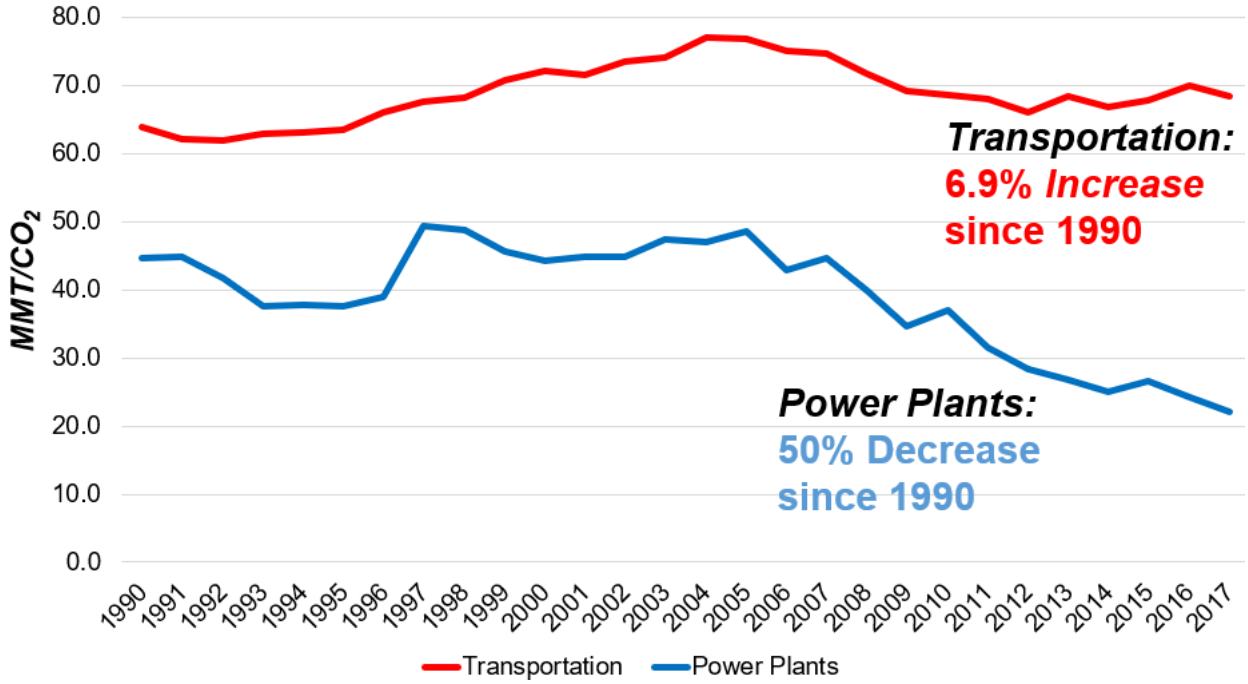
wholesale electricity price in 2019 was $30.67/MWh, the lowest price since full implementation of the region's competitive markets in 2003 (when calculated in 2019 dollars).[6] [7]



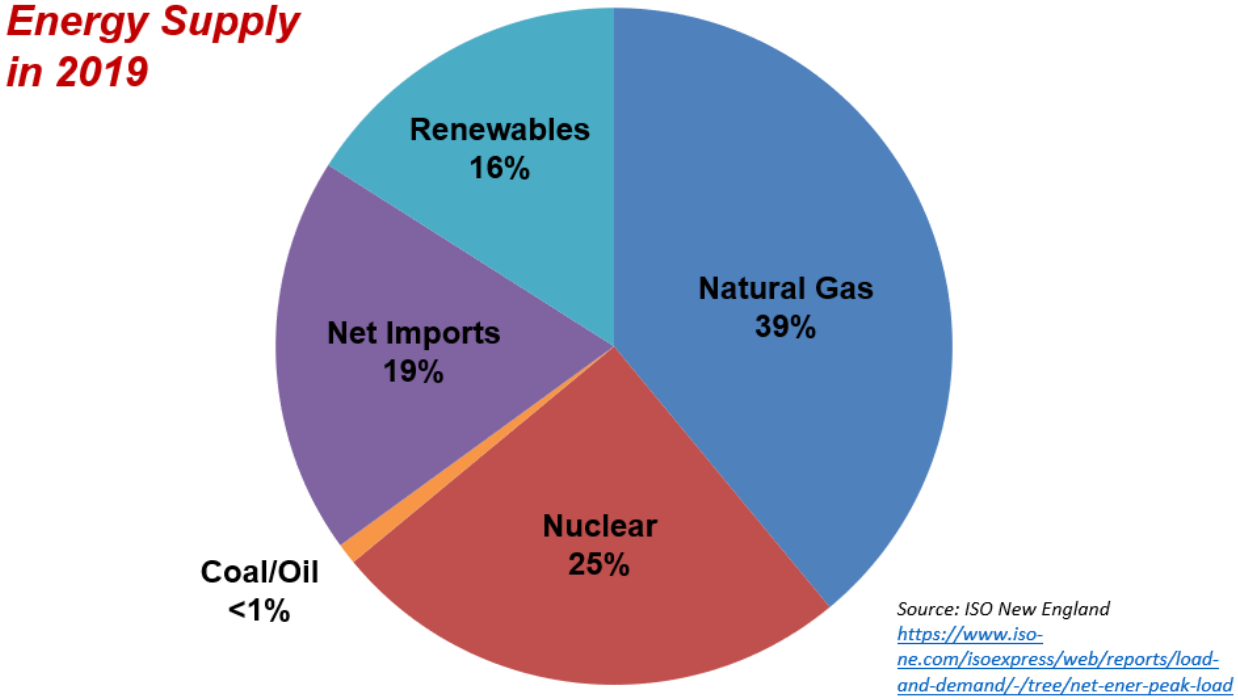
These competitive market forces, coupled with low-cost fuel and certain public policies, have also resulted in a cleaner, more efficient fleet of power plants in the region. Since 1990, power plants have decreased carbon dioxide (CO_2) emissions by 50% – the most of any sector of the economy over the same period – according to recent data released by the U.S. Energy Information Agency.[8] Much of these reductions can be attributed to the innovations and efficiencies driven by private investment in New England's power plants following the restructuring of the region's electricity industry. Since 1999, the efficiency for power plants in New England improved by 22%. This equates to closing one of every five plants while providing the same amount of electricity output. In addition, the rapid decline of natural gas prices over the last 15 years has spurred major investments in new generating facilities and improvements at existing plants that have driven a dramatic shift from primarily burning coal and oil to using natural gas for electric generation. In 2000, 40% of the electricity produced in New England was generated from coal and oil resources. Today, coal and oil plants together account for less than 1% of the region's resource mix.[9]

[6] https://www.iso-ne.com/static-assets/documents/2020/03/20200317_pr_2019-price-release.pdf
[7] By comparison, New England transmission rates have increased by over 650% since 2004. https://www.iso-ne.com/markets-operations/settlements/tariff-rates
[8] https://www.eia.gov/environment/emissions/state/
[9] https://www.iso-ne.com/about/key-stats/resource-mix

New England transportation & power plant CO_2 emissions from 1990 to 2017



New England electricity fuel mix



Source: ISO New England
https://www.iso-ne.com/isoexpress/web/reports/load-and-demand/-/tree/net-ener-peak-load

Over the last decade, an electricity sector-specific, multi-state carbon reduction program, the Regional Greenhouse Gas Initiative (RGGI), was put in place to price the societal costs of CO_2 emissions into electricity. Implemented in 2009, RGGI is a market-based program currently covering the member states Connecticut, Delaware, Maine, Maryland, Massachusetts, New Hampshire, New Jersey, New York, Rhode Island, and Vermont.[10] Participating RGGI states cap CO_2 emissions from power plants through the issuance of a limited, and declining, number of allowances that may be traded among the regulated entities. Each allowance represents one short ton of CO_2 that a regulated generator may emit during the compliance year. Because RGGI is a regional program, the participation of multiple states minimizes the risk that CO_2 reductions in any one state will be offset by increases in an adjoining member state. While RGGI is not the only factor driving the successes outlined above, it does demonstrate that a market-based approach can be incorporated into the competitive wholesale electricity market and help states meet their environmental policy objectives.

State Policies and their Impacts on New England's Competitive Markets

Since restructuring, Massachusetts and other New England states have enacted laws requiring substantial reductions in GHG emissions, prompting those states to procure renewable and other zero-carbon generation resources outside the competitive markets to meet mandatory or aspirational emissions reductions targets by specific deadlines. These state policies have significant impacts for the region's competitive wholesale electricity – a situation that can be expected to grow even more challenging as the states procure increasing amounts of clean energy resources to achieve their policy needs.

In 2008, Massachusetts enacted two laws that drive the bulk of energy and environmental policy in the Commonwealth: the Global Warming Solutions Act (GWSA) and the Green Communities Act (GCA).[11] [12] The GWSA establishes mandatory, economy-wide GHG emissions reductions of between 10 to 25% from 1990 levels by 2025 and at least 80% from 1990 levels by 2050. To help achieve the GWSA's mandates, the GCA provides Massachusetts' electric utilities with the general authority to enter into long-term contracts for qualifying renewable resources, among other programs. The legislature amended the GCA in 2016 to require the Commonwealth's electric utilities to jointly solicit proposals for long-term contracts for energy from offshore wind and clean energy resources, including approximately 9,450,000 MWh annually of large-scale provincially owned Canadian hydroelectric resources.[13] Today, Massachusetts is poised to add up to 3,200 MW of offshore wind resources and the Massachusetts Department of Public Utilities has approved 20-year power purchase agreements between the Commonwealth's electric utilities and Hydro Quebec for the full 9.45 TWh of hydroelectric imports under the 2016 law.[14] [15]

In addition to long-term contracting, Massachusetts has implemented a number of other energy and environmental policies to fulfill its GHG emissions reduction commitments and support specific renewable energy technologies. The Renewable Portfolio Standard (RPS) requires electricity retail sellers in Massachusetts to supply a certain percentage of their annual sales

[10] Virginia is expected to become a RGGI member by 2021. Pennsylvania's governor recently signed an Executive Order directing the state's Department of Environmental Protection to also join RGGI.
[11] https://malegislature.gov/Laws/SessionLaws/Acts/2008/Chapter298
[12] https://malegislature.gov/Laws/SessionLaws/Acts/2008/Chapter169
[13] https://malegislature.gov/Laws/SessionLaws/Acts/2016/Chapter188
[14] https://malegislature.gov/Laws/SessionLaws/Acts/2018/Chapter227
[15] https://www.mass.gov/info-details/filings-with-the-dpu-for-contract-approval

from qualified renewable energy.[16] RPS requirements increase each year and are currently on course to procure over 50% of ratepayers' electricity supply by 2050. The Clean Energy Standard operates in similar way to the RPS, but enhances it by including additional resources, like nuclear and large-scale hydroelectric generation, that are not otherwise eligible under the RPS program.[17] The Commonwealth incentivizes 3.2 GW of solar development through a tariff-based mechanism called the Solar Massachusetts Renewable Target (SMART) program while recently enacted legislation seeks the installation of 1,000 MWh of energy storage systems in the electric utilities' territories by 2025.[18] [19] This year, the Commonwealth finalized a first-in-the-nation Clean Peak Standard that requires retail electricity suppliers to provide a certain amount of their annual sales from qualified clean energy technologies, such as RPS Class I and battery storage resources, to reduce peak electricity demand. Massachusetts also applies state-specific regulations that limit the amount of GHG emissions that can be emitted annually from in-state power plants, in addition to the emissions caps that RGGI already imposes on covered generators.[20]

Other New England states have passed similar laws to reduce GHG emissions over the next 30 years and have implemented a variety of policies to help reach their emissions targets. Connecticut, Maine, and Rhode Island have each enacted legislation since 2008 requiring an 80% reduction in GHG emissions by 2050 from 1990 and 2001 baselines.[21] New Hampshire and Vermont have each set statewide aspirational goals of reaching 80% GHG reductions from 1990 levels by 2050.

Like Massachusetts, many of these states are taking actions to support the development of renewables and zero-carbon resources, largely through long-term contracts financed by electricity consumers. For example, Connecticut recently selected over 800 MW of offshore wind resources under a 2019 act that calls for the procurement of 2,000 MW of offshore wind capacity by 2030 through 20-year contracts.[22] These actions follow prior procurements for nuclear, wind, solar, and storage that, in total, put Connecticut on a trajectory to meet the objectives of an executive order that seeks a fully decarbonized state electricity supply by 2040.[23]

Maine enacted a law last year that requires 80% of retail electricity sales from renewables by 2030 and 100% by 2050.[24] To help reach those targets, the law increases the state's RPS Class 1/1A requirements to 50% by 2030. In addition, the law requires the Maine Public Utilities Commission to direct the state's electric utilities to enter into 20-year contracts for qualified renewable resources by 2021 following a competitive solicitation. When complete, the energy secured under those contracts will account for 14% of the retail electricity supply in Maine, where renewables already represent around 80% of the state's net generation.[25]

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[16] https://www.mass.gov/service-details/statutes-regulations-and-guidelines
[17] https://www.mass.gov/guides/clean-energy-standard-310-cmr-775
[18] https://www.mass.gov/solar-massachusetts-renewable-target-smart
[19] https://www.mass.gov/info-details/esi-goals-storage-target#energy-storage-target-
[20] https://www.mass.gov/guides/electricity-generator-emissions-limits-310-cmr-774
[21] http://isonewswire.com/updates/2019/10/2/the-new-england-states-frameworks-for-reducing-greenhouse-ga.html
[22] https://portal.ct.gov/DEEP/Energy/2019-Procurement-of-Offshore-Wind-Resources
[23] https://portal.ct.gov/-/media/Office-of-the-Governor/Executive-Orders/Lamont-Executive-Orders/Executive-Order-No-3.pdf
[24] http://legislature.maine.gov/legis/bills/bills_129th/chapters/PUBLIC477.asp
[25] https://www.eia.gov/state/?sid=ME

Rhode Island set an even more ambitious goal this year with an executive order that directs the state's Office of Energy Resources to conduct analysis and develop policy and programs to meet 100% of the state's electricity needs from renewable resources by 2030.[26] Renewables currently make up about 13% of electricity supply in Rhode Island; however, that number increases to 52% by 2024 with the approval last year of 20-year contracts for the 400 MW Revolution Wind project, along with additional renewables through existing programs like the Renewable Energy Standard.[27] Rhode Island estimates that it must add 360 GWh of renewables each year – beyond its existing policies and programs – to achieve 100% renewables by 2030.

The overriding policy objective of these collective actions is to decarbonize the electricity sector and meet the GWSA targets that have either been adopted or set as goals in all six states of New England. NEPGA applauds the leadership of the New England states in setting these emissions targets. What NEPGA has concerns about, however, are the mechanisms that states have mandated to meet them by carving out certain selected resources and technologies from the competitive electricity market.

The cumulative impact of the contracting regimes on the efficient operation of the region's competitive wholesale electricity markets is substantial and undermines the benefits consumers have relied on since restructuring in the late 1990s. At the current pace, resources supported by existing state policies are expected to account for more than 50% of the total electricity supply in New England by 2027, mainly through a combination of long-term contracting for renewable and zero-carbon generation and expanded RPS-type programs.[28]

The effect of these state resource additions is two-fold. First, the introduction of state policy resources will displace those existing competitive resources that will be needed for reliability, which could include low and zero-carbon generation that can help the states achieve their environmental goals. Second, state-supported resources will likely bid into the Energy Market as price takers (i.e., at $0/MWh), which puts downward pressure on the Energy Market prices that merchant generators rely upon for continued operations and capital investments.

In the first instance, the region will be expected to accommodate the influx of state-supported resources over the next several years, which will likely lead to reduced output from more cost-effective and efficient plants that would otherwise be dispatched under typical wholesale market design. Recent analysis estimates that natural gas-fired power plants will see a reduction in operations by almost 50% between now and 2027. However, these same flexible resources will still be needed for their ability to quickly ramp up and down, especially as the system becomes more variable with increasing amounts of intermittent wind and solar generation. It is critical that the competitive markets properly value these existing resources for their unique ability to maintain reliability of the system under all conditions. Without the appropriate market revenues to ensure their retention, these existing resources will face the risk of premature retirement.

In addition, state policy resources that receive revenues through long-term contracts will offer bids into the Energy Market as prices takers, thereby artificially suppressing Energy Market prices and lowering revenues for existing generators that have reduced production as well as

[26] https://governor.ri.gov/documents/orders/Executive-Order-20-01.pdf
[27] http://www.energy.ri.gov/documents/renewable/RI%20100%20Pct%20-%201st%20Public%20Workshop%209July2020.pdf
[28] https://nepga.org/2018/11/report-on-new-england-electricity-market-out-to-2027/

price-taking baseload units. As an example, a plant that is displaced by a state-supported resource will run less often, which makes it more reliant on the FCM and the Ancillary Services Markets to recoup lost Energy Market revenue. Even when those units do run, they can be expected to earn fewer revenues from lower Energy Market prices or potentially no revenues at all in the case of marginal units. One scenario modeled by ISO New England in 2017 projects that planned state-supported clean energy resource additions will reduce Energy Market revenues to near zero by 2025.[29]

Lower Energy Market prices would also undermine the very competitive resources whose environmental attributes can help the New England states remain on track to fulfill their GHG emissions reductions mandates. As Energy Market prices decline with the addition of state-supported clean energy generation, existing zero-carbon resources will receive less revenues, including those needed for necessary capital expenditures as well as competitive resources that also qualify for RPS-type programs administered by the New England states.

Declining Energy Market revenues will likely also reduce the amount of local taxes plant owners pay in their host communities. Local tax assessors use asset valuations to determine the amount of local taxes paid by plant owners. As Energy Market prices and revenues fall, local tax receipts will also decline, which directly impacts communities that rely on those tax receipts to fund important local services.

Over the long-term, it becomes even more important to leverage the competitive markets, which are highly efficient at sending price signals to attract private investment in technologies that provide value to the system, particularly flexible generation and energy storage units that can support a future system dominated by intermittent state-supported resources. The markets can complement state policies by setting cost-effective prices to compensate flexible technologies as the amount of renewables increases, encourage the location of renewable resources where their output can be readily delivered to consumers, and steer investment toward renewable generation projects that produce electricity when it is more valuable.[30]

The Competitive Markets are Responding to State Policy Needs

In recent years, the New England states have raised questions about the ability of the wholesale markets to facilitate the entry of new state-supported clean energy resources, leading some states to rely on long-term contracting to meet their policy mandates and ensure resource adequacy. One concern is the FCM's Minimum Offer Price Rule (MOPR), a market mechanism that sets a floor price for offers in the Forward Capacity Auction (FCA) based on a calculated competitive offer benchmark for a given resource's technology type. The MOPR is designed to prevent the artificial suppression of FCM clearing prices by accounting for resources that receive a revenue stream or other subsidy outside the competitive markets. The MOPR ensures that only the lowest-priced resources will be selected on a transparent and competitive basis to meet the region's reliability needs three years in the future. As a consequence, state policy resources that receive revenues through ratepayer-funded long-term contracts are mitigated in the FCA and may not be selected in the auction to receive a Capacity Supply Obligation.

[29] ISO New England, 2016 Economic Study: NEPOOL Scenario Analysis, Implications of Public Policies on ISO New England Market Design, System Reliability and Operability, Resource Costs and Revenues, and Emissions, November 17, 2017 (ISO-NE 2017).

[30] https://www.iso-ne.com/static-assets/documents/2020/06/iso-ne-emm-2019-report-final.pdf

Nonetheless, states continue to procure clean energy resources outside the wholesale electricity markets.

In response, NEPGA has worked with state officials and other stakeholders on market reforms to help Massachusetts and the other New England states meet their policy mandates and goals, ensure resource adequacy, and preserve competitive market pricing and outcomes. In February 2019, ISO-NE implemented Competitive Auctions with Sponsored Policy Resources (CASPR), a mechanism in the FCA that balances state policies and the competitive markets by coordinating the entry of state policy resources and the retirement of existing capacity resources.[31] CASPR does this through a Substitution Auction that runs after the primary auction to reduce the negative impacts that state policy resources may have on competitively-based capacity prices, ensure resource adequacy, and alleviate concerns about over-supply. While some would prefer an even more rapid entry by state-supported resources into the FCM, others are concerned that CASPR only minimizes, but does not eliminate, adverse impacts on competitive price formation. NEPGA regards CASPR as a compromise solution to accommodate new state-supported resources in the FCM while minimizing adverse impacts on competitive market pricing. CASPR offers a pathway into the market today to accommodate state policy resources while preserving competitive market price formation.

Currently, NEPGA and other stakeholders in the New England Power Pool (NEPOOL) are participating in a process titled Transition to the Future Grid, an examination of pathways to better align the competitive markets with state policy mandates and goals.[32] The effort reflects stakeholders' acknowledgement that the region's electric grid is fundamentally changing with increasing amounts of distributed generation, intermittent renewables, and load reduction and shifting, all of which challenge current market design. Stakeholders will conduct analysis to predict the kinds and quantities of resources that will be necessary to meet the New England states' decarbonization targets, most of which must be met by 2050. Based on that predicted future resource mix, stakeholders will identify any gaps to reliably operate the region's bulk power system, along with changes in market design that are needed to procure those missing reliability needs.

While all of these changes and ongoing discussions help improve the markets, they do not address the core issue that is currently under-recognized in the New England wholesale electricity market: climate change and the value of carbon dioxide (CO_2) emissions. NEPGA has long supported adoption of a multi-sector price on CO_2 emissions as a market-based means to help Massachusetts and the other New England states achieve their policy mandates and goals. With a tremendous benefit seen in electrification of sectors such as transportation and heating, to be truly effective, a CO_2 price should be applied not just in the electricity sectors, but on a multi-sector basis. This will ensure that in further making needed clean energy investments in the electricity sector, a disincentive is not created away from electrification. It would also provide investors, entrepreneurs, and manufacturers with the financial incentive to develop increasingly affordable clean transportation and heating options to meet consumer demand.

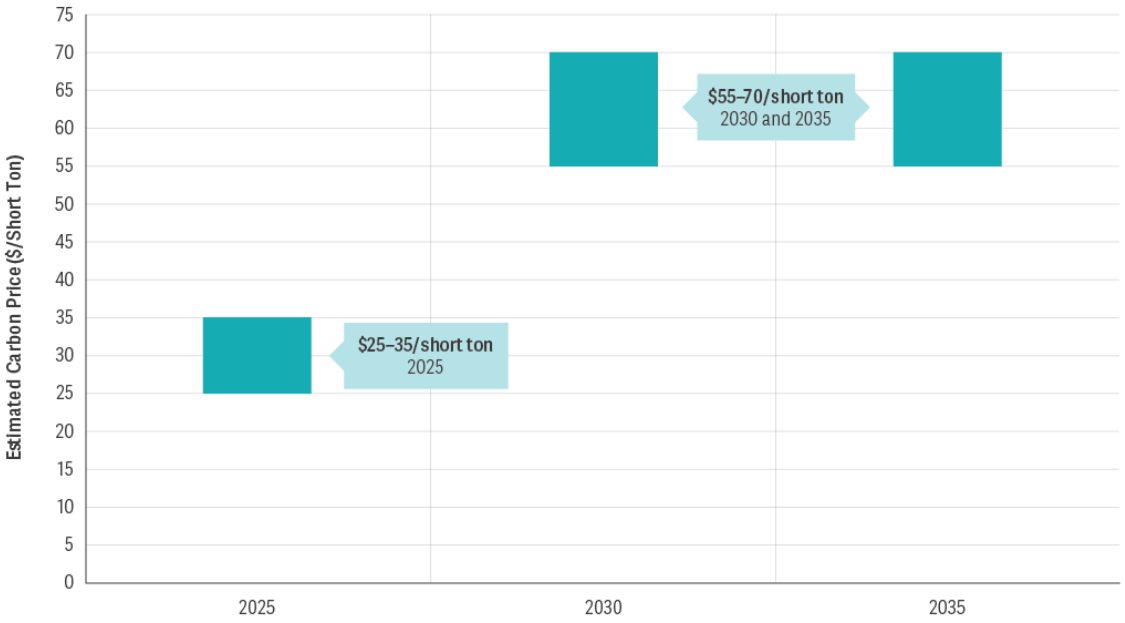
The goal is a durable wholesale market design that allows the kinds of resources preferred by the states to fully participate in the competitive markets on a level playing field to ensure the long-term viability and benefits of the competitive markets. A meaningful CO_2 price would not

[31] https://www.iso-ne.com/participate/support/customer-readiness-outlook/caspr-project#project-overview-4

[32] http://nepool.com/Future_Grid_Ref_Library.php

only reduce emissions, it would also spur investment in clean technologies through transparent price signals to encourage investment in increasingly affordable clean energy resources. In addition to attracting new resources, a CO_2 price would also provide Massachusetts and the region with greater assurance of continued investments in existing low and zero-carbon resources that will be needed to support greater penetrations of wind and solar. It would also reduce the states' reliance on long-term contracting and other out-of-market mechanisms that saddle consumers with higher electricity costs and the risk that today's technologies will become outdated and inefficient in the future.

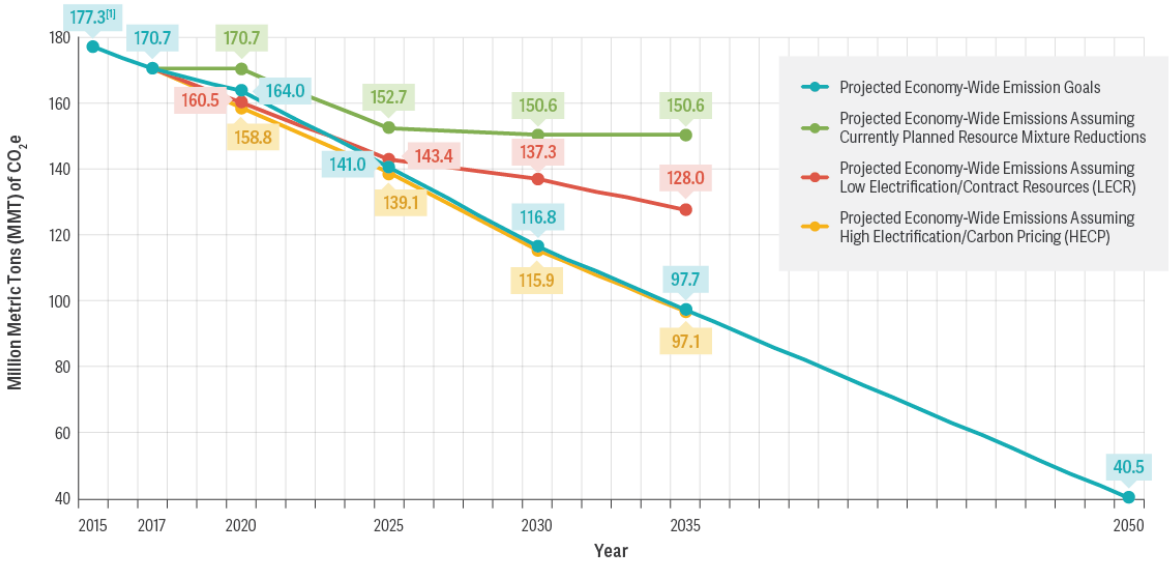
What is a meaningful price on CO_2 emissions that can keep the states on track to meet their policy mandates and goals? A recent study sponsored by NEPGA shows that a CO_2 price that falls in a range of $25–35/short ton CO_2 in 2025 and $55–70/short ton CO_2 in 2030 and 2035 would be sufficient to drive down CO_2 emissions across the economy and keep the New England states on a trajectory to reach their GHG emissions targets.[33] A CO_2 price of $25–35/short ton CO_2 is lower than the social cost of carbon, but it assumes implementation of current state policies in the early years and allows a transition from state procurements to a stable financing model through a CO_2 price in the competitive markets. Over the long-term, the CO_2 price rises to support large-scale renewables, like offshore wind, without continued reliance on long-term contracting.



Beyond the reductions in GHG emissions, the analysis also estimates that a CO_2 price coupled with increased electrification would produce a decline in all-in household energy costs. Even when a CO_2 price is included, the average residential household is estimated to save overall energy costs by switching from internal combustion engine vehicles to light-duty electric vehicles and converting home heating systems from fuel oil to an electric heat pumps by 2035. In total, a CO_2 price introduced in the competitive markets could save consumers an estimated $100 to 300 million (in 2020 dollars) in the years 2026 through 2035.

[33] https://nepga.org/2020/06/report-on-co2-pricing-to-meet-multi-sector-emissions-mandates/

Absent a multi-sector CO_2 price, the New England states are projected to fall well short of their obligations to reduce economy-wide GHG emissions by 2050 – even as the states continue to decarbonize the electricity sector through costly long-term contracting of renewable resources. CO_2 pricing, coupled with substantial electrification of the transportation and heating sectors through 2035, will ensure that states can meet their environmental obligations through the cost-effective benefits of the competitive market.



Notes:

[1] In 2015, total GHG emissions across New England were 177.3 MMT of CO_2e (43.8 in CT, 76.1 in MA, 19.1 in ME, 17.0 in NH, 11.3 in RI, and 10.0 in VT).

[2] Economy-wide emission reduction goals are determined by aggregating each New England state's historical emissions and annual emission targets. If data is unavailable for a given year, the goal is estimated by interpolating results from years where it is available by state.

[3] Resource mixture adjustments include the retirement of fossil-fuel plants and the addition of renewable resources.

[4] The LECR scenario assumes 12.5% (2025), 17.5% (2030), and 30% (2035) of residential homes currently heating with gas, oil, or propane switch to electric heating. The LECR scenario also assumes 25% (2025), 35% (2030), and 60% (2035) of consumers driving light-duty vehicles switch to electric vehicles.

[5] The HECP scenario assumes 25% (2025), 50% (2030), and 75% (2035) of residential homes currently heating with gas, oil, or propane switch to electric heating and 25% (2025), 60% (2030), and 90% (2035) of consumers driving light-duty vehicles switch to electric vehicles. It also assumes additional energy efficiency (EE) at a 25% increase over assumed 2035 EE, and adds additional storage and zero-emission resources needed to accommodate increased electrification and maintain New England's progress towards meeting its carbon reduction standard. Finally, it adds a $25/short ton price on carbon in 2025, $65/short ton in 2030, and $70/short ton in 2035.

NEPGA recognizes the concerns of some states that a CO_2 price could be subject to FERC jurisdiction. Notably, RGGI allowance prices are not subject to FERC jurisdiction but are instead cost inputs incorporated into a generator's offers in the Energy Market. A CO_2 price could be treated in a similar manner, providing state control over price levels, and avoiding the jurisdictional concerns raised by the states. However, in order to achieve accomplish the decarbonization objectives, a CO_2 price would need to apply to multiple economic sectors and be valued beyond what RGGI currently provides.

Conclusion

For over 20 years, the region's wholesale electricity markets have fulfilled restructuring's objectives of leveraging competition to procure a reliable, cost-effective supply of electricity to New England's energy consumers without subjecting electric ratepayers with the undue risk of cost overruns or stranded costs. Over that period, competitive forces have reduced wholesale electricity prices, procured an array of resource types to maintain reliability, and spurred innovations that have helped drive down GHG emissions from power plants. Those benefits are at risk today as increasing amounts of state-supported generation impact the efficient operation of the competitive markets, undermining their ability to retain resources that will be needed to provide flexible and low and zero-carbon power generation and support an increasingly electrified economy. For that reason, it is important to continue to identify market-based solutions that can best address the states' needs to meet ambitious decarbonization mandates and goals. In this regard, NEPGA is committed to working with the region's stakeholders toward a long-term solution that balances state objectives and competitive market outcomes.

NEPGA appreciates the opportunity to provide these comments and stands ready to provide additional information or assistance to the Commission as needed.