

Date: June 6, 2022

To: Dave Cavanaugh, Energy New England
Chris Geissler, ISO New England
Sebastian Lombardi, Day Pitney

From: LS Power

Topic: Comments on the Pathways Study and Needed Market Evolution

LS Power thanks ISO New England, the Analysis Group, representatives of the New England States, and NEPOOL stakeholders for their thorough and thoughtful work on the Pathways Study. The Pathways Study offers nuanced analysis of different market mechanisms to integrate carbon (or lack thereof) into our wholesale power markets. Having followed the Pathways process closely since its inception, LS Power is encouraged by the discussions occurring at NEPOOL, at NECPUC, and in other fora. We appreciate the opportunity to recommend next steps.

LS Power has direct knowledge of what it takes to capitalize the energy transition and has a stake in ensuring that New England develops high quality market mechanisms that facilitate decarbonization by incenting robust investment. Since 1990, we have developed, constructed, managed, and acquired competitive power generation and transmission infrastructure, for which we have raised over \$47 billion in debt and equity financing. We have developed over 11,000 MW of power generation and acquired over 34,000 MW of power generation assets (both conventional and renewable). LS Power is on the leading edge of the industry's transition to low-carbon energy as it commercializes new technologies and develops new markets including large-scale renewables, battery storage, and high voltage transmission. On the demand side, LS Power is the majority shareholder of EVgo, the nation's largest public fast charging platform for electric vehicles and first platform to be 100% powered by renewable energy, as well as CPower Energy Management, one of the largest demand response providers in the country. Our New England footprint includes two wind farms, one solar farm, and two gas plants.

Based on the Pathways analysis, we have four key messages:

- 1) Decarbonization will be expensive, but is necessary;
- 2) Markets, not contracts, should drive decarbonization;
- 3) New market constructs should build on existing markets – rather than replace them; and,
- 4) Existing markets must be bolstered to ensure that critical reliability resources are maintained.

We look forward to continued efforts to implement market design changes that set the region on a path that more appropriately balances ratepayer interests, system reliability and public policy achievement.

Decarbonization is Expensive but Markets can Help

Decarbonization will be expensive. Over the next 20 years, the Pathways study indicates that the region's wholesale markets quadruple in size and will cost consumers up to \$150 billion overall.¹ Consumers deserve the lowest-cost and lowest-risk means to make the multi-billion dollar changes that climate science demands.

The results of the Pathways study clearly show that markets, not contracts, are the best path forward and that market tools can reduce carbon emissions while also continuing to provide reliable electricity at competitive prices. Indeed, the Pathways analysis suggests that market tools like carbon pricing or a Forward Clean Energy Market (FCEM) can save consumers up to \$21 billion dollars (NPV), compared to contracts, over 20 years.² Every dollar not spent on inefficient and market-distorting contracts is a dollar that could, instead, be directed towards decarbonizing the heating and transportation sectors that currently generate two-thirds of the region's emissions.³ To give a sense of scale, the \$21 billion in market-based savings could cover the cost of five cycles of Massachusetts's nation-leading three-year energy efficiency plan.⁴

Each Market Construct has Benefits and Can Build on Prior Work by the States

The study also makes clear that there are trade-offs *between* the different market mechanisms, as well. LS Power, like many regional stakeholders, is a long-time proponent of carbon pricing because it is the most efficient way for society to meet its climate goals.⁵ We observe that carbon pricing is an element of *both* the most efficient decarbonization approach (Net Carbon Pricing) and the cheapest approach (the Hybrid).

- The Net Carbon Pricing pathway offers significant efficiency gains over other approaches and these gains grow larger with time.⁶ These new findings comport with prior analysis by NEPGA and a robust literature on the benefits of carbon pricing.⁷
- The “hybrid” pathway, combining elements of carbon pricing and a FCEM, offers the lowest costs for consumers. Even when carbon pricing is not the star of the show, its

¹ Up to \$150 billion in net present value (5% discount rate) or up to \$267 billion in nominal cost. LS Power, “[Comments & Observations on the Pathways Study Draft Report](#)”, 15-March-2022, at 2.

² This equates to \$43 billion in nominal savings. And, as we've seen with contracted resources like Mystic with its RMR, expected costs at contract execution and actual costs to ratepayers can be very different.

³ U.S. Energy Information Administration. [Energy-Related CO2 Emission Data Tables](#), Table 3.

⁴ Massachusetts Department of Public Utilities. “[DPU Approves Massachusetts' Nation-Leading Three Year Energy Efficiency Plan](#)”, 2-Feb-2022, noting: “The current plan is estimated to offer significant reductions in annual oil, propane, and natural gas use, including annual reductions of 3.5 million Metric Million British Thermal Units (MMBTUs) of oil, 1.4 million MMBTUs of propane, and 72.3 million annual natural gas therms.”

⁵ LS Power, “[2020 Sustainability Report](#)”, 2021, at 2. *See also* LS Power, “[LS Power & Other Power Generators, Industry Groups, and Think Tanks Ask FERC to Examine Carbon Pricing to Reduce Emissions](#)”, 14-April-2020.

⁶ Analysis Group. “[Pathways Study: Evaluation of Pathways to a Future Grid](#)”, April 2022, at ES-11f.

⁷ Analysis Group: “[Carbon Pricing for New England: Context, Key Factors, and Impacts](#)”, June 2020.

addition offers a meaningful enhancement to other designs. The study indicates that the carbon price embedded in the hybrid pathway mitigates many of the inefficiencies of a stand-alone FCEM such as inefficient buildout, storage churning, and negative LMPs.⁸

LS Power acknowledges the political difficulties in relying on stand-alone carbon pricing but encourages further investigation of some sort of hybrid approach. A recent paper from MIT acknowledges the value of hybrid mechanisms, stating: “by adopting modest carbon pricing, policy makers would accomplish a disproportionately large share of the cost savings of economically optimal carbon pricing.”⁹ While LS Power has concerns about the viability of *the specific* hybrid studied in the Pathways analysis, the concept of *a* hybrid market deserves additional consideration.

Modest carbon pricing, like that observed in the hybrid pathway (peaking at \$52/ton in 2040 compared with \$298/ton under NCP) could be introduced through a variety of existing state jurisdictional programs such as RGGI, or a new regional carbon market that ensures open participation and transparent pricing.

Separately, LS Power recognizes that alternative mechanisms – such as a “pure” FCEM – could be used to meet state carbon targets, and we remain committed to working with ISO-NE, the States, and NEPOOL stakeholders to develop such mechanisms. While a FCEM paired with carbon pricing would be a significant benefit to the region in terms of incenting investment, a FCEM by itself *could* still offer the region an improvement over today’s status quo. And, in the long-run, a FCEM-like construct may be required because when emitting units stop being marginal on the system, a carbon price stops offering an incremental incentive to develop clean generation.¹⁰

A FCEM could encompass a wide range of different market designs ranging from a simple forward auction for RECs to a co-optimized clean-energy and capacity auction replacing today’s FCM.¹¹ LS Power encourages the states to start simple, build on existing REC markets, and keep a FCEM separate from the ISO administered capacity market. A FCEM could enhance existing REC markets by:

⁸ The carbon price in the hybrid can do all this because it better aligns clean energy production with high emissions periods. A common REC, defined as the environmental attributes associated with 1 MWh of clean energy output, does not distinguish the value between clean generation during high emissions or low emissions periods. Adding a carbon price, all else equal, provides additional incentive for that clean generation to align with higher priced (i.e., higher emissions) periods.

⁹ Dimanchev & Knittel, “[Trade-offs in Climate Policy: Combining Low-Carbon Standards with Modest Carbon Pricing](#)”, November 2020.

¹⁰ Even on a fully decarbonized power system, a carbon price plays an important role: preventing back-sliding.

¹¹ Kathleen Spees “[The Integrated Clean Capacity Market A Design Option for New England’s Grid Transition](#)”, October 2020, describing a combination FCEM+FCM market.

- Centralizing procurement using an auction rather than bilateral transactions between REC holders and state electric distribution companies, offering better price discovery and transparency of environmental attributes; and,
- Implementing a multi-year price-lock for new resources that could offer developers more revenue certainty, easier financing, and faster development.

Enhancing REC markets using an FCEM or another tool would help the states double-down on market-based mechanisms to facilitate decarbonization. We observe, however, that the states do not need to re-invent the wheel here. The financial markets that have developed around RECs *already* offer developers a mechanism to sell their RECs forward on a multi-year basis. State commitment to the REC markets, through an FCEM or otherwise, is an important step that could bolster regulatory certainty and hasten the decarbonization of the power sector.

One final observation: the FCEM was conceived originally as a method to ensure that sponsored policy resources could participate in ISO administered capacity markets.¹² With MOPR’s elimination, that purpose is now moot. To that end, States should focus on developing high quality market mechanisms that efficiently incent investments, rather than focusing on developing rules that pass muster at FERC.

The Region Cannot Forget about Balancing Resources

The Pathways study offers yet further evidence that the significant influx of new clean resources will not change the need for traditional generators. Across the different carbon-compliant scenarios, the region requires approximately 20 GW of gas combined cycles or gas turbines both today and in 2040. While these resources should be decreasing *energy* production significantly over the next two decades, their *capacity* remains critical for system reliability. The Massachusetts Decarbonization Roadmap and Connecticut IRP come to the same conclusion.¹³

NESCOE recently suggested that the region must “continue focusing on means to provide sufficient revenue to existing clean energy resources needed for reliability.”¹⁴ LS Power would go one step further: the region must continue to focus on means to provide sufficient revenue to *all* energy resources needed for reliability.

While the focus of this exercise is to understand how markets can evolve to accommodate state decarbonization requirements – we must recognize that the region will struggle to decarbonize if

¹² Newell, Spees, and Pfeifenberger, “[Forward Clean Energy Markets: A new solution to state-RTO conflicts](#)”, 27-January-2020.

¹³ Massachusetts EEA, “[Energy Pathways to Deep Decarbonization: A Technical Report of the Massachusetts 2050 Decarbonization Roadmap Study](#)”, 2020, Figure 53. Connecticut DEEP, [2020 Integrated Resources Plan](#), 2021, Appendix A-3, Figures 1-2.

¹⁴ NESCOE, “[Observations on the Pathways Study: Holistic market reforms needed for a clean, reliable, affordable 21st century power grid](#)”, 6-May-2022.

it cannot maintain reliability. Thus, any effort to explore market mechanisms to support clean resources must also, implicitly, contemplate methods to ensure revenue sufficiency for the reliability resources that allow clean energy to flourish.

Conclusion

LS Power supports the States' efforts to explore market constructs to facilitate decarbonization and wean the region of long-term contracts. The region restructured itself 30 years ago precisely because the contracting arrangements of yore saddled captive ratepayers with significant risk and offered little recourse for bad bets taken by incumbent utilities. Sometimes it feels as though some market participants think *this time is different* and that new, extenuating circumstances require a return to long-term contracts. The Pathways analysis shows that this time is *not* different. The lessons of restructuring should continue to inform decisions as we seek methods to activate billions of dollars of investment: contracting is expensive and risky, subsidies beget subsidies, and markets work.

We encourage the New England states to continue this initiative and hope that these comments help clarify the issues. The region needs to find a way to build 40+ gigawatts of capacity over the next 20 years. This will be no small feat. To assist in this effort, LS Power is ready share its first-hand knowledge about capital deployment, REC markets, storage development, and the operational realities of merchant renewable resources.

Again, we thank the ISO, the States, and our fellow stakeholders for their hard work and collaboration. We look forward to continuing this conversation.