

**UNITED STATES OF AMERICA
FEDERAL ENERGY REGULATORY COMMISSION**

State Policies and Wholesale Markets)	
Operated by ISO New England Inc., New York)	Docket No. AD17-11-000
Independent System Operator, Inc., and)	
PJM Interconnection, L.L.C.)	

**COMMENTS OF DAVID B. PATTON, PH.D.
REGARDING STATE POLICIES AFFECTING EASTERN RTOS**

The Federal Energy Regulatory Commission (“Commission”) opened this docket to evaluate issues involving state policies and their effect on ISO/RTO markets. RTO markets are intended to provide workably competitive mechanisms to buy and sell both short-term energy and long-term capacity. State policies sometimes provide incentives to encourage installation of certain types of generating capacity that satisfy environmental and other objectives, but that would not otherwise be selected in the markets. RTO markets are designed to select capacity based on cost, reliability and, to some extent, operational flexibility. Hence, state policies may conflict with the RTO market design. The technical conference seeks to examine alternatives that would allow resources favored by state policies to be selected in RTO markets while retaining the economic benefits of RTO market competition.

I. NOTICE AND COMMUNICATIONS

All correspondence and communications in this matter should be addressed to:

Dr. David B. Patton
Potomac Economics, Ltd.
9990 Fairfax, Boulevard, Suite 560
Fairfax, VA 22030
(703) 383-0720
dpatton@potomaceconomics.com

Dr. Robert A. Sinclair
Potomac Economics, Ltd.
9990 Fairfax, Boulevard, Suite 560
Fairfax, VA 22030
(703) 383-0726
rsinclair@potomaceconomics.com

II. COMMENTS

I address each of the Commission's six questions that are posed in the supplemental order on the technical conference. My comments focus on the efficiency issues that state actions potentially cause and I address the outline of potential rules to balance the political, economic, and market concerns that are raised by such actions.

Question 1 – Should Commission Distinguish Different Types of State Policies?

As described below, any state policies that result in artificial supply surpluses will adversely affect the wholesale market. However, it may be justifiable to distinguish between state intervention that can be justified by legitimate public policy interests versus intervention that is not justified on this basis.

This latter class of policies is addressed in the three northeast RTOs by Minimum Offer Price Rules (“MOPR”) that are designed to deter uneconomic entry that is intended to artificially suppress prices. There is no reasonable justification to weaken these rules to accommodate state intervention that serves no legitimate public policy purpose. Such intervention need not explicitly or obviously be intended to suppress prices. State intervention to address issues that are fully priced by the RTO markets should not be deemed legitimate and should be subject to the MOPR. For example, state policies have previously been proposed to address congestion and reliability, which are issues that the RTO markets explicitly address. Therefore, these interventions, when uneconomic at prevailing wholesale market prices, will undermine the RTO markets.

This conduct may be useful to distinguish from state policies designed to achieve legitimate public policy benefits, such as reducing environmental emissions that are not priced directly or indirectly in the RTO markets. Even these policies, however, can be damaging to the wholesale markets so any attempts to accommodate such state policies should be carefully designed. We discuss principles for the Commission to consider later in these comments for addressing this type of state policies.

Question 2 – How will Out-of-Market Payments Affect Wholesale Markets?

Question 3 – What Market Benefits are Lost by Out-of-Market Actions?

I address Question 2 and Question 3 together as they are closely related. The long-run price signals produced by RTO capacity markets are greatly affected by state policies to promote investment in or retention of generation and demand response resources. Hence, to understand the impact of state policies on RTO markets and the shape of potential solutions, it is necessary first to briefly review the role and benefits of the RTO capacity markets.

The Role of RTO Capacity Markets. The economic signals provided by the capacity market supplements the RTO energy and ancillary services markets to inform long-term capacity decisions, including investment, retirement, and maintenance of resources. The revenue produced by the capacity markets provide the “missing money” necessary to satisfy RTO planning requirements. This revenue is necessary because the planning requirements (including the “one-

day-in-ten-years” loss of load standard), implies a much higher value of electricity than is priced in the RTO energy markets.¹ In other words, well-designed “energy-only” markets that include only energy and ancillary services markets (not a capacity market) will achieve a long-run equilibrium at a capacity level that is generally well below most RTOs’ planning requirements. Hence, in order for energy markets alone to provide enough revenue to sustain adequate planning reserves, shortages would have to occur much more often and produce much higher prices than the current RTO energy markets. Because of the key role of capacity markets in providing the long-run economic signals to support efficient investment and retirement decisions, and the fact that the capacity market outcomes are generally the most adversely affected by uneconomic entry, we generally focus these comments on the capacity market effects of state policies.

The Effects of State Intervention on RTO Markets. Subsidized entry in the wholesale electricity market is problematic to the extent that it leads to supply and demand disequilibrium (i.e., an artificial surplus) and thereby significantly changing prices and other market outcomes. This undermines the ability of the market to facilitate efficient long-term decisions by market participants who must rely on these market outcomes over the long-term when deciding whether to invest in new resources, make capital improvements to existing resources, build new transmission facilities, or make other long-term decisions.

MOPRs have been developed to deter subsidized investment in uneconomic generation and prevent the associated price effects, which can undermine the market’s ability to sustain the resource base needed to maintain reliability over the long-term. The Commission has recognized that renewable energy resources may be subsidized to meet public policy objectives and granted limited exemptions from the MOPR for renewable energy resources (e.g., 200 MW annually in New England). It is limited because higher quantities may be too large to be absorbed into the market without causing substantial artificial capacity surpluses and associated price distortions. If the states are providing subsidies for other public policy reasons, it is likely that they will not be deterred by the MOPR and the renewable energy resources may enter in quantities much larger than the exemption level.

For example, Table 1 is a summary of key initiatives in New England that illustrate the types of policies that can affect RTOs. For each initiative, we identified the magnitude of the potential entry in capacity terms (generally much less than the “nameplate” quantities). We allocated that quantity to various years by reviewing the legislation, plans, and announcements that have been made associated with each initiative.²

¹ The value of servicing the electricity demand is generally referred to as the “Value of Lost Load” or VOLL. The RTOs’ planning requirements imply that VOLL is greater than \$200,000 per MWh while their shortage pricing would generally set prices at less than \$5000 when the load cannot be served. This inconsistency between the planning requirement and the market, along with fact that some planning requirements are not reflected in the RTO’s energy markets, creates the “missing money” issue that the capacity markets address.

² We quantify the entry of subsidized renewables from the major solicitations that are currently known. We do not include smaller initiatives or those that would count toward the RPS mandates. It is possible for the states to issue additional solicitations (in the mid/long term) that are not announced yet.

Table 1: Potential Subsidized Entry of Renewables through 2026³

	Auction <i>Delivery Yr</i>	FCA-11 <i>2020/21</i>	FCA-12 <i>2021/22</i>	FCA-13 <i>2022/23</i>	FCA-14 <i>2023/24</i>	FCA-15 <i>2024/25</i>	FCA-16 <i>2025/26</i>	Total
Multi-State Clean Energy Solicitation		77	77					154
CT 2-20 MW Clean Energy Solicitation		38	38					75
Renewables required to meet RPS		81	81	81	81	81	81	488
MA Clean Energy Solicitation				1200				1200
Total Entry Through FCA-16		196	196	1281	81	81	81	1917
Average Annual Entry								320

We believe that most of this subsidized entry will not be deterred by New England’s MOPR, so the MOPR in this case is likely to significantly increase costs for New England’s consumers. It can also cause conventional new resources to clear the FCA inefficiently by preventing higher-cost renewables from clearing (even though they are committed to entering).

In addition to the entry of renewables, a number of states have moved to provide subsidies for nuclear resources that are no longer economic under prevailing market conditions. Given the large size of these nuclear resources, these subsidies are may generate larger market distortions than the renewable subsidies.

However, there are potential alternative mechanisms that can be explored to accommodate legitimate state policies, while protecting the competitive markets so that they can continue to facilitate efficient private investment and retirement decisions.

Question 4 – What Mechanisms can be Introduced to Accommodate State Actions?

Before discussing potential alternatives for addressing the issues described above, it is important to establish objectives that an alternative should satisfy. This requires that the problem be stated as precisely as possible. Subsidized entry in itself is not necessarily problematic. For example, if subsidized entry simply displaces non-subsidized entry in similar quantities, it would have little effect on market prices, holding all else constant. Therefore, the problem is largely one of coordination and avoiding sustained disequilibrium conditions (i.e., capacity surpluses caused by the subsidized entry).

³ Capacity for the Multi-State Clean Energy Solicitation is based on projects selected in October 2016, assuming 12 percent summer capacity value for wind and 43 percent summer capacity value for solar PV projects. Capacity for the Connecticut solicitation is based on the notice issued by DEEP in October 2016.

The values shown for the RPS standard are based on the 2025 results of Scenario 1 from ISO-NE 2016 Economic Study. We assume that these resources will enter at a uniform rate over the next six FCAs, but recognize that lumpy entry could create larger market issues.

Massachusetts legislation (An Act Relative to Energy Diversity) signed in August 2016 requires the EDCs to enter into long term contracts by the end of 2022 for 9.45 TWh of clean energy (from a combination of firm service hydro resources and new Class I RPS-eligible resources). The new HVDC transmission lines that enable large-scale import of hydropower from Canada are well-positioned to supply this energy. The solicitation for these resources is due by April 2017 and recent RFP timelines suggest 1-1.5 years to contract execution so we assume a delivery year of 2022/23. We also did not include potential procurements for meeting greenhouse gas (GHG) abatement targets because these procurements would similarly also be satisfied by the solicitations shown in Table 1.

We recommend that the Commission evaluate any proposed alternatives for accommodating legitimate state policies based on the extent to which the proposal:

- Protects the credibility of the market by minimizing artificial surpluses;
- Prevents the inefficient entry of new conventional resources, given the entry of the subsidized resources (i.e., preventing investment in unnecessary resources);
- Minimizes excess costs to be borne by the RTOs' customers.

A traditional MOPR is very effective at deterring subsidized entry that is solely intended to lower capacity prices. When the MOPR is evaluated against the three objectives listed above in cases where the renewable resources actually enter (i.e., are not deterred by the MOPR), it generally performs very poorly with regard to these objectives.

The stakeholders in New England have formed the Integrating Markets and Public Policy ("IMAPP") process to examine alternatives for accommodating state policies to promote renewable energy resources. However, none of the proposals presented through the IMAPP process perform well when evaluated against these four objectives, although some of them accomplish one or two of the objectives.

Carbon pricing is by far the most promising solution for achieving a market-based solution that achieves all of the objectives. Although New York and New England are entirely covered by a successful cap and trade carbon market – the Regional Greenhouse Gas Initiative ("RGGI") – the emissions limits under this market would have to be substantially reduced in order to cause the resources targeted by the states to be economic in the RTO markets.⁴ We do not believe it is likely that the states will rely on the RGGI market or a carbon tax to achieve their public policy objectives, although this would likely be the most efficient and effective approach.

Therefore, we have considered other alternatives. The most promising alternative, which we developed in collaboration with ISO-New England, is a mechanism to explicitly coordinate entry and exit to prevent the artificial surpluses (the primary concern for the wholesale markets). This mechanism adheres to the design objectives listed above and prevents unreasonably large fluctuations in total supply.

Since the quantity of renewables entering the market is less important than their effect on the supply-demand balance, the MOPR could be modified to allow subsidized entry to the extent that coordinated exit occurs that would ensure that the state intervention does not increase the total supply. In this mechanism, resource retirements would be facilitated through ISO New England's Forward Capacity Auction ("FCA") by implementing two passes of the FCA:

- The first pass would include all of the subsidized resources subject to a minimum offer price per the current rules, with other existing and new resources clearing as normal.

⁴ The most recent RGGI auction cleared CO₂ emission allowances at \$3.00 per ton. We have found in our work in NYISO that retaining existing nuclear capacity in New York would require allowance prices between \$13 and \$26 per ton. Allowance prices would have to be between \$48 and \$184 per ton to make renewable resources economic. See Potomac Economics, "2016 State of the Market Report for NYSIO," *forthcoming*.

- The second pass would allow the subsidized resources that did not clear in the first pass to purchase the initial capacity obligation from an existing or new conventional resource that cleared in the first pass.
- A settlement would take place between the subsidized resource and the displaced resource equal to the margin between the Pass 1 clearing price and Pass 2 clearing price.
- Any subsidized resource that does not clear through Pass 2 due to the lack of available retirement offers would carry over to the next year.

Although there are other important details to this proposal, the general approach could strike a reasonable balance between accommodating legitimate public policy initiatives while protecting the performance and viability of the RTO's wholesale electricity markets.

Question 5 – What are the Consequences of not Achieving State Objective within Markets?

If state policies are achieved outside of the RTO markets and no attempt is made to mitigate their effects on the RTO markets, the RTO markets will cease to be effective in facilitating resource adequacy. This would adversely affect suppliers in the RTO markets, the states and consumers served by the RTOs who would likely bear much higher costs and lower reliability. In other words, nobody wins in this scenario, with the possible exception of the attorneys that will be litigating these outcomes.

Question 6 – What is the Resource Adequacy Role of the RTO/ISO in the Context?

If no attempt is made by the Commission to protect the RTO wholesale markets, the RTO's will lose the ability to ensure resource adequacy. Their markets will lose credibility if they can be completely undermined by state intervention at any time. State intervention will create financial risk that will prevent private participants from responding to the price signals the markets produce. In this scenario, the RTOs can no longer ensure resource adequacy unless the Commission expects them to sign numerous reliability contracts to guarantee suppliers that they will recover their costs. At this point, competitive markets will have failed and we would not support this as a reasonable role for the RTOs.

Respectfully submitted,

/s/ David B. Patton

David Patton
President
Potomac Economics, Ltd.
April 24, 2017

CERTIFICATE OF SERVICE

I hereby certify that I have this day e-served a copy of this document upon all parties listed on the official service list compiled by the Secretary in the above-captioned proceeding, in accordance with the requirements of Rule 2010 of the Commission's Rules of Practice and Procedure (18 C.F.R. § 385.2010).

Dated this 24th day of April 2017 in Fairfax, VA.

/s/ David B. Patton
