Comments of Cliff Hamal
Managing Director, Navigant Economics, providing comments on his own behalf
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I appreciate the Commission's openness to considering wide-ranging views on the issue of state policies and electricity markets. I have worked on market design issues for decades and have served clients that span the spectrum of in this industry, but I speak here on my own behalf. I do this, and began this independent initiative in the similar 2013 technical conference, because I think problems in the current centralized auction approach are fundamental. My perspective is that of consumers. They are interested in the lowest cost possible, recognizing that reliability objectives must be met along with other policy goals as determined by the appropriate political/regulatory frameworks. This is consistent with a goal of maximizing market efficiency. To that end, I believe that consumers are best served by a robust, competitive industry where rewards are provided for those that best serve them.

Are the energy and capacity markets meeting a region's needs? I generally accept that energy markets currently provide for efficient dispatch and fair compensation; I focus my attention on issues of supply adequacy and capacity markets. The eastern markets at issue rely on mandatory, centralized, uniform-product annual auctions to ensure resource adequacy. With respect to meeting adequacy needs, the markets have been a success. With respect to doing so at a reasonable cost to consumers and consistent with meeting other legitimate policy goals, I think we can do better. Costs can be lower. Resources can be better optimized in terms of both technical capabilities and overall supply. And challenges brought about by the evolution of state policy objectives can be more effectively addressed.

An important starting point involves recognizing that the current mandatory, centralized annual capacity auctions do not produce perfectly competitive solutions to the resource adequacy problem. I suspect that no one appreciates this conclusion more than a policymaker forced to deal with the never-ending stream of complaints and changes to these markets. A well-functioning market does not require constant modifications.

Centralized auctions require complete uniformity of product, unforced MWs, available over a narrow specified time period. From there the auctions require a plethora of administrative rules and restrictions that involve compromises and seemingly constant adjustment. While prices are set in an auction, the demand curve is entirely an administrative construct. Even on the supply side, bids are heavily constrained and a strong argument can be made that very few (if any) resources face marginal costs in the range which market designers strive for in providing revenues. Long term investments are being made, but on the strength of a belief that ongoing changes to the market design will protect generators' interests than because investors see a stable market with fixed market rules where future prices will be based solely on changes in supply and demand.

If centralized mandatory auctions do not produce perfectly competitive prices, then the test of any market alternative should not be how it performs relative to the existing market, but in a direct comparison among market options to see which serves the market objectives with the greatest efficiency. If we recognize that demand is relatively predictable and inelastic, and that

needed entry will only occur when prices are attractive, the efficiency objective can be simplified. We need to meet policy goals (including supply adequacy) at the lowest cost over the long term.

It bothers me greatly that this industry has adopted a market mechanism that goes out of its way to drive away the lowest cost financing options. Cheap money is the one thing that should have universal appeal. The one element than can help everyone is compromised through the adoption of a market mechanism that produces a volatile, fickle and frail price mechanism that relies more on regulatory nurturing than the fundamentals of supply and demand. This drives up costs for everyone, relative to a system that allows for long-term contracting as needed.

I believe a better system would involve reliance on bilateral contracting in a competitive market to provide the resources needed, when they are needed, and with the capabilities that are desired. Bilateral contracting provides for a great deal of flexibility in the product, timing, duration and other factors. The issues involving state policies could more easily be addressed through bilateral contracting as opposed to the centralized auctions. While seemingly every other marketplace readily accepts bilateral contracting, it is seen as an existential threat to centralized auctions with extensive debate over such things as minimum offer price rules (MOPR).

It would take a dramatic step to move to a fully bilateral market construct. Among the issues would be to establish the appropriate buyers and manage anti-competitive effects of subsidized entry. The key is to establish a system of buyers with an obligation to purchase capacity for a geographically fixed set of customers. In some places that is relatively straightforward. In areas with retail open access, it would involve different (and perhaps new) entities that would procure only the capacity product, allowing retail competition for energy to continue. This would not be a trivial change, but even if not adopted, it informs my views as to where the greatest potential improvements might be made and represents a direction that I think the Commission should seriously consider, even if only for incremental changes at this time.

Can electricity markets value additional operational attributes to respect state policies? This question seems to raise a false choice. But that is not meant to be critical of asking the question here, because I believe that this false choice runs through the discussion of these broader issues. RTO-administered energy and capacity markets value just the MWh and MWs that are defined by those markets. Markets for other attributes can and have been established, but these operate outside of RTOs as discussed below. Centrally administered RTO markets for operational attributes beyond energy and capacity are theoretically possible, but, to the extent they are jointly-optimized, they exponentially complicate the dispatch and supply-adequacy market processes. I am skeptical that such developments are a reasonable and cost-effective way of achieving state-driven policy objectives.

Can state policies be integrated into centralized, RTO-administered wholesale markets? Sometimes there is a presumption that anything outside of the RTO markets is not a market, or perhaps disparaged as “out-of-market” compensation. While from a legal and jurisdictional perspective these are bright lines, from an economic perspective, they are not. Customers pay all costs, suppliers consider all income and everyone responds to all incentives. Accepting that

terminology, there is no question that state policies can be readily integrated with the RTO markets in a strictly mechanical sense. Energy markets clear on MWh bids, capacity on MWs, and clearing the market ensures sufficient supply is obtained. Those non-RTO payments are made, and they influence the assets available to the RTO markets, but they do not otherwise disrupt the clearing of those markets. Consider several examples:

The RGGI carbon emission cap-and-trade program readily coexists with RTO markets, with energy bids reflecting those costs where appropriate, which has consequences for both energy and capacity prices. And this is successful despite inconsistent geographic boundaries and a tradable market for emission credits that has no RTO involvement. State-wide renewable portfolio standards exist in patchwork fashion, affecting market operations, while the RTO markets still function effectively. Tax incentives for wind generation result in negative-price energy offers, but the markets themselves still function effectively. Those offers, and the negative market prices that sometimes develop reflect the owners' cost structures, but not the underlying physical costs of generating electricity. That does not matter to the operation of the RTO markets, however, and negative prices are routine in some areas.

While the above alternatives are generally accepted, I turn to more controversial options:

- State-sponsored subsidy programs for specific generation technology, such as carbon-free nuclear power.
- Long-term contracting of capacity that is used by the seller to support low cost financing of a new generator.
- Full self-supply of capacity (through ownership or contracting) of all capacity needed by a customer-serving entity (e.g., public power) or through a policy by a state, such that the entity no longer purchases capacity through the centralized auction.

These issues are clearly controversial. But again, the RTO markets continue to function appropriately. The debate concerns the overall consequence of such options on market efficiency and long term costs, and as result, I deal with them in the next section.

What approaches might be taken to integrate state policies and what key tradeoffs should be considered? There are a wide range of potential options, beyond even those discussed above. The problem lies not in developing options, but in evaluating the tradeoffs.

The general parameters for the evaluation are well understood. Supply adequacy must be maintained with resources that perform when needed. Economic efficiency matters. Reliance on competition to lower costs is important. Other policy objectives, set by appropriate entities, are also important. There are general issues of equity and fairness. The question is how to balance these issues. And at the risk of oversimplifying, beyond achieving adequacy, the market structure should accommodate state actions as much as possible, at the lowest cost.

The competitive markets were adopted as an improvement to the regulated utility model, where benefits would come from exposing suppliers to market incentives. In that process, they would be forced to address risks including competitive behavior of others, volatile fuel prices and technological innovations. I see no reason to exclude legitimate policy goals from the risks faced by merchant generators. This is not controversial when it involves a cap-and-trade carbon trading system, environmental restrictions in point-source emissions or changes in tax policies. I

see no fundamental difference with a state-wide policy to accomplish the same thing. And to digress into one specific issue, if I was a policymaker, I would be dearly concerned that current policies and markets greatly undervalue zero-carbon-emitting nuclear stations which have enormous potential to help respond to ongoing, and ever-more-urgent climate change challenges for decades into the future. It is a legitimate public policy issue that falls outside of RTO markets. Supporting such generation reduces capacity prices, but those prices still reflect supply and demand.

I believe that states should be allowed to adopt policies to achieve objectives within their jurisdictions.[1] Entities (states or others with obligations to serve specific customers/geography) should be allowed to take responsibility for meeting their capacity obligations (as set by the RTO) independently. Energy markets will continue to function and capacity markets will return to providing the "missing money," in the sense of a supplemental payment needed to ensure supply adequacy after consideration of all other revenue streams.

The retention or addition of capacity through the application of state policies will lead to lower prices. That is because less capacity is needed. It isn't a distortion of supply and demand, but a consequence. It does not lead to an unreliable system, but results, short term, in an overly reliable one. As retirements and load growth lead to the need for new market-driven resources, prices will rise. This restores the capacity markets to the fundamental purpose of providing money needed to motivate new investment when needed.

This viewpoint runs directly into appeals made by the supply side of the market that prices should be higher. The higher-price objective is clear. The mechanisms used to get there involve MOPR rules, restrictions on state actions, restrictions on bilateral contracting/self-supply and severance payments to get generation to retire to somehow "make room" for new state-promoted generation. In weighing those arguments, I start with the recognition that suppliers are well represented in this debate with much at stake and resources to defend them. Others involved in the operation of the market also benefit by supporting this view because of the reduction in pressures that come from a properly balanced system. These influences provide a heavy thumb on the scale in evaluation of the tradeoffs.

It is not that the suppliers' concerns are not valid from a theoretical standpoint, but as a practical matter, they have been overstated. Or, to put it another way, in the balance of debate between suppliers (who want more) and consumers (who don't want to pay too much), the suppliers are winning. We can see this in the current market already, in small ways. Entry is occurring at prices below net CONE (indicating that the process of setting net CONE has driven it too high). Supply regularly exceeds requirements. This includes the amount cleared in the auction, and on top of that, supply resources that do not clear the capacity market, but remain in operation, contributing to overall adequacy that is not included in the reliability assessment. The 1-in-10 shortfall target (it is a target, not a minimum) should have resulted in some shortages at this point in some markets, but none have occurred. This is not an indication of success, but instead evidence of consumers being saddled with a costlier costly system than can be justified.[2]

[1] This statement is shocking in its call for change, and shocking that it should be a question in the first place.

[2] I note that if an outage involves 30 minute rolling outages for 5% of the system's customers, the 1-in-10 years, means that an individual customer faces a single such outage every 200 years. Excess reliability makes the job of managing our electric system easier. But lowering the risk of an individual controlled

The rationale use to oppose this proposal will focus, I believe, on two issues. One involves the concerns that subsidized entry will disrupt the appropriate market price. In theory, a buy-side entity can contract to build supply, even when it is not needed, in order to lower overall costs by depressing prices in the centralized auction. But merely because prices are lowered through some action by a buy-side entity, that does not mean it is an anti-competitive action. In antitrust analysis, intent is a critical element. Second, that uncertainties over state actions will increase market uncertainties and discourage investments. Again, this is a relative measure. It is fair that new investors consider further state policy objectives. Particularly for multi-state RTOs, this will have to be considered in aggregate to determine the likelihood of actual resource needs. If new generation is not needed, for whatever reason, consumers do not benefit from a market design that encourages and rewards new investments.

Consistent with my earlier recommendations, I believe the most promising option would be to allow state policies to be implemented through a formal commitment to bilateral markets. States would withdraw from the RTO centralized auctions and meet their capacity objectives bilaterally. The buy side could be managed in an open process or by creating sufficient buy-side entities to manage market power. Those buyers would manage a portfolio of capacity resources, with contract durations structured to minimize the risk of excessive supply. These options would be available to others, such as public power. Adopting this approach goes a long way toward addressing the two issues above. The depression of prices through subsidized entry is minimized for several reasons, because the buyer does not benefit from depressed auction prices because it purchases little, if any, supply through the central auction. Also, by varying contract duration and quantities, there is no longer the direct and substantial price change from moderate changes in supply. With respect to concern over state actions discouraging future entry, the buying entity would always be willing to solicit bids whenever needed. New entry from supply is not discouraged because the buyer is ready to contract with it is required.

The development of a more robust bilateral market depends on actions by the states to promote this approach and can be helped by changes in RTO markets. The Fixed Resource Requirement option in PJM, for example, could be modified to make it easier for an entity to adopt and to increase the flexibility of procuring supply resources. The Commission can indicate support for movement in this direction. And this approach would have the potential for significant cost reductions through access to better financing for new generation investment.

outage from once every 200 years to something like once every 400 years comes at a cost. I don't think consumers find much value in that.