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Introduction

National Grid appreciates the opportunity to present its comments on centralized capacity market performance to the Federal Energy Regulatory Commission. National Grid is a transmission and distribution utility that also has Provider of Last Resort (“POLR”) supply obligations in both ISO New England (“ISO-NE”) and the New York ISO (“NYISO”). National Grid also owns 4,000 MWs of generation under long-term contract in New York. We believe that our participation and breadth of experience in two separate regional capacity markets provides us with a unique perspective on the challenges and complexities of these markets.

The importance of these markets can scarcely be overstated, intended as they are to provide regional resource adequacy in a way that is as consistent as possible with the competitive market models adopted by the various RTOs and ISOs. As the Commission is well aware, they do this by assuring existing and prospective investors that arrangements exist for providing long-term capacity revenues, thus providing an attractive environment for investment in needed generation and other resources, while relieving electric customers of at least some of the associated risks.

National Grid supports the Commission’s decision to review what has – and what has not – been working in the RTO- and ISO-operated centralized capacity markets that are subject to the Commission’s jurisdiction. While these markets have by and large succeeded in maintaining resource adequacy to date, National Grid has become aware of several concerns with these markets.

First, the centralized capacity markets have many “moving parts,” including merchant generation owners who require sufficient revenues to support investment in and operation of their assets, transmission owners who must comply with open access rules while identifying and addressing adverse reliability impacts on their systems, customers who ultimately pay for capacity market signals, and state governments attempting to implement renewable energy and other state policies. The involvement of many stakeholders with divergent interests makes adjustments to the

rules governing these markets complex. Second, at this point in time the capacity markets are hybrids: neither truly open and competitive free markets nor heavily-regulated integrated resource planning by utilities, but rather regulated programs designed to reflect presumed market outcomes. Yet, short of a return to a heavily-regulated, vertically-integrated electric industry model, these “quasi-markets,” or “market programs” (which we shall refer to simply as “markets” for ease of reference), will likely need to be retained in one form or another. National Grid does not believe that a return to vertically-integrated utilities practicing integrated resource planning is warranted. Thus, the high priority accorded by the Commission to the proper functioning of the centralized capacity markets is appropriate and laudable.

National Grid supports efficient, fair, and transparent capacity markets that will work when capacity is deficient as well as when it is abundant. The Northeast is now in a situation where capacity is beginning to tighten and new entrants to the capacity markets will be needed. It should be apparent soon whether the capacity markets now in place can fulfill their intended functions without unfair subsidies from outside the markets. At the same time, new resources should not be subsidized to the detriment of existing resources, both for reasons of equity and because of the need to assure developers that their investments will earn fair revenues over the long term.

National Grid believes that, when deployed properly, capacity markets can do a reasonably good job of maintaining resource adequacy while reflecting supply and demand at a plausible market price. However, we do not believe that customers will be well-served if the Commission maintains an unduly narrow focus on capacity markets as the sole answer to resource adequacy, or gives short shrift to other important customer interests. In particular, we would ask the Commission to consider: (1) the ability of the markets to ensure that the most efficient and cost-effective solution is chosen when resource adequacy shortfalls result from a lack of transmission adequacy; (2) the markets’ ability to accommodate new and innovative technologies or those that are implemented to satisfy state environmental policy goals, while at the same time preserving appropriate price signals and avoiding undue price suppression; (3) the ability of the markets to ensure efficient market-based financing of new capacity investments that are required over the long term; and (4) the contributions that may be made by demand response, energy efficiency, and grid modernization, which have benefits for customers but may be difficult to reliably forecast and therefore difficult for the markets to rely on; and (5) gas –electric interdependency in New England, increasing the critical importance of gas supplies as regional reliance on natural gas generators increases.

National Grid offers its comments on these issues below.

Truly Competitive Capacity Markets Need a Robust Transmission Infrastructure

As we said above, National Grid supports the Commission’s efforts to examine whether existing centralized capacity market rules and structures in PJM, NYISO, and ISO-NE are adequately supporting the procurement and retention of resources necessary to meet present and future reliability and operational needs. However, National Grid submits that opportunities to lower prices and increase efficiency may be missed both within the capacity markets and more generally if transmission infrastructure issues are ignored. Indeed, many of the problems identified by

Commission Staff in its August 23, 2013 Centralized Capacity Market Design Elements Report arise directly or indirectly from the existence of transmission-constrained load pockets and the consequent need to impose locational capacity requirements ensuring that adequate generation capacity is available within these pockets.

The very concept of a “market” presupposes the existence of enough buyers and sellers to discipline prices on both the supply and demand sides. Capacity markets function less robustly in regions where there are significant transmission constraints, because one or a few pivotal suppliers or buyers often possess or acquire market power within the load pockets created by such constraints. This in turn requires the imposition of market-power mitigation rules which, while they may be necessary, can blunt price signals, unjustly penalize innocent conduct, frustrate state renewable energy policies, and cause stakeholder controversy and frequent litigation. By contrast, market-power mitigation is rarely needed in geographically broad markets, because of the large numbers of buyers and sellers ordinarily present. It thus may be difficult for a capacity market to function properly and competitively in a region with significant transmission constraints; such markets are much more likely to function robustly if such constraints are removed.

In many cases, capacity market locational requirements may not be the best means to ensure just and reasonable prices for resource adequacy. Capacity zones, locational resource requirements, and all the complex rules intended to address market power and other problems incident to them may be needed to ensure availability of needed capacity in areas with significant transmission constraints. However, in many cases such requirements should be viewed as a short-term fix until adequate transmission can be constructed to relieve the constraints and ensure resource adequacy more economically. National Grid believes that capacity markets must be structured so that such short-term fixes do not frustrate the development of the most efficient or cost effective long-term solution for customers, which in many cases may be the development over time of a robust transmission grid to ensure that geographically remote suppliers and buyers can compete for customers and products. Capacity markets should work in tandem with regional transmission planning to encourage the economic contributions that transmission infrastructure makes to reducing locational capacity needs and associated costs to customers.

To this end, the Commission should require the RTOs and ISOs under its jurisdiction to periodically evaluate the locational arrangements within their capacity markets to ensure: (1) that these continue to be the most cost-effective solutions for customers when compared to other options; and (2) that these arrangements are not interfering with the development of robust regional or local transmission facilities (for example, by reducing incentives for their construction or removing the need for more efficient solutions from the RTOs’/ISOs’ planning agendas). Such analyses should be conducted with an eye to eliminating smaller capacity zones first, as these are the most likely to disrupt competition.

In addition to ameliorating problems associated with locational capacity markets, transmission infrastructure upgrades have many incidental benefits, such as avoiding the need for Out-of-Market (“OOM”) arrangements with retiring generators in order to preserve transmission system

reliability. Eventually generating assets reach the point where they require costly repairs or upgrades to be economic, or may simply retire for efficiency reasons. Yet too often, RTOs and ISOs – which face a plethora of urgent problems – take a reactive rather than proactive approach to transmission security issues that arise in the wake of a generator retirement notice, opting for quick fixes like OOMs rather than the long-term planning and commitment of substantial resources needed to support prudent, forward-looking expansion of the transmission system. While such an approach may be a necessary evil in the short term, in the longer term – and especially in the context of the increasing maturity of the regional markets – such approaches may lead to chronically and unnecessarily high prices to customers, as well as a level of complication in market rules (mitigation of OOM arrangements, etc.) that itself contributes to inefficiency. National Grid urges the Commission to approve market rules that ensure that needed transmission investments can be constructed quickly and cost-effectively, in order to allow truly competitive markets to flourish.

Legitimate State Environmental Policies Should Be Accommodated in the Markets

National Grid supports the inclusion of both supplier- and buyer-side market-power mitigation measures as important and necessary to protect the integrity of the capacity markets. At the same time, however, we believe that market-power mitigation rules should allow state governments to implement widely-supported environmental and renewable resource policy mandates to a reasonable extent. Thus, an important challenge for the capacity markets is to create rules that prevent the exercise of market power while minimizing interference with legitimate state environmental goals and policies.

A common approach to buyer-side market-power mitigation in the centralized capacity markets is to effectively exclude resources receiving OOM support. This is done by adjusting these resources' capacity price bids upward to prevent them from clearing the market if they would have been unable to do so without OOM support. The rationale is that allowing such resources to clear the market as bid can artificially depress the clearing price for all suppliers. However, National Grid believes that such mitigation should not be applied to resources receiving OOM support from state governments implementing legitimate environmental and renewable state policy programs to a limited and rational extent.

It is widely recognized that the development life cycle of new technologies usually includes an early stage where such technologies are considered uneconomic relative to more mature technologies. This situation applies in the case of electric generation technologies, even if they are ultimately expected to become economic and/or produce other important benefits. State OOM support for such emerging-technology resources is thus intended to give these resources the early “breathing room” they need to create economies of scale and cost-saving innovations. Ultimately, such emerging renewable resource types are expected to provide benefits in the form of useful contributions to resource adequacy, as well as environmental, conservation, and fuel diversity benefits. State OOM support for such resources is needed to implement state renewable policy mandates and widely supported state policies.

Furthermore, effective exclusion of these state-supported resources penalizes regional ratepayers customers by forcing them to pay higher capacity prices and/or pay for more capacity than they need, particularly in regions that do not rely on a downward-sloping demand curve as part of the capacity market design. States have long supported renewable resources and are expected to continue to do so, despite price signals sent by capacity markets. Given the value placed on renewable resources, these state-supported resources will almost certainly still be placed in service even if they are “mitigated” out of the RTO- and ISO-operated capacity markets. However, such exclusion means that their capacity will not be recognized in the capacity auctions, and thus that the auctions will procure capacity covering the load that is already covered by the state-supported renewable resources. The result will be that customers will pay for higher prices to signal more new entry than otherwise justified.

These undesirable results may be corrected by proper recognition of legitimate state-supported resources in the capacity markets. This can be done in one of two ways: either (1) by exempting limited and well-defined classes of state-supported resources from the buyer-side mitigation rules, thus allowing these resources to clear the capacity markets as "price-takers"; or (2) by accounting for the actual capacity value provided by legitimate state-supported resources through an equal and offsetting reduction to the amount of capacity procured by the RTOs/ISOs in their centralized auction. Of course, consideration must be given to the actual capacity that can be provided by renewable generators given operational challenges such as difficulty in accurately forecasting wind and sunlight, and difficulties timing output to load.

Under some conditions, prices paid in the capacity auctions may be reduced as a result of either of these options. RTOs and ISOs whose rules accommodate state-supported resources have tried to address this problem in various ways, partly depending upon how their particular markets are set up. National Grid believes that the market rules need to evolve to correct the existing capacity market distortion effect on state environmental policies, given the value of the environmental and fuel diversity goals being pursued by the states. National Grid believes that this is an area where some compromise of free-market principles may be appropriate, given the value of the environmental and fuel diversity goals being pursued by the states. If considered, it should apply to types of renewable resources that are demonstrably able to achieve specific attributes that the state policies are designed to encourage.

Revenue Commitment Periods Should Be Reviewed and Potentially Lengthened

As stated above, to date, the centralized capacity markets appear to have done an adequate job of ensuring resource adequacy. However, this was during a time of excess capacity and minimum floor prices, which may not exist in the near future. Low gas prices, environmental retrofit requirements for coal plants, and elimination of the minimum floor price in ISO-NE’s next Forward Capacity Auction will all put pressure on some generators to retire in the near future. Confidence that the capacity markets can adequately attract new investment by sending price signals assuring investors that revenues will be sustained over a reasonable period does not appear to be as high as it should be.

Commitment periods are the periods over which new entrants to the capacity markets can count on a fixed revenue stream. In ISO-NE, for example, new entrants can opt to receive revenues equal to the clearing price from their first auction for five years. As Commission Staff has observed in its August 23, 2013 Centralized Capacity Market Design Elements Report, many resource developers have expressed interest in longer commitment periods, claiming that shorter periods provide revenue streams that are too unpredictable to support favorable financing terms for construction of power plants.

National Grid believes that the Commission should study the issue of allowing longer commitment periods as an option for new capacity resources. In theory, such longer commitment periods should result in lower costs to customers in the long run because lenders are more likely to offer financing on favorable terms if a stable revenue stream can be assured. This should allow generators to offer lower bids in the capacity market auctions. The Commission's analysis might evaluate cash flows required to finance and operate a new generator, for example, and attempt to balance generation developers' ability to finance against the customer risk that longer-term contract revenue commitments may impose.

Theory and practice in this area may diverge, however, especially in markets or sub-markets where supplier or buyer market power may exist. A five-year commitment period appears to have been enough to enable ISO-NE to procure a new capacity resource in the first New England auction in which a capacity zone actually required new entry (ISO-NE's seventh capacity auction – "FCA 7", in the NEMA-Boston zone). At the same time, however, resource-owner Footprint Power, LLC expressed significant concerns prior to the auction regarding its ability to secure the financing necessary to back the offer for its combined-cycle plant. As a result, Footprint attempted to secure an OOM contract to support its investment fully, without the owner bearing the risk as the market intended. The unit ultimately cleared the capacity market auction at \$14.99/kW-month.

If it can be demonstrated that customers will gain a net benefit from providing new entrants to the capacity markets with an option to secure longer commitment periods, then National Grid would support such a change. Among other things, increasing the centralized capacity markets' ability to competitively procure merchant-based new entry should greatly reduce calls for OOM arrangements (at least for non-renewable resource investments) and reduce associated price suppression concerns. Again, however, the magnitude of the potential benefits must be weighed against potential harms, including the risks to customers associated with longer-term fixed-price commitments in an era of volatile power costs.

Capacity Markets Should Improve the Integration of Energy Efficiency, Demand Response, and Advanced Grid Technologies

Demand response and energy-efficiency programs have been in place for some time in the Northeast; however, in National Grid's experience, while these resources have contributed importantly to resource adequacy, procurement of both demand response and energy efficiency are becoming more difficult to secure under current rules and economic conditions. Continued Future demand-response and energy-efficiency penetration availability can be difficult to forecast

accurately, but both are key elements of many state policies, and thus need to be properly accommodated treated appropriately in order to limit their effect of such forecast uncertainties on transmission and generation resource adequacy.

At the same time, however, the high level of complexity of the current capacity markets makes it very difficult for customers who wish to provide demand-response capacity to participate in these markets directly. Such customers must generally work through a third-party demand-response provider or aggregator that possesses the expertise needed to navigate the complex market rules and practices. Furthermore, the level of verification information demanded by the RTOs and ISOs administering the capacity markets continues to grow, both for customers and utilities. Providing these higher levels of information requires commitment of significant resources and money. As this poses another obstacle to participation in the capacity markets by customers, a thorough review of these requirements may be warranted.

National Grid believes that additional capacity in the form of energy efficiency, customer demand-response, as well as new grid technologies offer valuable market resources that can lower customer costs, and should be encouraged. However, care needs to be taken in the deployment of these resources. For example, if demand response is expected to contribute towards generation or transmission resource adequacy in the same way as more traditional resources, it should be able to meet the same standards and requirements as these traditional resources. If the markets are to count on demand response in the long term, and if demand response is expected to displace other resources, such as generation, it must be able to commit to future periods and ensure availability when called upon. If demand response cannot commit to future periods and/or cannot withstand the volatility of market prices, its value to resource adequacy may need to be reevaluated. This is an area that the Commission should carefully consider, measure, and value as it integrates into the competitive markets.

Effective Capacity Market Design Should Recognize the Growing Interdependency of Gas and Electric Systems

There is accumulating evidence, particularly in New England, of the growing inter-dependency between gas and electric networks, given the expanding proportion of gas-fired generation and the physical limitations of the interstate natural gas pipeline infrastructure serving such generation. While there is likely no single strategy that can resolve this challenge, effective capacity market design should recognize and seek to address it.

The structure of payments and penalties in capacity markets should recognize both “under-performing” resources (i.e., those not able to meet their obligations) and “over-performing” resources (i.e., those able to meet and, if called upon, exceed their obligations). In terms of fuel-supply this provides an incentive for all capacity suppliers, including gas-fired generators, to reduce their financial risks by improving the certainty of their fuel supply, and is likely to stimulate a range of responses (e.g., firm or more flexible gas-supply contractual arrangements, dual-fuel supplies, etc.) even though suppliers may incur additional costs to provide such enhanced certainty. Such an approach encourages capacity providers to adopt the most efficient and cost effective solutions consistent with their own facilities and circumstances.

Conclusion

National Grid strongly supports the Commission's agenda to determine how centralized capacity markets may be improved, and we offer suggestions above on how to achieve this result. However, we also believe that too narrow a focus on simply tweaking capacity market rules can obscure the bigger picture, and that this big picture should necessarily include such things as the efficient and cost-effective upgrading of regional and local transmission infrastructure to allow capacity markets – as well as other aspects of the RTO- and ISO-operated markets – to become truly and robustly competitive.