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NRG Energy, Inc. Comments On April 24, 2017 Workshop on Economic Retirement

Additional submitted attachment is included below.

Submitted on May 8, 2017 by Brian Theaker – brian.theaker@nrg.com

NRG Energy, Inc. (“NRG”) appreciates the opportunity to participate in the April 24, 2017 joint agency workshop on the risk of economic retirement. NRG also appreciates the opportunity to submit these post-workshop comments.

General Comments

The amount of installed capacity from renewable energy, a trivial amount a few years ago, now exceeds 20 GW, including behind-the-meter solar. While it has been a while since the CAISO’s wholesale energy and ancillary service revenues have even come close to covering the levelized cost of a new resource, the impressive growth of zero-fuel-cost renewable energy over the last few year has driven CAISO energy and ancillary service prices to low or negative values, putting greater economic pressure on the bilateral, single-year-forward Resource Adequacy market, and bringing into sharp focus the reality that generating units without Resource Adequacy contracts do not, and cannot, remain economically viable. At the same time, new market and RA products intended to provide value for the characteristics that will be critically important for the rapidly evolving bulk power system, like flexibility, have provided little value, in part because rapidly-changing real-world conditions have already overtaken the initial simplified design of the RA flex product, and in part because the market remains fundamentally over-supplied by an influx of renewable capacity.

Among the panelists at the April 24 workshop, there seemed to be consensus that the system currently is fundamentally over-supplied. There also seemed to be consensus that a

transition to a bulk supply system consisting entirely of variable energy and energy storage resources is not imminent, and that conventional, natural gas-fired resources, which provide dispatchable energy not limited by time duration or their state of charge, have an important role to play in the move towards an increasingly carbon-free electricity supply system. NRG strongly concurs. Energy storage resources will play a critically important role in an electric supply system increasingly made up of variable energy resources, but the challenging complexity and economics of managing the state of charge of energy storage devices in ways to ensure the reliability of supply within transmission-constrained local capacity areas is a topic that has barely begun to be broached. Even when considering the recent issues experienced at the Aliso Canyon gas storage system and their effect on gas supply in Southern California, the bulk gas supply system remains the most reliably effective energy storage system.

Given what NRG sees as a shared perspective – that significant amounts of conventional generation will go away over the coming years, and that conventional resources still have an important reliability role to play in an increasingly carbon-free grid – what should be done? NRG believes that the joint agencies should work together to (1) first, develop durable products that reflect the evolving needs of the bulk power system, and (2) next, design and implement a process that (a) identifies all reliability needs three to five years in advance; (b) identifies the pool of resources that can meet those needs; (c) selects the resources that best meet those needs through something akin to a “least cost, best fit” framework (which could involve a competitive process), and, finally, (d) provides those resources selected to meet the needs with the multi-year forward financial certainty required for those units to remain in economically viable, mechanically reliable operation.

Properly run, it is possible – perhaps even likely – that this kind of process will result in carrying a few conventional generating units beyond the time that they otherwise could have been retired. Such a modest amount of cost, which will serve as an insurance policy to minimize the possibility that a public reaction to outages resulting from moving too far, too fast to a carbon-free grid will not become an impediment to achieving state policy goals, is a corollary to the above-market costs California has already incurred in catalyzing the renewables and energy storage markets.

Comments on Energy Division’s workshop presentation

At the April 24 workshop, Energy Division’s Michelle Kito provided a comprehensive presentation that laid out the history of the RA program, the various requirements (system, local and flexible) currently enforced through the RA program, a high level overview of the costs of the RA program, and a forward look at RA contracting by the CPUC-jurisdictional load-serving entities (LSEs). NRG offers two comments with regards to this thorough and helpful presentation.

First, as Ms. Kito noted, while the CPUC enforces the local capacity requirements for the ten large local capacity areas defined by the CAISO,¹ the CPUC does not enforce sub-area local requirements. These sub-area requirements are no less important than the area requirements. For example, within the Big Creek/Ventura local capacity area, there are four sub-areas² with separate local capacity requirements that must also be met in addition to

¹ Those ten areas are, from north to south, Humboldt, North Coast/North Bay, Sierra, the Greater Bay Area, Stockton, Fresno, Kern, Big Creek/Ventura, the Los Angeles Basin, and San Diego/Imperial Valley.

² The Rector, Vestal, Santa Clara, and Moorpark sub-areas.

meeting the larger area requirement in order to ensure the transmission system under the CAISO's operation control can meet all applicable reliability criteria under all conditions. Currently, these sub-area requirements are "implicitly" enforced by the fact that the CAISO has the ability to designate backstop capacity through its Capacity Procurement Mechanism ("CPM") authority, creating a strong incentive for the LSEs in that area to ensure they have procured sufficient capacity within the local area. Whatever long-term process is put in place to ensure that the "right" conventional generating units remain in operation will have to ensure that the sub-area local capacity requirements are met.

Second, Ms. Kito noted that the six "other" (other than the Greater Bay Area) local capacity areas with PG&E's system are currently aggregated for the purposes of local market mitigation. To be clear, the CPUC allowed these resources to be aggregated for the purpose of mitigating PG&E's market power. This aggregation has never made engineering sense – electrically, a MW of capacity in Humboldt is in no way electrically equivalent to a MW of capacity in Kern for the purpose of meeting the Kern area and sub-area requirements. Energy Division, however, implemented this aggregation at the behest of Energy Service Providers, who often had only a single counterparty they could turn to – PG&E – to acquire capacity to meet their local capacity requirements. Again, any long-term durable framework intended to ensure that the right resources remain viable to meet local area needs will have to move beyond this current program accommodation.

Moving forward

NRG appreciates the California energy agencies and the CAISO conducting this joint agency workshop to examine this important issue. It is time to put in place a process with enough a forward look to ensure that the coming waves of retirement can be accomplished in an orderly way, with no detrimental impact to the system or to the millions of Californians that depend on reliable electric power.

NRG offers the following steps forward.

First, any future analyses conducted should not assume that un-contracted generation of any vintage will remain in operation. Stripping out this assumption will yield a more realistic view of the fleet to come.

Second, the joint agencies and the CAISO should work together to develop the durable reliability products that will be needed through and to the transition to an increasingly carbon-free grid. SCE's Eric Little properly noted at the workshop that LSEs will be reticent to contract over a longer forward term if the products for which they are contracting are changing. It is important to develop the right durable products sooner rather than later.

Third, the joint agencies and CAISO should implement a process with the following characteristics:

- The process must identify all reliability needs (system, flexible, and local capacity, along with other grid-critical services, such as black start, inertia and frequency response) a minimum of three years forward.

- The process should also identify the pool of generating resources that can provide all of these services. In some cases, the pool of resources that can provide these services will span the entire CAISO footprint; in other cases, the pool of candidate will be geographically limited.
- Ideally, at this point, the process should seek to acquire those services from the candidate pools of resources through competitive means, where the opportunity for workable competition exists. Bids should be carefully and appropriately mitigated in those situations in which the opportunity to exercise market power demonstrably exists. Bids should be evaluated within a “least cost, best fit” framework with evaluation criteria defined and made available well in advance.
- Finally, those resources that are selected should be provided with multi-year forward contracts that will ensure they will remain economically and operationally viable through the projected time of their need.