STAKEHOLDER COMMENTS ON 2014-2015 DRAFT STUDY PLAN

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Submitted By	Company	Date Submitted
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Duke Energy ("Duke") submits the following comments concerning the California Independent System Operator's ("CAISO") draft 2014-2015 Study Plan ("draft Plan") issued February 20, 2014, and the Stakeholder Meeting held February 27, 2014.

I. Introduction

Duke develops and owns energy storage projects throughout the United States. Most recently, Duke completed a 36 megawatt ("MW") battery storage project at its 153 MW Notrees wind farm in Texas. That storage facility is currently the largest battery storage project in North America that is integrated with a renewable energy facility. In addition to several previous pilot projects, in 2012 Duke implemented three energy storage systems as part of the Electric Power Research Institute's Smart Grid Demonstration, including a 402 kilowatt battery system at the Rankin Substation in Mount Holly, North Carolina, to smooth fluctuation in generation from a nearby 1.2 MW solar facility. Duke currently has a large pipeline of energy storage projects in active development, including in California. Duke's comments herein are directed toward elements of the Draft Plan addressing energy storage.

Duke appreciates the efforts that the CAISO has made to fairly evaluate opportunities for energy storage to meet local area needs in lieu of new transmission and conventional generation, including the issuance of the September 4, 2013 white paper "Consideration of Alternatives to Transmission or Conventional Generation to Address Local Needs in the Transmission Planning

Process." Duke participated in the September 18, 2013 stakeholder conference on the white paper, and provided comments on the CAISO's 2013-2014 draft Transmission Plan concerning the implementation of that white paper and other energy storage issues.

However, while Duke appreciates the CAISO's efforts, much more needs to be done to ensure that energy storage is given proper consideration in the Transmission Planning Process ("TPP"), and that the benefits that energy storage can provide are properly recognized and utilized. Energy storage can provide a wide variety of benefits, including benefits traditionally supplied by both generation and transmission. Because of this versatility, however, "storage devices do not fit neatly into a traditional category of assets, be it transmission, generation or distribution…." (*Western Grid Development, LLC,* 130 FERC ¶ 61,056 at ¶ 47 (2010).) The TPP therefore must accommodate options both for energy storage as transmission assets, and energy storage as non-transmission solutions to local reliability and other needs.

Below, Duke offers a number of suggestions for better incorporating energy storage in the TPP.

II. Consideration of Non-Transmission Alternatives for Local Capacity Needs

The CAISO's September 4, 2013 white paper contemplated that consideration of non-conventional alternatives for local needs would involve three steps. First, the CAISO would develop a catalog of resource types and options that would provide the generic performance characteristics required to meet local need. (white paper at 8.) The catalog would include three primary characteristics: response time, duration, and availability. (*Id.*). The September 4, 2013 white paper contemplates that the development of the generic resource catalog would occur during Phase 1 of the TPP cycle, and would primarily involve "updating the generic resource

catalog from the previous TPP cycle to reflect new information or new resource types." (*Id.* at 10.)

The draft Study Plan states that the "ISO plans to continue the preferred resource analysis in the LA Basin and San Diego area as well as other parts of the ISO controlled grid to refine the evaluation of the effectiveness of preferred resources based on their particular characteristics." (draft Plan at 36.) The draft Plan goes on to note that "[i]n addition, the ISO is working with the utilities, and intends to consult with industry through the course of the summer, to establish the characteristics that demand response programs and storage need in order to be viable transmission mitigations." (*Id.*)

The process laid out in the draft Plan appears be somewhat similar to the process laid out in the September 4, 2013 white paper, but neither the white paper, nor the draft Plan provide any specifics concerning the schedule for development of a list of generic performance characteristics needed for energy storage or preferred resources to mitigate transmission constraints and provide for local capacity needs. Nor does the draft Plan provide any detail concerning stakeholder involvement either in the consideration of characteristics required for energy storage and demand response, or for the development of the generic resource catalog contemplated by the September 4, 2013 white paper. It is essential that stakeholders be permitted opportunities to provide input into this process. Duke requests that the CAISO consider providing a robust stakeholder process that would permit industry and others to participate in the CAISO's continuing efforts to evaluate the potential for preferred resources and energy storage.

The second step contemplated by the September 4, 2013 white paper was to "carry out a process of selecting, refining, and validating a potential mix of resources that could best provide

the performance characteristics needed for a particular local area." (white paper at 10.) Per the white paper, "[t]his consists of aligning the required characteristics for each local area with the catalog of generic resource types. Consultation with stakeholders and submitted comments could identify additional potential resource mixes, and the ISO would consider these in refining its initial proposal to arrive at the resource mix that best meets the need." (*Id.*). The white paper contemplates that this process would take place during Phase 2 of the TPP cycle.

This process seems to contemplate the development of various scenarios incorporating a diverse set of resources, to be evaluated to determine how well that resource mix would meet local needs. In the 2013-2014 TPP, the CAISO did a similar evaluation based on scenarios provided by Southern California Edison, but received no additional stakeholder input on those scenarios. In comments submitted on the 2013-2014 draft Transmission Plan, Duke urged the CAISO to provide opportunities for stakeholder input on the scenarios, and Duke reiterates that request here. Creating opportunities for dialogue between stakeholders, especially resource developers, and the CAISO is critical to the success of any process to allow consideration of non-conventional solutions. Resource developers need opportunities to convey the capabilities of their resources to the CAISO, while the CAISO needs to convey sufficient information regarding reliability needs that developers can create the solutions for those needs.

The final step contemplated in the September 4, 2013 white paper consisted of monitoring the development of any non-conventional alternative approved in the transmission plan, to ensure that the non-conventional alternative will be in place in time to meet the required local need. The white paper contemplates that such resources would only be considered "in situations where the timeline for an identified need allows time for monitoring the development of non-conventional alternatives *before* a conventional solution would be required to be

approved." (white paper at 3 (emphasis added).) If the CAISO determined the non-conventional resource is not developing in a timely manner, it would reinstate the conventional (i.e., transmission or generation) solution. Furthermore, the CAISO would not play a part in the development of the non-conventional solution. "To the extent an identified non-transmission solution constitutes the most prudent and cost-effective solution for meeting a need, the CAISO will simply decline to approve a transmission solution. The CAISO does not approve specific non-transmission solutions, nor does it have the tariff authority to do so." (October 11, 2012 FERC Order 1000 Compliance Filing, Docket No. 13-103-000 at 81-82.)

The timeline contemplated by the CAISO is problematic for several reasons. Transmission solutions take considerable time to permit and construct, far longer than many types of energy storage. Requiring the development of energy storage before a transmission solution would be required to be approved means that energy storage solutions would have to be developed well before they are actually required to meet reliability needs. While Duke understands that the CAISO does not have the tariff authority to approve specific non-transmission solutions, the CAISO should work in conjunction with the California Public Utilities Commission ("CPUC") to create a process whereby any non-conventional solution could be pursued through the long-term procurement proceeding ("LTPP") or other CPUC procurement mechanisms. By coordinating with the CPUC to create a process whereby non-conventional solutions can be selected and developed, the CAISO and the CPUC will increase the likelihood that such solutions are actually implemented. Duke appreciates the efforts of the CAISO and the CPUC to coordinate the LTPP and the TPP. However, such coordination should be expanded to consider specifically how non-conventional solutions selected by the CAISO can be further pursued through the LTPP.

III. Consideration of Energy Storage as Transmission Assets

In addition to opportunities to utilize energy storage as a non-conventional alternative to transmission and generation, energy storage can also function as a transmission asset. The CAISO tariff permits the consideration of energy storage as a transmission facility. (*See* October 11, 2012 FERC Order 1000 Compliance Filing, Docket No. ER13-103-000, at 81.) Pursuant to the CAISO's TPP, energy storage projects have been submitted in the Phase II request window for consideration as transmission solutions in both the 2010 and 2011 TPP. (October 11, 2012 FERC 1000 Compliance Filing, Docket No. ER12-103-000 at 81 n.210.) However, none were approved. In 2010, Western Grid Development, LLC submitted a total of eight projects. All eight were eventually rejected. Seven were rejected as unnecessary in the 2010 Transmission Plan. Evaluation of the eighth, Auburn 60 kV Energy Storage Project, was deferred until 2011, and then was rejected in the 2011/2012 Transmission Plan.

Given this history, CAISO should also consider whether the current TPP process allows energy storage proposed as transmission assets to fully compete with more traditional transmission assets, and whether further refinements to the TPP would be appropriate to allow energy storage to be a viable alternative to traditional transmission assets, or to work in conjunction with such assets to augment the benefits provided.[1] Additional stakeholder processes may also be appropriate for the CAISO to further develop a process that fairly evaluates and takes advantage of the benefits provided by energy storage.

[1] Duke notes that it has substantial experience and expertise in electric transmission from many decades of ownership and operation of major transmission facilities in multiple states, and, along with its joint venture partner American Transmission Company, is developing the Zephyr Transmission Project, a high-voltage direct current line to connect wind resources to load centers in California and the Southwest.

IV. Consideration of Energy Storage as a Solution to Over Generation

The draft Study Plan also contemplates that the CAISO will conduct a study of the potential risk of over generation. The objective of the study will be to "quantify the potential risk of over-generation conditions that are expected to occur on the system by 2020." (draft Plan at 36.) Duke suggests that the CAISO also consider the role that energy storage might play in mitigating over-generation risk both in 2020 and beyond as the state's reliance on intermittent resources continues to grow.

V. Conclusion

While Duke appreciates the efforts that the CAISO has made thus far to appropriately consider and evaluate energy storage, significant work remains to be done to ensure that energy storage becomes a viable part of the solution, along with traditional generation and transmission. Duke urges the CAISO to consider the above recommendations as it finalizes the 2014-2015 draft Study Plan.