

**Comments of Powerex Corp. on  
2018-19 Transmission Planning Process Draft Study Scope for Increased  
Capabilities for Transfers of Low Carbon Electricity between the Pacific  
Northwest and California Informational Study**

Submitted by	Company	Date Submitted
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Powerex appreciates the opportunity to submit comments on CAISO’s April 12, 2018 *Draft Study Scope for Transfers of Low Carbon Electricity between the Pacific Northwest and California Informational Study* (“Draft Scope”). The Draft Scope outlines several potential analyses focused on exploring the benefits to California consumers of taking steps to facilitate additional imports of low carbon energy from the Pacific Northwest into California, including increasing the transfer capability of key transmission facilities. The Draft Scope recognizes the role that the clean, flexible capacity of the storage hydro systems of the Northwest can play in meeting the renewable integration needs of the CAISO grid.

Powerex believes that closer interregional coordination and trade represents a highly cost-effective and efficient path for California to achieve its environmental objectives, allowing California consumers to avoid or defer significant investment in new in-state resources.<sup>1</sup> And while appropriate commercial structures that equitably share both the investment and production cost savings of greater inter-regional coordination will be required in order to bring such arrangements to fruition, there is no question that the inter-regional transmission infrastructure provides the critical backbone for the associated transfers. The Draft Scope can therefore help identify what specific aspects of the transmission system are likely to limit the extent of beneficial inter-regional arrangements between California and the Northwest region, and hence identify opportunities for transmission investments with positive net benefits.

The Draft Scope identifies four discrete topics to be studied:

1. Enabling intra-hour scheduling on the Pacific DC Intertie (“PDCI”) by automating manual controls on key Bonneville Power Administration (“BPA”) infrastructure;
2. Increasing dynamic transfer limit on AC interties;
3. Increasing transfer capacity of AC and DC interties; and

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<sup>1</sup> See Comments of Powerex Corp. on *Electricity 2030: Trends and Tasks for the Coming Years* discussion paper. Available at: <http://www.caiso.com/Documents/Comments-DraftISOBoardVisionPaper.pdf> (pp. 142-158)

4. Assigning RA value to firm zero-carbon imports or transfers.

Powerex's comments on each topic are provided below.

### **Enabling Intra-hour Scheduling on the PDCI**

Powerex strongly supports the Draft Scope examining the benefits of enabling 15-minute scheduling on the PDCI and believes that this functionality is long overdue. FERC Order No. 764, which requires transmission providers to offer 15-minute scheduling, was issued over four years ago and the lack of 15-minute scheduling makes the transmission service available on the PDCI outdated compared to the rest of the industry. As a practical matter, limiting schedules on the PDCI to hourly granularity effectively renders the PDCI unavailable for use in the CAISO's 15-minute and 5-minute real-time market processes, including to support EIM transfers. The lack of intra-hour scheduling on the PDCI is particularly regrettable given the nature of the resources in the Northwest—which are ideally-suited for providing services on an intra-hour basis—and the PDCI's connection directly into Southern California, where most of the state's solar generation is located.

Powerex understands that the incremental investment necessary to enable 15-minute scheduling on the PDCI may be quite modest. In November 2016, BPA completed a \$448 million upgrade<sup>2</sup> to its portion of the PDCI, including modernizing the northern converter station at Celilo. This major investment, which was funded by BPA's transmission customers taking service on its Southern Intertie (which includes the PDCI), creates an opportunity to substantially increase the usefulness of the PDCI if BPA, LADWP and CAISO (and their ratepayers) make limited coordinating upgrades on this facility.

### **Increase Dynamic Transfer Limit on AC Interties**

The AC Interties support 15-minute scheduling over the full amount of the available capacity of the facilities. In addition, a portion of that capacity is available to be scheduled on a dynamic basis. This latter capability enables resources located outside of the CAISO balancing authority area ("BAA") to provide spinning reserve, provide regulation, and participate in the CAISO's 5-minute Real-Time Dispatch. The dynamic scheduling functionality enhances the value of the transmission facilities by enabling a wider range of services to be delivered on those paths.

Currently, the limit on dynamic schedules on the COI is 400 MW. The Draft Scope would study the potential to increase this limit and the benefits of doing so. Powerex supports studying the potential for increasing the dynamic transfer limit on the COI.

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<sup>2</sup> <https://www.bpa.gov/news/newsroom/Pages/BPA-strengthens-backbone-of-West-Coast-transmission.aspx>

Powerex believes, however, that such a study must focus not only on the value of an increased limit, but, critically, on the ability of transmission customers to rely on the full amount of the dynamic transfer limit actually being available during real-time operations. It is not uncommon, for example, for dynamic schedules on the COI to be “crimped” or effectively frozen at a level lower than the current 400 MW limit as a result of other conditions on the grid. This exposes transmission customers to significant financial consequences from being suddenly unable to respond to a market dispatch instruction, even though their offers were within their allocated dynamic scheduling rights.

Powerex therefore suggests that the Draft Scope focus on the potential to increase the “firm” dynamic transfer limit. More specifically, the Draft Scope should assess the dynamic limit that can be relied upon by customers on a day-ahead basis without being “crimped” or otherwise restricted within the hour. A higher nominal dynamic limit that is subject to frequent reductions or restrictions is unlikely to offer genuine benefits as it may actually reduce market efficiency compared to a lower nominal limit that is highly reliable.

### **Increase Transfer Capacity of AC and DC Interties**

Powerex generally supports studying the potential benefits of increasing the transfer capability on the AC and DC interties. However, Powerex believes that any such analysis must be carefully designed in order to provide meaningful insight into the potential benefits of upgrades. Given the high capital costs of transmission expansion projects, such an investment is likely only warranted if it enables not only production cost savings, but if it enables additional investment cost savings by avoiding or deferring the need for California ratepayers to fund new in-state resources. Critically, however, enabling additional investment cost savings requires that the expansion of transmission capacity be reliable during periods of critical demand in California. Powerex currently sees two barriers that need to be more fully examined and addressed before this can be achieved.

First, enabling California to realize investment cost savings by relying on arrangements with external resources requires a reliable transmission path from the external resource all the way to load in California. This requires not only capacity on the CAISO-controlled segments of the AC and DC interties, but also on the segments owned or operated by other transmission service providers (e.g., BPA) as well as on the upstream transmission systems between John Day or Big Eddy and the locations of the external resources providing service to California. During summer periods with high California demand, the BPA transmission system upstream of the AC and DC interties can become constrained through the I-5 corridor and particularly across the South of Alston constraint. These conditions are currently relieved through re-dispatch arrangements, which are an efficient and cost-effective solution on a stand-alone basis, but they

effectively mean that there is no ability for hydro resources (which are located almost entirely north of this constraint) to provide additional RA capacity to California. Powerex therefore believes that increasing investment savings to California will not occur if only the CAISO-controlled downstream segments of the AC and DC interties are expanded. Rather, achieving increased investment savings will require increasing the full source-to-sink transfer capability between the Northwest region and California, which in turn will require a coordinated strategy between CAISO and other regional transmission service providers.

The second barrier to unlocking additional investment cost savings to California can arise if imports become the most severe single contingency for the CAISO BAA. Indeed, CAISO has recently identified this to occur under high volumes of import schedules over the DC intertie. Under such conditions, each additional megawatt of imports requires an additional megawatt of contingency reserve, effectively negating any investment cost savings that could otherwise be realized.

Both of the above barriers need to be considered in any evaluation of the benefits from expanding the transfer capacity on the CAISO-controlled segments of the AC and DC interties. Absent a comprehensive approach that increases the transfer capability on the full source-to-sink path between Northwest resources and California, expansion of the CAISO-controlled segments may deliver on production cost savings, but fail to enable the most significant investment savings that are likely necessary to warrant such an upgrade.

Powerex also notes that increasing the source-to-sink transfer capability between the Northwest region and California, on its own, will not enable the significant investment cost savings that are possible through increased inter-regional coordination and transactions. The Draft Scope contemplates two specific types of inter-regional arrangements that might be pursued:

1. Northwest hydro resources could provide committed capacity on a forward basis to meet peak California load (*i.e.*, providing Resource Adequacy (“RA”) including Flexible RA);<sup>3</sup> and
2. Northwest hydro resources could provide “resource shaping” services by receiving surplus California solar output during the middle of the day and providing a comparable quantity of energy during California’s evening net load ramp.<sup>4</sup>

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<sup>3</sup> Draft Scope at 13.

<sup>4</sup> Draft Scope at 14.

Powerex agrees that both of these types of arrangements have the potential to provide significant value to California consumers by avoiding or deferring substantial investments in new in-state resources. It is important to recognize, however, that both types of arrangements are currently possible given the existing capacity of the AC and DC interties, but they occur only to a very limited extent.

As discussed in the section below, Powerex believes that one of the primary impediments to greater procurement of RA capacity from Northwest hydro resources is CAISO's existing framework for allocating intertie capacity to support RA contracts, which strands large volumes of existing import capability and makes it unavailable to California load-serving entities that wish to procure RA from external resources. In the case of "resource shaping" services, such arrangements are unlikely to occur unless there is a long-term contract under which a Northwest hydro system can undertake the advanced system planning necessary to ensure that storage, generating capacity, and transmission service is available to support the associated energy transfers. Again, it does not appear that a lack of physical transmission capacity is the primary obstacle to such arrangements. Instead, it is the lack of an appropriate framework through which California entities can procure those clean, "battery-like" services and the associated investment savings can be appropriately recognized.

### **Assigning RA Value to Firm Zero-Carbon Imports or Transfers**

The stakeholder presentation indicated that this aspect of the Draft Scope is under discussion with the California Energy Commission and the California Public Utilities Commission ("CPUC") "to further define the scope."<sup>5</sup> Powerex believes additional clarification on what is intended by this study topic would be beneficial. Resources located outside of the CAISO BAA can already provide RA capacity, and CAISO is currently conducting a stakeholder process that, among other things, is expected to develop a framework for such external resources to provide Flexible RA as well. It is thus unclear what is meant by "assigning resource adequacy value to imports."

Nevertheless, Powerex supports the Draft Scope evaluating the "extent to which system capacity and flexibility needs can be met by increased utilization of existing capability and potential increased capability." In particular, Powerex urges the Draft Scope to analyze not only the potential amount of capacity and flexibility needs that *could* be met from external resources, but to also compare this potential level to the actual amount of RA provided by external resources. Previous reports by the CPUC indicate that the amount of system RA procured from external resources represents only a fraction of the import transmission capability into California, and the Draft Scope should explore the reasons for this low level of utilization. Powerex specifically recommends that the Draft

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<sup>5</sup> Draft Scope Presentation at 12.

Scope examine the Maximum Import Capability (“MIC”) mechanism, which allocates intertie capability to California LSEs on a load-ratio share, and hence establishes the maximum amount of system RA that each LSE can procure from external resources. The MIC is allocated without regard to actual RA procurement, however. This frequently leads to intertie space being allocated to LSEs that do not use it to support RA contracts, but rather hold it as a “costless option”, thus “stranding” import capability and rendering it unavailable to LSEs, particularly new and smaller LSEs, that *do* wish to procure RA from external resources. Until and unless the MIC process is reformed to allow existing transmission capacity to be made available to LSEs that wish to procure system RA from external resources, California consumers are unlikely to realize RA-related benefits from either the current transmission capacity or from any expansion to that capacity.