Subject: CAISO Issue Paper on Dynamic Transfer

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General Comments

WPTF appreciates this opportunity to help guide improvements to the CAISO’s Dynamic Transfer rules and policies. The ability to accommodate large amounts of dynamically transferred imports and exports is an important element of renewable energy development policy for California and the entire WECC. It will help facilitate imports of out-of-state resources as well as allowing asset owners inside California to sell contingency reserves, regulation and load following services to other BAAs.

The paper raises some questions that WPTF would like the CAISO to address before it issues a straw proposal:

- On page 8, the issue paper states, “…dynamic schedules facilitate mid-hour dispatch of ancillary services and energy by the ISO real-time market on the interties.” Is the CAISO referring strictly to regulating reserves? If not, it would be helpful to understand the circumstances under which the CAISO would dispatch spinning and non-spinning reserves from system resources for other than contingencies.

- On page 22, items c and d), the question at issue seems to imply that intermittent resources should be charged for load-following, regulation and perhaps other balancing services. It would be helpful for the CAISO to elaborate on its thinking here. At the moment, costs for ancillary services and the energy cost-related impacts of load following are charged to load. Is the CAISO suggesting intermittent resources should bear these costs? Is the CAISO suggesting that resources outside its BAA should be treated differently than resources inside its BAA? Is the CAISO suggesting intermittent resources should be treated differently than conventional resources? Has the CAISO settled on a set of proposals that would pay suppliers of these services and charge users?

- The CAISO noted that it will be performing studies to assess the volume of dynamic transfers it can reliably accommodate. The CAISO also indicated that one of its concerns with dynamic schedules is whether there will be enough inertial response within the CAISO BA. It would be helpful for stakeholders to understand how dynamic transfers influence available frequency response generally and inertial response specifically, and whether inertial and frequency response differ when imports are scheduled statically.
rather than dynamically. Accordingly, WPTF suggests the CAISO prepare a short discussion paper that a) provides some background on frequency response generally and inertial response specifically, b) describes frequency response in the context of dynamic transfers, c) outlines the evaluation criteria it proposes to use for its assessment, d) if the CAISO intends to focus only on inertial response, explains why it is not similarly concerned about governor response. Moreover, the CAISO’s white paper seems to equate inertia with frequency response. A portion of a unit’s overall frequency response comes from inertia, but frequency response also depends on governor response. WPTF suggests that the CAISO use the term “frequency response” rather than “inertia”.

By asking about the need for uninstructed deviation penalties, this paper also raises an important set of issues regarding market participant behavior. Many current operating practices are holdovers from the traditional vertically integrated utility model in which dispatchers control resources based on a load forecast. As renewable resource penetration levels increase and as (or perhaps if) dynamic pricing becomes more prevalent, greater variability in load and generation may require evolving a different operating model in which dispatchers assume a less active role by coordination the actions of market actors rather than controlling resources as they do now. The CAISO has repeatedly stated that it needs flexibility on the demand side to balance the grid in the presence of high levels of renewable energy. FERC requires that demand and supply resources be treated comparably. Short of curtailing firm load, grid operators cannot control customer loads in the same way they have been accustomed to controlling conventional generation, and particularly in California, the CAISO will not be able to “control” renewable resources in the traditional sense under any but the most unusual circumstances. All of the above-mentioned reasons support WPTF’s belief that the CAISO will have to think much differently about its role as grid operator over the next few years.

As a matter of principle, WPTF believes the CAISO should apply FERC’s comparable treatment standards rigorously, including the way it treats resources inside the BA and outside the BA, conventional and renewable resources, loads and generation. For example, it is impractical for the CAISO to assess uninstructed deviation penalties against load without undermining incentives for price-responsive demand that chooses to act outside the CAISO’s markets (in response to a dynamic pricing or real-time pricing tariff, for example). In fact, an end-use customer’s expectations about prices is what guides that customer to use more or less than a forecast might otherwise indicate. Additionally, given the limited dispatchability of renewable resources, subjecting them to uninstructed deviation penalties still may not yield the desired operational result. Therefore, rather than relying on punitive measures like uninstructed deviation penalties to deter supply resources from operating in ways that are detrimental, the CAISO should create market rules that provide appropriate incentives for desirable market behaviors.

Questions From the Issue Paper

In Section 3.2.2
Should layoffs be treated as firm dynamic schedules from the CAISO?
No opinion.

Should there be a requirement for the (sending) balancing authority to request certification of ancillary services from resources that are dynamically scheduled and wish to provide them?
In accordance with the general principle that all resources be treated comparably, resources that are dynamically scheduled should be required to conform to the same certification standards as resources located within the CAISO BAA.

In Section 4

Should the CAISO allow an intermittent resource to dynamically schedule a portion of its output to the CAISO?
Yes. Unless there is a compelling reason to do otherwise, comparability requires that the CAISO not discriminate against intermittent resources. The discussion paper doesn’t make a clear case for prohibiting an intermittent resource from dynamically scheduling a portion of its output, therefore the practice should be allowed.

Should layoffs have the option of being treated as either a static or a dynamic schedule? What rules need to apply to dynamic exports?
See answer above.

Should the need for additional load-following capacity be assessed to the intermittent resource?
It’s not clear from the issue paper how this would be accomplished, particularly since the CAISO has not yet taken up the issue of whether and how to compensate conventional generation for standing by to provide load following services. Generally speaking, any mechanism that charges for such services needs to treat “users” of the service - whether conventional generation, load or variable generation – in a comparable fashion, which means they should all be charged in accordance with a uniform method and based on the same performance metrics.

It’s also not clear how one would deal with load and generation following requirements that are coincident, which imposes more costs on the system, and load and generation following requirements that are divergent, which reduces costs. An example of the former is falling wind production during the morning ramps. An example of the latter is increasing solar production during the morning ramps.

Moreover, if flexible conventional generators that provide load following services are paid a standby charge, then allocating that charge among variable generation, load and conventional generation becomes very complicated. On the other hand, if flexible generators are paid based on a delivered energy basis, cost allocation may be simpler but flexible generators may not be
willing to accept a payment system with so much variability and volatility. This issue requires more thought and discussion than it was given in the original discussion paper, therefore WPTF suggests that the CAISO expand its discussion of this point, perhaps in a revised version of the issue paper or in a separate discussion paper, so that stakeholders can provide meaningful input.

*Should the need for additional regulation services be assessed to the intermittent resource?*

The CAISO should clarify what it means when it suggests assessing additional regulation service to intermittent resources. Also see WPTF’s comments in the preceding paragraph on load-following capacity.

*Should there be a requirement for intermittent resources to comply with the ISO Tariff Appendix X—Dynamic Scheduling Protocol (DSP) and all other applicable requirements that conventional resources must meet before they can establish a dynamic transfer with the ISO?*

The comparability principle requires that all intermittent resources be required to comply with Appendix X.

*Should the ISO allow intermittent resources under dynamic transfers to participate in PIRP? Should the intermittent resources have to meet the same requirement including forecasting requirements as internal PIRP resources?*

Yes. If an intermittent resource is going to be dynamically scheduled to the CAISO, it should be allowed to participate in PIRP and it should be bound by all of the PIRP forecasting requirements that apply to internal intermittent resources.

*Should all external renewable resource meet requirements (such as wind speed, ambient temperature, MW production, outage information etc.) that internal PIRP resources have to meet regardless of whether the external resource participates in the PIRP?*

When the output from external renewable resources is conveyed to the CAISO BAA via a dynamic transfer, then those resources should be required to meet the same information transmittal requirements as internal PIRP resources. If external renewable resources convey their output via static schedules, then there is no need for them to provide forecast and ambient weather data because the sending BA is responsible for making the schedule whole.

*Should the communication and telemetry requirements to establish a dynamic transfer with the ISO be the same for intermittent resources as it is for conventional resources?*

Yes.

*Should the ISO establish dynamic transfers from generator-only BAAs? What charges should apply for the services provided?*
The CAISO should allow dynamic transfers from generator-only BAAs on the same commercial and technical terms that apply to BAAs with load and generation. To do otherwise would be unnecessarily discriminatory. Before offering any thoughts on the charges that should apply, WPTF asks that the CAISO provide more specific information on the types of services it expects generator-only BAAs to require.

*Should intermittent resources be allowed to schedule energy into the ISO as unit contingent?*

WPTF does not have an opinion on this issue at this time.

*Should the ISO establish temporary limits prior to these technical studies (on allowable dynamic transfer volumes)? When a limit is exceeded in real-time would conventional and intermittent resources be curtailed on a pro rata basis?*

The CAISO has not provided any information that helps us understand why the allowable volume of dynamic transfers should or should not be limited. WPTF would like the CAISO to explain the potentially adverse impacts of dynamic transfers and the technical criteria it will use to establish dynamic transfer limits. If requests for dynamic transfers exceed limits established by the CAISO, WPTF believes a market mechanism should be established to allocate available dynamic transfer capability rather than relying on an administrative mechanism like pro-rata allocation or first-come, first-served.

If intertie schedules have to be curtailed in real-time and the curtailments cannot be accomplished via more frequent intra-hour schedule changes, then dynamic transfers should be curtailed on the same basis as all other intertie schedules. Renewable resources should not have priority over conventional resources, whether in the import direction or the export direction.

*Since intermittent resources cannot provide the inertia that conventional resources provide, should the ISO curtail intermittent resources to ensure adequate inertia is available on the system? If so, should intermittent imports and intermittent resources within the ISO’s footprint be curtailed on a pro rata basis?*

Before WPTF can address this question, the CAISO needs to conduct an assessment of frequency response requirements and help stakeholders understand the issue in more depth. The CAISO should be able to use simulation results from its 33% RPS Operational Study to find periods when there may not be enough conventional generation synchronized to the grid and then use appropriate transmission system analysis tools to determine whether there is adequate frequency response during these periods.

However, assuming for the moment that there could be periods where intermittent generation must be curtailed because available frequency response is inadequate, stakeholders still need to understand how the level of imports affects frequency response. If imports are no more capable of providing inertial response than intermittent resources, then perhaps the question should be asked in terms of how internal intermittent resources, external intermittent resources,
and imports should be curtailed when there is not enough frequency response capability inside the CAISO BAA.

Some external intermittent resources are contemplating aggregating resources to take advantage of geographic diversity in order to reduce real-time deviations. In some cases a conventional resource could be aggregated with an intermittent resource. What are the potential issues with this proposal and would such an aggregation be considered viable to establish dynamic scheduling functionality with the ISO?

If the resource owner(s) are able to present a single equivalent resource to the CAISO’s EMS, then there is no obvious reason why aggregations should not be permitted. In effect, an aggregated resource should be very similar to a BA. Moreover, presenting an aggregated resource should simplify the CAISO’s job and provide better control performance than dynamically scheduling individual resources.

Section 5

Methods for intra-hour adjustments.

The CAISO should use the simplest possible solution that gets the job done efficiently. If MSS functionality works, then the CAISO should use it.

Regarding congestion management, what additional decremental dispatch rules need to be in place?

WPTF believes resource owners should either be able to self-schedule and bear any costs incurred by the CAISO to accommodate a self-schedule’s lack of flexibility, or they should be able to offer dispatch flexibility and be compensated for being flexible when necessary. External intermittent resources should be able to submit offer curves in the same way as conventional resources and be dispatched accordingly in real time. If external intermittent resources self-schedule and the CAISO can curtail price-sensitive resources to manage congestion in real time, then self-scheduled external intermittent resources should be treated in the same way as self-scheduled imports. If the CAISO is unable to manage congestion using only price-sensitive resources, then external intermittent resources should be curtailed using the same rules that apply to self-scheduled imports.

If reduction on an overloaded line does not occur in a timely manner, what curtailment rules should apply?

If the CAISO has enough time, it should use its normal curtailment rules. If the CAISO must act quickly in order to forestall a system disturbance, then it should curtail imports in accordance with its emergency authority.

Transmission reservations to the CAISO BA boundary
Parties that import energy into the CAISO BAA, whether through static schedules or dynamic transfers, must comply with applicable NERC and WECC rules for acquiring and tagging transmission capacity. The CAISO should reasonably be able to expect that parties have secured as much transmission as they need to move power from the source BAA to the CAISO boundary. It should be the responsibility of the BAAs upstream of the CAISO to ensure that intertie schedules and transmission reservations match up. If a dynamic transfer is unable to purchase and reserve the transmission capacity it needs, then the schedule should be adjusted all along the transaction chain and these adjustments should also be reflected in the CAISO’s EMS and market systems.

Settlement of uninstructed energy

WPTF strongly opposes the imposition of uninstructed deviation penalties. If a dynamic import is not curtailed as required by the CAISO, then the CAISO’s market systems should be able to calculate a real-time LMP at that intertie that reflects the impact of the uninstructed energy without any floor or ceiling. This price should be used to settle any uninstructed deviations. Simply knowing they could be paying substantial sums to the CAISO for their refusal to curtail an intertie schedule should be an adequate disincentive to ignore curtailment instructions.

Responsibility for Ancillary Services charges

Dynamic transfers should have the same obligations for ancillary services as static schedules.

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