

**Comments of Powerex Corp. on
Resource Adequacy Enhancements
Fifth Revised Straw Proposal**

Submitted by	Company	Date Submitted
Mike Benn 604.891.6074	Powerex Corp.	August 7, 2020

Powerex appreciates the opportunity to submit comments on CAISO’s July 7, 2020 Resource Adequacy Enhancements Fifth Revised Straw Proposal (“Fifth Revised Straw Proposal”).

Powerex strongly supports the CAISO’s commitment to strengthening the Resource Adequacy (“RA”) framework through a comprehensive set of measures. The individual elements of the Fifth Revised Straw Proposal target key shortcomings that have prevented the RA framework from achieving its core purpose of ensuring the CAISO has access to sufficient supply to maintain reliability. In particular, the Fifth Revised Straw Proposal seeks to address what Powerex sees as three key gaps in the current RA framework:

1. **Procurement targets that are too low**—a planning reserve margin (“PRM”) of 15% is insufficient to cover (1) peak demand events that exceed the 1-in-2 forecast; (2) required contingency reserves; and (3) resource forced outages.
2. **Qualifying capacity that is too high for some resources**—the current net qualifying capacity (“NQC”) methodology may overstate the actual capability that is available from certain resources during the capacity-critical hours that the CAISO balancing authority area (“BAA”) experiences the greatest need.
3. **Import RA that includes “supply” that is not real and/or not deliverable to CAISO load**—the current framework for Import RA arrangements enables marketers to sell Import RA under a range of “paper capacity” strategies that cannot be relied upon to service CAISO load, particularly during tight regional grid conditions.

Powerex is strongly supportive of the key elements in the Fifth Revised Straw Proposal that address these areas. In particular, **Powerex supports:**

- **Implementing Unforced Capacity (“UCAP”)** based on each resource’s demonstrated availability during capacity-critical hours.
- **Requiring all Import RA to be resource-specific**, and eliminating non-resource-specific Import RA altogether. In light of rapidly tightening grid conditions across the west, resource-specific requirements are needed to ensure all RA contracts are backed by real, identified, physical capability. This critical improvement is urgently needed to avoid leaving CAISO grid reliability vulnerable to the unpredictable (and generally declining) levels of residual voluntary supply that happens to be available in the short-term energy markets. Resource-specific requirements will also better align the CAISO Import RA requirements with the RA programs in all other U.S. organized markets, as well as with the anticipated requirements of the NWPP RA program under development.

- **Requiring all Import RA to be deliverable on Firm transmission from source to sink.** Permitting *any segment of transmission service* to have lower, Non-Firm priority exposes the CAISO grid to increased risk that it will be counting on supplies that cannot be delivered to the CAISO in the hours that matter most. Contrary to the statements made by some stakeholders, requiring Firm transmission service on all segments *would not unnecessarily* restrict the availability of Import RA to the CAISO grid, as there are multiple opportunities to obtain such service.

Powerex opposes CAISO’s “alternative” transmission proposal, which would require Firm transmission only on the final delivery segment. If the CAISO nevertheless explores such an approach, it should seek to minimize reliability risks by considering the critical differences among the types of Non-Firm service, and explore ways to encourage Firm transmission on the entire delivery path to the maximum extent possible.

Powerex believes the proposed measures would result in very significant improvements to California’s RA program. The primary benefit of these improvements will be to better ensure the reliability of the CAISO grid and service to CAISO load customers.

A robust California RA framework is also vital to enabling the participation of the CAISO BAA in a future EDAM. To the extent the California RA program continues to procure insufficient resources, and/or includes resources that are not “real” or able to perform, and assuming no additional forward procurement programs are put in place to supplement the California RA program, the reliability consequences can be expected to extend *beyond* the CAISO BAA in a future EDAM. Specifically, load serving entities in any EDAM BAA that de-commit units in their own area and instead rely on EDAM transfers from the CAISO BAA (consistent with the applicable EDAM market solution) would be exposed to the risk that supply from the CAISO BAA will fail to be delivered. Ensuring that the RA program is robust and only includes capacity that can be relied upon to be available and deliverable when needed is therefore a critical step to enabling the CAISO BAA to participate in a regional day-ahead organized market such as the EDAM.

I. Powerex Supports Implementing a UCAP Methodology

Powerex believes that implementing a UCAP framework will help address two important shortcomings of the existing RA program: managing forced outage risk, and more accurately gauging the ability of resources to contribute to maintaining reliability during capacity-critical hours.

UCAP is a better approach for addressing forced outage risk of RA resources

Forced outages represent a risk that a resource that is procured in the forward timeframe will not actually be available to serve CAISO load in real-time. Prior analysis presented by the CAISO has shown that forced outages can result in the amount of RA capacity actually available to fall below peak demand plus required contingency reserve. This implies that the current planning reserve margin results in an RA requirement that does not adequately accommodate the risk of forced outages.

Several thousand MW shortfall of available RA capacity to meet actual peak load plus contingency reserves in most summer months

	CEC 1-in-2 Forecast Peak ¹ (MW)	plus 15% PRM (MW)	RA Target ² (MW)	Actual Peak Hourly Load ³ (MW)	Required Contingency Reserve ⁴ (MW)	Total Capacity Required (MW)	RA Surplus (Deficiency) (MW)	Unit Outages ⁵ (MW)	Resource Adequate?
2016									
June	39,625	5,944	45,568	44,454	2,590	47,044	(1,476)	(7,152)	No
July	44,364	6,655	51,018	45,981	2,716	48,697	2,322	(6,222)	No
August	46,848	7,027	53,875	43,812	2,548	46,360	7,515	(5,944)	Yes
September	42,388	6,358	48,747	42,810	2,480	45,270	3,477	(7,309)	No
2017									
June	41,834	6,275	48,109	44,184	2,659	46,843	1,266	(9,454)	No
July	45,259	6,789	52,048	45,374	2,627	48,001	4,047	(7,088)	No
August	45,967	6,895	52,862	47,297	2,778	50,075	2,787	(6,151)	No
September	45,489	6,623	52,112	49,909	2,871	52,780	(468)	(5,885)	No
2018									
June	37,596	5,639	43,235	37,803	2,594	40,397	2,838	(7,228)	No
July	43,080	6,462	49,542	46,487	3,026	49,513	29	(4,780)	No
August	44,923	6,738	51,661	45,021	2,734	47,755	3,907	(6,161)	No
September	42,579	6,387	48,966	38,536	2,374	40,910	8,056	(5,275)	Yes

Source: CAISO [Structural system-level competitive analysis discussion](#) (presented at June 7, 2019 meeting of the Market Surveillance Committee)

The UCAP proposal represents an important and beneficial change to the approach for managing forced outage risk: rather than simply increasing the aggregate *demand* for RA in order to build a “buffer” for forced outages, the UCAP approach discounts the *supply* of RA capacity that each resource is eligible to provide, based on each resource’s historical performance during capacity-critical hours. Importantly, the **UCAP approach creates strong incentives for resources to be available** during capacity-critical hours, as improved unit availability—when it matters most—will translate directly into an increased opportunity to earn revenues from RA contracts. This is in contrast to the weaker incentives that arise when forced outage risks are socialized—through a higher planning reserve margin—which enable a resource with poor performance to earn the same RA revenues as a resource with high performance.

Powerex cautions that the benefits of adopting a UCAP framework could be largely undermined if its implementation was erroneously seen as enabling a reduction to the planning reserve margin. While such an adjustment might be appropriate if the current planning reserve margin had fully accounted for forced outage risks, there is strong evidence that is not the case in California’s RA program. To the contrary, prior analysis indicates that the current planning reserve margin is at just about the level needed to cover (i) potential variations in peak demand from the 1-in-2 peak demand forecast; and (ii) required contingency reserves. That is, the current planning reserve margin includes little or no “cushion” for forced outages, and therefore the implementation of a UCAP framework to address forced outage risk does not provide any basis for a reduction in the planning reserve margin.

Finally, Powerex supports the elimination of substitution provisions, as they appear to no longer serve a beneficial purpose. And to the extent substitution arrangements could be used to reduce

the UCAP consequences of resource unavailability during capacity-critical hours, this could result in reliability of the CAISO grid once again depending on the last-minute availability of residual supply (i.e. to meet substitution requirements). Powerex at this time does not oppose developing processes for the orderly management of planned outages and “opportunity outages,” however, as it is Powerex’s understanding that this would not impact the UCAP calculation given the CAISO’s authority to refuse such outages during critical periods.

UCAP provides a more objective measure of a resource’s contribution to reliability during capacity-critical hours

The UCAP framework also provides an objective and technology-neutral methodology for evaluating a resource’s contribution to meeting reliability needs during capacity-critical hours. This is an improvement over the current Net Qualifying Capacity methodology, which can overstate a resource’s actual ability to meet CAISO load during the specific periods of greatest need. While NQC, which is based largely on nameplate capacity, is generally workable for conventional fossil-fueled generators, it may be less appropriate for resources where the ability to achieve full nameplate output depends on a range of additional factors. For instance, the output of hydro generating facilities is generally a function of reservoir elevation, and the availability of water; depending on the conditions, the maximum output of the resource may be below or even above its nameplate capacity. Accordingly, Powerex supports using the potential output that was actually available from each resource, including hydro resources, during the capacity-critical hours of the past three years, as proposed in the Fifth Revised Straw Proposal. Powerex believes that additional dialog is needed to refine the proposal to ensure historical measures adequately capture each resource’s ability to achieve a specific level of output during capacity-critical hours.

Similarly, Powerex believes additional dialog is needed to clarify the calculation of RA eligible capacity for certain demand response resources. Powerex fully supports enhancements that enable the participation of demand in all aspects of wholesale electricity markets. In the context of the RA program, it is both appropriate and necessary for demand resources to be held to comparably high performance assurances as supply-side resources. While Powerex believes it would be appropriate and beneficial to not only include RA capacity from demand response resources that are dispatchable by the CAISO, but also those that can be directly controlled by the SC for the resource, it would not be appropriate to “count” demand response that amounts to little more than a loose expectation that the end consumer would take actions to reduce consumption under given conditions.¹ A workable and reliable framework for demand response resource participation in the RA program would benefit from additional information regarding the quantity of demand response under each of the following three categories:

- Demand response that is controllable by the CAISO;
- Demand response that is controllable by the Scheduling Coordinator of the resource;
- and

¹ Indeed, including expected demand-side response to short-term market prices in the RA program could be viewed as “speculative demand response,” analogous to the “speculative supply” that CAISO, CPUC and stakeholders have recognized as incompatible with the forward commitments intended under RA program.

- Demand response that is based on an expected reduction of consumption by the retail customer.

II. Powerex Supports Requiring All Import RA Be Resource-Specific

Powerex strongly supports the Fifth Revised Straw Proposal's requirement that all Import RA must be resource-specific. Powerex also fully supports the elimination of all non-resource-specific arrangements from the RA program, as also proposed by the CAISO. It is Powerex's understanding that no other RA program in the U.S. permits forward procurement targets to be met by "capacity" that is not associated, in advance, with an identifiable physical resource.

Powerex recognizes that, at least for 2021, the California Public Utilities Commission ("CPUC") has enabled California load-serving entities ("LSEs") to meet their RA requirements through Import RA contracts that are not resource-specific, provided the contracts satisfy other criteria intended to ensure the CAISO grid can rely on that supply. While Powerex views the CPUC decision as a welcomed, interim, step toward eliminating "paper capacity" from the RA program, there remain opportunities for marketers to continue to rely on short-term energy market purchases to satisfy their delivery commitments under a non-resource-specific Import RA contract. For this reason, Powerex supports the CAISO's and CPUC's continued efforts to develop and implement a full resource-specific Import RA framework as soon as possible.² Regardless of whether Import RA is provided as a forward energy delivery commitment to a California LSE, or as stand-alone capacity that can be economically dispatched by the CAISO, Powerex believes that *all Import RA must be resource-specific* in order to meet the critical reliability objectives of the RA program.

The need for the CAISO to require Import RA contracts to be resource-specific is the same reason entities across the west are also shifting to requiring advance identification of resources under forward physical commitments. In the bilateral forward markets in the west, there have historically been two different forward products:

- Purely **financial forward swaps**, which settle against a day-ahead bilateral market index price (e.g., ICE); and
- Forward **firm physical energy**, where the seller commits to being able to deliver physical energy supply, and is expected to have that supply at the time it enters into the commitment.

When entities like Powerex, Bonneville and vertically integrated utilities across the west sell forward firm physical energy, they actually have the underlying physical capacity, and only enter into forward commitments supported by such capability. In contrast, there have historically been a handful of marketers that have sold forward firm physical energy without having first secured physical resources to support these commitments. These marketers have been able to collect the price premium associated with an ostensibly firm physical product (*i.e.*, above the prevailing

² In particular, Powerex encourages the CPUC to further explore the comprehensive framework for resource-specific Import RA being developed in this CAISO stakeholder process in the CPUC's forthcoming Track 3.B proceedings.

price for financial forward swaps at the same market location and for the same delivery period), but without investing in securing forward physical supply.

The Northwest has experienced the consequences of relying on this third type of “naked” forward physical arrangements, which are very analogous to the “paper capacity” problem afflicting California’s RA program. In March 2019, the Northwest region came perilously close to a regional reliability event as market conditions became extremely tight, and many marketers that had previously sold forward firm physical supply were unable to procure supply in the short-term markets to make good on their obligations. The fact that these contracts were under WSPP Schedule C (Firm Energy) proved to be insufficient, on its own, to ensure that real physical resources were genuinely committed on a forward basis to serving the purchasing entity’s load. As a result, there has already been a marked shift by numerous load-serving entities, in both the Northwest and Desert Southwest regions to requiring up-front identification of the physical source(s) behind forward firm physical contracts, precisely to protect against contracting with a marketer that is selling a physical product it does not actually have.

Powerex anticipates that the CAISO will continue to hear dire predictions that a resource-specific requirement will reduce “liquidity,” restrict the potential supply of Import RA, or increase costs to California consumers. Entities making these arguments will likely take care to *appear* to support a “resource specific” requirement, but push for provisions that effectively negate it, such as by allowing resource substitution up to the day-ahead market timeframe. These claims should be seen for what they are: attempts to perpetuate the loose rules that have allowed marketers to extract large sums from California ratepayers by selling “capacity” they do not have, and relying instead on short-term energy purchases to meet any delivery requirements. Powerex is not aware of any credible reason why an entity with genuine physical capacity that is surplus to its own native load commitments cannot identify the source of the physical capacity at the time it sells it to a California LSE, and comply with requirements to demonstrate that this capacity was actually available to the CAISO day-ahead market. Any loss of “liquidity” from such requirements will merely reflect the exit of marketers that were selling a product they did not have. Rather than being a “problem” of the CAISO’s proposal, this should be seen as the welcome and intended result of measures that ensure forward arrangements relied upon to reliably serve CAISO load will actually “be there” when needed.

The identification of the specific resource(s) supporting an Import RA contract at the time of the RA showing must be complemented by a ***requirement to demonstrate the availability and deliverability of the specified resource in the operational timeframe***. Powerex believes this can be best achieved by requiring every Import RA resource to submit an e-Tag, on a day-ahead basis, that has reached “implemented” status *before* the CAISO runs its day-ahead market. An e-Tag that reaches “implemented” status demonstrates that:

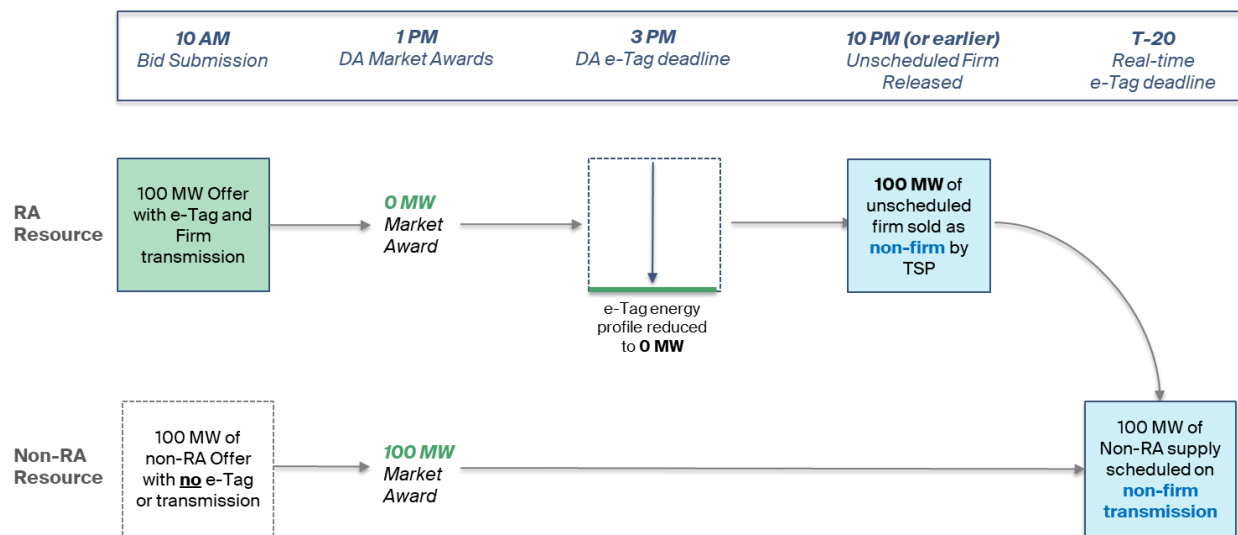
- The source balancing authority has approved the export from its area (helping demonstrate the resource is not relied upon to meet load in the source BAA); and
- Each transmission service provider on the delivery path has approved the schedule (helping demonstrate the deliverability of the supply).

In other words, an implemented e-Tag provides the best demonstration that the specified physical resource that was previously committed to serving California load is, indeed, made available to the CAISO and deliverable to the CAISO grid if called upon.

Compliance with this day-ahead demonstration that the committed resource was available and deliverable can also be readily incorporated into the UCAP calculation for the RA seller. For instance, if the e-Tag is curtailed by the source BA, this is a strong indication that the committed supply was not, in fact, surplus to the needs of the source BA, which would be contrary to the required expectation at the time of the RA commitment. Importantly, the risk of curtailment due to over-committing the source BA is not a random event that is adequately reflected by an “average performance in all hours” approach, but rather a risk that is expected to be highly correlated with the hours in which the CAISO most relies on its RA commitments. For this reason, Powerex suggests that the single worst performance (as a percentage of the seller’s total Import RA commitments) during AAH be used to calculate that seller’s Import RA UCAP for the following year. This will create a powerful feedback loop, where over-committing physical supply directly translates to a reduced ability to sell Import RA.

It is important to recognize that requiring a day-ahead implemented e-Tag in no way “locks up” or “strands” transmission space, or prevents the CAISO markets from selecting the most economic energy offers at its interties (*i.e.*, from both RA and non-RA supply). Claims to the contrary simply misunderstand or mischaracterize the process through which external transmission providers make unused transmission available to other customers on a non-firm basis.

The graphic below illustrates a 100 MW Import RA resource that submits an implemented day-ahead e-Tag, and how the CAISO day-ahead market could instead choose to accept an energy offer at the same intertie from a non-RA resource:



Finally, Powerex recommends that CAISO supplement the resource-specific requirement and the day-ahead e-Tag requirement with an additional tariff requirement that clearly specifies that **Import RA commitments in RA showing plans must reflect capacity that (i) is reasonably expected to be surplus to the load-serving obligations of the source BAA (ii) is not and will not be committed to any other BAAs.** Powerex believes this additional requirement is

necessary to close a remaining gap in the Import RA framework that would perpetuate the ability of energy marketers to sell “paper capacity”. More specifically, Powerex is aware of some marketers entering into forward supply contracts with Northwest utilities (from specific resources) whereby the availability of the supply is not actually expected to be surplus at all, but rather is expressly contingent on the marketer concurrently delivering alternative supply to serve the load of the utility. In the event the marketer is unable to acquire alternative supply to fulfill this load service commitment, the utility retains the right—and can be expected to—curtail the marketer’s exports from the specific resources and redirect that supply to serve its native load. Powerex notes that DMM identified a similar concern:

Specification of the source of import RA may still not prevent imports from being backed by spot market purchases originating outside the specified source’s BAA. For example, the scheduling coordinator could source an import from outside the source’s BAA, “sink” in the specified RA source’s BAA, and tag the final leg as an import into CAISO.³

Powerex also supports the CAISO requiring that all Import RA supply be deliverable on transmission service that is highly reliable. More specifically, Powerex strongly supports the Fifth Revised Straw Proposal’s preference for a requirement that all Import RA be deliverable on Firm transmission rights on the entire path from the identified generation source to the designated CAISO intertie scheduling point. This requirement provides the greatest confidence that the committed supply will be deliverable to serve the CAISO load, and will not be subject to curtailment or interruption in favor of deliveries with higher priority, for at least two reasons:

- On days and hours in which large portions of the western grid may be experiencing tight supply conditions—such as during a summer heatwave—it should be expected that multiple BAAs will be calling upon their committed resources to serve domestic load obligations. This will likely mean that many key transmission paths from Northwest generation to load centers in California, the Desert Southwest, and the southern portion of the Northwest (e.g., Portland, Oregon) may be heavily congested, and only high-priority Firm transmission service will be assured of flowing.
- Path 66 (COI) also experiences unscheduled flow (“USF”), which at times requires curtailment of delivery schedules according to NERC USF procedures. The curtailment priority is based on the lowest-priority transmission service *anywhere along the delivery path*, meaning that the use of Non-Firm service on any segment reduces the curtailment priority of the entire delivery schedule to COB.

Requiring Firm transmission service on the full delivery path is entirely workable, and claims by certain stakeholders that Firm transmission is “concentrated” or not subject to competition are simply untrue. For example, in February of this year, Morgan Stanley argued before the CPUC that:

³ Comments On Track 1 Proposals Of The Department Of Market Monitoring Of The California Independent System Operator Corporation, CPUC Rulemaking 19-11-009 (March 6, 2020), at 4.

*A Firm Transmission Requirement is unnecessary and will dramatically limit the number of market participants able to provide Import RA. Moreover, this Firm Transmission Requirement may unintentionally create a non-competitive market for Import RA.*⁴

In making this claim, Morgan Stanley did not oppose a requirement for Firm transmission on the *final* delivery segment to COB or NOB, but opposed also requiring Firm transmission on the upstream segment (*i.e.*, service across Bonneville’s primary network to get to Big Eddy or to get to John Day), stating that:

*If a Firm Transmission Requirement is implemented, competition will be unnecessarily restricted by effectively preventing 50% of the suppliers who have firm transmission rights from Big Eddy to NOB from being eligible to sell Import RA.*⁵

But Morgan Stanley’s claims are contradicted by its own ability to readily obtain the very Firm transmission rights it sought to paint as broadly unavailable, with the consequence that a Firm transmission requirement would pose a virtually insurmountable barrier to supplying Import RA. As documented more fully in the Appendix, at around the same time it was making these claims, Morgan Stanley was suddenly taking actions to acquire Firm transmission rights, presumably in response to a potential future Firm transmission requirement in the California RA program. As a result of these actions, Morgan Stanley was able to arrange for approximately 150 MW, on average, of Firm Bonneville transmission service to Big Eddy or John Day for the peak summer months of 2020. Morgan Stanley at this time also entered the Bonneville queue to acquire Long-Term Firm service, requesting 400 MW of service to Big Eddy or John Day. Morgan Stanley’s actions—though not their statements to the CPUC and CAISO—demonstrate that entities are fully capable of responding to a CAISO or CPUC requirement for Firm transmission service on the entire delivery path to the CAISO boundary.

It is also incorrect to believe that a “source to sink” Firm transmission requirement would increase costs to California ratepayers. A marketer that relies on short-term purchases of Non-Firm transmission—and only incurs the cost of transmission service in the hours, days and months of energy deliveries—can be expected to continue to transact at the prevailing market price for RA: the same price that will be received by entities like Powerex that procure Firm transmission on the full delivery path. Rather, the savings from not procuring Firm transmission service will simply mean greater profits for the marketer; California consumers will not receive any material savings, but will be exposed to higher delivery risks.

Powerex therefore believes that achieving the reliability objectives of the RA program requires that Import RA supply be deliverable on Firm transmission on the entire delivery path. Claims that such a requirement would limit competition in the supply of Import RA, or increase costs to

⁴ Track 1 Proposal Of Morgan Stanley Capital Group Inc. Regarding The Scope, Schedule, And Administration Of R.19-11-009 (February 28, 2020) at 8-9.

⁵ *Id.* at 11.

California ratepayers, are erroneous or misleading, and do not warrant CAISO increasing the risk of delivery interruptions when California loads are facing critical conditions.

The Fifth Revised Straw Proposal contemplates further exploring an “alternative” proposal, under which CAISO would require Firm transmission only on the final delivery segment to the CAISO. While Powerex opposes such an approach, the CAISO could limit the associated delivery risk by requiring Monthly Non-Firm (*i.e.*, NERC scheduling priority 5-NM), and developing measures to encourage the use of Firm on the entire delivery path. These recommendations are explained more fully in the attached **Appendix**.

Appendix—Transmission Service Requirements To Minimize Delivery Risk of Import RA

The Fifth Revised Straw Proposal observes that “[t]he most robust and secure transmission delivery requirement for RA imports would be to require firm transmission service along the entire delivery path from the source to the CAISO balancing authority area sink.”⁶ The proposal also recognizes that “[o]ther organized market regions generally have more stringent requirements than this.”⁷

Powerex strongly supports requiring that all Import RA supply must be deliverable on Firm transmission along the entire delivery path. This is necessary to provide the greatest certainty to CAISO loads that the forward arrangements relied upon to ensure reliability of the grid will be available when it they are needed most. In contrast, delivery arrangements that include lower-priority (*i.e.*, Non-Firm) transmission service create a risk that deliveries to the CAISO will be interrupted or displaced to “make room” for deliveries scheduled on higher priority service. As explained further in this appendix:

- There has been extensive misinformation provided regarding the nature and the availability of Firm transmission on segments upstream of the last delivery segment (*e.g.*, on Bonneville’s primary network);
- There are numerous and ongoing opportunities for transmission customers to obtain Firm service to meet a CAISO requirement for Firm transmission on the full delivery path;
- Failing to require Firm transmission on the entire path would expose California consumers to material risks of non-delivery during the most critical hours, an outcome that is inconsistent with the objectives of a reliability program such as California’s RA framework;
- To the extent that CAISO further explores an “alternative” approach and requires Firm transmission only on the last delivery segment, it should take steps to minimize the delivery risk by recognizing critical distinctions between different types of Non-Firm service and by maintaining incentives for RA sellers to invest in Firm transmission on the entire path.

A-I. CAISO Has Been Misled Regarding The Availability Of Firm Service On Upstream Delivery Segments

The Fifth Revised Straw Proposal states that the CAISO’s preference is to require Firm transmission on the entire delivery path, but it has heard from some stakeholders that “such a requirement affords less flexibility, is unnecessary, and more costly.”⁸ More bluntly, some stakeholders have alleged that requiring Firm transmission on the entire delivery path would somehow “concentrate close to 80% of the available supply of Import RA at [NOB] with one single supplier.”⁹

Powerex respectfully believes that the CAISO has been entirely misled. Firm transmission rights on Bonneville’s primary network (*e.g.*, to get from a generation location to the “top” of the PDCI at Big Eddy, or to the “top” of the COI at John Day) are constantly changing, both in terms of

⁶ Fifth Revised Straw Proposal at 66.

⁷ *Id.*

⁸ *Id.* at 68.

⁹ MSCG Comments on Fourth Revised Straw Proposal, at 6.

which transmission customers hold these rights, as well as the specific points of receipt or delivery that are accessed through use of these rights. While this is discussed in greater detail in the following section, the high-level claim that Firm transmission from sources in the Northwest to COB or NOB presents a barrier to potential sellers of Import RA is undermined by Morgan Stanley's own success in securing precisely those types of transmission rights. Powerex's review of public OASIS data shows that Morgan Stanley has taken numerous steps to arrange for firm rights during recent months (since the CAISO proposed a firm transmission requirement from source to sink):

- Dec 6, 2019: redirect of 25 MW of existing firm rights to John Day for Sept–Dec 2020
- Dec 11, 2019: secondary market purchase of 105 MW firm rights to John Day for July-Sep 2020
- Feb 14, 2020: secondary market purchase of 25 MW firm rights to John Day for July-Sep 2020
- March 3, 2020: redirect of 299 MW of existing firm rights to Big Eddy for June 2020
- March 4, 2020: secondary market purchase of 150 MW firm rights to Big Eddy for June 2020
- April 23, 2020: request for 5 years of annual firm service to Big Eddy and John Day totaling 400 MW

Furthermore, Morgan Stanley has continued to seek firm transmission rights, and was most recently successful in acquiring **228 MW of yearly firm transmission rights to Big Eddy for 4 years** through a secondary market purchase.

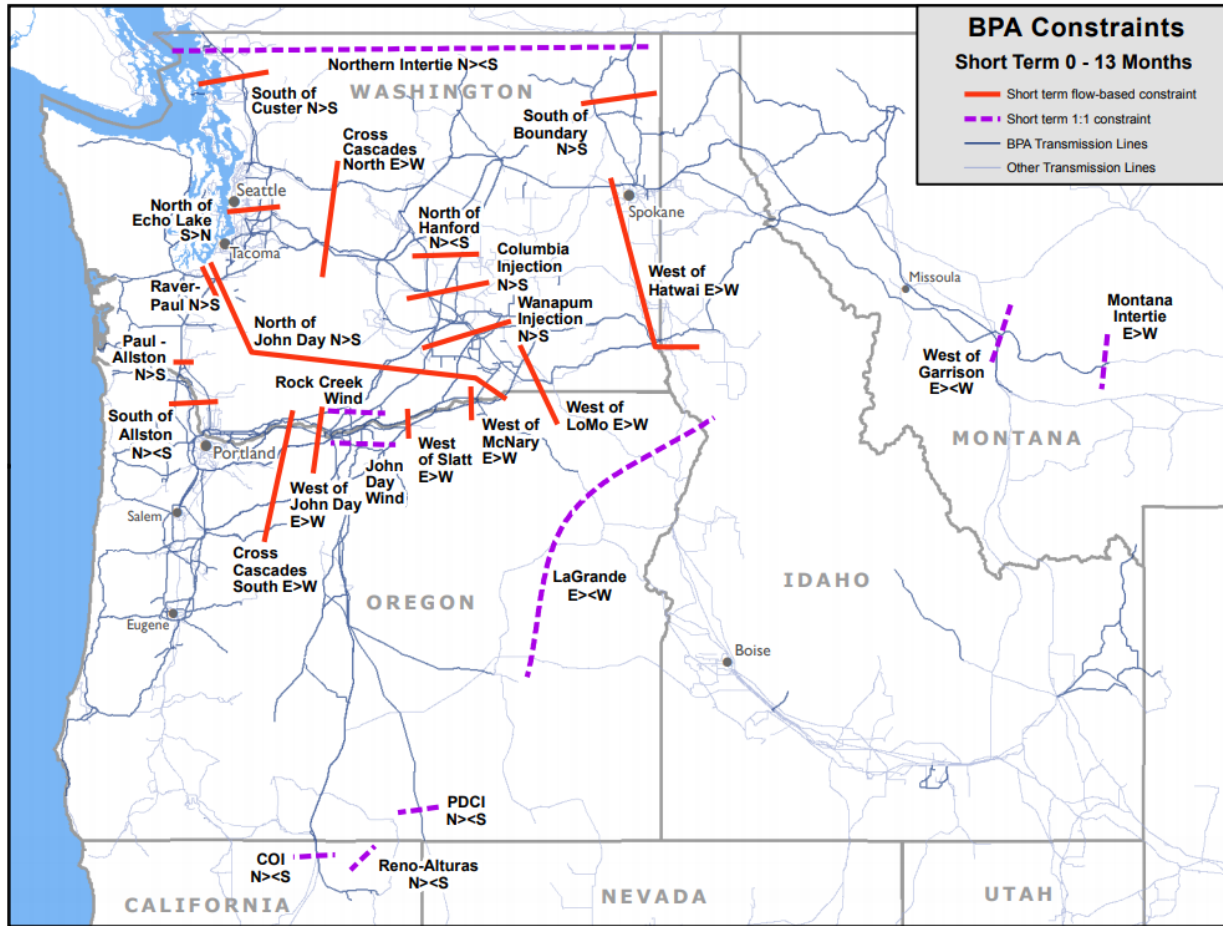
Not only do these actions reveal the unreliable nature of the claims made in this stakeholder process (and repeated in related CPUC proceedings), they actually demonstrate that **transmission customers are fully capable** of responding to a potential CAISO requirement for Firm transmission by procuring that service. This is precisely the firm transmission procurement activity that the CAISO, CPUC and California ratepayers should be hoping to encourage in support of the RA program's reliability objectives.

A-II. There are Numerous Ongoing Opportunities to Arrange Firm Transmission Service on Upstream Transmission Segments

The demonstrated ability of a transmission customer to obtain Firm transmission service on Bonneville's primary network reflects the broad set of opportunities available to transmission customers to arrange for Firm transmission from Northwest resources to John Day or to Big Eddy. Coupled with Firm transmission service on the Southern Intertie (*i.e.*, John Day to COB, or Big Eddy to NOB), these Firm network rights enable Firm delivery on the entire path to the CAISO boundary.

Powerex notes that this discussion focuses predominantly on delivering surplus supply from the Pacific Northwest to the CAISO at COB and NOB. There are, of course, other CAISO interties connecting to other regions, such as the Desert Southwest. But while the Desert Southwest is the source of a large amount of existing external resource-specific RA supply (*e.g.*, from Palo Verde Nuclear Generating Station, Intermountain, and Hoover), that region has little or no *additional* surplus capability that can be committed to serve California loads. The available surplus resources that can be tapped to provide RA supply to California are thus largely located in the Pacific Northwest, where there are multiple entities whose ratepayers have invested in generating capacity that exceeds its domestic needs, on a seasonal and/or annual basis. For this reason, this evaluation of a Firm transmission requirement on the full delivery path focuses on the opportunities for transmission customers to obtain Firm service across Bonneville's primary network to reach John Day or Big Eddy.

There is a key difference between the manner in which transmission service is made available on Bonneville’s network compared to Bonneville’s Southern Intertie. The latter is a linear connection, with a specific path rating and a methodology for calculating Available Transfer Capability on that path (e.g., John Day to COB or Big Eddy to NOB). On Bonneville’s network, however, transmission availability is based on the “flowgate” framework. There are no “ratings” for specific “paths” linking a point of receipt (“POR”) to a point of delivery (“POD”). Rather, a customer’s desired POD/POR combination is evaluated for the impact on certain monitored flowgates (akin to “shift factors” on enforced constraints in an LMP framework). The key flowgates monitored by Bonneville are shown below.



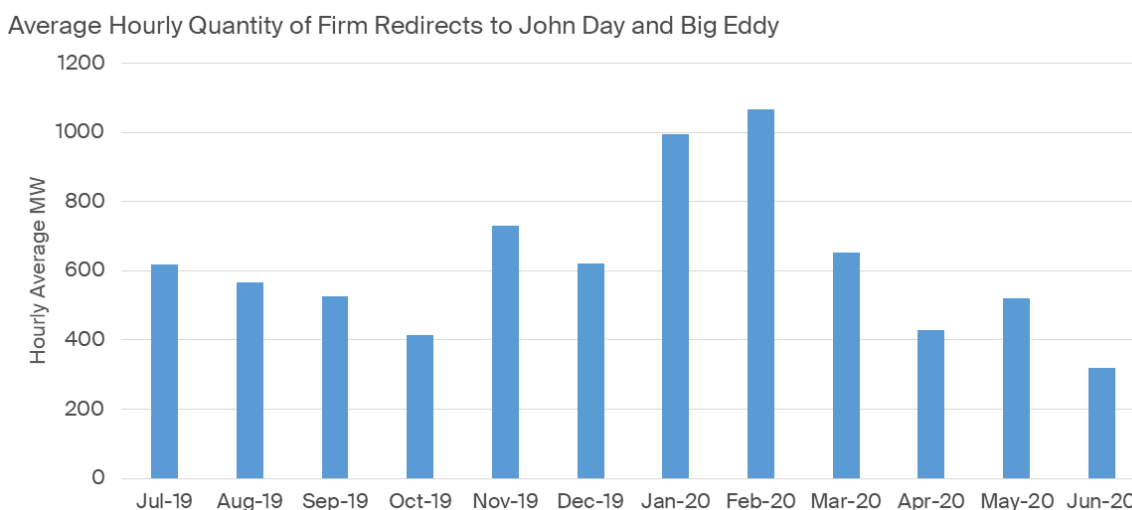
Source: <https://www.bpa.gov/transmission/Doing%20Business/ATCMethodology/Documents/atc-short-term-constraints.pdf>

A major and growing constraint to flow across Bonneville’s primary network is the “South of Allston” flowgate. This flowgate is impacted by deliveries from Northwest generation sources such as Mid-Columbia to a range of different load centers, including Portland and southern Oregon. In addition, deliveries from Northwest generation sources to the Southern Intertie—either for ultimate delivery in California or on to the Desert Southwest—also impact the South of Allston flowgate.

The flowgate methodology for granting transmission service has two major implications for the CAISO’s consideration of a Firm transmission requirement:

First, it means that tabulating “ownership” of Firm rights based on a specific POD or POR is of little relevance. What matters is the rights to flow across specific flowgates, which may be utilized for a wide range of POR and POD combinations.¹⁰

Second, because Bonneville enforces limitations across flowgates on its network, rather than merely POR to POD contractual paths, Firm transmission rights can generally be re-purposed to different PODs or PORs, while retaining its Firm priority, provided that the impact on constrained flowgates is not increased (or can be accommodated). This provides an opportunity for customers that hold existing Bonneville network rights to use those rights to deliver energy to John Day or Big Eddy potentially without the need to acquire any additional new rights at all. According to Powerex’s analysis of public OASIS data, customers regularly redirect hundreds of MWs of existing firm transmission rights to enable deliveries on firm transmission rights to John Day and Big Eddy:



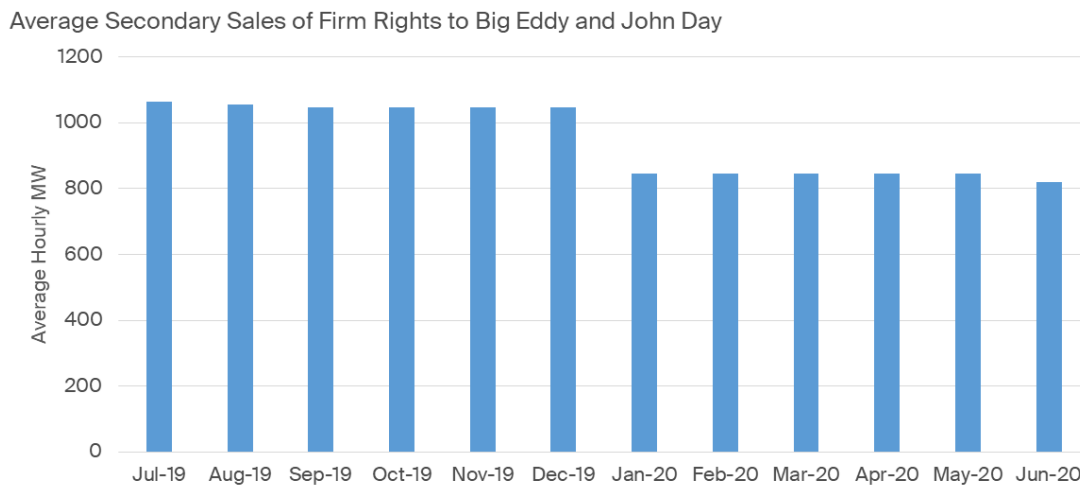
Source: OASIS. Powerex suggests that CAISO confirm Powerex’s analysis with BPA.

In addition to re-directing existing Bonneville Firm network rights on other paths to move Northwest supply to John Day or Big Eddy, transmission customers have several additional opportunities to arrange such service on a Firm basis, including:

- **Bonneville continues to sell new Firm rights** on its network, including rights that impact the South of Allston flowgate. In 2019, for instance, Bonneville sold **600 MW** of new Yearly Firm transmission rights for service beginning December 1, 2019 from the BC.US.BORDER to Big Eddy.
- **Current rights are continually reaching the end of their term**, providing numerous opportunities each year for transmission customers to compete to acquire these rights by entering the queue. Even expiring rights that provide the holder with renewal rights are subject to competition from customers that submit a request for a longer service duration.

¹⁰ For this reason, a table submitted by Morgan Stanley of an OASIS query of Firm rights delivering at Big Eddy is materially incomplete, as it ignores all the rights that also impact many of the same flowgates but that specify a different POD.

- **There is an active secondary market** for transmission rights on Bonneville’s primary network. Public OASIS data shows that secondary sales have averaged 800 MW or more for firm rights to Big Eddy and John Day:



Source: OASIS. Powerex suggests that CAISO confirm Powerex’s analysis with BPA.

- Even where existing capability is fully subscribed, **transmission customers can enter the long-term service queue, triggering a study on the upgrades** necessary to provide the requested service. Indeed, requests into the long-term queue are a key mechanism for driving needed transmission expansions under the OATT framework. As the western grid continues to transition to a low-carbon fleet, expansion of the regional transmission systems may be a highly cost-effective enabler of this transition, allowing non-emitting resources to be developed where they are most economic while still reliably delivering their output to loads throughout the region.

For these reasons, CAISO should reject vague and unsupported claims that Firm transmission service on Bonneville’s primary network is unavailable, or that requiring it would impose an insurmountable barrier to the provision of Import RA.

A-III. Non-Firm Transmission Service on any Delivery Segment Will Expose CAISO Loads to Delivery Risks

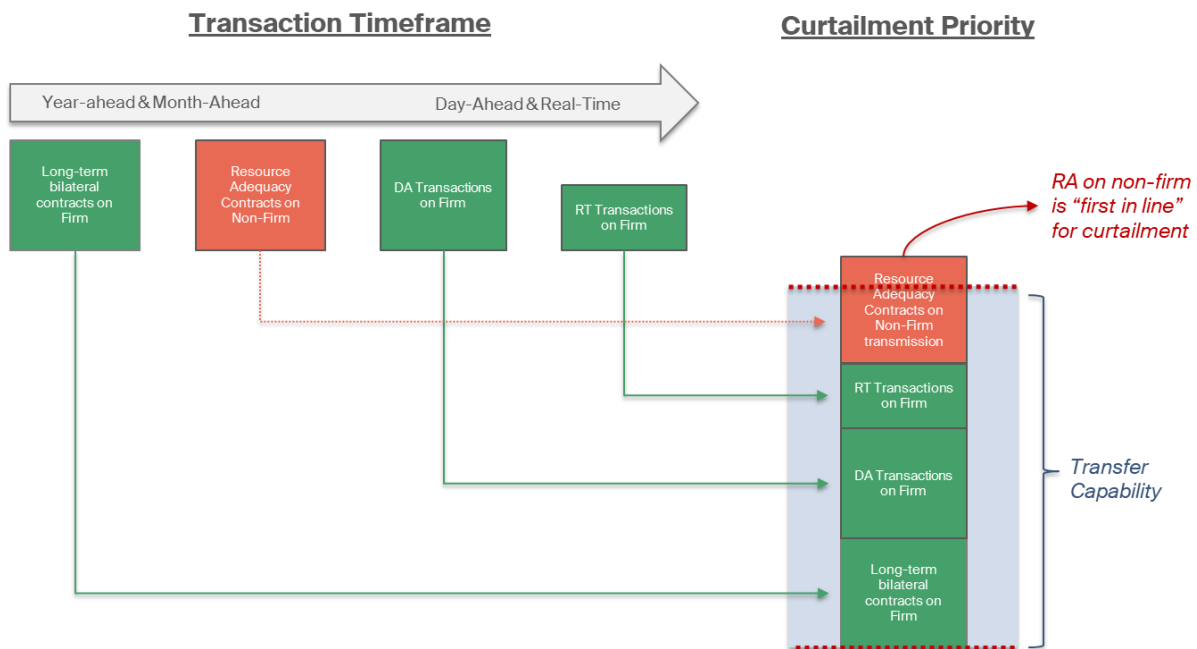
The Fifth Revised Straw Proposal explains that “load-serving entities are competing in a west-wide energy market where supply is shrinking.”¹¹ Powerex shares this view. It is not only the CAISO BAA, but numerous entities across the entire western region, that are retiring conventional fossil-fueled generation, with generation additions comprised almost exclusively of variable energy resources. To maintain reliable service to consumers, entities that are retiring fossil-fueled generation are increasingly seeking to contract for supply from entities with surplus physical capacity. This leads to competition not only to secure the commitment of physical resources, but also the means to deliver that supply to the loads of the purchasing entities. With much of the available uncommitted physical supply located in the Pacific Northwest, this means that multiple entities across the west will be seeking to ensure *their* committed supply has sufficient priority to

¹¹ Fifth Revised Straw Proposal at 67.

flow across a growing number of potential transmission bottlenecks (e.g., the Bonneville network flowgates discussed above).

It is not difficult to imagine conditions under which a large number of the western load-serving entities—including but not limited to those in the CAISO BAA—that have contracted for physical supply in the Pacific Northwest are all calling for delivery of that supply at the same time, such as during a heat wave that affects a large portion of the region. If the CAISO has not required Import RA contracts to be deliverable on Firm transmission on the entire delivery path, it will only be able to receive the contracted supply *after* all deliveries on Firm transmission to other BAAs have been accommodated. During a regional heatwave, this will put CAISO’s Import RA deliveries “behind” not just the forward capacity contracts of other western entities that *do* require Firm delivery, but also after spot market transaction activity that is also delivered on Firm transmission.

Powerex notes that if CAISO permits Non-Firm transmission on upstream delivery paths (while also failing to adopt sufficient incentives to, at a very minimum, strongly encourage Firm transmission use), it will not be just a small number of RA sellers that opt to use Non-Firm transmission. Even sellers that have already acquired Firm transmission on Bonneville’s network will no longer have any incentive to dedicate that transmission to their RA deliveries to the CAISO BAA. Instead, it is likely that this Firm transmission will be re-purposed to support the delivery commitments to customers outside the CAISO BAA that *do* require Firm transmission delivery. Thus, absent a Firm transmission requirement on the entire path (or at a very minimum, new measures to strongly encourage the use of Firm transmission service), the CAISO can expect that perhaps *all* of the Import RA contracts will be on Non-Firm transmission service on upstream delivery paths. This scenario would put CAISO load “first in line” to be curtailed in any hour that any of the key Bonneville flowgates is congested. In hours of greatest needs, such as the capacity-critical hours of a regional heatwave event, this could largely negate the careful steps being pursued by the CAISO to ensure the physical capacity is committed and available, as they will be of little use to California loads if the Import RA supply cannot be delivered because the transmission arrangements were for low priority service.



In addition to this general risk of Import RA deliveries being “bumped” when key Bonneville flowgates are congested, the use of Non-Firm transmission raises two additional delivery risks for the CAISO BAA:

1. On days that Bonneville anticipates congestion on key flowgates, **Bonneville may not even sell Non-Firm service** at all. A seller of Import RA that relies on procuring Non-Firm transmission service in the operational timeframe—as some opponents of a Firm requirement have proposed—may find itself unable to purchase that service.
2. Even if there is no congestion on the Bonneville network, **deliveries to the CAISO at COB will also be subject to Unscheduled Flow (“USF”) mitigation procedures**. USF procedures are not uncommon on the COI. Under current USF procedures, deliveries that flow on the COI are curtailed based on the lowest priority transmission service *anywhere on the delivery path*. Thus, even a delivery that uses Firm transmission on the “last delivery segment” to COB—but uses Non-Firm transmission on upstream segments—will nevertheless be curtailed during USF mitigation before a delivery that uses Firm transmission on the entire delivery path.

The foregoing should make it abundantly clear that a reliability-based program, like California’s RA program, will fall short of its objectives if it commits physical resources but fails to require that those resources be deliverable to the CAISO boundary on high-quality transmission service, such that the CAISO can be confident the supply will be deliverable when it is most needed. Given that there are multiple and growing potential constraints between the most likely source of incremental Import RA (*i.e.*, the Pacific Northwest) and the CAISO BAA, the CAISO should require Firm transmission on the entire delivery path.

Powerex is fully in favor of structuring the requirement to give participants the greatest opportunities to acquire this Firm transmission (on the applicable delivery path). For instance, Powerex supports the CAISO requiring a showing of Firm transmission at the time of submitting a day-ahead e-Tag, rather than at the time of the annual or monthly RA showings. This approach would better accommodate timing at which Firm service becomes available (*e.g.*, with renewal timelines, or restrictions on how far in advance of delivery shorter-term Firm service, including Firm to Firm re-directs, may be requested). But the legitimate goal of maximizing participation in the supply of Import RA must not become a rationalization for allowing the sale of a product that does not meet the goals of the RA program in the first place. For this reason, Powerex urges the CAISO to develop requirements that ensure real physical supply is committed in advance, and that the committed supply is available and deliverable to the CAISO in the operational timeframe.

It has also been claimed that a requirement for delivery on Firm transmission on the entire path may somehow increase costs to California consumers. The CAISO should be highly skeptical of such claims. In any market environment, transactions generally reflect the prevailing market price, even if the cost of a particular seller is less than that prevailing market price. In other words, a seller that finds ways to uniquely reduce its own costs—such as by not investing in high-quality transmission to ensure delivery if called upon—will generally not pass any of those savings on to purchasers. Rather, the seller will simply realize higher profits from those sales. The pursuit of financial gains can be a major driver of efficiency and innovation. However, strategies that undermine the quality of the product being sold do not represent efficiency or innovation, but merely profit from exposing California ratepayers to increased reliability risk.

A-IV. CAISO’s Consideration of an “Alternative” Transmission Proposal Should Recognize Critical Differences Between Types of Non-Firm Service, and Seek to Encourage Firm Transmission on the Entire Delivery Path

While the Fifth Revised Proposal expresses CAISO’s preference for a Firm transmission requirement on the entire delivery path, it states that “the CAISO also is considering only requiring firm transmission service on the last line of interest to the CAISO BAA as an alternative.”¹² As explained above, Powerex strongly supports CAISO’s preferred approach, and sees no valid reason for exposing California consumers to the delivery risk associated with reliance on transmission that is not Firm.

To the extent the CAISO nevertheless seeks to continue exploring such an alternative approach, Powerex believes a closer examination of the various classes of Non-Firm service is necessary. The delivery risk associated with transmission service curtailments or interruptions is not limited merely to “Firm vs. Non-Firm;” rather, risks are stratified based on the particular NERC priority.¹³ As is relevant to Import RA arrangements, there are at least five distinct Non-Firm Point to Point¹⁴ transmission products available today, each with a different curtailment priority:

Product	NERC Priority	Product Code
Firm PTP (All Durations)	7	7-F
Non-Firm Monthly PTP	5	5-NM
Non-Firm Weekly PTP	4	4-NW
Non-Firm Daily PTP	3	3-ND
Non-Firm Hourly PTP	2	2-NH
Non-Firm Service Over Secondary Points	1	1-NS

Powerex believes the risks associated with each type of Non-Firm service can be evaluated based on the following key questions:

- Does the availability of service depend on holders of higher-priority (*i.e.*, Firm) service choosing to not use those rights?
- Does the transmission provider always sell the non-firm service?
- Can the transmission service be procured ahead of transmission customers seeking to arrange delivery for spot market economic transactions to serve load in other BAAs?

¹² Fifth Revised Straw Proposal, at 67.

¹³ Firm service priority does not differ depending on the service duration (*e.g.*, Hourly Firm PTP and Yearly Firm PTP both have a NERC priority of “7”). In contrast, Non-Firm service priority *does* depend on the service duration (*e.g.*, Non-Firm Monthly PTP has a scheduling priority of “5”, whereas Non-Firm Hourly PTP has a scheduling priority of “2”).

¹⁴ This discussion ignores Non-Firm network transmission (“NT”) service, which is only available for serving native load within the transmission provider’s service territory.

- Can the transmission service for the critical summer months be procured by the time of the annual RA showing?

	1-NS: Secondary Points	2-NH: Hourly	3-ND: Daily	4-NW: Weekly	5-NM: Monthly
Depends on unused firm rights?	Yes	Yes	Partially	No	No
Risk will not be offered by TSP?	Yes	Yes	Yes	No	No
Can procure ahead of spot sale activity?	No	No	Partially	Yes	Yes
Can procure for Summer months by time of annual RA showing?	No	No	No	No	Yes

As shown in the table above, the greatest risk of non-delivery is associated with the use of Non-Firm Daily or Hourly service (*i.e.*, NERC priority 1 through 3). Not only are these products the first to be curtailed, but they may not even be offered by Bonneville when it anticipates congestion on its network.¹⁵ Moreover, the quantity of these products sold by Bonneville is based on a calculation that includes unscheduled Firm transmission rights as well as “counterflow” schedules in the opposite direction. On days of tight regional grid conditions, it should be expected that most Firm rights *will* be used, and that there will be few counterflow schedules. Finally, these products are generally offered when unused Firm rights are “released” by Bonneville, on the day prior to flow. That means sellers of Import RA relying on Non-Firm Daily or Hourly service will be competing with requests for the same products from entities looking to arrange delivery of spot energy market transactions to other BAAs. That is, the delivery of Import RA could “fall behind” the delivery of economic transactions of other entities.

Non-Firm Weekly (4-NW) and Monthly (5-NM) are both substantial improvements over the Hourly and Daily Non-Firm products. More specifically, these products do not represent unused Firm rights or counterflow schedules, making the underlying transmission capability less likely to disappear when grid conditions get tight. Non-Firm Weekly, however, can only be procured up to 14 days prior to the start of delivery.¹⁶ This means that Import RA sellers relying on procuring Weekly Non-Firm may face competing requests from entities anticipating economic transaction opportunities when a near-term weather event is expected. In addition, the timelines for requesting Weekly Non-Firm would not enable any Import RA seller to procure this service at the time of the annual or monthly RA showings. Thus, sellers may enter into an Import RA contract, the contract may be included in the RA showings, but it will not be known that the transmission is unavailable until it is “too late” to recognize the RA deficiency.

Non-Firm Monthly, in contrast, avoids the remaining shortcomings of using Weekly transmission. It can be requested 60 days in advance, and for a period of up to 364 days, thus allowing Import

¹⁵ For example, on August 5, 2019 Bonneville issued a “TLR Avoidance” notice that it would limit further Firm sale across South of Allston for the hours ending 17-20 of the following day. Bonneville’s business practices provide this same ability to limit Non-Firm sales.

¹⁶ Bonneville Transmission Business Practices, *Requesting Transmission Service*, (Version 38) Section F. Available at: <https://www.bpa.gov/transmission/Doing%20Business/bp/tbp/Requesting-Transmission-Service-BP-V38.pdf>.

RA sellers to secure this product well ahead of entities looking to support economic transactions. Additionally, this timetable allows Import RA sellers to secure transmission service for the critical CAISO summer months at the time they enter into the RA contract and submit it in the annual or monthly RA showings.

In Powerex’s view, these attributes make it likely that Non-Firm Monthly service sold by Bonneville will often be deliverable in the same hours that Firm service is deliverable. In any event, it represents the lowest delivery risk of any of the Non-Firm PTP service products, with a NERC priority of “5”.

In addition, new Non-Firm Monthly service is broadly available on Bonneville’s primary network, including for service over some of the more critical flowgates. As of the date of these comments, for instance, it appears that Bonneville would approve over 1,000 MW of new Non-Firm Monthly service through the critical summer months of 2021 from the Mid-Columbia trading hub to Big Eddy.

While requiring at least Non-Firm Monthly transmission service on the upstream delivery segments can help reduce the risk of curtailments of Import RA supply, Powerex believes that CAISO should also consider measures that continue to encourage—while not requiring—Import RA to be scheduled on Firm transmission on the entire path. These measures are needed so that Import RA suppliers that currently procure Firm transmission on the full delivery path (and incur substantial costs in doing so) have an incentive to continue to do so. Without adequate incentives, the *entire* Import RA supply may shift to using Non-Firm Monthly transmission service, which would be an undesirable outcome.

In order to maintain strong incentives to use Firm transmission service, the CAISO could include any curtailments of Import RA supply scheduled on Non-Firm transmission into the calculation of the seller’s “Import RA UCAP” for the following year. More specifically, the UCAP calculation could be based on the single largest percentage curtailment of Import RA contracts (for the applicable SC) during Availability Assessment Hours on a Non-Firm transmission segment.

For example, consider a scheduling coordinator that sells different amounts of Import RA and schedules on Non-Firm transmission. The largest curtailment in the AAHs of each delivery month is shown below:

Month	Total Import RA Using NF Transmission	Largest Curtailment During AAH	Delivery %
May	200 MW	30 MW	85%
June	300 MW	60 MW	80%
July	300 MW	100 MW	67%
August	100 MW	30 MW	70%
September	150 MW	60 MW	60%
UCAP for next year:			0.6

It is important for the UCAP calculation to be based on the largest curtailment during AAH, rather than on the average performance over all hours, due to the non-random nature of the risk of curtailment to Non-Firm transmission service. Stated differently, an average calculation is an adequate proxy for the risk of failure due to random underlying processes, like generator forced outages, or transmission outages or de-rates. But the risk of curtailment due to the selection of a lower-priority transmission service is not random, and is expected to be greatest when the schedules on those lines are greatest. That is, the risk of curtailment of Non-Firm transmission service is likely to be greatest during the most critical hours of the year, rather than being a randomly-distributed risk that exists in all hours.

Powerex urges CAISO to pursue its preferred approach of requiring Firm transmission on the entire delivery path for Import RA resources. There is no credible reason to believe Import RA sellers would be unable to meet such a requirement; delivery on Non-Firm transmission exposes California consumers to increased reliability risk; and there is no discernible benefit to California ratepayers from adopting a more lax transmission requirement. Despite these objections, if the CAISO nevertheless wishes to consider an alternative set of transmission requirements, Powerex believes it should explore requiring at least Non-Firm Monthly service to limit the risk of curtailments, and to include incentives that encourage RA to be scheduled on Firm transmission on the full path.