Joint Informal Comments on the RA Reform Workshops
R. 21-10-002 and R.19-11-009

February 7, 2022

The California Energy Storage Alliance ("CESA"), Peninsula Clean Energy ("PCE") and San Jose Clean Energy ("SJCE") ("Joint Parties") appreciate the opportunity to provide informal comments following the RA program restructuring workshops. The Joint Parties submit these comments to present a simple approach to enhance the slice of day (SOD) RA framework by providing for trading of the load obligation. The Joint Parties have a strong view that effective transactability is a critical feature for any RA framework. While the SOD has some important features, such as properly valuing renewables and storage, it requires enhancements to improve transactability. The proposal described in these comments is one simple enhancement that could improve transactability in a manner that the Joint Parties believes could be acceptable to a large number of stakeholders. The Joint Parties are open to working with other parties to ensure this proposal is adequately developed and incorporated in the SOD framework.

I. Summary

The slice of day (SOD) framework would require load-serving entities (LSEs) to show their resources in a manner that matches their load profile. Since, in many cases, an LSE might not have a portfolio that allows it to match its load profile precisely, efficient mechanisms allow LSEs to shape their RA portfolio profiles to their load shapes are essential to market efficiency. Mechanisms to allow LSEs to shape their portfolios would

1) provide for better utilization of the RA fleet and minimize costs to consumers;
2) allow the benefits of integrated system portfolios to be realized; and

3) mitigate market power that could otherwise be exercised by RA suppliers in tight RA markets.

Three options could provide such a shaping function:

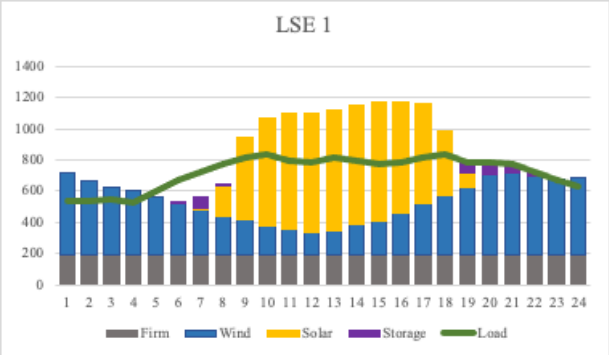
1) **Option 1:** LSEs with open positions in some hours could trade those obligations to other LSEs with long positions in those hours. ("obligation trading")
2) **Option 2:** LSEs could procure hourly capacity without contracting for the entire resource profile across all 24 hours. ("hourly resource trading")
3) **Option 3:** LSEs procure storage with charging capacity that can be used to discharge in any open hour to shape small positions.

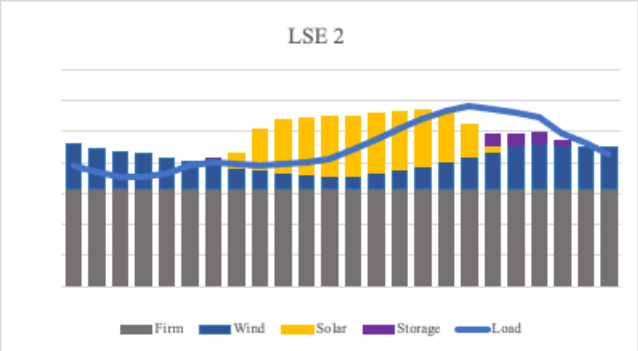
These comments present a simple proposal for Option 1. The proposal allows an LSE A that is deficient in one or more hours during one showing month to trade its obligation in the deficient hours with an LSE B that has excess resources in those hours. After the trade, LSE A would have a reduced obligation in the hours in which the obligation is traded, and LSE B would have an increased obligation in the hours in which the obligation is traded that matches the reduction in the obligation of LSE A during those hours. Since the showing would consist of set of obligation reductions and a corresponding set of obligation increases that sum to zero, this approach would be simple for the CPUC and LSEs to implement.

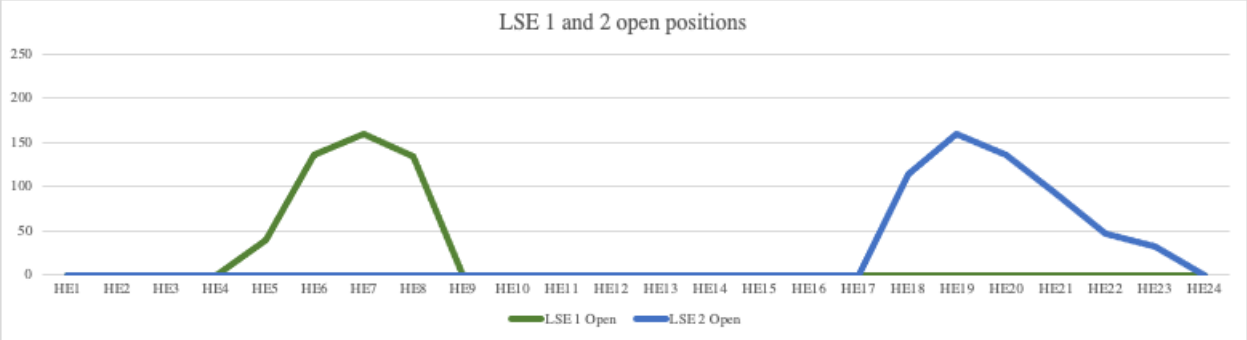
II. Illustration of the need for the hourly resource or trading construct

To understand why such a construct is needed, consider two LSEs that have different load shapes and different profiles. The two LSEs will have different open positions, once their generation portfolios are incorporated.

Figure 1 – Example of load diversity benefits from non-coincident open positions







If all or nearly all storage is under contract to LSEs, such that there is nearly no merchant storage supply, then the dominant available resource will be firm 24-hour resources, primarily gas. Without load trading or hourly resource trading, each LSE would need to procure a separate RA contract with a separate resource, with LSE 1 contacting with 160MW for its morning open position and LSE 2 contracting with 160 MW for its evening open position, for a total of 320 MW. This increases the cost for both and increases the tightness of the RA market, driving up prices.

In addition, SOD will create a market where most suppliers with RA will seek to sell a 24-hour offering to monetize the most value from the resource. Experience with the current RA market suggests that it may be difficult for LSEs to find reasonably priced offerings to meet specific hours as suppliers will likely try to increase their prices for slices for particularly critical hours in order to offset the risk of being unable to monetize RA in less critical hours (as is the case today with particularly critical months).

In contrast, with load trading and hourly resource trading, the two LSEs can share a firm RA resource, such that 160 MW is used to meet both open positions. (Either the generator could sell RA capacity for the needed hours to each LSE separately, or one LSE could contract with the resource and then contract with the other LSE to meet its open position.) This saves ratepayer costs since each LSE could be expected to pick up half the cost of the resource. In a real sense, a system that includes load trading and hourly resource trading alongside full resource trading would generate market efficiencies in a mode analogous to cap-and-trade systems. Since such systems allow participants to compare the costs of compliance internally to the cost of trading obligations to other participants that may have a lower compliance cost, total costs are optimized to the lowest level. In addition, this would serve to dampen RA prices for all other LSEs, by reducing overall demand for RA projects.

In addition, a mechanism is needed to capture the full diversity benefit of resources that may reside in different LSE portfolios. Under the current proposed system, the diversity benefit of the combination of generation and storage is difficult to realize if the generation and storage are under contract to different LSEs. Currently, a LSE seeking excess capacity to charge storage could contract with a slice of generation with another LSE, but since the two LSEs can only transact in full strips, if the LSE with excess needs even one hour's worth of capacity from the full resource, it would be unable to trade any portion of the resource without leaving itself short, even if it is long in all other hours. However, if the LSE can trade only certain hours, while retaining those hours in which is needs the resource, or the LSE can take load obligations in hours when it is long to free up capacity in the counter party LSE, then the LSE would be able to arrange to show its excess capacity to charge storage in another LSE's portfolio. At a system

level, this would allow resource diversity benefits to be recognized that are otherwise difficult or impossible to realize in a 24 hourly construct without hourly flexibility.

Together, any system that forces duplicative procurement or ignores resource diversity benefits would create greater requirements to retain more of the gas fleet and prevent the retirement of gas resources that are not needed for reliability at a system level, but would be needed solely to ensure all LSEs can make their regulatory RA showings. This result would hamper California's decarbonization and environmental justice goals.

III. Discussion of the Three Transactability Options:

Option 1: Obligation Trading

Option 1 is intended to prevent LSEs having to procure full-day strips from resources to cover small open positions of a few hours, resulting in duplicative procurement across LSEs and tightening the RA market and prices. Conversely, if LSEs with complementary load profiles could share resources by trading load obligations, LSE RA obligations can be met with fewer resources overall, alleviating tightness in the RA market and helping moderate prices. This proposal for load obligation trading is simple from a CPUC compliance standpoint, since other than tracking RA showings, no other rules need be changed. The proposal would have the receiving LSE take on the full obligation of the granting LSE for the obligation hours traded. Both LSEs would show corresponding credits and debits in their RA showings to ensure that there is no overcounting or duplication.

Option 2: Hourly Resource Transactions

When Pacific Gas & Electric (PG&E) initially introduced the slice of day (SOD) proposal it noted that this framework could allow load-serving entities (LSEs) to transact

resources by slice in order to promote more efficient use of existing RA resources. This would enable an LSE that is long in particular slices or hours, for example, to trade with another LSE that is short in those hours. Several parties were enthusiastic about this prospect since it would enhance utilization of the RA fleet and potentially reduce ratepayer costs. Since the introduction of the SOD proposal, however, some parties contend that this sort of trading could be complex to achieve due to two constraints: the current bundling of all RA characteristics (*i.e.* System, Local, and Flex) and the 24 by 7 must-offer obligation (MOO).

Since there is at least some opposition to hourly resource trading as too complex to warrant development, despite the potentially significant market benefits of hourly resource trading, the Joint Parties do not take a joint position on whether and how hourly resource trading should be implemented (this topic is discussed in other informal comments), but they do stress that pursuing load obligation trading is both simple and critical.

Option 3: Storage resources for shaping small open positions

The use of storage to perform shaping functions is already considered within the 24-hourly SOD proposal developed by Southern California Edison (SCE) and backed by other parties such as PG&E. Under this framework, an LSE will be able to shape its RA storage flexibly in order to adequately match its load shape. Nevertheless, LSEs will be limited in their use storage for RA purposes by the excess capacity shown in compliance filings needed to support storage charging, accounting for round-trip efficiency. This step provides some assurances to the Commission regarding energy sufficiency to charge of RA storage. However, the fact that this charging sufficiency verification must be done on an LSE by LSE basis does not recognize potential capacity excess on a system basis and could hinder appropriate storage

deployment if LSEs are unable to access existing excess capacity that may exist in other LSEs' portfolios to use for battery charging. For example, LSE A may have significant excess capacity due to an abundance of solar generation, that could be used to charge storage in LSE B's portfolio, but without some trading option, LSE B would need to procure separate RA resources and the system would not be able to capture resource diversity benefits across LSE portfolios.

Additionally, storage procurement isn't likely to become a viable option for LSEs to meet hourly needs in the short-term (i.e., for one month-ahead showing) because it is unlikely for an LSE to contract with a storage resource for a term of one month or even a few months in a year. Typically, storage is procured under a long-term contract with developers directly, so unless another LSE can sell RA from its storage asset for specific months to help another LSE satisfy hourly needs, the use of storage will not be a common short-term option to meet particular hourly slice needs. Finally, while storage may be theoretically useful, for the next several years, the supply of storage available for RA contracts will be very limited as most storage coming online will already be under contract to LSEs under long term contracts. While D.21-06-035 would require some long duration storage to be online by 2026, D.19-11-09 has no storage requirement. Thus, IRP related procurement cannot be relied upon to fill this need.

IV. Proposal for Obligation trading

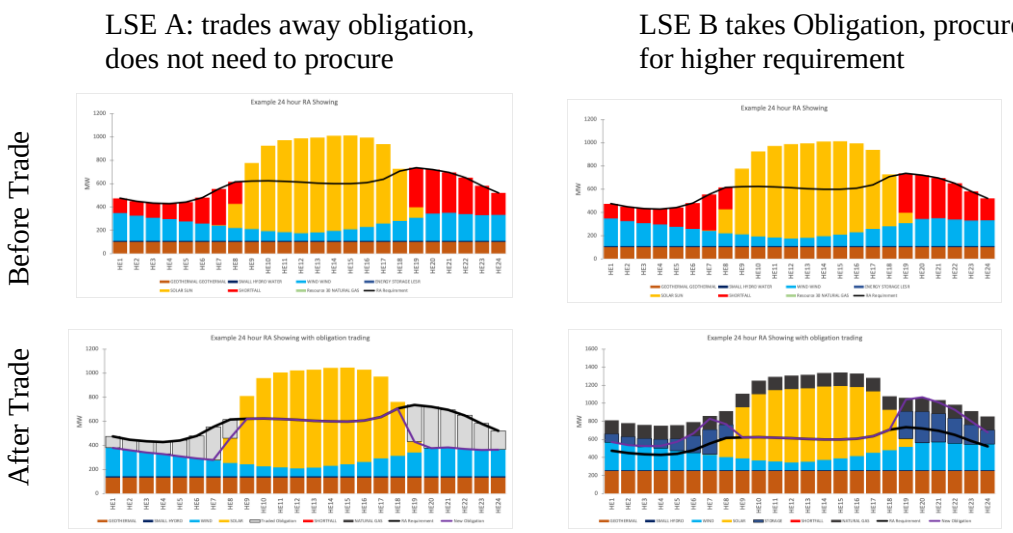
Trade concept

LSEs with short positions in some hours would be allowed to trade with others with long positions in those hours to allow resource sharing between the two LSEs with different loads and RA portfolios. For an illustration of how this would work, consider an example of two identical

LSEs. Both have the same load requirement profile and the same portfolio. Their open positions are shown in red below.

After the trade, LSE A would trade away part of its obligation in the evening and overnight hours, reducing its load obligation to what its portfolio can cover (purple line, lower left). LSE B would take on that obligation, increasing its obligation during those hours, and would need to procure a combination of resources to cover that obligation (purple line, plus resources in lower right panel.)

Figure 2 – Example of load trading



Note, this approach would also work to free up excess capacity to be used to qualify as charging capacity. For example, an LSE that had enough capacity for each hour, but not enough charging energy for the storage used, could trade its obligation to an LSE long in some hours, particularly during the day when most LSEs will be long with solar generation. This would reduce the obligation during these hours, creating excess capacity which could then be shown as

charging capacity for the storage. This would allow LSEs to take advantage of diversity benefits across their portfolios by charging storage with generation in other LSEs' portfolios.

Showing

1) Both LSEs involved in the trade would show the trade on their RA showings spreadsheet. The LSE trading their load away (or "selling") would show a reduction of their obligation for the load in which they sold, and the LSE receiving the load obligation (or "purchasing") would show a corresponding increase in their obligation in the same hours and quantities. The sum of these showings would equal zero in all hours.
    a. Trades would specify the list of hour-specific showings and the MW of capacity showing in each hour traded.
    b. The LSE trading away its obligation would show the trade in its RA showing as an hour specific list of reductions against its hourly obligation profile

HE	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	etc
MW	-15	-12	-21	-23	-27	-5	0	0	0	0	0	0	0	0	0	

    c. The LSE receiving the obligation would show the trade on its RA showing as an hour-specific list of increases to its RA portfolio.

HE	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	etc
MW	15	12	21	23	27	5	0	0	0	0	0	0	0	0	0	

2) The LSE receiving the obligation would accept all responsibilities as would apply to its organic obligation.

a. LSEs can contract for indemnification of any costs arising from the deal, to provide for the two LSEs to share compliance risks, should they desire.

3) CPUC would confirm:
    a. Both LSEs show corresponding debits and credits, such that sum of both showings would be zero in each hour.
    b. ALL trades combined sum to zero.
    c. This should ensure there is no double counting or any loss of total RA obligation across all hours.

Conclusion

The SOD proposal has some advantages but requires enhancements to provide for better transactability to reduce costs by improving market efficiency. Load obligation trading construct is a simple a mechanism that fits easily within the SOD construct and should be adopted. It would result in only a very minor increase in complexity while providing key functionality to ensure RA obligations can be met cost effectively, while reducing upward pressure on RA prices.