BENEFITS OF AN INTERMEDIARY FOR MANAGEMENT OF LOAD OBLIGATION TRADING

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I. INTRODUCTION

The California Public Utilities Commission (the Commission) is presently considering a proposal to allow trading of Slice-of-Day (SOD) Resource Adequacy (RA) obligations. Forward Market Design (FMD) offers this analysis from the perspective of market design and implementation, as many issues around the transactability of SOD obligations interact with our expertise in designing and implementing markets that work in practice.

In this paper, we highlight how an **SOD intermediary** could materialize the benefits associated with SOD obligation trading while minimizing the administrative and systematic costs associated with its implementation. Specifically, an SOD intermediary can:

- maximize savings by helping LSEs find and price the best trades; and
- minimize costs by validating trades before RA showing deadlines.

II. BACKGROUND

The Commission's transition to the Slice-of-Day framework is a significant improvement in the design of California's Resource Adequacy program. Under the SOD framework, RA compliance is no longer organized around a single monthly peak construct; instead, the program requires load-serving entities (LSEs) to demonstrate sufficient capacity across the full 24-hour profile of a peak-load day for each month. That shift aligns RA obligations more closely with the system's actual reliability needs, which vary materially by hour and cannot always be well represented by a single peak-hour requirement.[1]

At the same time, the SOD framework has introduced a structural granularity mismatch between obligations and resources. Obligations are hourly, but the resources continue to be transacted at a monthly level. CalCCA summarized the problem directly: *if an LSE contracts for a resource, it must do so for the resource's net qualifying capacity (NQC) in all 24 hours for that month even if the LSE only has an open position in one hour*.[2]

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[1] D.22-06-050 *Decision Adopting Local Capacity Obligations for 2023-2025, Flexible Capacity Obligations for 2023, and Reform Track Framework*

[2] CALIFORNIA COMMUNITY CHOICE ASSOCIATION'S PROPOSALS ON TRACK 3, January 17, 2025 (CalCCA Proposal)

That mismatch matters because it can force LSEs to over procure resources beyond those required by the RA requirements set based on forecasted load plus a Planning Reserve Margin (PRM).[3] This over procurement implies an additional cost to LSEs.[4]

One solution to the mismatch between products and obligations is the transactability of SOD obligations proposed by CalCCA.[5] They propose allowing an LSE that is long in a particular hour to assume a portion of another LSE's hourly obligation in that same hour, rather than forcing the short LSE to solve the problem only by procuring an additional resource product.[6]

The transactability of SOD obligations is a reasonable solution to the current product mismatch, especially given our understanding that reforming the accreditation and transactional characteristics of RA resources themselves would be more complex and would require broader changes across existing RA rules and validation processes.

The record also supports the conclusion that allowing hourly obligation trading could produce meaningful savings, but not without implementation costs and challenges. CalCCA estimated that trading across all CPUC-jurisdictional LSEs could yield benefits of more than $180 million per year, including both direct and indirect benefits.[7] At the same time, D.22-06-050 identified a number of implementation concerns that would need to be addressed before such a mechanism could be adopted, including outage substitution, cost allocation, backstop procurement, and implementation complexity.[8]

In our opinion, a well-designed independent **SOD intermediary** could help capture the benefits of hourly obligation trading while reducing those implementation risks. An intermediary could provide transactional services by helping LSEs identify counterparties and execute transfers; informational services by improving transparency and price discovery for scarce hours; and administrative services by verifying trades follow regulations, checking consistency across counterparties, and organizing trade reporting in a format usable by Energy Division.

III. POTENTIAL ROLE OF AN SOD INTERMEDIARY

The primary purpose of an intermediary would be to help LSEs realize the efficiency benefits associated with SOD obligation trading while minimizing the administrative complexity such trading could impose

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3 Report on Transactability within the Slice of Day Resource Adequacy Framework, R.25-10-003 (Feb. 2026) (Transactability Report).

4 CalCCA Proposal

5 *Idem*

6 *Idem*

7 CalCCA Proposal

8 D.22-06-050

on the Commission and market participants. As discussed in the record, enabling RA obligation trading creates opportunities to reallocate obligations more efficiently across LSE portfolios, but it also introduces the need for processes to identify counterparties, validate transfers, and ensure consistency with RA compliance requirements.

This section describes how an SOD intermediary could support these functions. First, it outlines the services an intermediary could provide to facilitate trading of SOD obligations. Second, it describes design principles that would guide how those services are structured to promote efficient trading while preserving regulatory integrity.

An intermediary could support these objectives without altering the bilateral contracting structure of the RA program. [9] To do so, it could provide three categories of services: transactional, administrative, and informational.

Transactional Services

Transactional services would facilitate the identification and pricing of potential trades between LSEs. The intermediary would help LSEs locate counterparties that are long or short in specific SOD hours and assist in price discovery. Importantly, the intermediary would not replace bilateral contracting. All obligation transfers would continue to be executed through bilateral agreements between LSEs, consistent with existing RA procurement and compliance practices. The intermediary's role would therefore be limited to facilitating matching and price discovery rather than acting as a central counterparty.

LSEs could access these services through multiple mechanisms depending on their operational preferences. For example, the platform could allow LSEs to submit bids and offers for specific hours, enabling straightforward bilateral matching. Alternatively, groups of LSEs could submit information regarding hourly loads, existing RA resources, and compliance requirements so that the platform could identify mutually beneficial reallocations across multiple participants. Such optimization-based approaches could increase the total gains from trade by coordinating adjustments across several portfolios simultaneously.

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[9] It is important to distinguish between two meanings of the term 'bilateral trading' used on the record. On the one hand, bilateral trading is an institutional arrangement in which LSEs independently search for trading opportunities in an uncoordinated way and negotiate commercial terms bilaterally; on the other hand, bilateral trading refers to the legal execution of trades between two parties through a contract. An intermediary SOD would maintain the current legal structure based on bilateral contracts while implementing coordinated matchmaking and price discovery.

The implementation of specific transactional mechanisms will depend on demand and the regulatory framework enabling SOD obligation trading.

Administrative Services

Administrative services would ensure that SOD obligation trades are valid and internally consistent before they are reported in RA compliance showings and thereby enable obligation trading to happen within the logistical constraints recognized by the Energy Division. Because the Commission reviews compliance filings rather than the negotiation of individual transactions, a key function of the intermediary would be to resolve potential inconsistencies upstream, before submissions reach the Energy Division.

The intermediary could verify that trades comply with applicable Commission rules and safeguards. Trades executed through the platform would be valid and consistent by construction through careful design of the matching and pricing algorithms, while trades arranged bilaterally outside the platform could request preemptive verification services. These verification services would confirm that both counterparties report matching hours and quantities, and ensure that transferred obligations correspond to valid positions. When discrepancies arise, such as mismatched hours or quantities, the intermediary could contact the relevant parties to reconcile those issues prior to formal reporting.

The intermediary could also standardize the reporting of obligation transfers so that submissions to the Commission and Energy Division follow a consistent and verifiable format. Standardized reporting would simplify compliance validation and reduce administrative burdens for both LSEs and Commission staff.

Like transactional services, the implementation of specific administrative services will also depend on demand and the regulatory framework enabling SOD obligation trading. Based on these details, an intermediary can implement a process that enables the Energy Division to meet its timelines.

Informational Services

Informational services would improve price discovery and transparency in the emerging market for hourly SOD obligation transfers. Because hourly obligations represent a new compliance product, there is currently no information about the value of specific hours. The intermediary could address this gap by collecting and disseminating pricing and trading information.

Price discovery could be implemented through mechanisms such as auctions, order books, or pricing boards displaying bids and offers for specific hours. These tools would provide signals about the scarcity and value of particular hours, enabling LSEs to make more informed procurement and trading decisions.

Information dissemination could occur on a tiered basis reflecting different levels of participation. General pricing indicators or summary statistics could be published publicly to improve market transparency, while more detailed or time-sensitive information—such as live order book data—could be made available only to participating LSEs or counterparties to specific trades. This structure balances transparency with the protection of commercially sensitive information.

Design Principles

While the services described above outline what an SOD intermediary could provide, the effectiveness of such a platform would depend on how those services are designed. Market rules, pricing mechanisms, and information disclosure policies can materially affect trading outcomes. For this reason, the intermediary should be structured according to well-established principles of market design as follows:

- Voluntary participation. LSEs would remain free to transact bilaterally without using the SOD intermediary services. The intermediary would therefore succeed only to the extent that it provides a liquid and competitive environment where participants can efficiently identify counterparties and obtain attractive trading opportunities.
- Efficiency. The SOD intermediary should seek to maximize gains from trade by facilitating reallocations of obligations to participants that can meet them at lower cost.
- Incentives. Order types, bidding interfaces, optimization protocols, and in general all the algorithms implemented will consider the incentives of participants to allow them to accurately express their trading needs and constraints.
- Transparency. The platform should disseminate relevant pricing and trading information in a structured manner while protecting commercially sensitive data.
- Fairness. Pricing and matching rules should distribute the gains from trade in a fair and equitable manner among participants.

Taken together, these services and design principles would allow an SOD intermediary to support the efficient operation of hourly obligation trading while preserving the bilateral contracting structure and regulatory oversight that underpin California's Resource Adequacy program.

IV. POTENTIAL BENEFITS OF AN SOD INTERMEDIARY

An SOD intermediary could maximize the benefits of SOD obligation trading while materially reducing the administrative complexity associated with its implementation.

Both the CalCCA Study and the Transactability Report agree that SOD trading would produce savings for LSEs, and that those savings could be maximized via coordinated trading through an intermediary using optimization.

Table 1 summarizes these estimates. Table 1 shows the benefits associated with SOD obligation traded as estimated by CalCCA and the Energy Division. The table shows the combinations of volumes and prices considered in each study. Volumes are relatively similar, with only 21% more volume in the CalCCA study than the Energy Division study with respect to their more comparable scenario. Prices are significantly different in each study, with CalCCA assuming a price 132% higher than the Energy Division.[10]

TABLE 1: BENEFITS OF SOD TRADING

Transactability Report Scenarios	Reference Volume (MW)	Price ($ / kW-month)	Benefits September 2025 ($M)
Surplus in the Tightest Hour	262	11.21	2.94
+ Contracted Storage	373	11.21	4.18
+ Optimized Portfolio	678	11.21	7.60
CalCCA Study Scenarios			
Uncoord. Obligation: SOD	696	26.00	18.10
Obligation: SOD	823	26.00	21.40

Crucially, both studies agree that an intermediary can maximize the benefits of SOD obligation trading. CalCCA estimates the improvement upon uncoordinated trading to be around 18% while The Energy Division estimates this benefit at around 82%.

In terms of costs, the Transactability Report identifies several challenges associated with the administrative complexity of reviewing SOD trades. An SOD intermediary would be able to solve or minimize the impact as follows:

- *Given the number of LSEs, hours, and transactions involved, even a limited number of unresolved trades could delay or impede the MA compliance review.* An SOD intermediary would minimize the number of unresolved trades via its two main services: transactions within the platform would be valid and reporting of trades consistent by construction; similarly, transactions outside of the platform can benefit from preemptive review and resolution before they are sent to the Energy

[10] Andrew Mills, Effective Mechanisms for Slice-of-Day RA Trading, April 24, 2025 (CalCCA Study)

Division for final review. The main value of the SOD in this regard is the reduction of the probability of unresolved trades sent to the CPUC.

- *While one potential approach would be to introduce an intermediate step to validate and lock obligation trades before supply plan review begins, doing so would add an additional layer of review to an already compressed timeline and increase the risk that compliance notices could not be issued before CAISO locks supply plans.* An SOD intermediary would provide two capabilities to resolve this challenge: (1) trade validations ahead of the Energy Division's own timeline, and (2) software-implemented validation protocols that are more efficient than independent spreadsheet submission. In fact, the work of the Energy Division would likely be *reduced,* because having already passed through the intermediary's validation protocols LSE showings would include fewer errors. Furthermore, the SOD intermediary could implement structure trading dates to match reviewing timelines. In a bilateral market, LSEs spend significant time finding counterparties and negotiating terms—with an SOD matching and pricing timelines would be reduced, allowing for locking trades on time for submission.
- *Any obligation trade mismatches would necessitate follow-up with the involved LSEs and potentially require revised filings before staff could even proceed with supply plan compliance verifications supply plans at T-30.* An SOD intermediary can follow up with LSEs that request verification services in cases where reported trades are inconsistent, further reducing the probability of the CPUC of receiving mismatched trades.

Taking together, these functions suggest that an SOD intermediary could serve as practical market infrastructure that allows the benefits of SOD obligation trading to be realized while addressing the operational concerns identified in the Commission's record.

V. CONCLUSION

The Commission's transition to the Slice-of-Day framework represents an important evolution in the design of California's Resource Adequacy program by aligning reliability requirements more closely with the hourly needs of the power system. At the same time, the shift to hourly obligations has created a structural mismatch between the granularity of compliance obligations and the granularity at which resources are currently transacted. The transactability of SOD obligations, as proposed in the record, offers a practical way to address this mismatch by allowing LSEs to reallocate obligations across portfolios when doing so improves efficiency.

The record also indicates that the potential benefits of SOD trading could be substantial, while recognizing that implementation raises legitimate operational and administrative concerns. These

concerns—particularly those related to trade validation, reporting consistency, and compliance timelines—are important considerations in determining how such a mechanism should be implemented.

As described in this paper, an independent SOD intermediary could help reconcile these objectives in ways that to date have not been realized in the record. By providing transactional, informational, and administrative services, an intermediary could facilitate efficient obligation trading among willing LSEs while ensuring that trades are validated, consistently reported, and aligned with the Commission's compliance framework. Such an intermediary would not alter the bilateral contracting structure of the RA program, but rather would function as voluntary market infrastructure that improves coordination among participants and reduces the likelihood that unresolved trades or inconsistent filings reach the Commission.

An SOD intermediary is a practical way to implement SOD obligation transactability in a manner that captures its efficiency benefits while addressing the operational concerns identified in the Commission's proceedings.