BEFORE THE PUBLIC UTILITIES COMMISSION
OF THE STATE OF CALIFORNIA

Order Instituting Rulemaking to Establish Energization Timelines	Rulemaking 24-01-018

CLEAN COALITION COMMENTS ON ADMINISTRATIVE LAW JUDGE'S RULING CLARIFYING NEXT STEPS FOR FLEXIBLE SERVICE CONNECTIONS, MODIFYING PHASE 2 SCHEDULE, AND REQUESTING PARTY COMMENTS

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I. INTRODUCTION

Pursuant to Rule 6.2 of the Rules of Practice and procedure of the California Public Utilities Commission ("the Commission"), Clean Coalition submits comments on the *Administrative Law Judge's* ("ALJ") *Ruling Clarifying Next Steps for Flexible Service Connections, Modifying Phase 2 Schedule, and Requesting Party Comments*, issued on February 7, 2025, and the *Email Ruling Granting Schedule Amendment*, issued on February 20, 2025. Clean Coalition strongly supports the Commission's choice to dedicate time to creating standard terminology and a framework surrounding flexible service connection agreements ("FSCAs"). FSCAs represent a huge opportunity to more effectively utilize the existing grid, helping to minimize costs as the state decarbonizes and electrifies in an equitable manner. We urge a holistic approach to this subject that includes consideration of key issues such as the need for accurate/actionable data, efficient data sharing protocols, and how FSCAs can help unlock widespread resilience.

II. DESCRIPTION OF PARTY

The Clean Coalition is a nonprofit organization whose mission is to accelerate the transition to renewable energy and a modern grid through technical, policy, and project development expertise. The Clean Coalition drives policy innovation to remove barriers to procurement and interconnection of DER — such as local renewables, demand response, and energy storage — and we establish market mechanisms that realize the full potential of integrating these solutions for optimized economic, environmental, and resilience benefits. The Clean Coalition also collaborates with utilities, municipalities, property owners, and other stakeholders to create near-term deployment opportunities that prove the unparalleled benefits of local renewables and other DER.

III. COMMENTS

Pilot and Process Learnings

1. ***What learnings from past and ongoing large IOU FSC pilots and processes can inform the design of LLP?***

No answer at this time.

2. ***Are there FSC processes in other jurisdictions whose learnings should be considered? If so, what are those jurisdictions and the associated learnings?***

The Commission should look to Australia, which can provide direct learning from its dynamic operating envelopes ("DOE") framework. The learnings from Australia are especially important due to the high penetration of solar PV. Results demonstrate the benefits of deploying additional solar and solar+storage systems, additional export capacity, unlocking new market opportunities, and increasing the utilization of the existing grid rather than focusing exclusively on building out the grid as the sole solution to changing conditions.

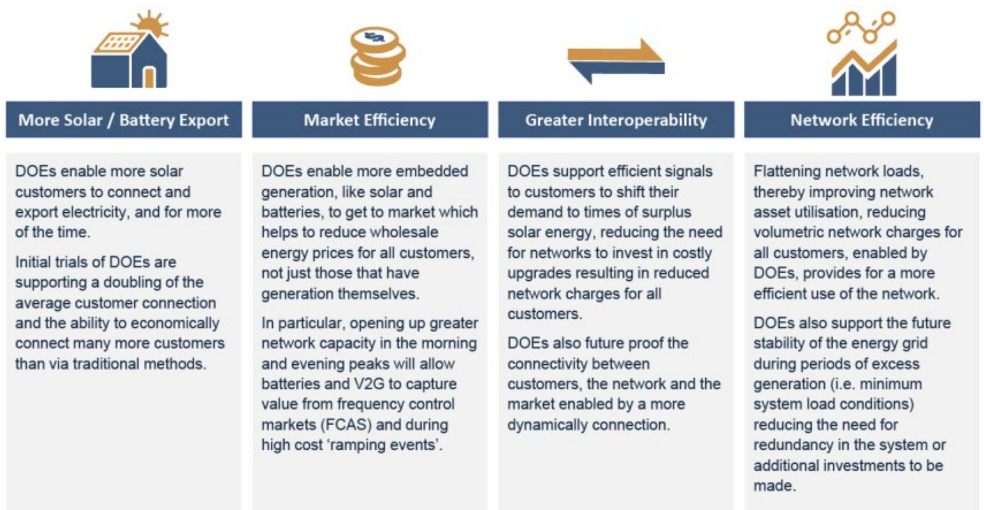

Figure 1: The potential benefits dynamic operating envelopes can offer to the electricity system

In South Australia, "the state Government has mandated that all new solar installations are 'dynamic exports-capable' from December 2022 to enable it to manage the highest penetration of PV, relative to underlying demand, currently in the NEM."[1] As California continues to see additional rooftop solar systems, including a higher number of dispatchable solar+storage systems, the rollout of DOEs in Australia should be a pertinent example. The preliminary results from Australia (seen in the image below) show that export capabilities of solar systems have

[1] Dynamic Operating Envelope Working Group Outcomes Report, at p. 8. https://arena.gov.au/assets/2022/03/dynamic-operating-envelope-working-group-outcomes-report.pdf

almost doubled, from an initial static limit of 5kW for typical residential customers to around 10kW following the adoption of DOEs. This massive increase in hosting capacity has clear implications for California for both generation and load.

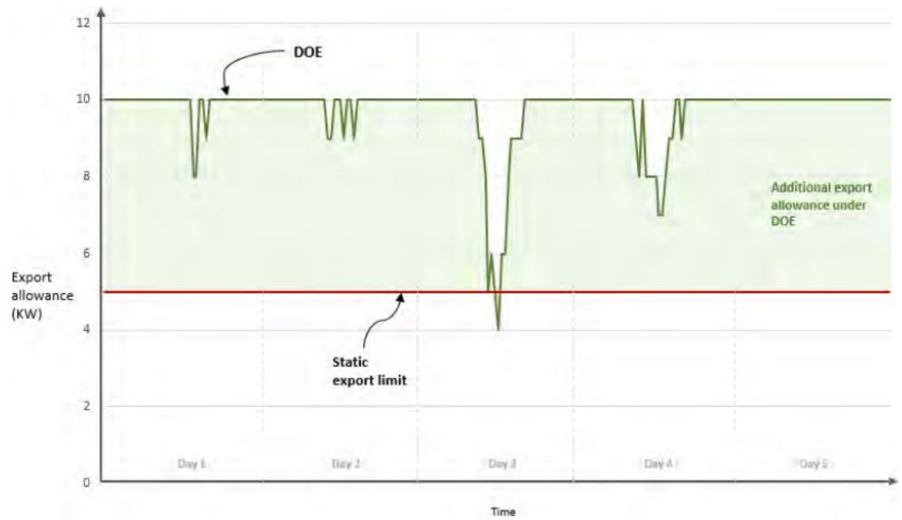

Figure 3: Illustration of the additional capacity a DOE can create

In addition, Australia's experience with the technical rollout and consumer outreach are necessary considerations for a successful implementation in California. The Working Group report describes the need to build transparency and social licenses around DOE design and notes, "as DOEs become more widespread, there may be a need for additional regulations to ensure that there is consistency, transparency and fairness."[2] Customers will not, and should not be expected to, operate their own systems on a granular basis. Software systems and aggregators will likely handle the majority of systems, requiring a strong regulatory framework to ensure that appropriate protections are in place and trust in third party operators. The Working Group includes a full list of 27 best practices that it identified as crucial for successful implementation.

Lessons learned

1. DOEs do not need to be mandated
2. Build on learning from trials
3. Strengthen linkages with international technology standards processes
4. Implementation of DOEs should not be limited to new solar customers only
5. Establishing a social license for DOEs
6. Transparency about dynamic constraint levels

[2] *Ibid*, at p. 7.

7. Supporting the greater uptake of DER: "Industry and regulators should retain a focus on the efficiency of network investments and how DOEs can contribute to supporting increased uptake of DER."[3]
8. Customers should be able to opt in or out of DOEs: "The Working Group considers that where DOEs are enabled on a local network, customers should be provided the choice to opt into or out of DOEs according to their preferences, noting that the alternative may be a lower static limit"[4]
9. Utilize existing risk assessment tools
10. Enable affordable and accessible dispute resolution
11. Solar retailers and installers have an important role in information provision
12. Protecting consumers from misinformation
13. Build up compliance information and incentives
14. Information on DOES must be easily accessible
15. Consumers should have easy access to data on their DOE performance
16. Assigning compliance risk to the right parties
17. Poor BTM interoperability presents a potential barrier to consumers recognizing full potential benefit.
18. Work towards national consistent approaches
19. CSIP-AUS/IEEE2030.0 provides a suitable framework for network-client communication
20. DOES can be initially allocated at the connection point
21. Draft principles for good practice DOE allocation
22. More work needed to finalize a device control hierarchy
23. Further consultation is needed on device fallback behavior
24. Using a 5-minute interval duration is efficient
25. A framework for constraints forecasting should be developed
26. Longer range forecasting is a priority
27. Detailed DOE calculation methodologies need not be standardized

3. ***What is an appropriate temporal granularity for LLP schedules? For example, will the simple monthly or seasonal import-limit granularity utilized within Limited Generation Profiles (LGP) be sufficient for LLP schedules? If not, why not?***

At this point the factor limiting the granularity of a LLP is likely the ability of the distribution operator to send granular signals to a facility to maximize the value of load flexibility. A given facility, particularly a large load facility or large lead time facility, will want to reduce the waiting time before an energization can be completed and may also want to maximize the load that can be served. As the utilities roll out their distributed energy resources management system

[3] *Ibid*, at p. 10.
[4] *Ibid*, at p. 11.

(“DERMS”) platform, making the LLPs more dynamic with the end goal of approaching real time or near real time signals offers the greatest opportunity for value creation.

An effective LLP should align with the system peak and/or the local circuit peak, creating value by enabling the customer to reduce load to avoid meeting infrastructure limits. Aside from some seasonal differences, the peak periods are likely to be very similar, providing an LLP customer with enough certainty to operate its facility while complying with signals on how to modify load according to infrastructure constraints. With the historical data compiled by the utilities and extensive forecasting efforts, the goal of LLPs from the outset should be to maximize utilization of the existing grid, while making energizations more efficient and reducing the rate with which investing in future infrastructure is occurring.

While the LGP is an important step forward, the blocky profiles that are available do not align directly with grid conditions, meaning that the limits being enforced are somewhat arbitrary. Adding limits based on multi-hour blocks and without considering seasonal changes are not reflective enough of grid conditions to significantly impact the duck curve. Therefore, while it is understandable that the Commission has chosen to begin with a pilot program that focuses on taking a small step forward, the LLP should build on the lessons learned from the LGP and begin with a more granular structure that maximizes the value to the facility and the ratepayers.

4. ***What elements of LGP adopted in R.17-07-007 and LGP Resolutions3 should be adapted for development of LLPs? In what ways can implementation of LLP employ approaches from the LGP process? In what ways should LLP design and implementation differ from LGP?***

See the answer to Question 3, above.

Most customers will choose to adopt an LLP as an interim bridging solution to begin operations while necessary grid upgrades are being completed. However, for customers that choose to utilize an LLP as a permanent option to support an efficient and cost-effective distribution grid, the LLP should include compensation for resources that provide long-term load flexibility. Customers capable of responding to dynamic signals provide the grid operator with a unique tool to balance and manage the grid, both on local feeders as well as the broader distribution grid. On a daily basis, LLP flexibility can be more valuable than simple demand response, which is most effective in responding to the system peak and grid emergencies.

In addition, the Commission should consider compensation for facilities that choose to utilize the LLP in situations where the utility cannot meet the energy time periods adopted in D. 24-09-020. If a facility must choose between limited service or no electricity due to a utility's inability to serve customers in a timely manner, compensation should be available. This hypothetical may not be a long-term issue if the utilities make concerted efforts to meet the required time periods but should still be considered by the Commission to ensure that customers do not face no-win situations that impact their bottom line without any recourse.

5. ***How can Load ICA results and data inform and enable LLPs? Is there another existing means to inform and enable LLP other than Load ICA?***

As we noted in our comments on the Smart Inverter Operationalization Working Group Report, proactive planning is not feasible without accurate and actionable data.[5] A key to FSCAs is the ability of an interested customer to have a good understanding of the available amount of generation or load that is available on a given feeder. Without accurate and actionable information, a customer is left guessing and a FSCA can only be a reaction to the utility providing updated information that is far off from what the hosting capacity that the ICA maps suggest is available.

Clean Coalition, Green Power Institute, the Interstate Renewable Energy Council, and others have consistently noted that inaccurate ICA maps are detrimental to customers interested in siting new generation or load. On the load side, specifically, the lack of confidence in the ICA maps results in a situation where paying to submit an application is often the only consistent method to get up-to-date information from the utilities. If the accuracy and actionability of the Load ICA maps cannot be improved in the near future, the state will be unable to realize the full value of FSCAs.

Equipment Requirements and Certification

[5] Clean Coalition Reply Comments on Corrected Smart Inverter Operationalization Working Group Reports, at p. 4.

6. ***To implement static LLPs what device(s) are required for customers to install to control load and prevent power consumption (i.e., imports) from exceeding the scheduled LLP? Is PCS sufficient for this task?***

No answer at this time.

7. ***Is a PCS certified to UL 3141 Issue 2,4 sufficient to operationalize static LLPs? If no, why not, and are there alternative existing standards or equipment the Commission should consider for LLP participation?***

No answer at this time.

8. ***When do stakeholders expect UL 3141 Issue 2 certified equipment to be readily available to support LLP?***

No answer at this time.

9. ***Is there a size threshold (e.g., absolute [MW] or relative [percent of total feeder rating] site capacity) that necessitates equipment commissioning or telemetry? If so, what is that threshold and what need does it raise?***

No answer at this time.

Energization Queue and Circumstances for LLP

10. ***Under what circumstances should a customer be eligible for FSCAs? What type or class of customer should be eligible for FSCAs and why? Should FSCAs be reserved for when a circuit is constrained? Should customers be able to elect to engage in an FSCAs on an unconstrained circuit to aid in creating circuit capacity for additional customers?***

Eligibility for a Flexible Service Connection Agreement ("FSCA") should not be limited for any specific customer class or type of circuit, unconstrained or constrained. While it is most likely that customers on a constrained circuit facing long interconnection timelines or costly grid upgrades will have the highest level of interest in an FSCA, there is no reason to limit uptake. Even on an unconstrained circuit, limiting load may be a valuable tool for promoting widespread electrification; while one residential property choosing to electrify may not trigger an upgrade, mass electrification on a feeder may. Adding electrified customers under flexible arrangements would reduce the chance of the last customer to electrify facing massive upgrade costs, avoiding a situation where the last customer to electrify receives the least financial benefit from fuel switching.

In addition, from the context of community resilience, having a greater number of customers able to reduce loads based on signals from the grid operator maximizes the ability of a Community Microgrid to serve the most critical loads and facilities, especially in the face of a sustained grid outage. Widespread use of FSCAs would fully unlock the value of the Clean Coalition's Resilient Energy Subscription (RES) market mechanism as a tool to finance the deployment and expansion of Community Microgrids. Clean Coalition proposed the RES – which the Commission called "novel"[6] – in the Microgrids proceeding ("R. 19-09-009") as a monthly ($/kWh) fee-based market mechanism that allows a subscriber to determine the minimum amount of guaranteed local clean energy that will be delivered in the event of a grid outage.[7]

> Under normal grid conditions, facilities will operate with all loads served. Community Microgrids are sized to deliver resilience during grid outages of any duration, including over numerous days of low solar production, meaning that Community Microgrids will generally deliver far more energy than the RES allocations during grid outages — given that solar production is otherwise always better than the worst-case RES design period. When there is a shortage of available energy during grid outages, however, a Community Microgrid is obligated to deliver only to RES limits…[8]

Widespread load flexibility would enable a Community Microgrid operator to limit import capabilities of RES subscribers, so they receive their contracted RES energy in the event of an outage and potentially to increase limits based on the amount of additional energy available. Alternatively, a flexible connection will help ensure that critical loads and critical facilities will retain as much energy as needed to manage an emergency in the community. Clean Coalition's RES is based on a framework to tier the importance of loads at a given facility, called VOR123 and applying VOR123 to an entire section of the distribution grid.

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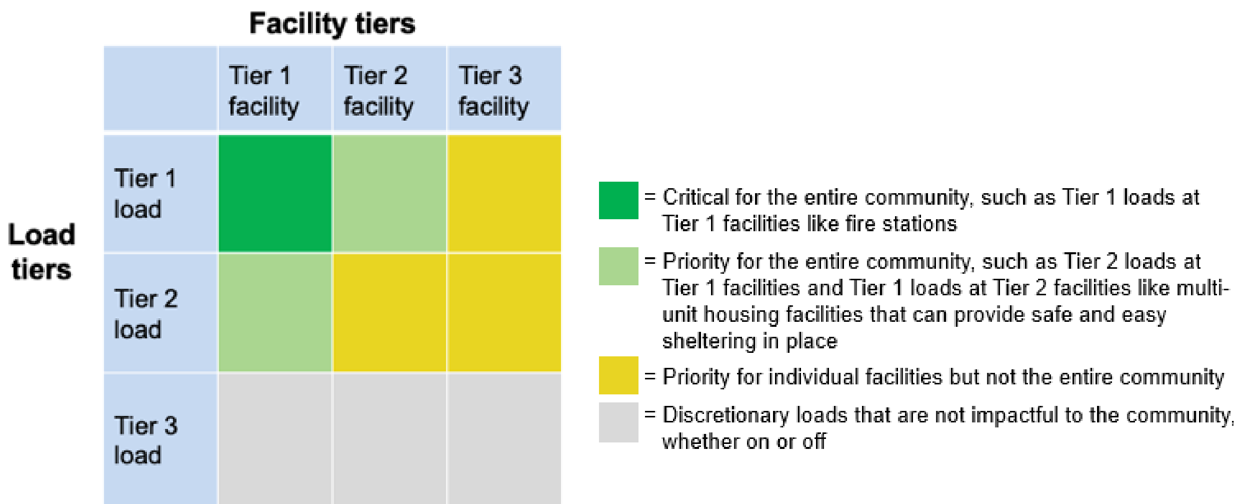
[6] D. 24-11-004, at p. 50.
[7] See CLEAN COALITION SUBMISSION OF THE RESILIENT ENERGY SUBSCRIPTION INTO THE RECORD AS A DRAFT MICROGRID MULTI-PROPERTY TARIFF https://docs.cpuc.ca.gov/PublishedDocs/Efile/G000/M521/K572/521572733.PDF
[8] *Ibid*, at p. 3.



The chart above shows what tiering the importance of facilities and loads for a Community Microgrid looks like. For example, in the event of a wildfire, the fire department may have to run pumps consistently to ensure that enough water is available to fight the fire and maintain the dispatch around the clock, resulting in a larger (or more sustained) electrical load than normal. In that case, the top priority for the Community Microgrid operator (e.g., the dark green square which represents Tier 1 loads at a Tier 1 facility) is to make energy available so that the fire department can fight the fire properly. Widespread flexibility can enable Community Microgrids deployed via the RES of any size, including at a single property multi-family housing site, at a single distribution feeder, and across an entire portion of the distribution grid.

FSCAs have benefits that extend to economic, environmental, and resilience circumstances. We strongly oppose limiting eligibility for any customer classes or infrastructure.

11. How should the Utilities address multiple requests for FSCAs on the same circuit?

The most effective answer is to reform the cost-causer model for recovering infrastructure costs so that one customer is not forced to cover the full cost of a grid upgrade. This is not an issue that is unique to FSCAs, but one that applies to all interconnections and energizations, and therefore should not be construed as a bottleneck that inherently impedes the implementation of FSCAs. Fixing the outdated cost-causer model was scoped into the Rule 21 interconnection proceeding ("R. 17-07-007") but was never addressed before the proceeding was closed and is very clearly intersectional with discussions in this proceeding and the High DER proceeding ("R. 21-06-

017”). The longer the Commission waits to adopt solutions, the more negative consequences will arise. FSCA implementation should occur as quickly as is practicable, as should discussions on fixing the cost causer model.

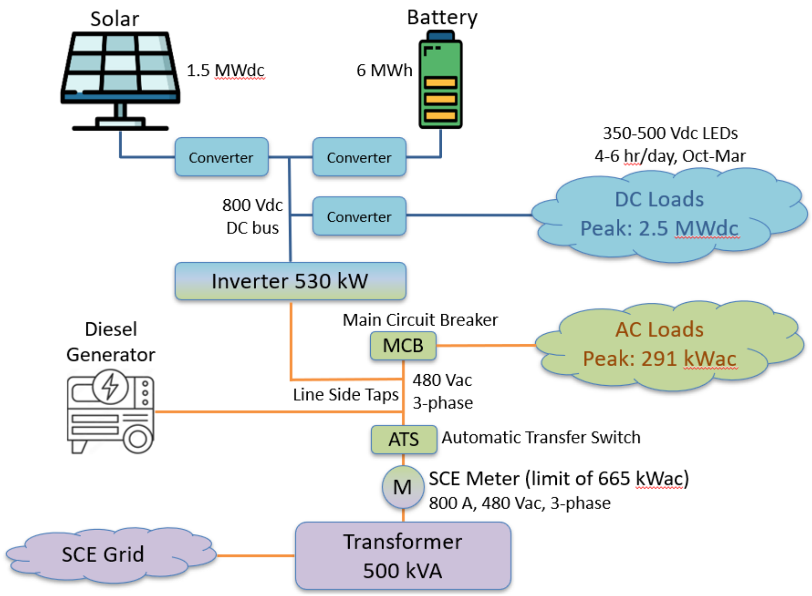
However, based on the existing model (not the equitable solutions that are sorely needed), the utilities should consider requests on a first-come, first-serve basis. Later requests will likely be required to have a lower firm limit and serve as a bridging solution until additional capacity is available when the upgrade has been completed

Tariffs, Rules, Agreements, and Forms

12. What are the applicable tariffs, rules, agreements, and forms that may need modification? What should those modifications be? Is there a need for differences between different IOUs' versions of these documents? If so, what is this need based upon?

A number of changes will be necessary, but the main changes will need to be made in the utilities' Rule 21 tariffs. In addition, the Clean Coalition recommends amending the Net Energy Metering (“NEM”) rules to allow systems to be oversized for resilience with a FSCA in place to limit the amount of exports based on the site's load.

The image below shows a designed DC Solar Microgrid for a farm looking to serve new greenhouses. The SCE feeder that the site is connected to is severely constrained, limiting the site to exporting 665 kW (ac) before a multi-million-dollar (and multi-year) grid upgrade is triggered. So while the solar is sized at 1.5 MW(dc), the inverter is sized at 530 kW to ensure that system exports never exceeds the limit imposed by SCE and the site only imports from the grid briefly each day.



1.5 MW DC coupled solar microgrid at a farm sited to serve 2.5 MWdc loads

A FSCA would enable this configuration and likely increase the amount of generation/load permitted beyond the existing 665 kW limit. Clean Coalition supports allowing oversizing so exports are permitted to match the load as the non-firm limit changes under the FSCA. Using the example above, if the initial 665 kW limit is determined to be 800 kW at 5:00 p.m., the site should be allowed to export 800 kW at 5:00 p.m. everyday if an FSCA is in place. In addition, a site should be allowed to oversize solar or solar+storage for resilience purposes if the site's exports never exceed the non-firm capacity limit. Doing so maintains the integrity of NEM while acknowledging the need to oversize in order to provision full resilience.

13. Are there any unique considerations that must be included in modifications to rules, agreements, and/or forms (e.g., such as for onsite generation, electric vehicles, or emergency conditions)?

See the list of 27 best practices included in the answer to question 2. A few should be highlighted here. First, customers need easy access to their data as do third parties who are responsible for controlling the flexibility and entities that are running energy programs (such as Community Choice Aggregators). Consistently having to pay for access to site data or wait for multiple days to receive data are both barriers that reduce the viability of FSCAs. Data access should be addressed in tandem with creating a framework for FSCAs. Second, customer choice should be promoted. Should a customer want to opt-out of a FSCA for any reason, they should be permitted to do so, even though an opt-out will mean a lower average capacity limit. Third, customers should be allowed to seek a new agreement with the utility when capabilities are implemented to enable more granular communications to be sent. Early adopters should not be punished as technology changes. Fourth, FSCAs should be made at the meter level, where a facility interfaces with the utility, not behind-the-meter at the device level. FSCAs represent an important opportunity to create value for a facility and the ratepayers, but they do increase the complexity of operating the grid. Unnecessary complexity by creating further oversight behind the customer meter should be avoided, especially if significant value is not added; this may change once an FSCA implementation framework is created and tested, but for now the focus should be on agreements at the interface between a facility and the utility. Fifth, part of the implementation process should include the creation of a dispute resolution process dedicated to FSCAs that can lead to timely and transparent solutions. New connection options will surely lead to disputes, some that may be foreseeable and others that are unexpected. An independent arbitration process is necessary to hold all parties accountable and ensure that customer concerns are addressed in an expedient manner.

14. Are there other steps needed to implement FSCs? If so, what are these steps?

No answer at this time.

IV. CONCLUSION

The Clean Coalition appreciates the opportunity to submit these opening comments and supports the Commission's decision to solicit information on FSCAs, which are an important legal/technical construct to maximize the value of the existing grid and save the ratepayers money.

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