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Integrated Energy Policy Report-Accelerating Interconnection and Energization

Additional submitted attachment is included below.

August 25, 2025

Email to: docket@energy.ca.gov
Docket Number: 25-IEPR-06
Subject: 2025 Integrated Energy Policy Report-Accelerating Interconnection and Energization

RE: Comments of Critical Loop on the Integrated Energy Policy Report (IEPR) Commissioner Workshop on Accelerating Interconnection and Energization

Dear Chair Hochschild, Vice Chair Gunda, and Energy Commission Staff,

Critical Loop was born out of a mission to accelerate industrial power. Today, we are making power more accessible and efficient by combining industry-leading, rapidly-deployable and scalable microgrids with advanced predictive software. The Legislature likewise recognized the urgent need to accelerate energization processes when it tasked the CEC with providing recommendations on how to do so in the 2025 IEPR. Based on our experience, we urge the Commission to develop a roadmap that will rapidly lead to California utilities offering comprehensive Flexible Load Interconnections (aka Flexible Service Connections) to all costumers facing energization delays, including commercial and industrial customers. We also encourage the Commission to prioritize rate cases for utility owned storage to solve distribution constraints, and to streamline permitting for customer owned storage which will help Flexible Service Connections provide a key bridging solution to accelerate interconnection requests that trigger distribution capacity work.

The need for such a solution is urgent and widespread. Over the last two years, Critical Loop has worked with customers seeking commercial and industrial tariffs that have faced untenable energization delays. Distribution capacity constraints often require costly and time-consuming infrastructure upgrades to accommodate their interconnection requests. These delays increase project costs, push back the creation of construction and permanent jobs, and ultimately slow the growth of California's economy and inhibit the State's transition away from fossil fuels. Housing projects, data centers, critical infrastructure, electric vehicle charging stations, factories, and other commercial and industrial projects have been put on hold, or not pursued at all, because of energization delays.

These delays are not necessary, however. The businesses and public entities pursuing these projects are often willing to connect at current grid capacity before distribution upgrades are able to be built, and at times are even willing to do so long-term. The technology is there to support these solutions, allowing customers to manage their power demands to stay

within the grid's current capacity with intelligently controlled onsite assets, like batteries, solar, or backup generation. Products such as Critical Loop's microgrids enable them to do so.

On the utility side, however, we need widely available, and easily accessible Flexible Service Connections to facilitate this solution. We acknowledge PG&E and SCE programs to create simple, Flexible Service Connection frameworks, and the CPUC's efforts to scale Flexible Service Connections in the Energization Proceeding. We also acknowledge the CPUC's work to provide direction on more complicated scenarios, such as sending day ahead load limits to customers in the High DER Proceeding. The 2025 IEPR should explore expanding these efforts to publicly owned utilities and to serve the full range of customer use cases. We discuss energization delays and the solutions offered by Flexible Service Connections in more detail below.

The Barriers to Rapid Energization

The grid is old and electrical upgrades are complex and expensive. At the same, load is growing at an unprecedented rate. California's ability to support data center expansion, reshored manufacturing, and electrified transportation is critical to economic prosperity and national security. We can't afford to rely on costly, time-consuming infrastructure upgrades to increase capacity.

Delays in energizing these projects are caused by physical grid constraints. A utility might decline or limit a service request because:

- A feeder is thermally constrained, adding load would overheat it.
- The voltage profile on the circuit would fall outside safe margins.
- A substation transformer is already at its limit.
- Adding the project's load would throw off the fault protection scheme.

In these situations, a utility cannot safely guarantee delivery of a project's full power demand at that location, at that moment. But often, the utility can deliver the project's power demand most of the time. The problem becomes: how can the utility make that offer, and how can the project make up the shortfall?

Flexible Service Connections Can Accelerate Energization With Reliable, Existing Technology and Regulatory Support

Flexible interconnections start from the premise that a project can take what electricity the utility can give immediately, and fill in the rest as a bridge to full energization. Rather than waiting for a full interconnection to come through, a customer accepts a partial grid connection and combines it with intelligently controlled onsite assets, like batteries, solar, or backup generation.

For example: a facility may need 3 MW to operate, but during summer evenings, the utility can only deliver 1 MW for two hours. With a 2 MW/ 4MWh battery system, the facility can still operate at full capacity by drawing down stored energy during those hours.

In this model, power doesn't have to be continuous, as long as it's predictable and storage becomes the tool that turns intermittent power into operational certainty. What's most important is that it all happens in a way the utility can rely on.

Utilities can't support flexible models unless they are confident that customers will stay within agreed limits. Fortunately, safety standards and control equipment make flexible interconnection safe. UL 3141 is the safety standard for Power Control Systems (PCS)—the devices that coordinate site load, onsite generation, and grid import in real time, in a way that the utility can trust.

Critical Loop's PCS is certified to this standard, enforcing the "not to exceed" limit at the grid connection point while dynamically dispatching batteries and managing loads. The result: grid confidence and site reliability, even under constrained interconnections. New facilities are able to take capacity the utility has now, make it useful immediately, and grow over time without stranded investments. Utilizing this approach can reduce time-to-power by months or years.

We need the local utility to offer flexible service connections to make this solution work, however. Moreover, the terms of flexible service connections must be transparent and these offerings must be readily available in order de-risk the project development cycle.

For example, customers should be able to use a utility's Integration Capacity Analysis (ICA), also known as a hosting capacity analysis, to develop limited load profiles. The IOUs use the ICA to develop limited generation profiles, but not yet limited load profiles. The flexible service connections that some utilities offer have not employed the ICA to develop them. Applying the ICA to develop limited load profiles would provide helpful predictability and transparency. State energy agencies should be pushing the utilities to leverage the ICA in developing flexible service connections. Additional options should exist as well.

For instance, customers should be able to request Flexible Service Connection terms at the same time as the large load study, so that a full large load and a flexible interconnection option are presented at the same time. This way, a customer can understand what capacity they can receive continuously or "flexibly" and make a decision to proceed based on delays and other costs.

The Commission should also prioritize related processes that enable Flexible Service Connections to reach their full potential. For instance, while Critical Loop is in the business of providing our customers with microgrids as a bridging solution, we also support utility-owned storage deployed on-site as another approach. In this case, the utility sites storage on the customer location and delivers energy to that storage ahead of time. Then, when the flexible interconnection reduces the power import limit, the customer can operate unimpeded. We believe that there is also a benefit to all ratepayers in this approach. SCE is currently seeking

approval for this type of relocatable storage bridging solution in its General Rate Case 2025-2027. We encourage the Commission to prioritize this effort and expand it to other utilities.

Finally, the Commission should also be aware of processes that can pose barriers to rapid energization through Flexible Service Connections. For example, if a customers plans to add energy storage capacity to their site to address the power import limits, the customer needs a fast interconnection under Rule 21 for non-export interconnections in order to achieve the energization time-savings. Rule 21 delays for non-export interconnections would slow down energization just when Flexible Service Connections seek to accelerate them. The State should thus continue to work on fast interconnections for Rule 21 non-exports as an important ingredient in the regulatory package to reduce energization delays.

An EV Fleet Operator Case Study

One of Critical Loop's recent projects demonstrates how Flexible Service Connections can help solve energization delays while benefiting job creation, the economy, and the transition to a clean transportation sector.

For most EV operators, the first filter in site selection is power availability. It's no surprise: if your trucks can't charge, your depot can't run. A growing EV fleet operator had found the perfect site: affordable lease terms, plenty of space for charging infrastructure, and great access to major highways. But the utility could not deliver the full 5 MW they needed. To receive that power, the operator would have had to wait 18 to 24 months for utility upgrades. During that time, the operator would miss out on fleet revenue from the delayed site launch. At first glance, that made the site a non-starter. But with a flexible approach to interconnection, the project was able to move forward.

In this case, the EV operator needed up to 5 MW at peak charging times. But the utility was only willing to guarantee 5 MW for 5,700 hours of the first 18 months. By deploying a UL 3141-compliant Power Control System and 3 MW of battery storage, the operator was able to limit grid draw to 2 MW, as permitted by the utility. It pre-charged batteries during off-peak hours and discharged batteries during charging peaks between 4–9 p.m., running full operations on schedule, with earlier revenue, job creation, and clean fleet deployment.

We see this example repeated over and over. Many ideal sites, especially those in low-cost industrial zones, have some utility service available, but not enough to meet total peak demand. These sites are often passed over because the grid's nameplate capacity doesn't match the spreadsheet's target, and the estimated time for the utility to complete grid capacity upgrades doesn't make the project pencil out.

If utilities offered flexible service connections for EV fleet charging sites and other commercial and industrial projects, the opportunities to get these projects up and running will expand and accelerate. For a deeper dive into Flexible Service Connections, please see an excellent Department of Energy, Office of the Electricity 2024 report, available here.

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California should not be letting a *binary*, all-or-nothing approach to interconnection stand as a barrier to energization. By establishing *flexible* service connection offerings for all types of use cases, the State can accelerate energization and the operation of facilities that move us into a more prosperous, secure, and sustainable future. Supporting processes such as utility owned storage to solve distribution constraints and streamlined permitting for customer owned storage will help achieve the acceleration that Flexible Service Connections facilitate. We urge the CEC to support this transition and drive it forward.

Thank you for the opportunity to submit comments on the IEPR Commissioner Workshop on Accelerating Interconnection and Energization. We appreciate your time to consider them.

Sincerely,

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