BEFORE THE PUBLIC UTILITIES COMMISSION
OF THE STATE OF CALIFORNIA

Order Instituting Rulemaking Regarding Policies, Procedures and Rules for Development of Distribution Resources Plans Pursuant to Public Utilities Code Section 769.	Rulemaking 14-08-013 (Filed August 14, 2014)
And Related Matters.	Application 15-07-002 Application 15-07-003 Application 15-07-006
(NOT CONSOLIDATED)	
In the Matter of the Application of PacifiCorp (U901E) Setting Forth its Distribution Resource Plan Pursuant to Public Utilities Code Section 769.	Application 15-07-005
And Related Matters.	Application 15-07-007 Application 15-07-008

PROPOSAL OF THE CALIFORNIA ENERGY STORAGE ALLIANCE IN RESPONSE TO THE ADMINISTRATIVE LAW JUDGE'S RULING

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In accordance with the Rules of Practice and Procedure of the California Public Utilities Commission ("Commission"), the California Energy Storage Alliance ("CESA") hereby submits this proposal in response to the *Administrative Law Judge's Ruling on Joint Parties' Motion for an Order Requiring Refinements to the Integration Capacity Analysis* ("Ruling"), issued by Administrative Law Judge ("ALJ") Robert M. Mason III on January 27, 2021. Pursuant to the Ruling, this proposal is being timely filed and served, thirty days after the April 28, 2021 workshop.

I. INTRODUCTION.

CESA appreciates the Commission's granting of the Joint Parties' Motion via the January 27, 2021 Ruling, which among other things, ordered the investor-owned utilities ("IOUs") to develop a description of the Uniform Load methodology, inputs, and assumptions and host a workshop on various use cases of this tool. As discussed in the Ruling, the Uniform Load methodology has the potential to support distributed energy resource ("DER") interconnection or service connection, such as for stationary energy storage, electric vehicle ("EV") charging infrastructure, and end-use building electrification. In response to the Ruling, the IOUs published their integrated capacity analysis ("ICA") methodology narrative and explanation and held a workshop on April 28, 2021 on how the load ICA is different from the generation ICA and is intended to provide users with a directional understanding of where capacity for additional load may exist on the current system configuration.

While tools like the generation ICA have been used to guide DER generation siting and have recently been incorporated into the Rule 21 interconnection process to streamline and more efficiently interconnect generation resources using a Limited Generation Profile,[1] CESA sees significant potential for the ICA methodology and tools to be adapted to support siting and interconnection use cases for DERs with load characteristics. With significant amounts of end-use and charging loads expected to come online in the coming years to meet the state's decarbonization goals, the Commission should direct the IOUs to work with stakeholders to refine the use case and identify key areas of improvement of the load ICA methodology. Leveraging and building on the investments already made in the ICA tools and platform, the load ICA could evolve to provide more than just static guidance and instead provide forward-looking guidance as well as more

[1] *Decision 20-09-035 Adopting Recommendations from Working Groups Two, Three, and Subgroup* issued on September 24, 2020 in R.17-07-007 at 224.

definitively support project investment decisions. In addition to supporting project siting and investment decisions, the load ICA could also feasibly be used to provide inputs into new programs or rates that may benefit from this type of locational analysis. In these ways, CESA believes that the Commission can support greater utilization of existing distribution infrastructure, support more cost-effective investments in DERs at strategic locations, and establish a foundation for future programs and rates.

II. THE CURRENT LOAD CAPACITY ANALYSIS METHODOLOGY IS A GOOD STARTING POINT BUT WILL REQUIRE REFINEMENTS TO BE USEFUL.

CESA appreciates the IOUs' narrative description of the current status, purpose, and limitations of the load ICA methodology. Notably, the IOUs shared how the load ICA is based on historical time-series profiles and does not reflect the forecasted trajectory of DERs and load expected to come onto the grid. In addition, as CESA understands it, the load ICA values are produced after iteratively increasing the amount of load at each three-phase node until a criteria limit is exceeded for each simulated hour (*i.e.*, thermal, voltage variation, voltage steady state). Like with generation ICA, the load ICA utilizes 576 circuit load profiles, including a maximum circuit load profile and a minimum circuit load profile.

Such information is somewhat helpful to provide directional guidance, as indicated by the IOUs to be the purpose of the load ICA results, but CESA believes that the current state of the load ICA falls short of being useful to inform strategic location decisions of energy storage and EV chargers and expected operations of the resource to meet customer needs and determine financial viability. In essence, as CESA understands it, the maximum circuit load profile and a minimum circuit load profile represents a 24x7 limit of load that can be added, which identifies the most limiting hour and conveys this limit as the load ICA value. However, it may very well be the case that there is sufficient loading capacity in many hours across the day and across different months

and seasons of the year. Under this minimum-maximum structure across 576 hours, the Load ICA results will overlook periods of the day when it would be logical to increase and/or add load via energy storage charging, EV charging, etc. As a result, DER providers perceive many locations as not having sufficient loading capacity, thereby working against the purpose of the load ICA to provide guidance on siting decisions and optimal operational profiles.

Furthermore, as discussed in the IOUs' narrative and workshop, the backward-looking nature of the load ICA inputs will make it challenging and may lead to discrepancies between the amount of load available as indicated by the load ICA values and the actual limits or costs faced upon proceeding through the DER interconnection or load service connection process. Without reflecting load capacity on a forward-looking basis, DER projects may be faced with unexpected costs and/or sudden operational constraints to utilize the existing distribution grid. Especially as DERs are generally long-lived assets, this type of forward-looking basis for producing load ICA values will play an important role.

During the April 28, 2021 workshop, San Diego Gas & Electric ("SDG&E") confirmed that their load ICA tool does incorporate known new load projects and queued generation. SDG&E further explained that this is done predominantly for simplicity, since the load ICA and generation ICA values are based on the same core model. Meanwhile, Pacific Gas and Electric ("PG&E") and Southern California Edison ("SCE") stated their load ICA methodologies do not incorporate known new load or queued generation projects.

III. THE UNIFORM LOAD ICA METHODOLOGY SHOULD BE REFINED TO INCLUDE KNOWN GENERATION ADDITIONS WITH RELATIVE CONFIDENCE.

PG&E and SCE explained that excluding queued generation projects ensures a conservative load ICA estimate, which would protect against the scenario in which DER with load

characteristics expecting to receive service is suddenly impacted by another DER on that circuit not achieving interconnection. CESA recognizes the value in providing conservative estimates for the queued generation that will ultimately interconnect. However, CESA believes certain types of queued generation have a relatively high level of certainty of achieving interconnection. CESA urges the IOUs to incorporate these low-risk queued generation into the load ICA. For example, incorporating queued Net Energy Metering ("NEM") systems into the Load ICA does not carry as much risk as incorporating in-front-of-the-meter ("IFOM") projects interconnecting under the Wholesale Distribution Access Tariff ("WDAT") – the latter which is more "lumpy" in nature regarding its deployment likelihood and timeline. As such, CESA recommends the Uniform Load ICA methodology be refined to include known generation additions with relative confidence (*e.g.*, queued NEM generation) to reflect available loading capacity more accurately.

IV. THE UNIFORM LOAD ICA METHODOLOGY SHOULD BE REFINED TO INCLUDE KNOWN NEW LOAD ADDITIONS.

The workshop discussion revealed that PG&E and SCE have not established the necessary coordination and information infrastructure to account for known new load in their load ICA. Without consideration of known new load – and queued generation, as noted above – the load ICA may not provide a meaningful tool to inform siting and investment decisions. CESA urges the load ICA be refined to incorporate known new loads since, by definition, these projects have a high likelihood of impacting circuit loading limits.

V. THE LOAD ASSUMPTIONS FOR DISTRIBUTED ENERGY RESOURCES IN THE UNIFORM LOAD ICA METHODOLOGY SHOULD BE EXPLORED.

CESA wishes to explore the degree to which load ICA employ granular load assumptions to avoid underestimating loading limits. For example, in the case of a DER on an existing or future dynamic rate or load-response program, CESA is unsure whether the IOUs are assuming flat load

profiles in accordance with the maximum charging capability at any time of the day and/or at the requested load service level even though they have economic incentives to conform to a specific load shape under the program or rate (*e.g.*, not charging or increasing load during peak periods). Since this is a more advanced set of inputs, CESA recognizes that this refinement may require further discussion to understand the technical details and explore which DER programs and rates may be relevant, as well as the degree of certainty by which any given load profile can be assumed.

VI. A WORKING GROUP SHOULD BE TASKED WITH DEVELOPING A MORE GRANULAR LIMITED LOAD PROFILE AS WELL AS A ROADMAP TO ITS DEVELOPMENT AND IMPLEMENTATION.

Given these limitations and the potential benefits of improving on the Load ICA methodology, the Commission should direct the IOUs to develop and create a Limited Load Profile, akin to the Limited Generation Profile as developed through the Rule 21 Issue 9 proposal and adopted in R.17-07-007 in D.20-09-035. Under the Limited Generation Profile, the Commission adopted a proposal to allow for controlled or scheduled generation profiles within certain limits to expedite the interconnection process and leverage available hosting capacity. Smart inverter controls would then ensure actual operations conform with the Limited Generation Profile. In the same way, CESA recommends that a similar Limited Load Profile be developed to allow for controlled energy storage charging and/or flexible EV charging profiles be defined to utilize existing loading capacity on a granular basis, ideally in the form of hourly limits but more likely in the near term with peak, off-peak, and super-off-peak periods and associated load limits.

However, CESA recognizes that these changes will need to be discussed to understand technical details and implementation considerations, as well as a phased and iterative approach to rollout more complex Load ICA capabilities and features over time. Additionally, similar to the Limited Generation Profile, the "novelty" of a Limited Load Profile proposal may necessitate a

discussion on the appropriate starting points to test out and verify the accuracy of the Load ICA values and the operations of DERs in accordance with the profile. Forecasts are, of course, subject to uncertainty, so at the very least in the near term, CESA urges the IOUs to incorporate known load projects into the calculation of Load ICA values, as noted in the previous section.

In addition to streamlining project siting and investment decisions, establishing a Limited Load Profile would also allow more DERs with load characteristics (*e.g.*, energy storage charging, EV charging) to fit on a given circuit compared to the current load ICA approach. The more dynamic (*i.e.*, more temporal granularity) the Limited Load Profiles are, the more opportunity there is to maximize the existing infrastructure to site new DERs with load characteristics. Critically, this can help to avoid unnecessary ratepayer costs associated with upgrading distribution grid infrastructure to accommodate new load. Limited Load Profiles can also provide a starting point for future DER programs and rates that aim to incentivize customers for providing locational grid services.

Similar to the Limited Generation Profile, the Limited Load Profile should be an option for customers wishing to streamline and expedite interconnection and/or load service connection. It is important that customer choice is preserved in this way, and that Limited Load Profiles not become a prerequisite for service or an inadvertent barrier for DERs with load characteristics. CESA recommends the Commission direct an existing or new working group to develop more granular Limited Load Profiles as well as a roadmap to its development and implementation.

VII. CONCLUSION.

CESA appreciates the opportunity to submit these comments to the Ruling. We look forward to working with the Commission and stakeholders in this proceeding.

Respectfully submitted,

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Date: May 28, 2021