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BEFORE THE PUBLIC UTILITIES COMMISSION
OF THE STATE OF CALIFORNIA

Order Instituting Rulemaking to Oversee the Resource Adequacy Program, Consider Program Refinements, and Establish Forward Resource Adequacy Procurement Obligations.

Rulemaking 19-11-009
(Filed November 7, 2019)

RESOURCE ADEQUACY TRACK 3.A PROPOSAL OF THE CALIFORNIA ENERGY STORAGE ALLIANCE, SUNRUN, INC., ENEL X NORTH AMERICA, TESLA, AND CENTER FOR ENERGY EFFICIENCY AND RENEWABLE TECHNOLOGIES PURSUANT TO THE ASSIGNED COMMISSIONER'S AMENDED TRACK 3.A AND TRACK 3.B SCOPING MEMO AND 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"), Sunrun, Inc., Enel X North America, Tesla, and Center for Energy Efficiency and Renewable Technologies ("CEERT") (collectively referred to herein as the "Joint DER Parties") hereby submit this Track 3A Proposal pursuant to the *Assigned Commissioner's Amended Track 3.A and Track 3.B Scoping Memo* ("Scoping Memo"), issued on July 7, 2020 by Assigned Commissioner Liane M. Randolph.

I. INTRODUCTION.

In the midst of a near week-long historic heat wave starting on August 14, 2020, California faced a critical resource supply shortage that led the California Independent System Operator ("CAISO") to declare a Stage 3 emergency and trigger rolling outages. This level of emergency has not occurred in California since the 2001 energy crisis, leading many to seek answers to what led to these outcomes. A number of potential causes have surfaced. Some have pointed to the lack of new procurement to replace retiring resources, while others have indicated shortfalls of the Resource Adequacy ("RA") Program to meet broader energy needs, use extreme-forecast planning scenarios. As California's joint agencies noted in a letter to the Governor's office, "one factor that did not cause the rotating outage: California's commitment to clean energy." The letter further stated that a deeper post-mortem investigation and analysis is needed.[1] Notably, even as deeper investigation of the causes and insights into the response are being conducted by the joint agencies, demand-side flexibility and conservation shined in the face of the 1-in-10 heat storm and system outage conditions. The CAISO attributed significant credit to consumer conservation for averting the need for rotating power outages for two consecutive days,[2] while the Joint Agency Response Letter highlighted the role of demand response ("DR"), solar and storage, and microgrids in similarly reducing load.

The recent reliability events underscore not only the potential for distributed energy resources ("DERs") to provide RA capacity in general but also how the state is not realizing or enabling the *full* capacity that could be used to serve the grid on a regular and/or emergency basis. Broadly, the limits or barriers to growing the market for DR resources to provide capacity need to be addressed, but for bidirectional or export-capable resources such as energy storage, the pathways to provide RA capacity is limited in many ways by the current DR model. Under the Proxy Demand Resource ("PDR") model, DERs are currently limited by the onsite customer load, which artificially caps the amount of load-reducing capacity that can be provided, even as the storage device has additional capacity that could be otherwise exported to the grid. Ironically, the failure to recognize and credit exported energy in PDR acts as a disincentive for facilities with batteries to practice conservation during times of grid stress since reducing on-site load further reduces the amount of energy that can be credited to the storage device in programs like the Demand Response Auction Mechanism ("DRAM"). Finally, for facilities with low minimum daily loads, like homes and schools, the export constraint can effectively prevent enrollment in programs like PDR and DRAM since the minimum daily load -- which aggregators would need to bid at in order avoid violating the must-offer obligation given the export constraint -- might be too low to offer meaningful RA value.

[1] Joint Response to Governor Newsom Letter ("Joint Agency Response Letter") submitted on August 19, 2020 at 3.
https://www.cpuc.ca.gov/uploadedFiles/CPUCWebsite/Content/News_Room/NewsUpdates/2020/Joint%20Response%20to%20Governor%20Newsom%20Letter%20August192020.pdf

[2] "Consumer conservation helps avert outages for second straight day" CAISO press release on August 18, 2020. http://www.caiso.com/Documents/Consumer-Conservation-Helps-Avert-Outages-Second-Straight-Day.pdf

This stranded export capacity -- both from storage customers enrolled in PDR/DRAM that cannot fully discharge their batteries, and those who cannot enroll in the first place due to low minimum daily load -- could have been an invaluable resource to the CAISO when they and the other agencies were scrambling to mobilize as much generation capacity and consumer conservation actions as possible. With over 400 MW of customer-sited energy storage online,[3] significant stranded export value could be unlocked to provide critically needed capacity for future grid emergencies and to support the replacement of retiring generation capacity. While there are technical interconnection limits that prevent the delivery of this stranded export capacity from existing storage systems (*i.e.*, some storage resources may have been interconnected as non-exporting systems), existing storage systems can adapt, and new storage projects can be developed and configured in ways to harness export capabilities if exports are valued for RA capacity.

The Joint DER Parties thus find the joint-agency Track 3A workshop on the net qualifying capacity ("NQC") values for hybrid behind-the-meter ("BTM") solar-plus-storage resources to be timely. In Decision ("D.") 20-06-031, the Commission expressed an interest in the "possibility of increasing value for BTM hybrid resources" in directing the joint public workshop and noted the need to address the following eight issues before considering RA treatment of BTM resources in a similar manner to in-front-of-the-meter ("IFOM") resources:[4]

1. Forward determination of capacity associated with renewable production, consumption, charging, and export

2. RA requirements associated with customers providing capacity

3. Wholesale market participation including metering, dispatch control, and communication with CAISO

4. Cost for energy associated with consumption, charging, and export

5. Changes such that net energy metering ("NEM") and self-generation incentive program ("SGIP") resources are compensated for capacity, while discounting for

[3] According to the Self-Generation Incentive Program ("SGIP") real-time public report, 213 MW of storage were installed/operational and funded through this program. An additional 234 MW of BTM storage has been estimated to have been procured from the investor-owned utilities ("IOUs") as supply-side resources, pursuant to Assembly Bill ("AB") 2514, which are in various stages of deployment and operations.

[4] *Decision Adopting Local Capacity Obligations for 2021-2023, Adopting Flexible Capacity Obligations for 2021, and Refining the Resource Adequacy Program* (D.20-06-031), issued in R.19-11-009 on June 30, 2022 at 32 and 81. https://docs.cpuc.ca.gov/PublishedDocs/Published/G000/M342/K083/342083913.PDF

their NEM and SGIP compensation as necessary to ensure that the resources do not receive compensation beyond their value

6. Load forecasting and adjustment for BTM resources

7. Interaction of such resources with existing BTM resources such as proxy DR

8. Deliverability determination

The Joint DER Parties generally agree that each of the above issues should be discussed and addressed but note that some of the above issues have been preliminarily or previously discussed in other proceedings or initiatives, such as in the Energy Storage Rulemaking (R.15-03-011) and its Multiple-Use Applications ("MUA") Working Group, the Integrated Distributed Energy Resources ("IDER") proceeding (R.14-10-003), and the CAISO's Energy Storage and Distributed Energy Resources ("ESDER") Initiatives, among others. The Commission should build off this record and identify the key actions that can be taken within R.19-11-009.

In this proposal, the Joint DER Parties offer some preliminary responses to each of the identified issues and propose two different pathways to enable DERs to participate as supply-side RA or demand-side "RA-like" resources. In addition, to support the scope of the to-be-rescheduled workshop and follow-up activities in Track 3A and 4, the Joint DER parties recommend the scope be expanded to include any DER that can export energy to the grid and urge the Commission to open a new MUA proceeding to address cross-cutting issues.

II. THE SCOPE OF THE JOINT AGENCY WORKSHOP AND FOLLOW-UP ACTIVITIES SHOULD CONSIDER NOT ONLY SOLAR-PLUS-STORAGE BUT ALSO BE EXPANDED TO INCLUDE STAND-ALONE STORAGE AND OTHER CLEAN DISTRIBUTED ENERGY RESOURCES THAT CAN EXPORT ENERGY.

The Joint DER Parties appreciate the Commission's inclusion of the issues around establishing an NQC value for BTM hybrid solar-plus-storage resources in the upcoming workshop. However, each of the eight issues outlined in D.20-06-031 and referenced above pertain not only to BTM hybrid solar-plus-storage resources but also stand-alone storage and a number of clean DER technologies that have export capability but are unable to do so for many of the same reasons. Issues around NQC valuation, incrementality, cost of charging energy, and wholesale market participation, for example, are equally or similarly applicable to standalone stationary storage and vehicle-to-grid ("V2G") resources, and potentially to certain microgrid configurations. While D.20-06-031 expresses an interest in BTM hybrid solar-plus-storage resources in particular, the decision also discusses how the aforementioned eight issues must be addressed before generally treating BTM and IFOM resources similarly.[5] Many of the same issues apply to other export-capable DERs that are currently confined to the DR model or limited by certain characteristics or rules within the DR model. The Joint DER Parties thus recommend expanding the scope of the workshop and consideration of this issue around all clean DERs that can export energy.

III. MANY OF THE CROSS-CUTTING ISSUES SHOULD BE ADDRESSED IN AN UMBRELLA PROCEEDING FOCUSED ON MULTIPLE-USE APPLICATIONS.

The eight issues identified in D.20-06-031 have historically been cross-jurisdictional and cross-cutting issues that have created procedural challenges in sharing information across different proceedings and initiatives, getting the right people and expertise in the same physical (or now more so, virtual) room, identifying the specific actions needed in other venues, and coordinating activities to ensure timely follow-up and consistency. Convened and concluded in 2018, the MUA Working Group in R.15-03-011 discussed and offered a number of perspectives and recommendations that pertain to and respond to many of these eight issues,[6] but the MUA Working Group Report is marked in many areas with the inability to actually take action or follow up given that other proceedings or initiatives must take on those policy development matters or implementation-related activities. Considering the MUA Working Group was convened within a resource-specific proceeding among storage-only stakeholders, the inability to take action without broader stakeholder engagement from the relevant proceeding or initiative is understandable. Further, the MUA Working Group submitted its report after the resource-specific proceeding, R.15-03-011, concluded. This has led to the MUA Working Group Report sitting on the shelf with limited, scattered, or uncoordinated follow-up activities.

Following the upcoming joint-agency workshop discussions on each of the eight issues, the Commission should identify the RA-specific matters that can be addressed in R.19-11-009, such as the forward determination of capacity (Issue 1) and RA requirements associated with

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[5] D.20-06-031 at 32.

[6] Appendix A Multiple-Use Applications for Energy Storage: Final Working Group Report ("MUA Report") of the *Compliance Report of Southern California Edison Company (U 39 E) and San Diego Gas and Electric Company (U 902-E) on Behalf of the Multiple-Use Application Working Group* filed in R.15-03-011 on August 9, 2018.
https://docs.cpuc.ca.gov/PublishedDocs/Efile/G000/M233/K836/233836260.PDF

customers providing capacity (Issue 2), and expeditiously launch a new MUA proceeding to succeed the workshop discussions and function as an umbrella proceeding that invites a broad range of expertise and stakeholders to address the above-referenced issues in a comprehensive, coordinated, and efficient manner. Stakeholders and expertise in R.19-11-009 should absolutely play an active and engaged rule in this new MUA proceeding. Under this approach, the resolution of issues will not "fall through the cracks" and cross-jurisdictional proceedings can be more effectively addressed. Furthermore, a cross-cutting MUA proceeding would also cover a wide range of DERs rather than being limited just to storage, considering the previous MUA Working Group was developed within and as a result of the Energy Storage Rulemaking. If the Commission is indeed interested in increasing the possibility of DERs to do more to provide capacity, resiliency, and emergency reliability, this type of cross-cutting MUA proceeding is necessary to provide the focus on the eight and possibly more issues, which have delayed action for many years without sufficient attention or focus.

IV. DIFFERENT PATHWAYS SHOULD BE DEVELOPED AND SUPPORTED TO ENABLE DISTRIBUTED ENERGY RESOURCES TO HAVE SUPPLY-SIDE RESOURCE ADEQUACY VALUE OR TO GET LOAD-MODIFICATION CREDIT.

Currently, DERs are able to provide RA capacity as a supply-side, market-integrated RA resource either by participating as a DR resource via the PDR model or, if various barriers are addressed, by participating as a bidirectional resource under the Non-Generator Resource ("NGR") model. Each approach to market participation as a capacity resource has its merits and drawbacks. The PDR model simplifies the wholesale-retail issue by keeping DERs as retail, but it does not recognize the incremental export capacity that could be provided by Demand Response Providers ("DRPs"). Thus, one fix would be for the CAISO to allow exported energy to count toward satisfying the PDR must-offer obligations, whether or not that energy is provided wholesale compensation. Alternatively, there could be means to recognize exports in baseline calculations, which could be an immediate means to take advantage of potentially stranded export capacity. At the same time, this approach may limit the scope of DER capabilities by limiting the CAISO market revenue streams available to PDRs and discouraging frequently-dispatched capacity resources that would struggle to find a baseline. Additionally, storage resources are limited by retail programs not allowing metered generator output ("MGO") approaches due to IOU concerns about accuracy, certifications, rules/responsibilities, and billing system enhancements.

Meanwhile, the NGR model recognizes and enables the full range of load reduction and export capacity of DERs to provide capacity as well as other wholesale market products (*e.g.*, ancillary services) but has thus far been unable to address the wholesale-retail differentiation issue regarding charging energy. Additionally, BTM NGR aggregations enrolled under a Distributed Energy Resource Provider Agreement ("DERP-A") do not qualify for RA.[7] Regardless of their relative merits, each of the two models warrant attention in the upcoming workshop and in any follow-up activities in R.19-11-009 and/or in the recommended MUA proceeding.

In addition to the two pathways mentioned above, the Commission should also consider how market-informed load shifting capacity can be valued and enabled as an RA-like, load-modifying resource.[8] This type of "Market-Informed Demand Automation Services" resource was explicitly recommended as one meriting further development in the Commission's Load Shift Working Group ("LSWG") Working Group Report.[9] D.15-11-042 clarified the Commission's intent to proceed with DR bifurcation and defined the pathways for valuation of supply-side and load-modifying DR resources.[10] Importantly, D.15-11-042 determined that, without a valid and substantive methodology, event-based load-modifying DR resources have no capacity value since they are not integrated in the wholesale market to respond to dispatch signals, thus not representing a dependable source of load modification to reduce a load serving entity's ("LSE") procurement obligation.[11]

The Joint DER Parties recommend that the Commission revisit this determination and, rather than unwinding the bifurcation decision, consider ways in which load-modifying DR with export capability can be recognized as having RA capacity value. As noted in D.15-11-042, a valid

[7] MUA Working Group Final Report at 7.

[8] For example, East Bay Community Energy ("EBCE"), Peninsula Clean Energy ("PCE"), and Silicon Valley Clean Energy ("SVCE") are piloting a "load-modifying" product with Sunrun and Enel X where the systems discharge every day from 4-9pm, and the CEC takes this amount of capacity off the LSEs' load forecast, thus reducing their RA procurement needs.

[9] *Final Report of the CPUC's Working Group on Load Shift* published on January 31, 2019 at 9.

[10] *Decision Addressing the Valuation of Load-Modifying Demand Response and Demand Response Cost-Effectiveness Protocols* (D.15-11-042) issued in R.13-09-011 on November 30, 2015 at 24 and 25. https://docs.cpuc.ca.gov/PublishedDocs/Published/G000/M156/K099/156099197.pdf

[11] *Ibid* at 20.

and substantive methodology would need to be developed to ensure such resources can be reliably depended upon to reduce an LSE's RA procurement obligation, which the Joint DER Parties are prepared to do. Depending on the resource aggregator and DER type, there may be certain advantages to pursue this load-modifying NGR-like pathway (referred to hereafter as the "market-informed RA" pathway) to reduce an LSE's procurement obligation, which could bypass certain CAISO market integration costs and some of the outstanding issues highlighted in D.20-06-031, among other advantages, while still being informed by CAISO market prices. At the same time, the Commission should not require DERs to pursue or favor one pathway over the other. Given the urgency and need to provide clean, local, and distributed capacity, the Commission should instead enable multiple pathways for DERs to deliver as much RA capacity as possible, whether as a supply-side RA or market-informed RA resource.

V. <u>PRELIMINARY RESPONSES TO THE EIGHT ISSUES</u>.

The Joint DER Parties offer some preliminary responses to spark discussions at the upcoming joint-agency workshop. Further detail and proposal development will be prepared over the course of this proceeding. At this time, these responses are intended to frame some of the discussions and provide a platform for the conversations around each of the eight issues, which have already been discussed to varying degrees in other proceedings, to build upon, refine, or enhance.

A. Forward determination of capacity associated with renewable production, consumption, charging, and export

As a starting point, the Joint DER Parties recommend that DERs leverage the same QC methodologies of their equivalent IFOM resources, which would set the baseline QC from which incrementality and operational capacity (*e.g.*, outages to provide distribution-level or resiliency services, for example, if CAISO market integrated), among other considerations, could be assessed. Especially as the Commission now reflects the effect of BTM resources in its capacity valuation of its IFOM counterparts, such as is done for solar, the RA value of BTM resources should be explicitly credited in QC methodologies.[12] The

[12] *Decision Adopting Local Capacity Obligations for 2020-2022, Adopting Flexible Capacity Obligations for 2020, and Refining the Resource Adequacy Program* (D.19-06-026) issued in R.17-09-020 on July 5, 2019 at 47. https://docs.cpuc.ca.gov/PublishedDocs/Published/G000/M309/K463/309463502.PDF

capabilities of IFOM and BTM hybrid solar-plus-storage, for example, should not be different, especially if the latter is market integrated or market informed, even if they are subject to retail rate structures that reflect, much less granularly, the generation mix and other retail cost drivers. The same logic applies for standalone storage systems, whether IFOM or BTM, where the applicable RA counting rules (*i.e.*, four-hour maximum continuous output) should be justified. It is incumbent on the resource operator to adhere to the RA requirements and be subject to any RA Program or CAISO market rules that may impact the resource's capacity rating.[13] However, it stands that the forward capacity determination should be set equally as a starting baseline for BTM resources as it is done for its IFOM counterparts.

Furthermore, the Joint DER Parties advocate for the use of measurement-based approaches to validating capacity values, whether through tests, CAISO market dispatch, or market-informed LSE dispatch, whichever approach or combination of approaches are applicable for the RA pathway for BTM resources. Especially with BTM energy storage resources that are able to be directly submetered or measured using an inverter, such direct measurement approaches should be utilized to the greatest extent possible and reasonable.

B. RA requirements associated with customers providing capacity

The Joint DER Parties propose that the specific RA requirements would need to be developed depending on whether the BTM resource utilizes the market-integrated or market-informed model. Under the market-integrated model, DER resources should continue to be subject to many of the same requirements as IFOM resources, including metering and visibility to the CAISO, as well as bidding, performance evaluation, and other market participation requirements in line with whether the resource uses the PDR or NGR model. Several key distinctions, however, may need to be made. When it comes to metering, for example, BTM resources should be able to utilize the Scheduling Coordinator Metering Entity ("SCME") option whereby the CAISO does not need to directly collect information from a specific resource but instead collect aggregated information from the

[13] For example, the CAISO is actively considering unforced capacity ("UCAP") methodologies to account for reduced operational capacity of resources that accounts for the use of outage cards and other factors. The workshop may benefit from the exploration of the use of similar approaches to enable both wholesale and retail services and to not limit BTM resources to the 24x7 availability requirement in the NGR model.

Scheduling Coordinator ("SC"). Such distinctions would recognize the unique characteristics of BTM resources without risking reliability.

By contrast, under the market-informed model, BTM resources could mirror many of the same requirements as IFOM resources with methodologies and protocols developed to enable the LSE, who is bilaterally contracted for this aggregated resource, to verify performance without actually having to participate in the market. Greater onus may be placed on the LSE under this approach, where performance would be evaluated after the fact (*i.e.*, no CAISO settlement or dispatch) and/or the LSE would have to anticipate and incorporate the change in load into a load bid in the CAISO market over time as behavior is observed. The specific RA requirements and QC valuation methodologies would need to be developed as part of the workshop and in follow-up activities.

C. Wholesale market participation including metering, dispatch control, and communication with CAISO

As noted in Section V.B above, the wholesale market participation requirements may or may not be applicable depending on the model. For market-integrated resources, metering, dispatch control, and communication should be managed through the SC. In addition, as the Joint DER Parties understand the CAISO tariff and market rules, telemetry requirements would not apply to these BTM resources, since they are based on single-resource size and not to the size of the aggregated resource. Generally, metering and telemetry requirements at the individual device level can be onerous and costly, where metering, dispatch control, and communication at the aggregation and SC level should be sufficient.

D. Cost for energy associated with consumption, charging, and export

The inability to differentiate the wholesale versus retail cost for charging and exporting energy has persistently prevented BTM storage from participating in the NGR model as DERP-A resources. Even with Order No. 841 directing the CAISO to address this issue in their compliance filing, the CAISO simply indicated that it will zero out BTM storage resources' charges for wholesale charging through its settlement software where the utility distribution company ("UDC") is unable to net out wholesale energy purchases from its billing.[14] While compliant with Order No. 841 in not double billing customers with both wholesale and retail charges for the same charging energy in response to a wholesale market price signal, it essentially deferred this issue to the Commission and the IOUs to develop a means to differentiate wholesale and retail charging energy.

Unfortunately, this issue has persisted and been left unaddressed. In our view, this issue could be addressed by developing an accounting mechanism, such as using PJM's approach to differentiate costs for energy by submetering the market-integrated storage resource and identifying on an *ex ante* basis the specific intervals by which wholesale charges could be assessed. This would be followed by a retail charging adjustment credit on the customer bill. Other approaches may also be considered, but this is a critical barrier that needs to be addressed for BTM storage resources to take advantage of their export capabilities when seeking to participate on both the wholesale and retail sides.

E. Changes such that NEM and SGIP resources are compensated for capacity, while discounting for their NEM and SGIP compensation as necessary to ensure that the resources do not receive compensation beyond their value

The Joint DER Parties see a major need for the Commission to establish a universal incrementality framework to determine RA procurement eligibility and to fairly and accurately assess QC value. Importantly, incrementality must be defined and assessed consistently across the different Commission proceedings. In R.14-08-013, for example, a Ruling was issued that adopted new incrementality language that would be used in distribution deferral solicitations – *i.e.*, "as long as the project commits to meet the dispatch requirements described in the protocol and pursuant to the [technology neutral pro forma]… SGIP projects that provide an incremental service will be considered fully incremental."[15] By contrast, D.20-06-031 was revised at the last minute to claim that NEM and SGIP resources are already compensated for capacity – a premature policy determination made without stakeholder discussion or sufficient granularity for how

[14] *Order on Compliance Filing*, 172 FERC ¶ 61,050 issued July 17, 2020 at 14. http://www.caiso.com/Documents/Jul17-2020-Order-on-Compliance-OrderNo841ElectricStorageParticipation-ER19-468.pdf#search=Order%20841

[15] *Administrative Law Judge's Ruling Modifying the Distribution Investment Deferral Framework Filing and Process Requirements* issued in R.14-08-013 on May 11, 2020 at 76-77.

incrementality should be assessed from a planning perspective. The decision also failed to take into account the detailed perspectives and analysis developed in the MUA Working Group Report, which highlighted how incrementality against the planning forecast is subject to uncertainty to DER deployment locations, uptake/installation rate, and operational profiles.[16]

In participating in the Demand Analysis Working Group ("DAWG") meetings to better understand DER forecasting, it is clear that the storage-related forecasts are subject to significant inaccuracies and uncertainties that would set an inappropriate baseline by which to assess incrementality. For example, storage systems appear to be projected as linearly growing based on SGIP project data while storage charge/discharge operations are assumed based off of recent program evaluation data.[17] In reality, deployment data has been anything but linear, and storage operations are difficult to forecast with any level of certainty given its dynamic response to retail rates and customer load levels. Thus, any "embedded" capacity value of SGIP projects is not accurate. Moreover, the Commission has affirmed in the IDER and SGIP proceedings that SGIP is a technology deployment incentive with no embedded capacity value or payment for services. Similarly, assumptions around the "embedded" capacity value of NEM systems must be closely examined. In each case, there is also some incrementality associated with providing firm capacity, rather than responding voluntarily to retail price signals; otherwise, the complex regime of measuring, verifying, and potentially penalizing RA performance would not be in place.

In sum, as the Commission considers this incrementality question, the Joint DER Parties recommend that the premature and pre-judged value statement be reconsidered. Rather, the Commission should address this question more comprehensively and thoroughly, and if more attention is required, to address this question in a future MUA proceeding that applies a universal and consistent incrementality framework to all Commission proceedings and processes.

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[16] MUA Working Group Final Report at 60-80.

[17] *Behind-the-Meter Energy Storage Forecast: 2019 Revised Forecast* presentation by Sudhakar Konala at the California Energy Commission's Demand Analysis Working Group meeting on November 21, 2019 at 9, 14, and 16-17.

https://www.energy.ca.gov/sites/default/files/2019-12/02b%20Konala_BTM%20Energy%20Storage%2011.21.19_1_ada_0.pdf

F. Load forecasting and adjustment for BTM resources

Clear load forecasting and adjustment processes are needed for BTM resources to support the market-informed pathway. Similar to how there is a load forecast adjustment process done by the LSEs in conjunction with the California Energy Commission ("CEC") to account for load migration, a similar process should be clearly developed and identified for reducing LSE procurement obligations when LSEs procure market-informed RA-like BTM resources. This adjustment process should be timed to enable LSEs to reflect them in their year-ahead RA showing in October of every year, with potential future possibilities of having them reflected in month-ahead showings.

Additionally, this adjustment process may also simplify incrementality determinations, where planning and procurement processes of many LSEs often assume certain BTM resources are baked into the CEC forecast. However, for many reasons, the forecasts can be inaccurate to varying degrees, such that any incrementality determination based on these forecasts would unduly reduce their incremental capacity contributions and associated compensation. While the CEC only recently incorporated BTM storage in their forecasts and has indicated their year-by-year improvements to the forecast in the DAWG meetings, the Joint DER Parties still see inaccuracies or uncertainties where an incrementality assessment cannot be fairly assessed for BTM storage based on these forecasted deployment levels and operational profiles. By allowing for adjustments to back out procured resources from the forecast, there may be opportunities to simplify incrementality assessments.

G. Interaction of such resources with existing BTM resources such as proxy DR

The Joint DER parties are unclear on this barrier and thus offers no response at this time. We look forward to clarifications on this issue at the upcoming workshop.

H. Deliverability determination

The issue of whether and how to study the deliverability of aggregated rather than individual resources should be explored since it will play an important role for exporting DERs to have their exporting capacity recognized for RA value. Given the process by which the CAISO allocates deliverability to the IOUs for the distribution level and the fact that aggregated portfolios may be developed over time as customers are acquired, the current deliverability study and allocation process may need to be adapted to support streamlining and enable their ability to deliver their incremental export capacity.

Furthermore, the Joint DER Parties wish to explore whether deliverability would be needed for the market-informed pathway and/or if the PDR model could recognize export capability. On an interim basis, the Joint DER Parties also wish to explore whether and how BTM energy storage currently configured and interconnected as non-exporting could be enabled for exporting capability on an exceptional basis during emergencies, such as during the most recent heat storm. In such cases, deliverability may not be needed, but by allowing such emergency exporting capacity (e.g., similar to emergency DR programs except for exports) under limited emergency situations, which may occur with increasing regularity due to climate change, many of the above issues may not need to be addressed for these types of resources to provide significant value. From an interconnection perspective, especially as more inverter-based BTM resources rely on power control systems and software to adhere to the non-exporting provisions of their interconnection agreement, the Commission can support investment decisions in the firmware/software to provide emergency export capacity if recognized and valued in the RA Program and allowed on an exceptional basis in modified interconnection agreement provisions.

As a longer-term item, the Commission should explore whether new tariffs and/or changes to Rule 21 are necessary to facilitate exports from stand-alone storage participating in PDR or in a "market-informed" program. Currently, storage paired with solar is allowed to export to the grid (subject to certain restrictions) and receive NEM credit. However, it is unclear what interconnection rules would apply to standalone storage exporting in a PDR or "market-informed" DR program. In addition, it is unclear how the exported energy would be treated for the purposes of retail billing. These issues should be teed up for resolution as the Commission undertakes this process.

VI. CONCLUSION.

The Joint DER Parties appreciate the opportunity to submit this Track 3A proposal and look forward to working with the Commission and stakeholders in this proceeding.

Respectfully submitted,

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