OPENING PREPARED TESTIMONY OF VOLTUS, INC.

Rulemaking 20-11-003
Extreme Weather Event Reliable Electric Service

September 1, 2021
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I. Executive Summary

Exhibit VOLT-01 is the opening prepared testimony of Voltus, Inc. (“Voltus”), addressing the issues identified in the revised Scoping Memo issued on August 10, 2021 in the Rulemaking 20-11-003 (Extreme Weather Event Reliable Electric Service (“Extreme Weather”)). Voltus’s mission is to become the world’s leading distributed energy resource supplier. Voltus is a demand response provider (“DRP”) in California for commercial and industrial customers. Based in San Francisco and Boston, Voltus serves thousands of customers across all nine North American energy markets and has secured over 2,000 MW of DERs to date. Voltus leverages our commercial and industrial (“C&I”) customers’ operational flexibility to deliver energy, capacity, and ancillary services to wholesale and retail markets through a combination of flexible load, energy storage, energy efficiency, and distributed generation. Voltus pays our customers a share of earned market revenues to incentivize their participation. In a few short years of operation, Voltus has built a portfolio of 89 MWs of total flexible load potential in California. During the Stage 3 system emergencies on August 14 and 15, 2020 Voltus helped reduce demand by ~50 MW through its deployed capacity in the CAISO market. In August 2021, Voltus began providing Demand Response Operating Reserves in CAISO.

As an active market participant, Voltus hopes that in Phase 2 of this proceeding, the CPUC will see both the value in demand response and that enlisting demand response requires incentives and removing participation barriers. Regulatory complexity is a deterrent to participation, not a guarantee of reliability. In Phase I of this proceeding, Voltus invested significant time and energy in developing policy proposals that would help California enlist
demand to avoid electricity shortfalls. The result of that proceeding was an underwhelming
Emergency Load Reduction Program ("ELRP") that resulted in minimal enrollment. ELRP has
not secured the necessary grid reliability, as Voltus predicted when the program was proposed.¹
Currently, the ELRP is not attracting customers,² while enrollment is stagnant or declining in the
other reliability demand response program (the base interruptible program ("BIP")) because of
the persistent refusal to fix flaws in this program.

Voltus’s policy recommendations are guided by the principal that programs should be as
simple as possible to encourage both enrollment and performance. Drawing on its experience in
all nine North American markets, incentives and base payments provide more emergency
reliability, more cost-effectively, than do penalties and rate-payer funded administrative
oversight. While Voltus appreciates and supports many of the proposed changes to ELRP and
DRAM, they still demonstrate a preference for complexity and regulation than for making these
programs attractive for participants. Particularly when it comes to emergency programs like BIP
or ELRP, participants should not be required to jump through hoops to help in an emergency.

With this foundation, Voltus’s supports the following changes:

1. Holding a supplemental DRAM auction for 2022, and adopting three of the five
   proposed DRAM modifications in the Energy Division Staff Concept Paper;

¹ See Voltus Comments on Proposed Decision, Reliable Electric Service in Extreme Weather, R. 20-11-003 (filed
² See Joint Statement from the CPUC President Marybel Batjer, CEC Chair David Hochschild, and California ISO
CEO Elliot Mainzer on decision to procure additional energy resources for summer, at 3, (July 1, 2021)
("Current development of demand-side resources remains uncertain – Development of demand-side resources
ordered in the CPUC’s March decision, D.21-03-056, are uncertain. While the CPUC and CEC are working to
ensure full enrollment in new programs, it appears that savings from the program will be less than targeted in the
decision.")
2. Aligning BIP penalties for third-party resources to be comparable to utility penalties, and enabling program unenrollment and nomination flexibility outside of the June 1 through October 31 timeframe;

3. Increasing compensation rates for ELRP to include either a capacity payment and a performance payment, or a significantly higher performance payment, and adopting most of the Energy Division Staff ELRP recommendations;

4. Adopting a financial assurance mechanism for resource adequacy awarded outside of the LIP; and

5. Not imposing DRAM requirements on CCA or other non-DRAM resource adequacy provided by demand response.

I. **Demand Response Auction Mechanism (“DRAM”)**

The DRAM process should be designed to maximize reliable resource procurements on short order. Voltus therefore supports some of the proposed modifications as consistent with this aim. Voltus opposes other proposed modifications, which add unnecessary administrative complexity and erect undue barriers without increasing reliability.

Voltus **supports adding a partial year supplementary auction** for DR capacity to be delivered June – December 2022. Voltus also **supports expanding the budget for 2023 DRAM.**

The Energy Division Staff made five recommendations for the supplementary 2022 DRAM auction and the 2023 DRAM auction. In general, these recommendations make what is already a very complex and administratively onerous program even more so. It is not clear what
problem these proposals are trying to solve. More complexity is a deterrent to participation. That said, Voltus does not oppose proposed DRAM modifications ii, iii, iv, and iv.5

Voltus opposes proposed DRAM modification i, which would cause offered capacity that is only able to participate in the CAISO Day-Ahead Market to be assigned a lower value in the bid evaluation process than offered capacity that is able to participate in the CAISO Real Time Market, unless the capacity commits to offering at or below $500/MWh in the DAM at all times. Voltus opposes setting an arbitrary price cap for one type of resource when there is an underlying market design flaw that resources are not clearing in the DAM despite emergency conditions. Voltus has overridden this flaw and voluntarily dispatched resources in this situation, and not been paid for these resources. The CPUC should fix this underlying market flaw rather than penalize resources that can only participate in the DAM.

Voltus strongly opposes proposed DRAM modification v, which would require capacity awarded in the 2022 supplementary auction and 2023 DRAM to be counted toward the Qualifying Capacity limit established for 2022 and 2023 through the 2021 and 2022 Load Impact Protocol (“LIP”) processes. This is completely contrary to the current system, whereby DRPs omit projected and current DRAM from the ex-ante projections, to avoid potential double-counting. This proposal is also wholly unnecessary: DRAM already has a Qualifying Capacity process that is separate from the LIP. Requiring a LIP award to participate in DRAM would deter DRAM participation. In future years, Voltus would support streamlining DRAM and LIP

3 “Proxy Demand Resources (PDRs) participating in CAISO Real-Time Market (RTM) must bid at or below $900/MWh to maintain some consistency with the triggering price for the reliability-based demand response programs, including the Base Interruptible Program (BIP), which are triggered at RTM price reaching $950/MWh.”
4 “Once a PDR Resource Identification (ID) is introduced on a supply plan, it must be maintained on the supply plan until it is removed; the PDR cannot be reintroduced into the supply plan during the remaining months of the contract. This requirement is in addition to the existing prohibitions on the customer and Resource ID movement within and across the contract.”
5 “A shortfall in the DR capacity shown on the monthly supply plan relative to the contracted capacity is subject to a penalty based on the level of the capacity shortfall.”
awards into a single all-encompassing RA process, but such a design should only be for 2024 and beyond, given the urgent timeline for 2022 and 2023 DRAM and the considerable design changes that would be required. Yet if this proposed modification were adopted for 2022, a DRP would have every incentive to instead sell Qualifying Capacity in bilateral contracts, a process which already has far fewer requirements than DRAM.

II. Base Interruptible Program (“BIP”)

A functional BIP program is essential to avoid using the emergency load reduction programs, like CSEP and ELRP, that allow prohibited resources. Given the State’s preference to prioritize the use of cleaner resources, BIP should be maximized to avoid reliance these programs.

Yet after the summer of 2020, aggregators’ BIP portfolios have shriveled due to the punitive penalties combined with the wildly unpredictable number of dispatches. Resources that are ready and willing to provide emergency grid support are sidelined due to punitive penalty structures, because failing to perform in a single event could—and has—erased all prior revenue.

To support the state’s overarching policy goals while maintaining a functional BIP program by removing deterrents to participation, Voltus proposes the following.

First, align penalties for third-party aggregator resources with utility penalties.

When third-party BIP resources use energy above their FSL during a BIP curtailment event, they are subject to a penalty of $6,000 to $8,400/MWh, which is higher than any other capacity-based program in the country. Utilities, meanwhile, pay penalties equivalent to the Locational Marginal Price (“LMP”). There is no justification for this distinction, and the onerous penalties are out of step with other demand response programs. In Indiana where utility DR programs also participate in the wholesale markets, third party DR providers that fail to meet their
commitments are charged the clearing price as a penalty and not a higher amount. BIP penalties should be equivalent to LMP, like utility penalties.

Second, the CPUC should retain firm program enrollment and nomination rules for June 1 through October 31, but increase flexibility in the remaining months through flexible unenrollment and varying firm service levels. The CPUC wants to ensure that resources are enrolled in the critical reliability months of June through October. Yet Voltus has been unable to enroll resources due to the inflexible BIP rules, whether because the resource is not available for some weeks of the year, or because its Firm Service Levels vary seasonally. The CPUC’s policy goals can be reconciled with more flexible participation rules by making two changes. First, resources should be able to unenroll at any time outside of the June 1 through October 31 period. Yet to receive capacity payments, resources must commit to this entire timeframe. Second, resources should be able to vary Firm Service Levels monthly or at least seasonally, while having set Firm Service Levels from June through October. The June to October FSLs could be required to be at least 50% of the FSL in other time periods.

III. Emergency Load Reduction Program ("ELRP")

The CPUC must fortify the ELRP pilot. ELRP is one of the last defenses against emergency load shed. Enlisting customers was already challenging due to the nominal compensation rate, before the Governor instituted the California State Emergency Program ("CSEP") which pays twice as much but does not allow third-party aggregators to enlist customers. Given this, Voltus supports several modifications to the ELRP proposed in the revised Scoping Memo. ELRP must be simplified and provide better financial incentives, particularly to enlist "ELRP only" resources.

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that cannot be stacked with other demand response programs. ELRP is an emergency program that
should have as few participation requirements as possible to maximize enrollment.

First, the ELRP compensation should be increased for all ELRP participants to
either (1) $1/kW per month of registered capacity plus a $2/kWh performance payment; or
(2) a performance payment of $6/kWh. The current $1/kWh compensation rate is far too low,
evident from the low enrollment in ELRP at this rate and the $2/kWh offered by CSEP. The
Commission spent several months and significant time and energy developing the ELRP
program, which is now completely undermined by CSEP. If the CPUC wants customers to
participate in ELRP rather than CSEP, it must increase ELRP compensation significantly.

Emergency load reduction programs always have a base payment. Even in ERCOT’s
energy only market, the Emergency Response Service (“ERS”) demand response program pays
an availability payment. In PJM, for the 22/23 Base Residential Auction, the base price for
capacity was $18,250/MW-yr, with some zones clearing around $35,000/MW-yr. Upon dispatch
resources are also paid the greater of the LMP or a strike price, which was capped at
$1,849/MWh for the last five years, calculated as $1,000 plus the Primary Reserve factor minus
$1 for a 30-minute lead time resource. A base payment dramatically improves enrollment:
NYISO’s Special Case Resource program—which provides a capacity payment—was projected
to procure 1,825 MWs while the Emergency Demand Response Program (“EDRP”)—a
performance only program—procured 5 MW of capacity. To the best of Voltus’s knowledge,
this 5 MW EDRP program is the only other emergency demand response program that does not

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7 NYISO, Gold Book: 2021 Load & Capacity Data, at 57 (April 2021),
ab35c300ed64.
Since every market (including California with BIP) recognizes that a base payment is necessary to maximize enrollment of emergency resources, there should be a base payment to cover the costs of enrolling customers and investing in the necessary infrastructure. Performance payments ensure resources deliver. Therefore, Voltus recommends a base payment of $1/kW per month paired with a $2/kWh performance for dispatches.

If the CPUC foregoes a base payment, then at a minimum performance payments must be significantly higher for resources to both enlist and perform. Prospects and customers enrolled in other DR programs are not interested in ELRP at this compensation level. Voltus has heard from customers that $1,000 per MWh does not compensate them for the trouble of a dispatch, particularly if they are using backup engines, given the diesel fuel costs $350/MWh. The value of lost load for any customer class is also well above the $1,000/MWh offered. A review of 10 jurisdictional studies found load-weighted averages for the value of lost load (“VOLL”) to be in the $30,000-$40,000/MWh range, while even residential VOLLs in the US were in the $1,000-$4,000 range. Since resources will only be triggered in a true emergency, they should be compensated at rate commensurate with the value of lost load. In MISO, emergency demand response resources can offer up to the $3,500/MWh strike price, and be paid the same during a dispatch.

Voltus proposes a performance payment of $6/kWh. This is the minimum penalty imposed on third-party BIP resources that do not perform, and therefore essentially a representation of the minimum value of lost load. It would else help ensure that customers

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8 London Economics, *Estimating the Value of Lost Load*, at 51 (June 17, 2013),
http://www.ercot.com/content/gridinfo/resource/2014/mktanalysis/ERCOT_ValueofLostLoad_LiteratureReviewandMacroeconomic.pdf#page=21&zoom=100,0,77.
eligible for both CSEP and ELRP opt for ELRP. These values are still well below the value of
lost load for C&I customers, who would be a major source of participation.

Second, Voltus supports adopting the Group A enhancements. The CPUC should
adopt the Group A enhancements to reduce the minimum size threshold and to eliminate the
compensation collar. The compensation collar is particularly unnecessary. There is no cap on the
program such that a 50%-200% collar is helpful to bound participation. Furthermore, in an
emergency situation, would a resource really be capped at 200% of its nominated quantity?

Third, a Day-Of trigger in response to a CAISO warning or emergency declaration
should be adopted for Group B participants. The Day Ahead Group B participants have not
been called, and therefore hundreds of megawatts have been sidelined. Adding a Day-Of trigger
will leverage resources, without any downside.

However, Voltus opposes the proposed Group B enhancement to require ELRP
resources participating in the CAISO real-time market (“RTM”) to bid in at or below
$900/MWh. It is not clear whether this proposal would require that ELRP resources bid into the
RTM, or simply cap their offers at $900/MWh if they do. If it’s the former, this proposal doesn’t
appreciate that there are ELRP-only customers, who don’t offer into the RTM. If it’s the latter,
it’s not clear why the CPUC would want to impose another limitation ELRP resources. These
limitations deter participation in what is supposed to be an emergency program of last resort.

Finally, the dispatch order and performance measurement could be tweaked to
promote participation for customers that participate in both BIP and ELRP. The ELRP
program should call this “BIP plus ELRP” subgroup first, and allow ELRP payments to
compensate any load reduction until BIP is also called. At that point, a resource should only be
paid ELRP compensation for incremental reductions. For example, if a 2 MW BIP + ELRP
resource with an FSL of 1 MW is dispatched for ELRP, and drops to .8 MW, it is currently only paid for .2 MW, meaning it has little incentive to participate. Yet if it were paid ELRP compensation rates for 1.2 MWs until BIP is called, and then be paid .2 MWs at ELRP compensation rates, it would have greater incentive.

IV. Miscellaneous for Summer 2022 Resources

Voltus and many other parties have previously raised the issue of how the LIP process creates a long lead time for incorporating demand response resources. Ideally resource adequacy resources could be quickly integrated through a mechanism that gives the CPUC the quality assurance the LIP process provides. To balance these considerations, Voltus proposes that for summer 2022 the CPUC pilot allowing aggregators to qualify new resources and post financial assurance when non-LIP resources are awarded for resource adequacy for summer 2022. Voltus has already submitted its 2022 LIP, so this would be a test of a parallel process that would allow critical megawatts to be brought to market while providing performance assurance. Voltus proposes that the collateral commitment be $2,500/MW and that the collateral be forfeited if resources do not perform or otherwise cover their obligation to provide Resource Adequacy. This is comparable to the $2,400 financial assurance posted in MISO for an untested load-modifying resource. This financial assurance is calculated as the potential penalty risk for one dispatch assuming: 1 MW * 4 hour duration = 4 MWh * a real-time energy price of $200/MWh (a proxy for pricing under emergency conditions) * 3 (since untested resources face 3x penalty risk) = $2400/MW.9

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9 MISO Tariff, Module E-1, 69A.3.5, Demand Resources Eligibility, 40.0.0, Section j, (PDF pp. 62-64) https://www.misoenergy.org/legal/tariff/.
Finally, Voltus opposes applying DRAM requirements to CCAs.\textsuperscript{10} The DRAM requirements are onerous and CCAs should be able to dictate the terms of the demand response they procure for resource adequacy purposes. CCAs could be helpful laboratories to explore alternative constructs and models. Voltus believes that applying the DRAM requirements to CCAs will harm reliability by adding barriers to demand response participation.

\textsuperscript{10} The Staff concept paper proposed, “Applying certain DRAM requirements to CCAs: requiring all third-party Demand Response (DR) resources contracted with Community Choice Aggregators (CCAs) to adhere to certain DRAM requirements, such as those related to market bid price caps, capacity counting and showing (including customer and Resource ID movement), and minimum dispatch activity.”
V. Statement of Qualifications

Dana Guernsey is the Chief Product Officer of Voltus, Inc. She leads the development of Voltus’s technology-enabled Distributed Energy Resource (“DER”) platform, which connects Voltus’s customers and technology partners to the value that they can extract from their local energy markets, while contributing to a more resilient and decarbonized electric grid. At Voltus, she oversees an Energy Markets team that manages resources in every North American wholesale market.

Ms. Guernsey is a leading expert in global energy markets and brings more than a decade of experience developing innovative, demand-side energy management products and programs that have delivered billions of dollars in proven value to customers and ratepayers. Before Voltus, Ms. Guernsey was Director of Product Marketing at FirstFuel, which offers cloud-based engagement software to help utilities deepen relationships with their business customers and increase energy efficiency. Prior to FirstFuel, she led corporate development and go-to-market strategies at Ambri, an MIT spinout company commercializing batteries for large-scale energy storage on the electric grid. Prior to that she was the Director of Energy Markets at EnerNOC, where she led a team responsible for the profitable management of the company’s complex portfolio of nearly 10,000 MWs of demand response assets, covering dozens of wholesale electricity markets and regulated utilities across North America, Europe, Asia, and Australia.

Ms. Guernsey holds an M.S. in Engineering Management, B.S. in Engineering, and B.A. from Dartmouth College. Ms. Guernsey was named a Massachusetts High Tech “Woman to Watch” in 2014 for her groundbreaking work in the energy and technology industries.
Verification

I, Dana Guernsey, had the Opening Prepared Testimony of Voltus, Inc. in California Public Utilities Commission Docket RM 20-11-003 prepared under my supervision. Insofar as the material is factual in nature, I believe it to be correct. Insofar as this material is in the nature of opinion or judgment, it represents my best judgment. I adopt this testimony as my sworn testimony in this proceeding.

Dated: September 2, 2021

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