BEFORE THE PUBLIC UTILITIES COMMISSION

OF THE STATE OF CALIFORNIA

Order Instituting Rulemaking to Establish Policies, Processes, and Rules to Ensure Reliable Electric Service in California in the Event of an Extreme Weather Event in 2021.	Rulemaking 20-11-003 (Filed November 19, 2020)

OPENING COMMENTS OF NRG ENERGY, INC. ON ORDER INSTITUTING RULEMAKING ON EMERGENCY RELIABILITY

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Pursuant to Ordering Paragraph 6 of the Order Instituting Rulemaking issued on November 20, 2020 ("OIR"), NRG Energy, Inc. hereby submits these comments addressing the variety of issues the California Public Utilities Commission ("Commission") has raised in relation to increasing energy supply and decreasing demand in the event that a heat storm similar to the August 2020 storm occurs in the summer of 2021.

I. INTRODUCTION

NRG appreciates the Commission's expeditious attention to the important issues in the OIR. NRG Energy Inc. is a major producer and retailer of electricity and, through its wholly owned subsidiary, NRG Curtailment Solutions, Inc. ("NRGCS"), is also one of the largest demand response ("DR") providers in the country.[1] NRGCS participates in wholesale and distribution-level

[1] Collectively, we refer to NRG Energy Inc. and NRGCS as "NRG" in these comments.

DR programs across the United States. Through wholesale and retail markets, NRGCS serves a wide variety of commercial, industrial, and institutional customers and achieved a 2,400 MW reduction of curtailable load at over 5,000 facilities in 2019. Meanwhile, NRG also operates approximately 23,000 MW of generation around the country, including in CAISO. The company controls a variety of sites where generation has been or is in the process of being decommissioned.

Finally, NRG is a major competitive retailer across the United States, albeit not in California. Recently, NRG has commented on the importance of further opening retail markets because competitive-retail load-serving entities are a natural conduit for DR.[2] As evidenced by the scope of the OIR, the present California regulatory model channels an undue amount of this activity through certain utility gatekeepers. NRG will not reiterate those arguments here, but hopes that the Commission will keep them in mind and introduce them into this proceeding as appropriate.

In these comments, NRG urges the Commission to:

- Consider the creation of a new DR program that does not suffer from infirmities of other DR programs, which have sometimes hampered customer participation.
- Consider expanding certain existing DR programs, like the Base Interruptible Program, and reforming certain programs like the Capacity Bidding Program, whose operations have led to customer attrition.
- Identify as an issue whether to exempt, even on a temporary or limited basis, fuel-based back-up generation to spur greater participation in DR programs.

[2] *See* Order Instituting Rulemaking to Implement Senate Bill 237 Related to Direct Access (R.19-03-009), Opening Comments of NRG Energy, Inc. on Staff Report Providing Recommendations on the Schedule to Reopen Direct Access, October 16, 2020, pp. 3-8.

- Consider the availability of battery energy storage systems, especially mobile units, that can be installed on brownfield sites.
- Identify as an issue the need for timely interconnection in light of the reserve-shortage events of 2020.

II. PROPOSED REVISIONS TO ISSUES

A. Customer fatigue with certain DR programs suggests the need for new, expanded, and modified approaches to DR that are closely tied to reserve-shortage events

NRG recommends that the Commission explore ways to make DR programs appeal to customers and to address customer fatigue. DR provides both a valuable economic and emergency source of supply. However, the current state of DR in California is somewhat convoluted, with multiple marketplaces existing through individual utilities and more recently the CAISO. NRG supports consideration of an additional program, as the Commission suggests in its OIR, but also believes a rationalization of the existing DR landscape is important.

In general, improvements to the DR marketplace should have as their guide the promotion of customer enrollment into programs that will have a high likelihood of responding to bring grid-supplied customer loads to particular levels during reliability events, such as reserve-shortage situations. This is a matter both of compensation, informed by an appropriate baseline on which DR performance is measured, and also the ease with which a customer can participate within a program.

In NRG's experience, customers respond poorly when they are frequently called upon for reasons they do not understand, and in their view not compensated for the value. An example is the Capacity Bidding Program ("CBP"), where as described below in Section II.A.3. a regressive program design encourages less customer participation as the program is aggressively and non-

transparently activated by utility intermediaries. A DR program that works to support reliability cannot be one whose public reputation is associated with frequent business disruption. Especially when customers cannot avail themselves of supply from many sources of back-up generation when called for DR, a CBP-style DR program is a recipe for failure in specifically targeting reliability concerns.

In just five years, total participation in CBP and Aggregator Managed Portfolio DR programs declined from approximately 400 MW in 2015 to approximately 25 MW in 2020. The majority of this decline can be attributed to the prohibition of behind-the-meter fossil generation in DR participation, culminating in Decision 16-09-056 to explicitly exclude "Prohibited Resources." We discuss that issue in Section II.B. of these comments. However, in NRG's experience interacting with customers in the field, we believe the remaining decline is largely explainable by issues of customer fatigue and compensation.[3]

Despite declining enrollment, there appears to be significant untapped DR capability. According to Lawrence Berkeley National Lab's 2017 study of DR potential in CAISO, as much as 3 GW of latent "load shed" capability exists for the market's IOUs.[4]

NRG has several specific recommendations relating to the OIR's identification of issues pertinent to existing and potentially new DR programs.

[3] Related issues include the use of the 10-in-10 baseline, which in our experience adds uncertainty and confusion about what a customer may expect to be paid for its DR contributions; a lack of intraday bidding flexibility; lack of familiarity or trust that utilities' triggers in calling DR are related to *bona fide* needs; and the present of the Demand Response Auction Mechanism as a CPB alternative that is better able to reflect a resource's particular ability to respond to dispatch signals.
[4] LBNL, *2025 California Demand Response Potential Study – Charting California's Demand Response Future: Final Report on Phase 2 Results*, (March 2017), at 5-55. https://eta-publications.lbl.gov/sites/default/files/lbnl-2001113.pdf

1. The Commission should evaluate whether an ELRP can avoid design features of other DR programs that suppress participation

NRG supports the exploration of an emergency load reduction program ("ELRP") contemplated in the OIR's Issue Nos. 5-7.[5] Specifically, the Commission should inquire whether maximum benefits of this program can be better achieved at the CAISO or through implementation at individual investor-owned utilities ("IOUs"). The Commission should leverage the lessons learned to date and avoid design choices that have led customers to misunderstand and lose confidence in DR programs. Notably, the compensation methodology, the frequency, and reason for calling DR resources should be structured with customer enrollment in mind.

Utilities' frequent calls on DR, including for reasons not tied to grid reliability, have led to lower customer adoption than if the program were aimed solely at preventing supply shortfalls during reserve-shortage events or other system emergencies. If IOUs do administer an ELRP, the Commission should inquire how they will operate the program in relation to possible system-wide RA shortfalls, reserve shortages, and other system emergencies.

A more natural conduit for an ELRP is the CAISO, which already administers DRAM. However, unlike DRAM, this program should include the following features:

- Exclude the Required Energy Quantity (30 MWh/MW of average Qualifying Capacity) provision, which is going into effect under the terms of the 2021 DRAM.
- Remove or reduce the 100 kW reduction minimum requirement for participation.
- Adopt a uniform-price auction model. The current pay-as-bid design places an emphasis on strategic bidding rather than making a resource's DR range available at its marginal cost.

[5] OIR, at 12-13.

- Remove the 24x7 Must Offer Obligation and use an alternative availability measure, such as hours during an emergency or another measure tied to when available resources are expected to fall to within a minimum level of expected demand.
- Exclude Public Safety Power Shutoff ("PSPS") event days from baseline calculations for DR customers that are affected by a PSPS outage.
- Make capacity payments based on Demonstrated Capacity, if it exceeds Contracted Capacity.

ELRP should not be designed on a set number of hours, consecutive days, or a number of monthly hours, which will hamper the ability of resources to enroll that may be able to perform during the net peak load hours or during system emergencies. Programs designed like CBP, and not more closely tied to reliability, will be less supportive of reliability over time because of an eventual lack of customer participation. When DR programs are activated for multiple days and hours for conditions other than system emergencies, customers will experience fatigue. As resource fatigue grows, customer participation in DR is eroded, which then leads to either a small set of resources or lower performance or both.

2. <u>The Commission should consider relaxing the cap and promoting customer easier enrollment into the Base Interruptible Program for the summer of 2021</u>

The Commission asks in Issue No. 14 whether the BIP program should be expanded to lift the 2% participation cap.[6] NRG also supports the expansion of programs like the Base Interruptible Program ("BIP"), as alluded to in the OIR's Issue Nos. 13-14. If the 2% cap is lifted, additional resources (*i.e.,* customers) will be able to participate in this critical DR emergency program, which

[6] OIR, at 14.

seeks to activate and compensate customers for their ability to reduce load when there are system emergencies.

From NRG's experience, programs similar to BIP have a positive performance track record, compared to programs like the CBP, discussed in the next sub-section, where DR events are less transparent, more frequent, and less remunerative.

Regarding potential changes to mid-year enrollment, NRG believes that allowing third party aggregators, or resources, the ability to enroll mid-year, or even monthly, should be explored in order to increase resource participation in the BIP. It is important to note that there are several key data points that go into evaluating whether a DR resource may be enrolled into DR programs (*e.g.*, customer contact, interval data to look at load patterns, development of customer reduction action plans). The evaluation and onboarding process between the customer and aggregator can take several weeks or months to complete. Allowing monthly or mid-year enrollment will allow the Aggregator the needed time to collect the critical information needed to enroll resources in the BIP program. Allowing monthly or mid-year enrollments fosters more participation for the BIP program and allows additional resources to come online during critical peak periods.

3. <u>The Commission should consider modifications of the Capacity Bidding Program that promote participation by customers</u>

The Commission should expand the consideration given to the CBP beyond what is asked in the OIR's Issue No. 15. Specifically, as described in the introduction to this Section II.A of comments, CBP has seen significant customer attrition, which can be attributed not just to the exclusion of Prohibited Resources but also to customer fatigue.

NRG believes the Commission should explore interposing more limits on the instances in which customers' DR may be called in CBP. Our experience is that customers have to come to believe, rightly or wrongly, that investor-owned utilities are dispatching DR in this program for the

purpose of meeting quotas associated with production from DR resources that are committed to the IOU—and not because of reliability. Two IOUs run CBP programs that are operated during May to October, while Southern California Edison operates its program year-round. In NRG's experience, customers are unhappy and baffled when they are called upon during relatively mild days in May. While there may be an economic justification for these calls, the fact that they are non-transparent to DR customers and, per the rules of the program, callable at a utility's discretion, does not promote confidence in the program design.

In the early days of CBP, it was NRG's experience that DR called under the program was more closely associated with reliability concerns. It may be reasonable to return to that kind of design parameter, where trigger limits to a utility's call of CBP are tightened and made more transparent in order to promote participation. Rather than require that a DR resource be available for multiple hours, consecutive days, and for a monthly number of hours, the Commission should consider tying availability requirements to net peak load hours and Stage 1, 2, and 3 emergencies. At these times, DR is most needed for both economic and reliability reasons, and customers are more likely to value program participation if they can perceive a direct nexus between their likelihood of being called and system conditions that should occasion that call.

The baseline methodology on which DR customers are compensated for their contributions has also harmed customer participation in CBP. The type of baseline methodology can have a direct effect on the type and number of resources that choose to participate in the DR program. Baselines measure and verify resource participation during activations and, therefore, have a direct effect on how resources will be compensated for their participation in a DR program.

Baselines such as the Firm Service Level ("FSL") require a customer to drop to a particular load. This program is intuitive and straightforward, and easily measured and understood by the

customer, aggregator, utility, and system operator alike. By comparison, the Customer Baseline Load ("CBL"), which utilizes a 10-in-10-day look-back, calculates the load drop of a customer relative to the customer's average load during that hour over 10 non-event weekdays immediately prior to the dispatch of the resource. This is a confusing metric to the average customer, to say the least. DR programming that uses CBL may solve certain value and cost allocation issues, but it makes DR a constantly moving target for the customer, who may lose patience with the program. Meanwhile, this fine-tuning does not necessarily deliver value to reliability; the system operator ultimately cares more about the total load levels that FSL targets, than a metric associated with a particular customer's hourly baseline during only certain days (notably, weekdays, which may not be the days in question during a reliability event, as the Summer 2020 heat storm demonstrates). The 10-in-10 CBL baseline is especially confusing for a customer with intermittent load.

To the degree FSL needs to be adjusted in light of a sustained outage at the DR customer's premises to reflect the significant expansion of a new load, that tailored approach is better at promoting customer adoption than a 10-in-10 approach. Alternatively, a 3- or 5-in-10 approach, which measures the highest 3 or 5 days of the previous 10, or an approach that excludes outliers or normalizes loads to a day that is exceptionally hot, would remedy the phenomenon (among others) where a customer's loads are low in cooler weather running up to a heat storm, and then the customer's DR contributions are wrongly calculated on that basis. The OIR should ask specifically about appropriate modifications to the calculation methodologies of DR in order to secure broader participation of DR resources.

B. Behind-the-meter generation restrictions should be relaxed for the coming summer

Four years ago, the Commission prohibited most fuel-powered Back-Up Generation ("BUG") from being used to facilitate customers' participation in several DR programs (BIP, CBP,

and DRAM).[7] In light of the 2020 summer heat storm and this OIR, the Commission should consider relaxing this prohibition, even if only temporarily. It is important to note that the Commission did not issue a blanket prohibition on the use of fuel-powered BUG for all DR programs.[8] The Commission clearly has granted exemptions from its prohibitions, and could do so on a temporary or other limited basis if it so chose. The OIR should specifically identify this as an issue, at least to the degree that the OIR Issue No. 7 is not considered to entail it.[9]

As described in Section II.A. of these comments, this restriction has significantly diminished the amount of DR that would otherwise be available to participate in the marketplace. When BUG was excluded from DR program participation, customers with consistent load profiles and reliable load curtailment were lost. For those customers, the benefits of participating in DR is significantly less than the opportunity cost of interrupting operations. For example, large commercial and industrial customers such as casinos, data centers, and continuous plastic/metal forming facilities cannot interrupt operations to reduce load, and instead relied on back-up generation to both take load off the grid and continue their operations.

C. Surplus battery energy storage systems exist and are capable of being deployed on existing sites

The OIR's Issue No. 8 raises the question whether the Commission should consider expedited procurement which would be online in time to address extreme system issues in 2021 similar to what was experienced in 2020. NRG has access to approximately 26 MW of surplus battery storage infrastructure that could be deployed in California provided appropriate compensation is available. NRG also owns several sites in California where either existing generation (Long Beach) or retired generation (Carlsbad) is located, which would be ideal for a

[7] D.16-09-056 (adopted Sept. 29, 2016, issued Oct. 5, 2016).
[8] *Id*, at Ord. Para. 3.
[9] OIR, at 13.

short-term deployment of battery storage. NRG also has experience with mobile battery storage which can be deployed relatively quickly to supplement distribution-level systems. Accordingly, NRG recommends that the Commission consider additional, expedited procurement as a possible option for addressing supply issues that may exist in summer of 2021.

D. California lags substantially behind other parts of the world that have faced reliability challenges in terms of the timeliness of interconnection

The most time-consuming element of developing new California supply resources, other than identifying and contracting with an offtaker, is project interconnection. In NRG's ongoing experience, interconnections in California often require four to five years. In emergency supply situations similar to California's, markets such as South Australia[10] accelerated interconnection and similar required processes for select projects to alleviate the shortage. They did so while still completing all necessary studies and tests to insure system reliability and safety.

Accordingly, California's recent experience is not unique, and it is reasonable to expect future supply shortages may occur. In other parts of the country and the world, jurisdictions have been able to arrange for expedited supply. NRG recommends that as a topic in this OIR that the Commission examine how both the CAISO's and, for lower voltages, the utilities' interconnection processes can be modified to accommodate rapid deployment of dispatchable generation to address short-term, emergency situations.

[10] Famously, what was then the world's largest battery was constructed and interconnected in a single season on this grid. https://www.npr.org/sections/thetwo-way/2017/12/01/567710447/worlds-largest-battery-is-turned-on-in-australia-as-tesla-ties-into-power-grid

III. CONCLUSION

In summary, NRG urges the Commission to refine and build upon its DR programs in an expeditious manner with the primary goal of inducing wider customer participation. Additionally, the Commission should be aware that there are small-scale generating units, both fuel-based back-up generation and battery systems, that can be called into service in the right conditions. Finally, the Commission should contemplate how interconnection to the grid can be made more expeditious.

NRG thanks the Commission for its consideration of these comments to the OIR's identification of issues.

Respectfully submitted on November 30, 2020.

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