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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 Reforms and Refinements, and Establish Forward Resource Adequacy Procurement Obligations.	Rulemaking 25-10-003 (Filed October 9, 2025)

COMMENTS OF NEXTERA ENERGY RESOURCES, LLC ON ENERGY DIVISION'S DRAFT INPUTS AND ASSUMPTIONS FOR THE 2028 LOSS OF LOAD EXPECTATION STUDY

April 24, 2026

Simon Baker
Senior Director
NextEra Energy Resources, LLC
1 California Street, Suite 1600
San Francisco, CA 94111
Telephone: (415) 450-1183
Simon.Baker@NextEraEnergy.com

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Pursuant to the Assigned Commissioner's Scoping Memo and Ruling issued December 12, 2025, and the March 30 Administrative Law Judge's ("ALJ") Ruling Modifying 2028 Loss of Load Expectation ("LOLE") Study, NextEra Energy Resources, LLC ("NextEra Energy Resources") hereby submits its comments on Energy Division's Draft Inputs and Assumptions for its 2028 LOLE study (the "Draft I&A"). NextEra Energy Resources' comments focus on three areas relating to energy storage: (i) 90% of nameplate discharge range for battery energy storage is too low for new (planned) projects, and especially should not be assumed if unforced capacity ("UCAP") for storage will be applied to 100% of the nameplate capacity; (ii) the Energy Division should begin to study round-trip efficiencies for storage technologies and chemistries other than lithium-ion batteries and pumped storage hydro; and (iii) the Energy Division should study resources with asymmetric charging and discharging capabilities.

I. Assuming 90% of Nameplate Discharge Range is Too Low for New (Planned) Battery Energy Storage and Risks Undercounting Storage Capacity, Especially in Light of UCAP Application

In Section 4.3.3 of the Draft I&A, the Energy Division notes that "[i]n SERVM, battery storage is modeled with a 90% of nameplate discharge range, except during scarcity hours when

full discharge is allowed" and explains that this is to "reflect real world behavior of operators seeking to avoid increased maintenance from operating batteries at their extremes regularly."[1] A storage project operator should not be assumed to be operating its battery at 90% of discharge range while basing its assumed outage rate for UCAP purposes on 100% of the nameplate capacity.

First, NextEra Energy Resources does not argue that 90% may be a fair assumption for many *existing* batteries on the system in California. However, with newer generations of battery energy storage technology and increased experience in operating batteries in the California market, assuming a 90% of nameplate discharge range for all new (planned) battery storage is inaccurate due to changes in the market. Indeed, NextEra Energy Resources is already designing and operating most of its California battery energy storage rate at 100% of nameplate discharge range.

Second, and more problematic, the assumption of 90% for all battery storage projects is especially concerning when considered in light of the Commission's intent to apply UCAP methodology to battery energy storage projects. As addressed in the comments of NextEra Energy Resources and other parties submitted in this proceeding in response to the Track 1 Proposals, there is broad concern in the industry that application of UCAP to storage resources will over-penalize and will not accurately capture the reliability value of storage to the California grid, especially if industry-wide averages instead of resource-specific data is used.[2] If only 90% of a storage project's nameplate capacity is being assumed at the outset for its discharge range, adding UCAP on top of that – especially as proposed by the Energy Division in its Track 1 proposals –

[1] Energy Division, Proposed Inputs & Assumptions (Apr. 9, 2026) at 37.

[2] *See, e.g.,* Comments of NextEra Energy Resources, LLC on Track 1 Proposals (Mar. 6, 2026) at 12, 16; Opening Comments of the California Energy Storage Alliance on Track 1 Party Proposals (Mar. 6, 2026) at 4-5; California Community Choice Association's Comments on Track 1 Proposals (Mar. 6, 2026) at 14-16; Pacific Gas & Electric Company's (U 39 E) Opening Comments on Track 1 Proposals (Mar. 6, 2026) at 4-6.

will further exacerbate the undercounting of storage reliability to the grid, potentially leading to costly over-procurement. Accordingly, if the Energy Division does not revise the 90% assumption upward for new battery energy storage projects, then the UCAP framework should likewise only be applied to 90% of the capacity.

II. The Energy Division Should Begin to Study Round-Trip Efficiencies for Additional Storage Technologies

Also in Section 4.3.3 of the Draft I&A, the Energy Division also notes that "[n]ew (planned) or recently online battery storage is broadly assumed to have round-trip efficiency of 85% while new (planned) pumped storage is assumed to have round-trip efficiency of 81%."[3] While 85% round-trip efficiency may be a reasonable assumption for lithium-ion batteries, different battery chemistries (i.e., Iron-air, Sodium-ion, Zinc-Bromine, Flow Batteries, etc.) can come with substantially different round-trip efficiencies. Considering that other battery chemistries are currently being manufactured for utility-scale operations, NextEra Energy Resources strongly recommends that the Energy Division get ahead of changing market trends and begin to study such efficiencies now, so that it has appropriate assumptions to use once such projects enter the California market at utility scale. Likewise, various other storage technologies beyond batteries and pumped storage hydro are emerging. The Energy Division should prepare in advance to appropriately capture these new technologies in the study assumptions, rather than waiting and playing catch-up after they reach commercial operation.

III. The Energy Division Should Begin to Study Storage and Hybrid Resources with Asymmetrical Discharging and Charging Capabilities

In its LOLE Study, the Energy Division should begin to study resources with asymmetrical charging and discharging capabilities. While this is not currently a resource that the Energy

[3] Energy Division, Proposed Inputs & Assumptions (Apr. 9, 2026) at 37.

Division studies, resources with the technological capability to asymmetrically charge and discharge are commercially available and could provide increased reliability value. While various potential configurations are possible, one example of this type of resource is a solar-plus-4-hour-storage project that adds an additional 4-hour storage project at the same site. Under this configuration, the full amount of storage could charge for four hours, but then discharge at half the capacity for eight hours. NextEra Energy Resources anticipates that this type of resource, with symmetrical charging and discharging capabilities, could have an increased value to the changing needs of the California grid. The Energy Division should evaluate these types of resources to begin to understand the potential LOLE and Effective Load Carrying Capability ("ELCC") values of such resources, as well as how they fit into the operation of the system as a whole.

IV. Conclusion

NextEra Energy Resources appreciates the opportunity to provide these comments and encourages the Energy Division to make revisions to the Staff-proposed (and future) inputs and assumptions documents in accordance with the suggestions provided above.

Dated: April 24, 2026

Respectfully submitted,

/s/ Simon Baker

Simon Baker
Senior Director
NextEra Energy Resources, LLC
1 California Street, Suite 1600
San Francisco, CA 94111
Telephone: (415) 450-1183
Simon.Baker@NextEraEnergy.com