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Docket Unit
California Energy Commission
1516 Ninth Street, MS 4
Sacramento, CA 95814

Subject: Form Energy Comments on the Draft Proposed EPIC Interim Investment Plan 2021, Docket #20-EPIC-01

Form Energy appreciates the opportunity to comment on the California Energy Commission's (CEC) Draft Proposed EPIC Interim Investment Plan 2021 (Investment Plan), issued January 4, 2021. Form Energy supports the CEC's continued emphasis on supporting the commercial market entry of new long-duration energy storage technologies, particularly those with the ability to address grid reliability threats caused by multi-day weather events and wildfires.

Our comments recommend additional initiatives and refinements to ensure that EPIC programs are targeted to the highest-value investments, are flexible enough to allow a range of companies to compete for funding, and fund projects at a scale sufficiently large to reduce technology risk so that new technologies and applications can achieve widespread commercial adoption after receiving EPIC funding.

Summary of Recommendations

Form Energy recommends the following refinements to the Investment Plan:

1. The CEC should broaden the focus of proposed Initiative 4 to ensure that it supports in front of meter (IFM) applications of long-duration energy storage as well as customer-sited applications.
2. The CEC should ensure that proposed Initiative 4 can support projects that are potentially 5MW to 20MW in scale, if not larger.
3. The CEC should establish a new sub-part of Initiative 4 to demonstrate new multi-day energy storage technologies deployed in Front of Meter Applications (to parallel proposed Initiative 8d: Pilot Demonstration of Floating Offshore Wind Technology)

4. We support the CEC's proposed Realized Accelerated Manufacturing Production (RAMP) initiative, and we encourage the CEC to take a broad interpretation of eligible manufacturing processes.
5. We support the CEC's proposed DOE cost-share initiative, and we encourage the CEC to ensure this funding is continuously available and has a rapid, streamlined approval process to account for the unpredictability of when DOE funding opportunities are available.

We provide further justification for these comments in the sections below:

1. Initiative 4 should additionally support in front of meter applications of long-duration energy storage.

The CEC's proposed research Initiative 4 appears to focus solely on behind the meter (BTM) applications of long-duration energy storage located at critical facilities. BTM applications at critical facilities are important, and the CEC should continue to support them through this initiative. However, EPIC funds should *also* support IFM applications of long-duration storage, particularly at the community scale. IFM applications have substantial potential to improve the resiliency of both critical facilities and the surrounding community during multi-day public safety power shutoff (PSPS) events and multi-day periods of extreme weather that affect system-level reliability. The CEC should not foreclose opportunities to bring IFM solutions to the market and to accelerate the adoption of zero-carbon solutions to multi-day grid resiliency and reliability needs.

2. Initiative 4 should be sufficiently funded to support projects that are 5MW to 20+ MW in scale.

We offer this recommendation for two principal reasons:

- RD&D programs are most effective when they are designed to retire technical and commercial market risk necessary for a technology to secure commercial project finance in the future;
- To meaningfully retire technology and market risk, technologies must demonstrate performance and economic returns at a commercial scale representative of grid or customer needs.

In this case, critical facility loads may be quite significant: a single hospital or critical data center can have several MW to tens of MW of load. Similarly, the CPUC's data of recent years' PSPS events shows that community resiliency needs are typically at the scale of tens of MW. To help technologies overcome commercial barriers associated with serving IFM resiliency and reliability applications, the CEC should support project demonstrations at a scale that is sufficiently large to enable technologies to achieve bankability and secure fully commercial financing for

subsequent projects: at least 5MW in scale, and ideally up to 20MW in scale or larger. Project demonstrations at this scale play an important role in helping technologies overcome technology risk eligibility requirements in load serving entities' commercial solicitations. As a result, EPIC funding at this scale is a high-leverage, high-value use of funds, because it unlocks substantial future commercial opportunities.

3. The CEC should establish a new sub-part of Initiative 4 to demonstrate new multi-day energy storage technologies deployed in front of meter applications.

The CEC should develop a new initiative (4a) focused on first-of-kind demonstrations of multi-day energy storage technologies deployed in front of meter applications. This initiative should be designed to parallel Initiative 8d: Pilot Demonstration of Floating Offshore Wind Technology.

This new initiative would fill a gap from the previous EPIC Investment Plan, which emphasized customer-sited projects for multi-day storage, and that was limited to technologies that had achieved specific technology readiness levels (TRLs) at the time the grant was issued. These two factors prohibited a number of multi-day energy storage technologies from participating in the grant.

We recommend that the CEC ensure that this new initiative reflect the following to support new technologies in achieving bankability to support post-EPIC commercial projects:

- Eligible project sizes: 5MW to 20MW
- Metrics and performance indicators:
 - Potential to achieve installed cost of storage lower than \$20/MWh
 - Advance technology readiness level from TRL 6/7 to TRL 8/9
- Per-project funding amount: \$2M per installed MW

4. Realized Accelerated Manufacturing Production (RAMP) and U.S. DOE cost share initiatives.

We support the CEC's proposed Initiative 9C: Realized Accelerated Manufacturing and Production (RAMP). We encourage the CEC to adopt a broad interpretation of manufacturing processes to ensure that RAMP funding can support activities that range from the manufacturing of individual components to the manufacturing, assembly and integration of modules and systems. Additionally, we encourage the CEC to allow grant recipients to spend funds on building infrastructure upgrades that are necessary to achieve accelerated manufacturing or production.

We also support proposed Initiative 9E: Cost Share for U.S. DOE Funding Opportunities, and we encourage the CEC to ensure that this program is:

- Continuously available, as DOE funding can become available at unpredictable times; and
- Sufficiently streamlined so applicants can quickly prepare proposals and the CEC can quickly evaluate them to commit funding in support of DOE applications.

Conclusion

Form Energy looks forward to continuing to work with the CEC on these important issues, including in the upcoming EPIC IV Investment Plan. Thank you for this opportunity to provide public comments.

Sincerely,

/s/ Jason Houck

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