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Antora Energy Comment on EPIC 4 Draft Initiatives

Additional submitted attachment is included below.

Antora Energy

We thank the CEC staff for sharing these proposed draft initiatives and feel that they constitute an exciting and highly-relevant set of directions for EPIC 4. Here we provide comments on specific elements of the draft:

- **Achieve Reliability and Create a Nimble Grid Responsive to Intermittent Renewable Generation**
 - We are excited to see that long-duration storage tech demonstrations are highlighted as a draft initiative.
 - Due to the extremely low costs and reduced technical risk, we feel that high-temperature solid-state thermal storage should be added as a specific example technology under this category. (Section)
 - There have been numerous analyses by industry and academic groups indicating that true multi-day storage (100+ hours) will likely be required to achieve cost-competitive deep decarbonization. This has specifically been found for California, and Antora's internal analyses support these finding. As such, we feel that long-duration storage should be defined more precisely to be multi-day durations (e.g. 50+ hours or 100+ hours). Eight hour storage alone is unlikely to address the critical barriers to reaching California's statutory energy goals, so we feel that making this critical distinction is important. (Section 5)
 - We feel that this is an exciting area, and hope that industry stakeholders and small businesses will be included in developing this framework. (Section 8)
 - We suggest that true long-duration (e.g. 100+ hour) storage be explicitly included in the effort to advance the performance of Clean, Dispatchable Generation technologies. True multi-day storage has the capacity to be 100% firm and dispatchable at lower costs than alternative technologies. (Section 9)
- **Improve the Customer Value Proposition of End-use Efficiency and Electrification Technologies**
 - We suggest expanding the technologies listed for low-carbon/high-temperature industrial heating to allow for new innovations, like thermal energy sources, that can discharge high-temperature heat. Thermal storage systems charged with renewable electricity can provide high-temperature process heat at significantly lower costs than green hydrogen and at costs competitive with current fossil solutions. These systems can discharge process heat up to 1500C. (Section 25)
 - Fuel switching from fossil fuels to renewable electricity in applications like cement production will require energy storage. High-temperature (1500C+) thermal storage is a prime candidate to economically and safely meet this need, so we suggest that it is explicitly included as a technology area supporting decarbonization of the cement industry. (Section 26)
- **Enable Successful Clean Energy Entrepreneurship Across California**
 - We enthusiastically support the draft initiatives proposed here.

Again, we thank the CEC for preparing these exciting draft initiatives, and we enthusiastically support them.