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Low-Cost, Off-the-Shelf, Appliance Specific BTM Renewable Backup

Additional submitted attachment is included below.

Behind-the-Meter Zero Emission Backup Technologies

Overall, excellent and very well thought out questions.

1. **What are key barriers to behind the meter (BTM) zero-emission renewable backup for critical loads? Is the lack of standardized solutions a primary barrier for permitting and interconnection?**

Permitting, installation, and cost. Standardization is less of a factor where human involvement is required (scheduling, preferences, cost). Cost is especially crucial for the disadvantaged communities.

2. **What are the current opportunities for standardizing design of how BTM backup systems interconnect with the distribution grid while enhancing safety and managing operational constraints?**

The greatest opportunities are the usage of off-the-shelf portable storage for critical appliances. Above and beyond refrigerators, medical equipment, and possibly HVAC for medical reasons, what other loads are critical? As such, another topic could be low-cost, off-the-shelf, and appliance-specific solutions that do not require any interconnects/installation/permitting.

For instance, assuming that a large refrigerator uses about 1500wh per day, a $200 off-the-shelf 300wh portable battery storage can keep the refrigerator running for about 4 hours. At the most, this solution requires a sensor to sense lack of power from the grid.

3. **If the CEC issues a solicitation in this research space, should there be carve outs for specific technologies or technology bundles targeting specific performance metrics (e.g., separate groups each targeting a technology such as critical load panels, switchgears, and multi-mode inverters)? How should technologies be bundled, and what metrics should be targeted?**

As mentioned above, may I humbly request that you add a category for low-cost, off-the-shelf, and appliance-specific solutions?

4. **If the solicitation included multiple groups, how should those groups be structured? Some examples below:**
    - **Multiple-group solicitation in which each group is defined by a particular site characteristic or use case. Examples could include: urban and rural, residential and commercial, various climate zones.**

Including low-cost and off-the-shelf solutions that can be rapidly deployed, tested, and verified.

10. **What are some examples of emerging technology solutions not previously mentioned in this RFI that could streamline interconnection and permitting for BTM solar-paired energy storage or other zero-emission backup power? To what extent have these technologies been validated in the field?**

As mentioned before, low-cost, off-the-shelf, and appliance-specific.

11. What BTM renewable backup power technology is mature enough to move forward from pilot-scale (ARD) to technology demonstration-scale (TDD)?

Portable battery backed generators of which there are 100s on Amazon.

12. What applications or use cases might be the best fit or highest priority for achieving easily replicable solutions with maximum impact? For example (reordered**)**

a. Homes in under-resourced communities with outages higher than the utility average and/or that are subject to extreme heat conditions.
b. Multifamily housing and community centers.
c. Critical loads in common areas affected by Public Safety Power Shutoffs.
d. Emergency facilities in wildfire-prone areas.
e. Manufactured homes.