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## **Comments on Clean Alternatives to Diesel Backup Generation**

*Additional submitted attachment is included below.*



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February 12, 2021

California Energy Commission  
1516 Ninth Street  
Sacramento, CA 95814-5512

RE: BEFORE THE CALIFORNIA ENERGY COMMISSION

In the matter of: CEC Draft Research Concept (19-EPIC-01)

CEC Workshop: Clean Energy Alternatives to Diesel

Dear Chair Hoschschild,

Thank you for the opportunity to comment on research into clean energy alternative to diesel backup generator systems and topics discussed during the January 21, 2021 workshop. The City of Santa Clara, acting through its municipally owned electric utility Silicon Valley Power (SVP), shares the California Energy Commission (CEC) interest in clean energy alternatives to diesel backup generator system. On February 9, 2021, the Santa Clara City Council adopted a legislative advocacy policy to support the transition from diesel generator to battery energy storage systems.

One of the themes of the workshop was that the EPIC research should look holistically at alternatives to diesel backup generation within the whole electric grid system. The most impactful way to reduce diesel emissions from the electricity sector is to reduce actual use or perceived need for emergency diesel generation. Two key methods would include: (1) strengthening the electric grid to improve its overall resiliency, and (2) improving the ride-through capability of customers for short-duration outages or power quality events. SVP strongly encourages the CEC to focus its research dollars on methods and technologies that, along with reducing fossil diesel emissions, support grid reliability and state goals for clean electric resources.

### **Resiliency and Back-up Generation**

Of the three types of technologies discussed in the workshop, SVP advocates EPIC grants should be focused on resolving market-rule barriers and technological issues with either (1) storage (batteries, etc.) or (2) dispatchable/capacity-enhancing technologies which will assist with renewables integration and the resiliency issues seen in August 2020. Such technologies should be able to take advantage of existing market revenues, such as resource adequacy payments, because the market already recognizes the value of these services. The third type of technology discussed in the workshop, described as “always-on” technology, should not be the focus of EPIC grant research because always-on technology appears to duplicate existing grid activities without improving reliability or the reduction in the installation of diesel generators; has the potential to replace a 50-hour per year fossil fuel generator with an 8,760-hour per year fossil fuel generator; and is likely to only exacerbate the curtailment of



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clean but intermittent renewable generation because always-on means it also cannot back down during clean generation hours. We echo the sentiments of other public comments that the number of hours a technology operates and emits pollutants, and how those hours compare to the grid -alternates is extremely relevant to the goal of reduced GHG and criteria pollutant emissions. Those goals are not limited to only back-up diesel generation.

### **Right-Sizing Solutions for the Problem**

As discussed in the workshop, the majority of outages last between one minute to less than two hours, including the California rotating outages of August and September 2020. The majority of diesel generator emission of concern comes from the monthly test runs to be prepared for those short duration outages. EPIC grants should focus on the best combination of technologies to partially or fully replace fossil diesel generation through the typical outage scenarios with technologies such as batteries or other devices. This may include using or enhancing existing customer equipment to ride through events and new methods of enhancing the customer-utility relay and control equipment in an outage event. We would encourage the CEC to collaborate with major customers of concern, like datacenters, to fully understand their reliability requirements and technologies on hand to enhance ride through of power quality and other events.

### **Public Safety Shutoff Events**

Long-duration outages like Public Safety Shutoff Events (PSPS) should be treated in a separate category. SVP encourages the CEC to be mindful that these long-duration outages occur in limited, specific locations with the highest wildfire risks and as such the potential solutions should be specific to those locations where PSPS events have occurred.

The City of Santa Clara is not in a high wildfire risk area and has not had an outage due to a PSPS event at any time in the past. News report that the investor-owned utilities intend to spend \$13 billion dollars on wildfire mitigation efforts. We would presume that money will only help to reduce the frequency and scope of any future PSPS events.

Yet in a neighboring city, the rather odd argument was made to install 100% non-renewable technology in locations for reliability because PSPS events had happened in a far-away location, on a different circuit, elsewhere in within the same City. The implication, implying that the area of PSPS events would expand instead of being a less common event despite all the money spent and efforts being made. It would be more appropriate for CEC to focus its monies on technologies and methods to reduce the scope and frequency of PSPS events. Eliminating the need for long duration backup generation due to PSPS to the fewest locations as possible is clearly the best and first option to reduce emissions.

SVP suggestions foundational questions to be considered in determining EPIC research priority including: Which reliability problem would be solved by the chosen technology or method? Is the solution correctly located? The grants should require an analysis of comparable alternatives including duration of use and are there other advantages to a technology that can leverage existing market mechanisms to make it cost-effective and avoid stranding investments.



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## **Directed Biogas/Pipeline Hydrogen**

A significant portion of the workshop was spent discussing 'directed biogas' and 'green hydrogen' as options. There are several fundamental questions that requires further research. For example, how much fuel (biogas, renewable diesel, green hydrogen) is available in California to be directed to technologies that would replace fossil-diesel generators? For biogas this should be considered both in total and as compared to biogas use in all forms of generation versus alternative uses such as transportation. And while referenced in the workshop, what specifically is the storage capability of the pipeline system? These appear to be a basic research needs for future decision making.

If biogas is limited in actuality, then, only gas-based technologies that provide the most grid value by having dispatch capability, should then be researched and demonstrated. Within Santa Clara, all 14 MW of fuel cells are 100% natural gas fueled. Over 460 MWs of fuel cell have been installed in California but only approximately 1% of those fuel cells use biogas. The remainder are using natural gas and most likely will for their useful life, and thus will have the resulting greenhouse gas and criteria pollutant emissions that state legislators and regulators are seeking to reduce.

Similar to biogas, the use of green hydrogen raises additional questions such as: Under what requirements will green hydrogen injected into a common-carrier pipeline to be use in a generator be considered renewable?

Thank you again for accepting our comments in this proceeding. Please let us know if we can provide further information or answer any other questions.

Sincerely

Ann Hatcher  
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Silicon Valley Power/City of Santa Clara