DOCKETED	
Docket Number:	22-ERDD-01
Project Title:	Community Energy Resilience Investment Program
TN #:	254022
Document Title:	Mainspring Energy Comments on Draft Version - Grant Funding Opportunity - Community Energy Resilience Investment (CERI) Program
Description:	N/A
Filer:	System
Organization:	Mainspring Energy
Submitter Role:	Public
Submission Date:	1/19/2024 3:26:23 PM
Docketed Date:	1/19/2024

Comment Received From: Mainspring Energy
Submitted On: 1/19/2024
Docket Number: 22-ERDD-01

Mainspring Energy Comments on Draft Version - Grant Funding Opportunity - Community Energy Resilience Investment (CERI) Program

Additional submitted attachment is included below.

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January 19, 2024

California Energy Commission
Docket Unit, MS-4
Docket No. 23-ERDD-01
715 P Street
Sacramento, California 95814

Re: *Draft Version - Grant Funding Opportunity - Community Energy Resilience Investment (CERI) Program (22-ERDD-01)*

Mainspring Energy, Inc., ("Mainspring") files these comments in response to the California Energy Commission's Draft Version - Grant Funding Opportunity - Community Energy Resilience Investment ("CERI") Program ("Draft CERI GFO") released on December 18, 2023.

About Mainspring

Driven by its vision of the affordable, reliable, net-zero carbon grid of the future, Mainspring has developed and commercialized a new distributed power generation technology — the linear generator — that delivers dispatchable, fuel-flexible electric power at low cost. Mainspring's linear generator offers a unique and highly flexible non-combustion energy and capacity expansion solution that can simultaneously address the critical need for greenhouse gas and criteria pollutant emissions reductions while also maintaining reliability and resilience. Linear generators use a low-temperature, uniform non-combustion reaction that maintains peak temperatures below the levels at which NOx forms (1500°C), resulting in near-zero NOx emissions at all loads – including during start-up. This is in contrast to the burning of a fuel with a flame, which creates high temperatures and high NOx emissions. California's South Coast Air Quality Management District recently adopted linear generator-specific requirements in the form of Proposed Rule 1110.3, highlighting the low NOx operation of this technology.[1]

Modular and scalable, Mainspring's linear generators can be deployed where demand exists, at a local level for one customer or an entire community. Full dispatchability also allows linear generators to consistently match power output with the specific energy need, while integrating with and firming variable renewables such as solar and wind, thereby supporting the continued rapid adoption of renewable energy while bolstering resilience and avoiding unnecessary curtailment.[2]

[1] South Coast Air Quality Management District, "Rule 1110.3 Emissions From Linear Generators", Adopted November 3, 2023.
[2] For additional information on technical specifications and performance benefits, visit https://www.mainspringenergy.com/technology/.

I. Executive Summary

Mainspring thanks the California Energy Commission ("Commission") for the opportunity to provide comments on the Draft CERI GFO. Through these comments, we make the following recommendation:

- The Draft CERI GFO should be amended to include hydrogen as a form of energy storage, as recognized in California statute;
- The Draft CERI GFO language should be amended to clarify that clean distributed generation is a type of distributed energy resource ("DER") included in Eligible Activities – even if only funded via California state funds.

II. The Draft CERI GFO Language Should be Amended to Include Hydrogen as a Form of Energy Storage, as Recognized in California Statute

The Draft CERI GFO should be amended to include hydrogen as an eligible fuel when utilized via a distributed energy resource, alongside other DERs such as other energy storage resources (e.g., batteries) and microgrids. Green electrolytic hydrogen is already recognized as a form of energy storage in both the California Public Utilities Code and California Public Resources Code.[3,4] Moreover, hydrogen is recognized as a form of long-duration energy storage – an essential building block for a clean, reliable, resilient grid that benefits all communities.[5] As the deployment of variable renewable energy generation increases in the form of solar and wind, these resources will need to be supplemented with dispatchable clean firm power in order to meet grid needs. This is rendered even more critical as extreme weather events become more volatile – forcing Californians to endure longer grid outages. Storing renewable energy in the form of hydrogen is a central means of ensuring a resilient, reliable energy system while meeting increasingly-stringent state climate goals. Hydrogen can be used to supplement variable renewables across hours, days, weeks, and even seasons to mitigate both periods when solar and wind and production are decreased (i.e. when the sun is not shining and wind is not blowing), as well as more damaging grid stresses – and in doing so aligns with the goals of the Draft CERI GFO.

Hydrogen is valuable across a wide range of applications; among the most important are commercial and industrial applications where high levels of reliability are of paramount importance (e.g. critical infrastructure such as medical facilities, cold storage facilities, data centers, etc.). These and similar facilities cannot weather long duration outages; while a range of resources can provide short-term reliability, hydrogen is an essential tool for long-duration energy storage. This is further reinforced by California's efforts to electrify both buildings and transportation; during extended grid outages communities and businesses cannot afford to lose access to the essential services provided by electric buses, garbage and drayage trucks, and freight movement. As electrification efforts take hold, these communities should not have to endure the status quo of being forced to rely on diesel backup generators that negatively impact air quality when the grid goes down. Technologies that use hydrogen, a recognized form of energy storage, should explicitly be made eligible for the Draft CERI GFO.

[3] California Public Utilities Code § 400.3
[4] California Public Resources Code § 25642
[5] California Public Resources Code § 25641

III. The Draft CERI GFO Language Should be Amended to Clarify that Clean Distributed Generation is a Type of Distributed Energy Resource Included in Eligible Activities – Even if Only Funded via California State Funds.

The Draft CERI GFO appropriately focuses on a range of important efforts to improve reliability and resilience, while driving community benefits and meeting state climate and energy goals. Among the eligible activities included in the Project Focus section is the "Use or construction of distributed energy resources for enhancing system adaptive capacity during electrical system outages, including microgrids and battery storage subcomponents". In denoting this important project type, the Commission rightly recognizes the value DERs bring to California's energy system. Dispatchable, fuel-flexible, clean firm power –such as Mainspring's linear generator– is generally utilized in a manner that can be categorized as a DER. Further, linear generators have attributes consistent with multiple categorizations of resources, such as long-duration energy storage (as explicitly recognized by California in the case of hydrogen and described in the previous section), renewable firming, electric vehicle charging infrastructure, etc. Therefore, the Draft CERI GFO should be amended to include clean distributed generation that operates in a manner consistent with the definition of DERs. The Draft CERI GFO notes the Bipartisan Infrastructure Law prohibits federal grant awards for construction of a new electric generating facility; the Commission should denote that any California state funds utilized for the CERI program could be made eligible for distributed generation operating as a DER. Ensuring that eligible project types include clean generation operating in a manner consistent with DERs and/or a type of long-duration energy storage will enable the Commissioner to more effectively meet the stated goals of the program.

IV. Conclusion

Mainspring appreciates the opportunity to comment on this important draft GFO, and looks forward to collaborating in the future.

Sincerely,

/s/ Serj Berelson

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