

RE: Comments on Fuel Cell Net Energy Metering May 30, 2017 Public Workshop

Capstone Turbine Corporation appreciates the opportunity to provide these comments regarding the California Air Resources Board's ("ARB") Public Workshop on May 30, 2017 to discuss emission standards for criteria pollutants and annual greenhouse gas (GHG) emissions that will be used to determine system eligibility for the Fuel Cell Net Energy Metering program as amended by AB 1637 last year. Capstone Turbine Corporation is the world's leading producer of low-emission microturbine systems headquartered and manufactured in Chatsworth and Van Nuys, California. A Capstone microturbine is an advanced technology, small combustion turbine used to generate electricity at the location of the end-use customer. Capstone microturbines are used throughout the world in commercial, institutional and industrial applications. Customers use our systems to save money through more efficient energy usage.

These comments should be considered in light of Assembly Bill 36 (Nazarian), which is currently moving through the legislative process. AB 36 would make the Fuel Cell NEM program technology neutral, allowing any technology that meets the GHG and criteria pollutant emissions standards to participate in the program. In particular, any test methods selected should be inclusive of any potentially eligible technology.

### **Test Methods**

Staff proposed using ARB Test Method 100 for Carbon Dioxide, US EPA Method 3C for Methane, and ARB Test Method MLD 136 for Nitrous Oxide. It is not clear why these methods were selected over the test methods that are already established for stationary power generation equipment, such as Federal Regulation Title 40, Chapter I, Subchapter C, Part 60 and South Coast Air Quality Management District methods.

For testing CO<sub>2</sub>, it is not clear why this method is being proposed as Method 100 is already an approved alternative method in cases where EPA methods are applied. The test method applicable for combustion turbines and microturbines is CARB's Method 3.

For testing methane, the US EPA Method 3C appears to measure methane that is leaked into the atmosphere during transportation or from sites that include municipal waste (e.g., landfills), rather than emissions from stationary power generation equipment.

For testing nitrous oxide, ARB Test Method MLD 136 is a method generally employed on vehicles: "Procedure for Determination of Nitrous Oxide in Automotive Exhaust by Fourier Transform Infrared Spectroscopy." This test method is not compatible with inverter-based technologies. This is in part due to the requirement to test with a dynamometer. There are already well-established test methods for stationary sources of NO<sub>x</sub>. Test methods applicable for combustion turbines and microturbines are CARB's Method 20 or Federal Regulation Title 40, Chapter I, Subchapter C, Part 60, Subpart KKKK.

## **GHG Standard**

ARB proposed two potential bases of GHG standard but also expressed openness to additional methods in comments made at the public workshop. We believe the legislative intent is to have CEC and ARB determine the emissions rate that represents clean distributed energy resources offsetting higher emission grid resources. Proposed Method 1 simply uses displacement of a combined-cycle gas turbine power plant as the marginal grid resource, but does not account for line losses. In California, transmission and distribution losses averaged 7% in 2014 and should be factored into the ARB's methodology. Proposed Method 2 applies a 25% adjustment to account for an RPS target of 25% by January 1, 2017. There is no need to factor in the target RPS as the GHG emissions comparison should be made to the actual emissions profile of the grid resources – not the targeted profile. If the distributed energy resource is cleaner than the actual grid, then it is an improvement over the grid. The GHG standard is to be updated on a regular basis, so as the grid becomes cleaner, the standard will adjust appropriately.

Sincerely,

Jen Derstine  
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Capstone Turbine Corporation