



December 12, 2018

To: Hank Seemann

CC: Cody Roggatz, Matthew Marshall, David Carter, Lori Biondini

From: Dana Boudreau

Subject: Proposal for ACV Microgrid PV energy performance assurance

Dear Hank,

As we've discussed in recent meetings regarding the proposed memorandum of understanding between the County, Schatz Energy Research Center, and Redwood Coast Energy Authority, this is a proposal for providing the County with a minimum energy performance assurance from the PV NEM array within the ACV Microgrid project. The intent of this assurance is to provide the County with a degree of confidence that they will receive a reliable source of electricity and reduce risk of energy shortfalls from the PV array and any associated unplanned energy costs. This language is proposed as a clause within the MOU:

- Provide assurance to the County that the PV NEM array will deliver no less than 350,000 kWh/yr in any year to the airport facility meter to be installed for the generating account as part of the planned aggregated NEM service. The projected average annual output from the PV NEM array is 428,000 kWh/yr, with year-to-year variations in output due to weather conditions and solar panel degradation.
- Provide an annual energy generation report and financially compensate the County for energy shortfalls below the minimum specified amount (350,000 kWh) within 60 calendar days of the end of the true-up period, calculated as the average electrical price of the rate for the year in question times the generating shortfall below 350,000 kWh. The true-up period will be a one-year period marking the anniversary of the system's interconnection. The average rate will be calculated by dividing all per-kWh electrical generation, transmission, and distribution charges for the aggregated benefitting accounts during the year in question by the total billed kWh consumption for these accounts. This assurance is subject to terms and conditions within the pending lease agreement between the County and RCEA, including force majeure and other factors that may affect total energy delivered.

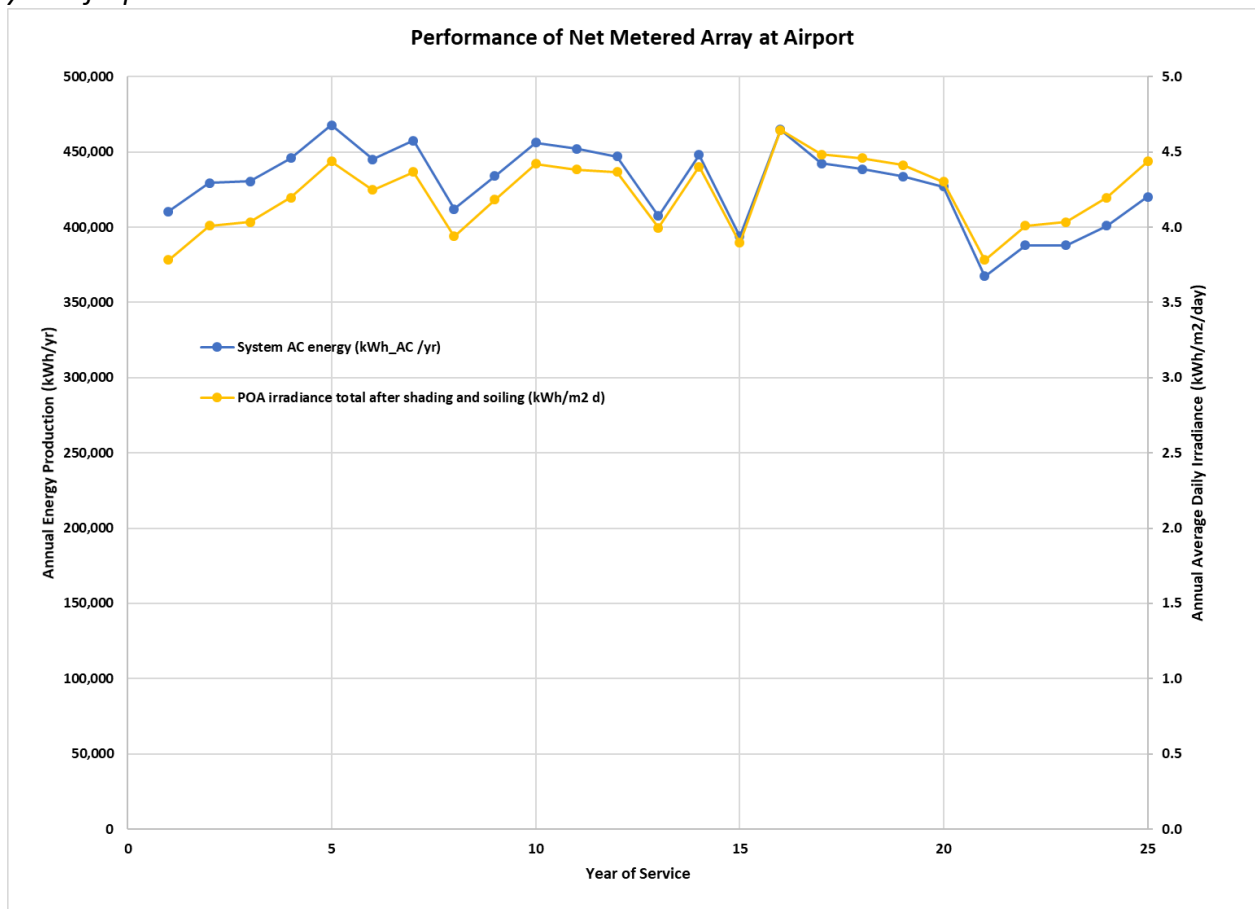
Background

This information is proposed as an appendix to the MOU. Using current information on system design, SERC provided RCEA with an in-depth analysis of expected system performance at the site:

- The energy production simulation was performed using the National Renewable Energy Laboratory's (NREL) System Advisor Model (SAM), an industry standard.
- Module degradation is derived from the manufacturer specification sheet, for a total of 15% over the 25-year lifespan of the array.

- The modeling used the actual NREL weather files for the first 20 years (1998 to 2017) and then appended the first five years to make a 25-year record. This is conservative as the first year was the worst solar year in the 20-year weather data.
- Energy production shows a 22% difference between the worst and best years. See Figure 1.

Figure 1: Historical insolation and projected energy production at ACV NEM PV array over a 25-year lifespan



We look forward to discussing this further.