LEVELIZED COST OF ENERGY FOR COMMUNITY SOLAR PROJECTS IN NEW JERSEY

Nicolette Filippone, Pankaj Lal, Pralhad Burli, Daniel Rynerson, Elshama Santana, Taylor Wieczerak
Department of Earth and Environment Studies, Montclair State University, NJ 07043

ABSTRACT

Renewable energy technologies are gaining momentum in New Jersey as the state gets more ambitious sustainability and carbon footprint goals. The development of community solar is one strategy that can be integrated within the current energy mix to accelerate progress towards these goals. The objective of this research is to evaluate the Levelized Cost of Energy (LCOE), which is a present value calculation of the unit-cost of electricity over the lifespan of a generating asset. We estimate LCOE using National Renewable Energy Laboratory’s (NREL) modeling tool, Cost of Renewable Energy Spreadsheet Tool (CREST). We estimated project LCOE for multiple project sizes by incorporating a range of policy assumptions, financial requirements, and development of community solar projects in New Jersey. Our results highlight the wide range of LCOE estimates and identifies the key drivers based on LCOE sensitivity to model inputs. This research is timely and can be used to develop policy designs that help New Jersey’s transition to a clean energy future. All system sizes have a Baseline Model Assumption of 25 years for project life, 24.5% for Net Capacity Factor, and 0.5% for Annual Product Degradation.

METHODS

The goal of the project was to obtain the LCOE of different size solar projects in New Jersey, and calculate/determine sensitive variable factors that effect the LCOE.

RESULTS

Objective

The goal of the project was to obtain the LCOE of different size solar projects in New Jersey, and calculate/determine sensitive variable factors that effect the LCOE.

CONCLUSION / ONGOING WORKS

Overall, as projects sizes increases, LCOE deceases. For the Ground-tracking system, although the initial investment and operation maintenance costs are higher, the percent efficiency of the system is presumed to increase as the panels follow the track of the sun to absorb more energy throughout daily operation.

ACKNOWLEDGEMENT

We greatly acknowledge the support contributed to this work from the CESAC & Board of Public Utilities.

REFERENCES


