



# **Peninsula Advanced Energy Community (PAEC)**

## ***Task 3.4 & 3.10: Summary of Financial Pro-Forma, Delineating the Cost of Capital, Tenor, Risk/Return Profile, and Value Streams for Behind the Meter Energy Storage***

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## **About the Authors**

### **Sovereign Energy Storage**

Sovereign Energy provides utilities with intelligent and cost effective solutions for integrating renewables, improving system reliability and power quality, and lowering operating costs. Our success will accelerate the adoption and penetration of renewable energy, while modernizing and improving the stability of the grid.

Visit SES online at <http://sovereignstorage.com>

### **About the Clean Coalition**

The Clean Coalition is a nonprofit organization whose mission is to accelerate the transition to renewable energy and a modern grid through technical, policy, and project development expertise.

The Clean Coalition drives policy innovation to remove barriers to procurement and interconnection of distributed energy resources (DER)—such as local renewables, advanced inverters, demand response, and energy storage—and we establish market mechanisms that realize the full potential of integrating these solutions. The Clean Coalition also collaborates with utilities and municipalities to create near-term deployment opportunities that prove the technical and financial viability of local renewables and other DER.

Visit us online at [www.clean-coalition.org](http://www.clean-coalition.org).

## **Legal Disclaimer**

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## I. Summary

Sovereign Energy has developed an integrated financial pro-forma (in Excel format) to model the revenue and expenses for a behind the meter energy storage project, as well as an in front of the meter energy storage project.

The tool is intended to be dynamic and interactive, allowing for the user to change inputs to determine the financial performance of each unique project scenario. The project has over fifty inputs which calculate the risk adjusted project internal rate of return unlevered, levered, and after tax.

## II. Overview of Model Tabs

The model includes multiple tabs:

- Model Inputs
  - All project level parameters are inputted on this tab. Inputs are formatted with Salmon Background.
  - Additional detail below Section III and IV.
- Pro-Forma
  - Tab shows the annualized revenue and expenses for the project. All outputs on this page are derived from the inputs on the 'Model Inputs' tab.
  - Note: no inputs on this tab.
- Sources and Uses
  - A summary of the sources of financing the project (Equity, Debt, SGIP) as well as the uses of where the money will be spent.
  - Note: no inputs on this tab.
- Depreciation
  - A separate worksheet detailing the calculation and utilization of depreciation benefits; assumes 7 years MACRS schedule.
  - Note: no inputs on this tab.
- Scenarios
  - Macro-enabled tab pulling live data from the 'Model Inputs' tab. The Scenarios tab is intended to allow a user to compare multiple projects scenarios quickly. The user can click the "Save Current Scenario" button at the top of the Tab; all of the live inputs will be copied and pasted as values, into Column E. User can then make a note in Cell "E:6" describing the unique characteristics of the model run. There is no limit to the number of scenarios that can be saved or compared.
  - Note: no Inputs on this tab.

### III. Model Inputs: Reference Guide

The 'Model Inputs' tab is where the user will enter all of the variables required to run the model and produce and financial output.

At the top of the model, the user will see the below matrix of summary outputs (the numbers in the cells will vary based on the inputs in the model). These key criteria will help the user understand the sensitivity of various inputs on the project returns.

**Figure 1: Model's Summary Outputs Results**

Summary Results			
Project Unlevered IRR	12.31%	Project CAPEX	\$ 289,563
Project Levered IRR	12.31%	\$/kWh	\$ 579
Project After Tax, Levered IRR	10.43%	Host Savings/Y1	\$ 9,450

Users only enters data into the salmon colored cells; changing data in a non-Salmon colored cell may result in breaking a formula, resulting in a non-working model. Note below key: users only edit the 'Input' cells.

**Figure 2: Key Users: Data 'Input' Cell Only**

Key	
Input	Calculation

### IV. Section by Section Guide to the 'Model Inputs' Tab

Below is a list of each Section on the Model Inputs tab, as well as recommended input ranges by section.

#### Project Size

- The KW and KWh sizing of the project.

#### CAPEX

- Capital Expenditures: User inputs hard costs like equipment, soft costs like interconnection and permitting, as well as installation costs. Note the Units for each input cost as noted in Column C.

#### OPEX

- Ongoing or recurring Operating and Maintenance costs for the project including long term warranties and site lease payment (if applicable). Energy Cost, for round trip losses and parasitic loads is also calculated. An additional catch-all 'Other Opex' also added.

## **Revenue**

- Split into Grid Services and Customer Facing.
- Grid Services: Regulation & Capacity. For regulation, as assumed amount of revenue on a \$/KW/Y; recommended effectiveness of 10-25%. Capacity (or RA) is a fixed price contract with the utility on a \$/KW/Year; recommended effectiveness of 100%.
- Customer Facing: Demand Charge Management & Demand Response. Values for each service to be inputted on a \$/KW/year. User to then define the battery effectiveness for each service; if only providing DCM and DR (no wholesale), recommend 65% Effectiveness from DCM and 40% for DR.
- Contract Term & Start Year: Longest contract allowed by pro-forma is 15 years.
- DCM Customer Revenue Split: Most companies in today's market share a portion of the DCM savings with their customer, and retain the balance. Recommended input is 30% of the DCM value being retained by customer.

## **SGIP**

- CA's Small Generator Incentive Program. User to select if the project is eligible for SGIP funding, and if the project meets the 'CA Supplier' criteria to receive an additional 20% of payment. Model then calculates the total SGIP incentive, limited to 60% of project CAPEX per program rules. (Sovereign Note: Based on current market demand, estimate 10% chance of receiving SGIP allocation).

## **Debt**

- Inputs to add debt to the project. Recommend no debt for initial scenarios as market for debt for energy storage has not matured.

## **Terminal Value**

- The value of the Equipment, Interconnection, and Permit at the end of the contract term. Recommend 10% for all values.

## **Tax**

- Federal and State tax rates applicable to the project (no ITC assumed in model).

## **Depreciation Schedule**

- Depreciable value of project by year.