

# StorageVET 2.0 Task Force

## ESIC Working Group 1: Grid Services and Analysis

Miles Evans | EPRI  
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January 9, 2020



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# StorageVET 2.0 Task Force

## ESIC Working Group 1: Grid Services and Analysis

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# Agenda

- StorageVET 2.0 Documentation Review
- DER-VET Demo
- DER-VET Beta Testing

# Documentation Review

# Inputs Documentation

- See current user guide
- See current 'Description' column from `model_parameters_template.csv`
- Expanding file input documentation and model parameters descriptions.
- Documentation helps, but guided tool interaction will come with DER-VET

# Outputs Documentation

- Output file descriptions
- Column descriptions
- Logs

## npv file

The file reports the net present value of the cash flows reported in the *proforma* file. These values consider inflation and discount rates of entire life of the project to help identify whether the project adds value over multiple years.

## DER TIME SERIES RESULTS

The following columns will be included for every **Battery** object that is modelled:

- *BESS: <user given name> Charge (kW)*  
The charging value of the BESS. This is the raw optimization solution value.
- *BESS: <user given name> Discharge (kW)*  
The discharging value of the BESS. This is the raw optimization solution value.
- *BESS: <user given name> Power (kW)*

## Error Log

### Description:

The user can look at this error log file to identify any error or critical warnings that could prevent the case simulation from fully running or producing reasonable results.

### How It Works:

The error log file is created after the empty Input class object initializes its attributes with the Schema. It is included inside the results filename (Results) folder, which is determined by the



# Formulation Document

- Optimization documentation
- Pseudocode

if `grid_charge` is `False` then include the following equations:

$$\sum ch - pv\_out \leq 0$$

If `loc` is 'ac' then include the following equations:

$$pv\_out - inv\_max \leq 0$$

$$-inv\_max - pv\_out \leq 0$$

Else, if `loc` is 'dc' then:

$$pv\_out + \sum P_{net,ESS} - inv\_max \leq 0$$

$$-inv\_max - pv\_out - \sum P_{net,ESS} \leq 0$$

# DER-VET Alpha Demo

**What is the optimal size of a battery to pair with my already-installed PV system for net cost minimization?**

# Required Modules

## Scenario

- Optimization parameters
- Timeseries data
- Monthly data
- Yearly data

## Finance

- Retail Tariff
- Taxes

## DER

Battery

PV

## Value Stream

Demand Charge Reduction

Energy Charge Reduction

# Methods

## (1) Optimize for Battery Size

- Pair the battery with a fixed-roof PV system
- Would like to operate the battery to reduce my monthly bill when not being used
- Fix **energy rating** - size **power rating**

## (2) Validate through Sensitivity Analysis

- Select the solution to step (1) as the base case
- Vary **energy rating**
  - Choose 2 values higher and 2 values lower than the base

# MODEL INPUTS

# Battery Module


DER-VET

Projects ▾

 All Results

Catalogs ▾

## Technology Specs: Battery Storage

 Battery Catalog

Name

BESS

Energy Capacity Sizing

☐ Have DER-VET size the Energy Capacity

☒ Known size

Energy Capacity

1000

kWh

Power Capacity Sizing

☒ Have DER-VET size the Power Capacity

☐ Known size

Roundtrip Efficiency

85.0

%

Target SOC

50.0

%

Self-Discharge Rate

0.3

%/hour

Limit Daily Cycling

☐ Yes

☒ No

Include Housekeeping

Calculations

☐ Yes

☒ No

Include Housekeeping  
Calculations

☐ Yes

☒ No

Capital Cost

1000

\$

Capital Cost per kW

876

\$/kW

Capital Cost per kWh

469

\$/kWh

Fixed O&M Costs

10

\$/kW-year

End of Life Expenses (\$)

0

MACRS Term

-



years

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Next >>

# PV Module

DER-VET Projects All Results Catalogs

Technology Specs: Solar PV

Name

fixed rooftop

Cost per kW

3300

\$/kW

Sizing

Have DER-VET size the Solar PV

Known size

Rated Capacity

5

kW

Coupled System Type

AC

Allow the PV+ESS to charge from the grid

Yes

No

MACRS Term

-

years

Provide data by:

Use existing generation profile

Upload a new generation profile

Calculate a new generation profile

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# PV Module: PV Watts

## Technology Specs: Solar PV

Module Type

Standard ▾

Array Type

Fixed - Open Rack ▾

System Losses

14.08 %

Tilt

38 degrees

Azimuth

180 degrees

Inverter Efficiency

96 %

Ground Coverage Ratio

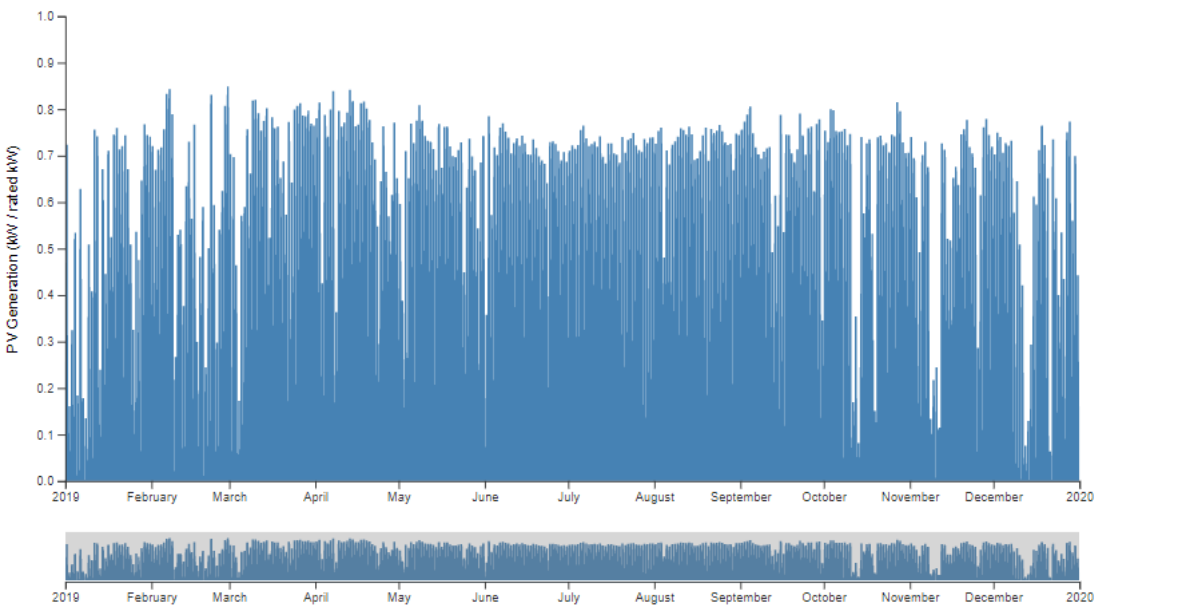
0.4

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Next

## Technology Specs: Solar PV

Please take a moment to review the Solar PV data for your project. Click the **Back** button below to upload different Solar PV data, or click **Next** to continue using the Solar PV data below.



<< Back

Next

## Technology Specs

Select a technology to add:

Solar PV

Battery Storage

Diesel Generator

List of Technologies Added

PV System

Edit | Remove

BESS

Edit | Remove

*\* Note: Analysis without a battery has not yet been implemented. You must add a battery to the analysis.*

*\* Note: Analysis with multiple technologies of the same type has not yet been implemented. If there are multiple technologies of the same type, this tool will select the first one (ordered alphabetically by name) to be considered in the analysis.*

<< Back

Done Adding Technologies

# Select your services

DER-VET

Projects ▾

All Results

Catalogs ▾

Project Configuration

Technology Specifications

Solar PV (1)

Battery Storage (1)

Services

Site Information

Financial Inputs

External Incentives

Retail Tariff

Sensitivity Analysis

Summary

## Services

### Customer Services

- ☐ Reliability/Resilience
- ☐ Backup Power
- ☒ Retail Energy Charge Reduction
- ☒ Retail Demand Charge Reduction

*\* Note: The Backup Power service has not yet been implemented. You must select at least one objective that is not backup power.*

### Other

*You cannot define custom storage system settings because your project does not include a battery that is explicitly sized.*

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### Wholesale Services

*There are no wholesale services available because your project does not include a battery or because there are technologies that are not explicitly sized.*

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# Retail Tariff

## Retail Tariff

Import Tariff

OpenEI Tariff

Build a retail tariff definition by: entering the billing periods one at a time; or by [importing a tariff file](#) from an export file; or by [importing a tariff](#) from OpenEI.

### Demand Charge Required

Because you selected **Retail Demand Charge Reduction** as one of your objectives, you must enter at least one Demand charge entry for the tariff.

Rate Table

There are currently no retail tariff billing periods specified...

+ Add Billing Period

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# Retail Tariff: OpenEI

DER-VET

Projects

All Results

Catalogs

OpenEI Retail Tariffs

The following rates come from OpenEI's Utility Rate Database. They are filtered to only show those rates available at your project's physical location (32.89811420, -117.20293630).

Note: Using a tariff from OpenEI will overwrite any existing retail tariff definition.

Sector

-- Any Sector --

Show Approved Rates Only?

Get Tariffs from OpenEI

Rates Returned from OpenEI

Utility & Rate	Overview	Demand	Energy
<div><b>TOU-DR Desert Baseline Region</b></div> <div>San Diego Gas &amp; Electric Co</div> <div>Residential - - View Rate Details</div> <div>This rate is tiered. DER-VET does not support tiered rates.</div>	<div>Effective Date: March 1, 2019</div> <div>Description</div> <div>This Schedule is optionally available to domestic service for lighting, heating, cooking, water heating, and power, or combination thereof, in single family dwellings, flats, and apartments, separately metered by the utility; to service used</div>	<div>There are no demand charges.</div>	<div>This rate is tiered. DER-VET does not support tiered rates.</div>
<div><b>TOU-DR Mountain Baseline Region</b></div> <div>San Diego Gas &amp; Electric Co</div> <div>Residential - - View Rate Details</div> <div>This rate is tiered. DER-VET does not support tiered rates.</div>	<div>Effective Date: March 1, 2019</div> <div>Description</div> <div>This Schedule is optionally available to domestic service for lighting, heating, cooking, water heating, and power, or combination thereof, in single family dwellings, flats, and apartments, separately metered by the utility; to service used</div>	<div>There are no demand charges.</div>	<div>This rate is tiered. DER-VET does not support tiered rates.</div>
<div><b>TOU-DR Inland Baseline Region</b></div> <div>San Diego Gas &amp; Electric Co</div> <div>Residential - - View Rate Details</div> <div>This rate is tiered. DER-VET does not support tiered rates.</div>	<div>Effective Date: March 1, 2019</div> <div>Description</div> <div>This Schedule is optionally available to domestic service for lighting, heating, cooking, water heating, and power, or combination thereof, in single family dwellings, flats, and apartments, separately metered by the utility; to service used</div>	<div>There are no demand charges.</div>	<div>This rate is tiered. DER-VET does not support tiered rates.</div>

# Retail Tariff: Custom Entry

## Retail Tariff: Add Billing Period

Name (optional)

Start Month

January ▾

End Month

January ▾

The **End Month** should include the last month the billing period applies to. Example: the billing period applies to January, February and March — set **Start Month** to January and **End Month** to March.

Start Hour

12:00 AM ▾

End Hour

01:00 AM ▾

The **End Hour** specifies the first hour that the billing period no longer applies. Example: the billing period applies for a total of three hours: from 8:00 AM until 11:00 AM (8:00 AM, 9:00 AM and 10:00 AM) — set **Start Hour** to 8:00 AM and **End Hour** to 11:00 AM.

Weekday

Weekends ▾


Charge

- ☐ Energy
- ☐ Demand

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## Retail Tariff

 Import Tariff Export Tariff OpenEI Tariff

Build a retail tariff definition by: entering the billing periods one at a time; or by [importing a tariff file](#) from an export file; or by [importing a tariff from OpenEI](#).

Rate Table

Energy Heatmap

Demand Heatmap

	Name	Period	Coverage	Day of Week	Value	Charge	 Remove All
	Entry-001	1	January 12:00 AM - 06:00 AM (6 hours)	Weekdays	\$0.0898	Energy	
	Entry-002	2	January 06:00 AM - 04:00 PM (10 hours)	Weekdays	\$0.1036	Energy	
	Entry-003	3	January 04:00 PM - 09:00 PM (5 hours)	Weekdays	\$0.1162	Energy	
	Entry-004	4	January 09:00 PM - 12:00 AM (3 hours)	Weekdays	\$0.1036	Energy	
	Entry-005	5	February 12:00 AM - 06:00 AM (6 hours)	Weekdays	\$0.0898	Energy	
	Entry-006	6	February 06:00 AM - 04:00 PM (10 hours)	Weekdays	\$0.1036	Energy	
	Entry-007	7	February 04:00 PM - 09:00 PM (5 hours)	Weekdays	\$0.1162	Energy	
	Entry-008	8	February 09:00 PM - 12:00 AM (3 hours)	Weekdays	\$0.1036	Energy	
	Entry-009	9	March 12:00 AM - 06:00 AM (6 hours)	Weekdays	\$0.0898	Energy	
	Entry-010	10	March 06:00 AM - 10:00 AM (4 hours)	Weekdays	\$0.1036	Energy	
	Entry-011	11	March 10:00 AM - 02:00 PM (4 hours)	Weekdays	\$0.0898	Energy	

# Retail Tariff: Energy Charges

Rate Table   **Energy Heatmap**   Demand Heatmap

Energy Usage Charge Structure

Period	Rate \$/kWh
1	\$0.0886
2	\$0.0898
3	\$0.1036
4	\$0.1162
5	\$0.1173
6	\$0.1391

Weekdays

Month	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
January	2	2	2	2	2	2	2	3	3	3	3	3	3	3	3	3	4	4	4	4	4	3	3	3
February	2	2	2	2	2	2	3	3	3	3	3	3	3	3	3	3	4	4	4	4	4	3	3	3
March	2	2	2	2	2	2	3	3	3	3	2	2	2	2	3	3	4	4	4	4	4	3	3	3
April	2	2	2	2	2	2	3	3	3	3	2	2	2	2	3	3	4	4	4	4	4	3	3	3
May	2	2	2	2	2	2	3	3	3	3	3	3	3	3	3	3	4	4	4	4	4	3	3	3
June	1	1	1	1	1	1	6	6	6	6	6	6	6	6	6	6	8	8	8	8	8	6	6	6
July	1	1	1	1	1	1	6	6	6	6	6	6	6	6	6	6	8	8	8	8	8	6	6	6
August	1	1	1	1	1	1	6	6	6	6	6	6	6	6	6	6	8	8	8	8	8	6	6	6
September	1	1	1	1	1	1	6	6	6	6	6	6	6	6	6	6	8	8	8	8	8	6	6	6
October	1	1	1	1	1	1	6	6	6	6	6	6	6	6	6	6	8	8	8	8	8	6	6	6
November	2	2	2	2	2	2	3	3	3	3	3	3	3	3	3	3	4	4	4	4	4	3	3	3
December	2	2	2	2	2	2	3	3	3	3	3	3	3	3	3	3	4	4	4	4	4	3	3	3

Weekends

Month	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
January	2	2	2	2	2	2	2	2	2	2	2	2	2	2	3	3	4	4	4	4	4	3	3	3
February	2	2	2	2	2	2	2	2	2	2	2	2	2	2	3	3	4	4	4	4	4	3	3	3
March	2	2	2	2	2	2	2	2	2	2	2	2	2	2	3	3	4	4	4	4	4	3	3	3
April	2	2	2	2	2	2	2	2	2	2	2	2	2	2	3	3	4	4	4	4	4	3	3	3
May	2	2	2	2	2	2	2	2	2	2	2	2	2	2	3	3	4	4	4	4	4	3	3	3
June	1	1	1	1	1	1	1	1	1	1	1	1	1	1	5	5	8	8	8	8	8	6	6	6
July	1	1	1	1	1	1	1	1	1	1	1	1	1	1	5	5	8	8	8	8	8	6	6	6
August	1	1	1	1	1	1	1	1	1	1	1	1	1	1	5	5	8	8	8	8	8	6	6	6
September	1	1	1	1	1	1	1	1	1	1	1	1	1	1	5	5	8	8	8	8	8	6	6	6
October	1	1	1	1	1	1	1	1	1	1	1	1	1	1	5	5	8	8	8	8	8	6	6	6
November	2	2	2	2	2	2	2	2	2	2	2	2	2	2	3	3	4	4	4	4	4	3	3	3
December	2	2	2	2	2	2	2	2	2	2	2	2	2	2	3	3	4	4	4	4	4	3	3	3

<< Back

Done Adding Billing Periods



# Retail Tariff: Demand Charges

Rate Table   Energy Heatmap   Demand Heatmap

## Demand Charge Structure

Period	Rate \$/kWh
1	\$21.00
2	\$37.44
3	\$48.47
4	\$58.44
5	\$69.47

## Weekdays

Month	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
January	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	2	2	2	4	4	1	1	1
February	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	2	2	2	4	4	1	1	1
March	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	2	2	2	4	4	1	1	1
April	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	2	2	2	4	4	1	1	1
May	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	2	2	2	4	4	1	1	1
June	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	3	3	3	5	5	1	1	1
July	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	3	3	3	5	5	1	1	1
August	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	3	3	3	5	5	1	1	1
September	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	3	3	3	5	5	1	1	1
October	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	3	3	3	5	5	1	1	1
November	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	2	2	2	4	4	1	1	1
December	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	2	2	2	4	4	1	1	1

## Weekends

Month	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
January	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	2	2	2	2	2	1	1	1
February	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	2	2	2	2	2	1	1	1
March	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	2	2	2	2	2	1	1	1
April	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	2	2	2	2	2	1	1	1
May	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	2	2	2	2	2	1	1	1
June	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	3	3	3	3	3	1	1	1
July	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	3	3	3	3	3	1	1	1
August	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	3	3	3	3	3	1	1	1
September	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	3	3	3	3	3	1	1	1
October	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	3	3	3	3	3	1	1	1
November	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	2	2	2	2	2	1	1	1
December	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	2	2	2	2	2	1	1	1

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Done Adding Billing Periods

# CBA Module

DER-VET Projects ▾ All Results Catalogs ▾

Financial Inputs

Discount Rate (for discounted cash flow analysis)

9

%

Inflation Rate

5

%

Federal Tax Rate

3

%

State Tax Rate

4

%

Property Tax Rate

5

%

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Next

DER-VET Projects ▾ All Results Catalogs ▾

External Incentives

Import Incentives

Specify external incentives by: entering the external incentives one year at a time; or by [importing an external incentives file](#) from an export file.

There are currently no external incentives specified...

+ Add External Incentives

<< Back

Skip Adding External Incentives

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# Site Module

## Services: Site Information

- ☐ Prevent the system from charging from the grid
- ☒ Prevent the system from discharging to the grid

Site load data has already been uploaded for this project. Do you want to use the existing data?

- ☐ Yes
- ☒ No, upload new data

Upload the site load as a .csv file that contains a reading at each time interval on a separate line. The number of total lines expected depends on the selected year and timestep selected below. For instance, an upload with a timestep of 30-minutes for a year with 365 days would require an input file with 17,520 readings.

[Click here to download a sample .csv file with a 60-minute timestep for a year with 365 days \(8,760 readings\)](#)

[Click here to download a sample .csv file with a 60-minute timestep for a leap year with 366 days \(8,784 readings\)](#)

### Site Load for the year 2019

Choose File

 SampleSiteL...60 (1).csv

Timestep

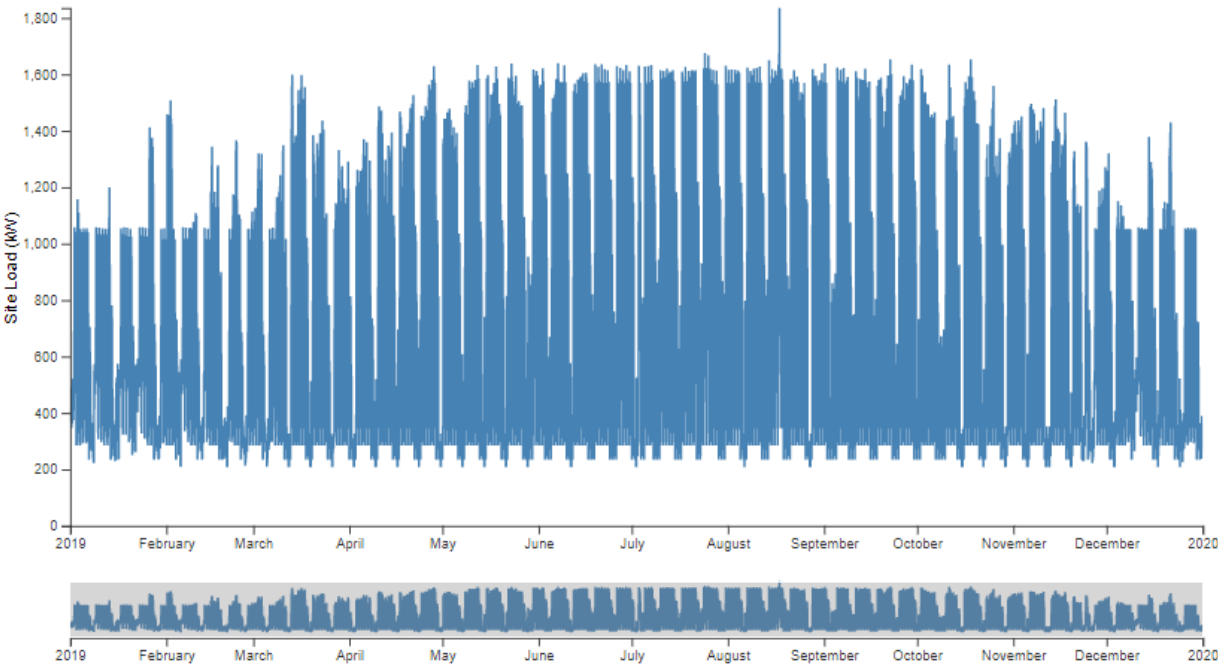
60 ▾ minutes

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Next

## Services: Site Load

Please take a moment to review the Site Load data for your project. Click the **Back** button below to upload different Site Load data, or click **Next** to continue using the below Site Load data.



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## Summary

### Setup

Project Name	BTM test
Start year	2019
Analysis Horizon	20 years
Data year	2019
Grid Domain	Customer
Latitude	32.89811420
Longitude	-117.20293630

### Technology Specs

Solar PV considered in analysis	1
Battery Storage considered in analysis	1
Diesel Generators considered in analysis	0

### Services

- Retail Energy Charge Reduction
- Retail Demand Charge Reduction

### Financial Inputs

Discount rate	7 %
Inflation rate	0 %
Federal tax rate	0 %
State tax rate	0 %
Property tax rate	0 %

### Sensitivity Analysis

Number of Sensitivity Analysis Cases	Baseline
--------------------------------------	----------

### Name or Description of Analysis

Name or Description (optional)

You may optionally enter a name or short description for the analysis you are about to perform.

### Notification When Complete?

Receive an email notification when the analysis completes?

<< Back

Run Analysis

## Status

---



**Running Analysis for BTM test**

Please be patient... this can take several minutes to complete...

---

[<< Back](#)

[View Results](#)

# MODEL OUTPUTS

# Summary Page

Project Summary

Results

Financials

Dispatch

Design

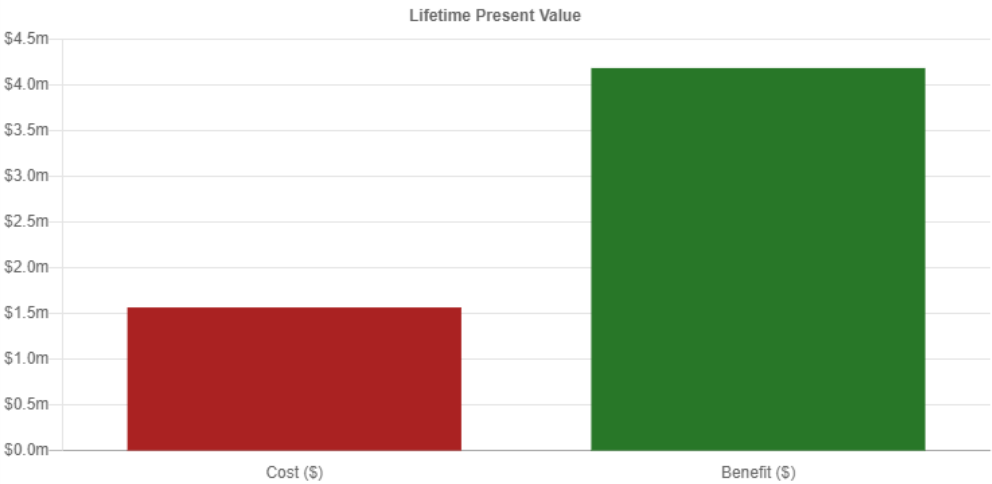
<< All Results

Open Project

Result #27

Download Results

## Financials Summary



View Detailed Financials Results...

## Reliability Summary

No Reliability Contribution results to show.

# Summary Page

Project Summary

Results

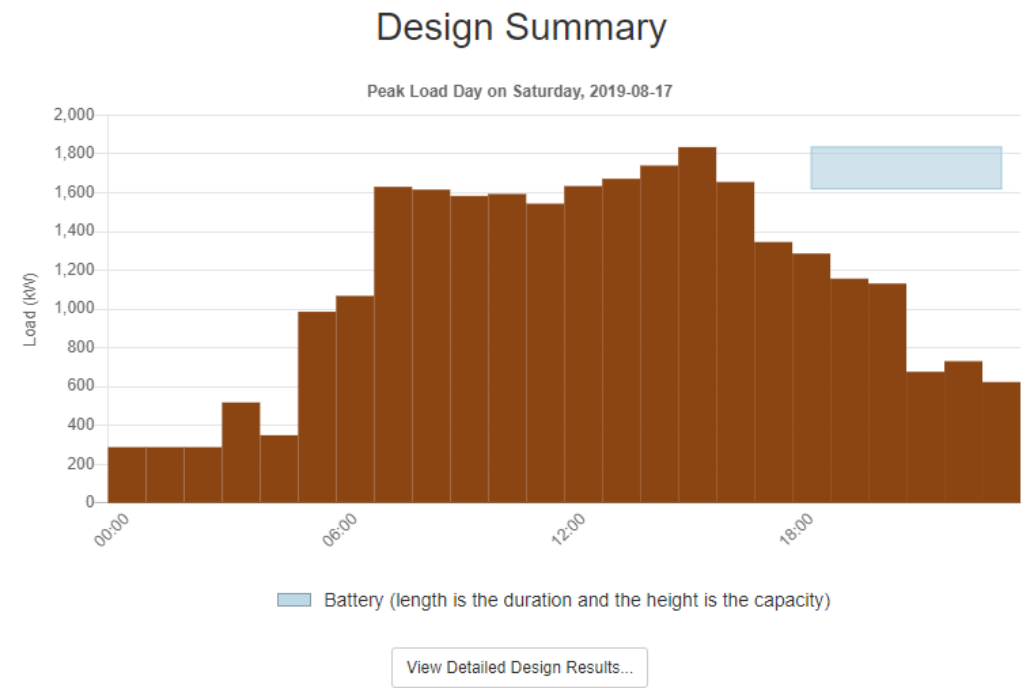
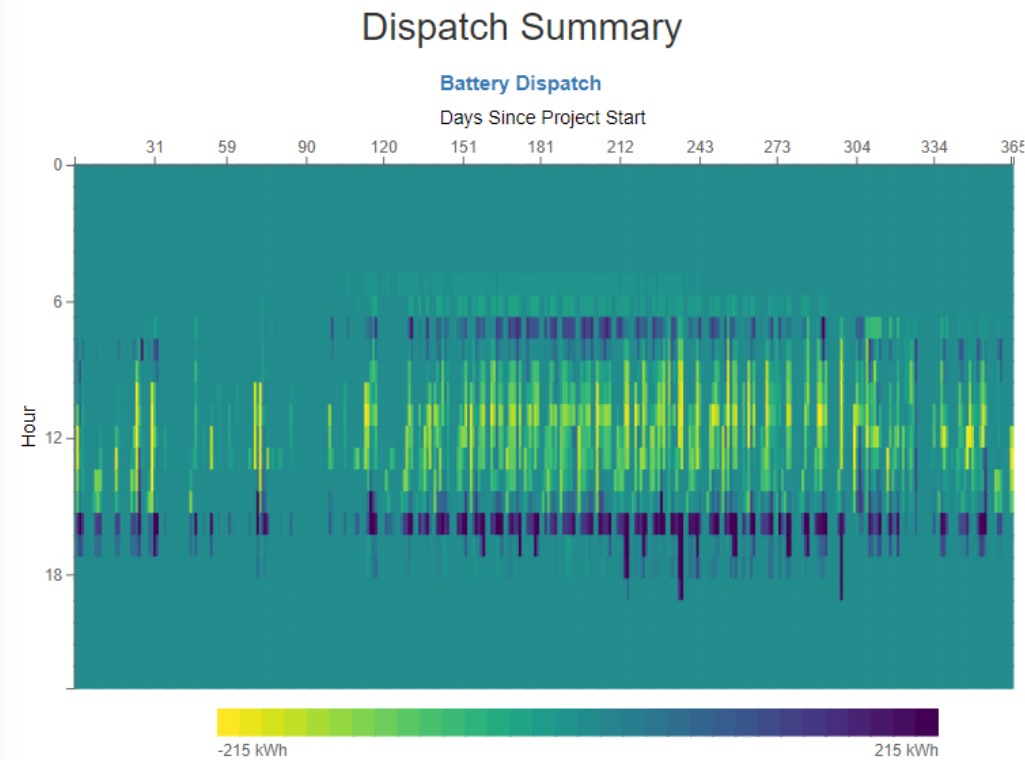
Financials

Dispatch

Design

<< All Results

Open Project





## Results: Dispatch

January 1, 2019

Day

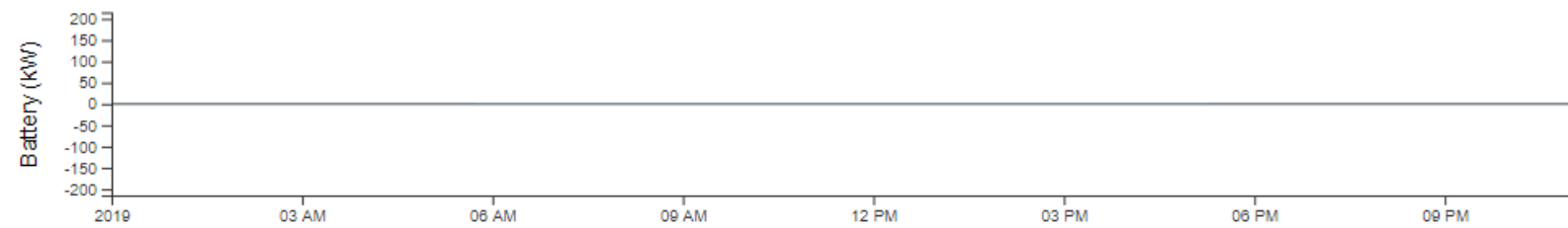
&lt;

&gt;

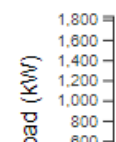
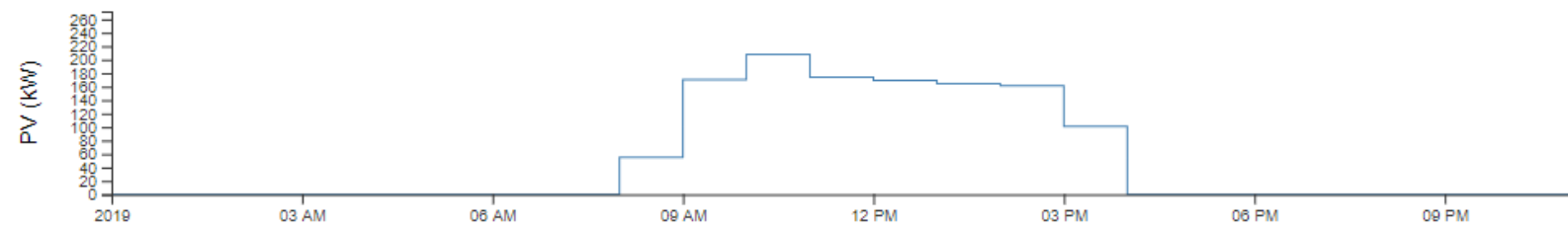
SOC Battery PV Load Net Load

From: 01/01/2019

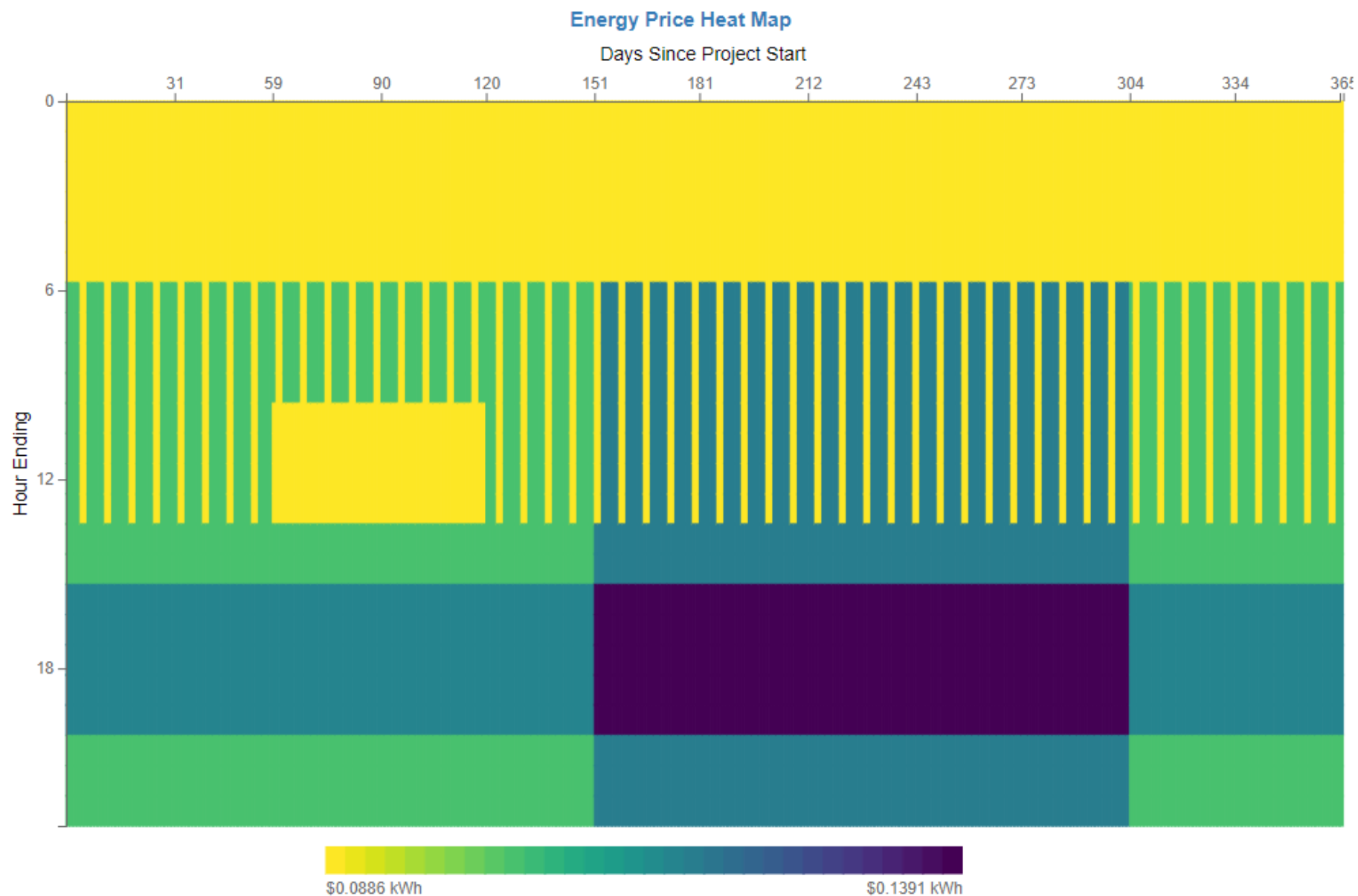
To: 01/01/2019



Battery Energy Battery Power



## Results: Dispatch



# CBA Results

Project Summary

Results

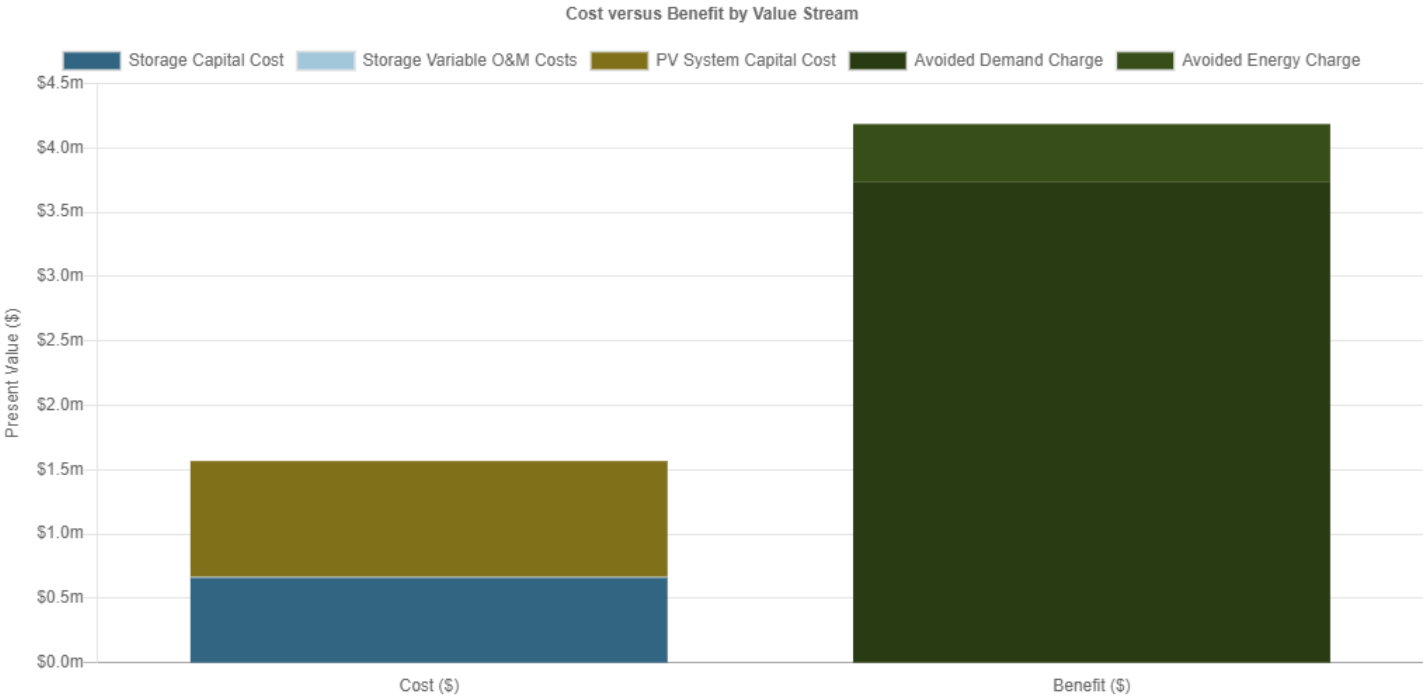
Financials

Dispatch

Design

<< All Results

Open Project



Pro-forma (Nominal Cash Flow)

Year	Avoided Demand Charge	Avoided Energy Charge	Storage Capital Cost	Storage Fixed O&M Cost	Storage Variable O&M Costs	PV System Capital Cost	PV System Fixed O&M Cost
CAPEX Year	\$0	\$0	-\$658,340	\$0	\$0	-\$900,000	\$0
2019	\$344,359	\$41,765	\$0	\$0	-\$680	\$0	\$0
2020	\$344,359	\$41,765	\$0	\$0	-\$680	\$0	\$0
2021	\$344,359	\$41,765	\$0	\$0	-\$680	\$0	\$0
2022	\$344,359	\$41,765	\$0	\$0	-\$680	\$0	\$0
2023	\$344,359	\$41,765	\$0	\$0	-\$680	\$0	\$0
2024	\$344,359	\$41,765	\$0	\$0	-\$680	\$0	\$0
2025	\$344,359	\$41,765	\$0	\$0	-\$680	\$0	\$0

# CBA Results

Project Summary

Results

Financials

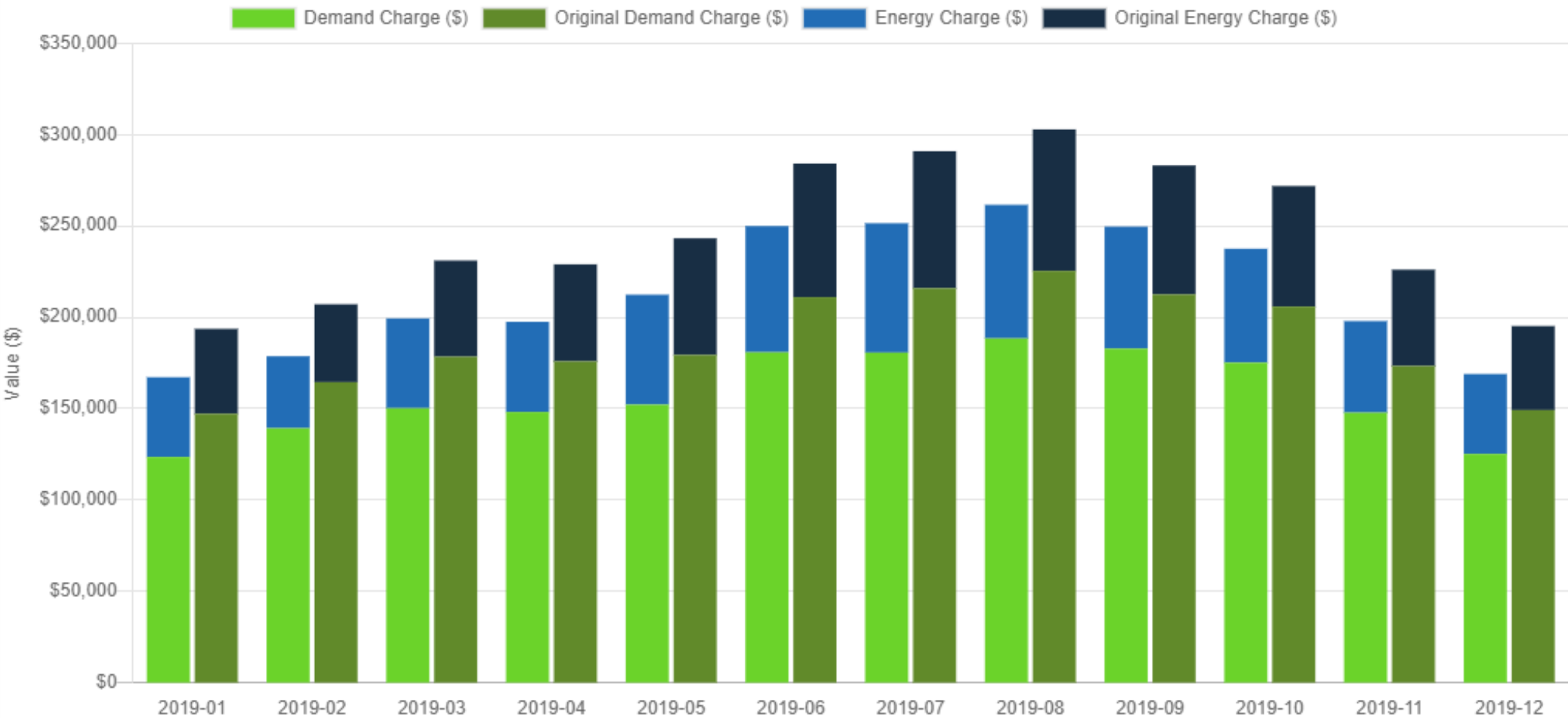
Dispatch

Design

<< All Results

Open Project

Before and After Monthly Energy Bill for 2019



# Design Results

Project Summary

Results

Financials

Dispatch

Design

<< All Results

Open Project

## Results: Design

### Size Results


System Name	Energy Rating (kWh)	Charge Rating (kW)	Discharge Rating (kW)	Duration (hours)	Power Capacity (kW)	Quantity
Storage	1,000.0000	215.0000	215.0000	4.6512	0.0000	1
PV System	N/A	N/A	N/A	N/A	300.0000	1

# SENSITIVITY ANALYSIS

# Download & Import

## Download Results

Download project and result files.

 Download Results

## Import

DER-VET

Projects

All Results

Catalogs

My Projects

New Project

Import Project

Technology Specs	
Solar PV considered in analysis	1
Battery Storage considered in analysis	1

### Import a Project

Importing a project will create a new project with the name specified below, using the project settings and data specified in the uploaded Project Data ZIP

New Project Name

Sensitivity Analysis

Project Data ZIP File

Choose File

ProjectData-...Its-027.zip

Import Project

Cancel

# Edit Battery Module

Use the solution of part 1 to fix the battery size

DER-VET Projects ▾ All Results Catalogs ▾

Project Configuration

Technology Specifications •

Solar PV (1)

Battery Storage (1)

Services

Site Information

Financial Inputs

External Incentives

Retail Tariff

Sensitivity Analysis

Summary

### Technology Specs: Battery Storage

**Name**

BESS

**Energy Capacity Sizing**

☐ Have DER-VET size the Energy Capacity ☒ Known size

**Energy Capacity**

1000 kWh

**Power Capacity Sizing**

☐ Have DER-VET size the Power Capacity ☒ Known size

**Charging Capacity**

215 kW

**Discharging Capacity**

215 kW

**Roundtrip Efficiency**

85.0 %

## Setting up the base case



# Sensitivity Analysis Module: Inputs

DER-VETProjects ▾All ResultsCatalogs ▾

Project Configuration

Technology Specifications

Solar PV (1)

Battery Storage (1)

Services

Site Information

Financial Inputs

External Incentives

Retail Tariff

Sensitivity Analysis •

Summary

Sensitivity Analysis

There are currently no sensitivity analysis parameters specified...

+ Add Sensitivity Analysis Parameter

Total Number of Cases: **Baseline**

<< Back

Skip Adding Sensitivity Analysis Parameters

# Sensitivity Analysis Module: Inputs

DER-VETProjects ▾All ResultsCatalogs ▾

Project Configuration

Technology Specifications

Solar PV (1)

Battery Storage (1)

Services

Site Information

Financial Inputs

External Incentives

Retail Tariff

Sensitivity Analysis

Summary

Sensitivity Analysis: Add a Parameter

Sensitivity Analysis Parameter

Battery - Energy Capacity ▾

<< Back

Next

# Sensitivity Analysis Module: Inputs

DER-VETProjects ▾All ResultsCatalogs ▾

Project ConfigurationTechnology SpecificationsSolar PV (1)Battery Storage (1)ServicesSite InformationFinancial InputsExternal IncentivesRetail TariffSensitivity Analysis •Summary

## Sensitivity Analysis: Parameter Values

### Battery - Energy Capacity

Baseline value: 1000.000 kWh

Value (kWh)	Remove All
1100.000	Remove
1150.000	Remove
850.000	Remove
900.000	Remove

Value

kWh

Add Value

<< Back

Done

# Sensitivity Analysis Module: Inputs

DER-VET

Projects ▾

All Results

Catalogs ▾

Project Configuration

Technology Specifications

Solar PV (1)

Battery Storage (1)

Services

Site Information

Financial Inputs

External Incentives

Retail Tariff

Sensitivity Analysis

Summary

Sensitivity Analysis

Description		Value(s)	Remove All
Edit	Battery - Energy Capacity	1000.000, 1100.000, 1150.000, 850.000, 900.000	Remove

+ Add Sensitivity Analysis Parameter

Total Number of Cases: Baseline + 4

<< Back

Done Adding Sensitivity Analysis Parameters

# **DER-VET Alpha Test Signup**

# Alpha Test Sign Up

- Sign up for a 30-minute alpha test here:
- <https://www.surveymonkey.com/r/GWGSNFZ>

# Next Meeting

# Regularly-Scheduled Meetings

- **Next Meeting – Thursday February 6, 11:00 am Pacific Time**



# Together...Shaping the Future of Electricity