DER-VET Task Force

ESIC Working Group 1: Grid Services and Analysis

Miles Evans | EPRI

Halley Nathwani | EPRI

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July 2, 2020

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- The webcast is being recorded along with all Q&A. Your participation provides consent to that recording.

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Agenda

- DER-VET Reporting Discussion
- DER-VET Usage Poll

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Polling Procedure

- On a computer, phone, etc., navigate to

  pollev.com/epristorage

- Enter a name to associate with your responses

- Respond to poll questions when prompted

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DER-VET Reports

- Automatically-generated PDF designed to:
  - Be readable by anyone, including non-technical stakeholders who don't have DER-VET
  - Collect all inputs in one place
  - Highlight key assumptions associated with the inputs
  - Summarize outputs
  - Support the reader in drawing conclusions by offering limited results interpretation

DER-VET Reports

- Cannot provide background, context, or know the decision the user is going to make
- Cannot draw conclusions, only produce results

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DER-VET Report Mock-up

1 Inputs Summary

1.1 Project-Level Inputs

Project Name: Economic BTM DER Sizing - Usecase1
Date Executed: 2020-04-02 01:53:06 PST
Analysis Start Year: 2017
Analysis Horizon: 20 Years
Analysis Horizon Mode: User-Defined (explicit project start and end times)
Grid Location: Customer
Ownership: Customer

Discount Rate	6%
Inflation Rate	2.2%
Federal Tax Rate	0%
State Tax Rate	0%
Property Tax Rate	0%

Data time step: 1 hr
Optimization Horizon: 1 year

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DER-VET Report Mock-up

1.2 Project Objectives

- Resilience

- Energy Charge Reduction

- Demand Charge Reduction

1.2.1 Resilience

- Post-Facto Reliability Only (DER-VET did not design the system for reliability)

- PV ν: 20% (Minimum PV generation within a time step - used to ensure there is enough power available to cover critical load at every sub-timestep interval)

1

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DER-VET Report Mock-up

1.4 Technologies

- Battery

- Solar PV

1.4.1 Battery

Name: Energy Storage
Energy Capacity: Sized by DER-VET
Power Capacity: Sized by DER-VET
Roundtrip Efficiency: 91%
Target SOC: 50% (SOC the battery will return to at midnight in between each

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DER-VET Report Mock-up

- Format for numerous numerical inputs

optimization window) Self-Discharge Rate: 0%/hr
Auxiliary Load: 0 kW
Maximum SOC: 100%
Minimum SOC: 0%
Fixed Capital Costs: $0
Capital Cost per kW: $800/kW
Capital Cost per kWh: $250/kWh
Fixed O&M Costs: $10/kW-yr
Variable O&M Costs: $0/MWh
End of Life Expenses: $0
MACRS Term: 3 Years
Date Operational: 2017-01-01 00:00:00 PST

1.4.2 Solar PV

Name: PV
Cost: $1660/kW
MACRS Term: 3 Years
Rated Capacity: 1000 kW
Inverter Maximum: 1000000000 kVA
Storage Coupling: AC
Date Operational: 2017-01-01 00:00:00 PST

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DER-VET Report Mock-up

- Non-interactive plots make 8760 data difficult to display
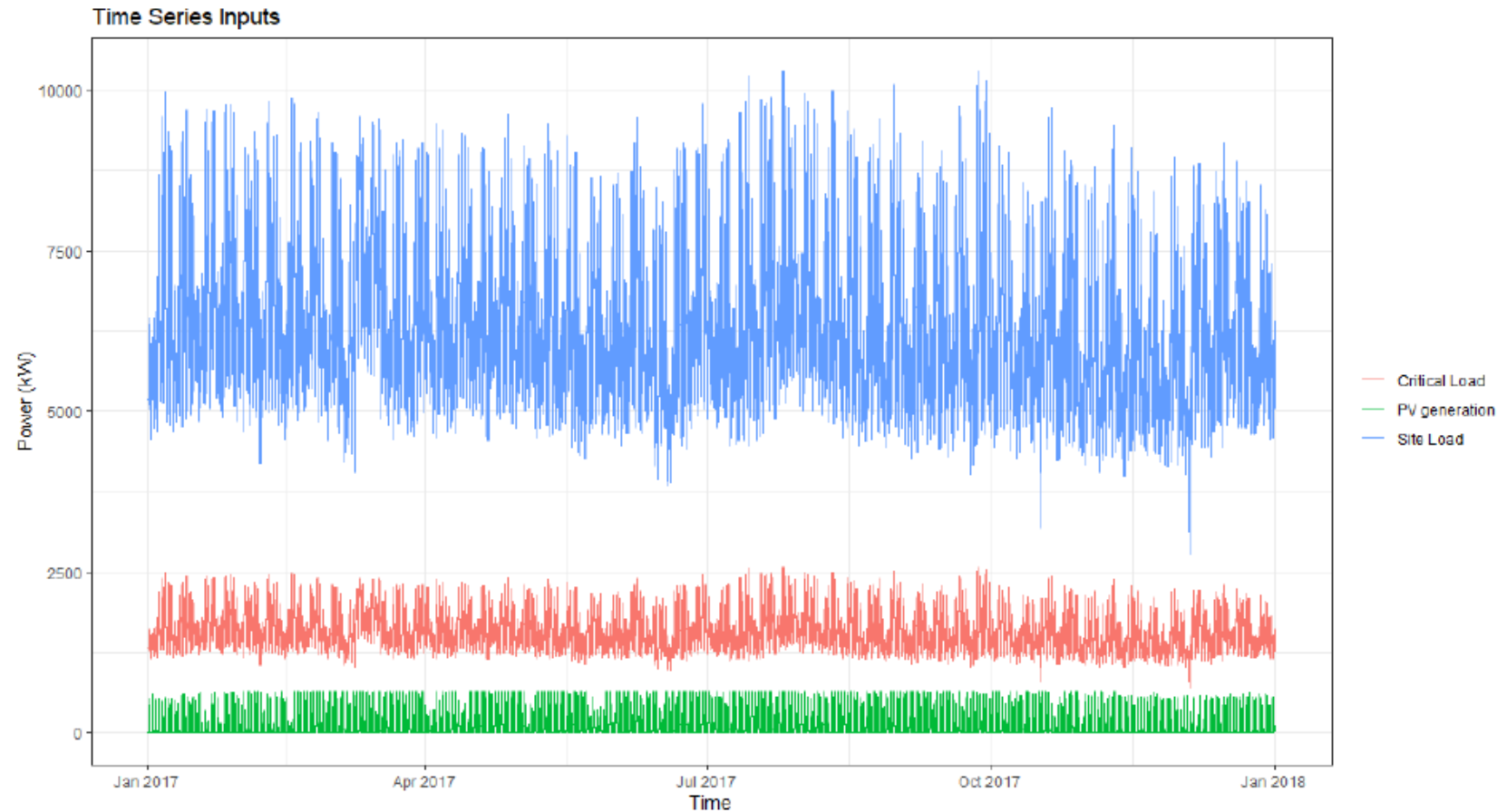

Figure 2: All Time Series Inputs

DER-VET Report Mock-up

- Cover page with highest-level summary results

2 Results

2.1 Results Summary

Project NPV: $1,085,698 over 20 years
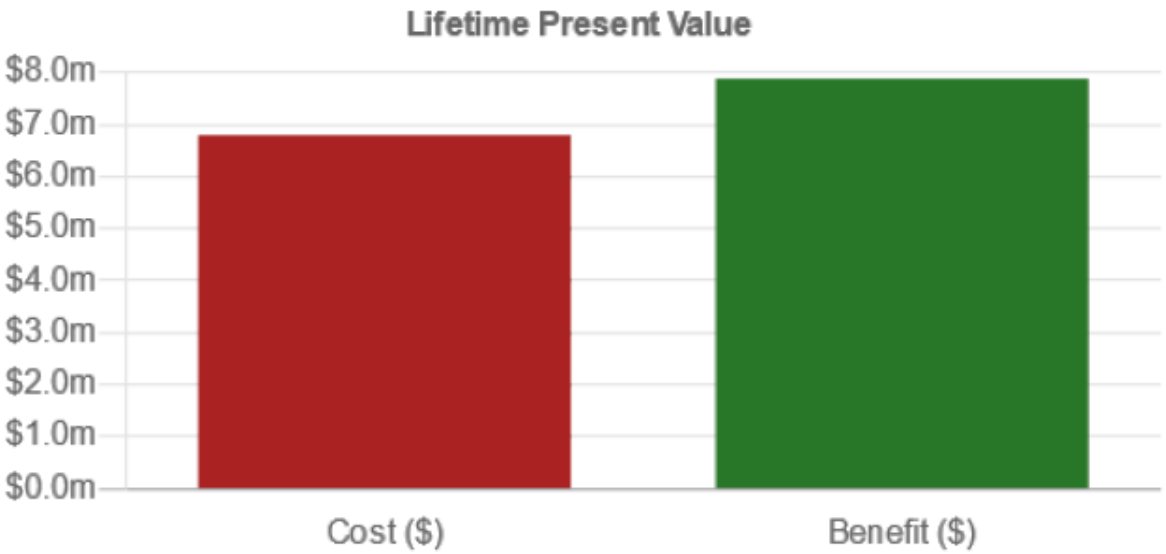Project Benefit to Cost Ratio: 1.16

Lifetime Present Value

Figure 3: Present Value Costs and Benefits

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DER-VET Poll

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DER-VET User Group

- Reporting capabilities that are widely applicable will be developed into the base tool

- Very specific capabilities can be developed through the DER-VET user group
  - Can create customized reports or outputs
  - Avenue for working with the EPRI team on new types of analysis
  - Build custom technology and service models with EPRI team

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Next Meeting

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Regularly-Scheduled Meetings

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

Together...Shaping the Future of Electricity

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