

# RESILIENTPOWER

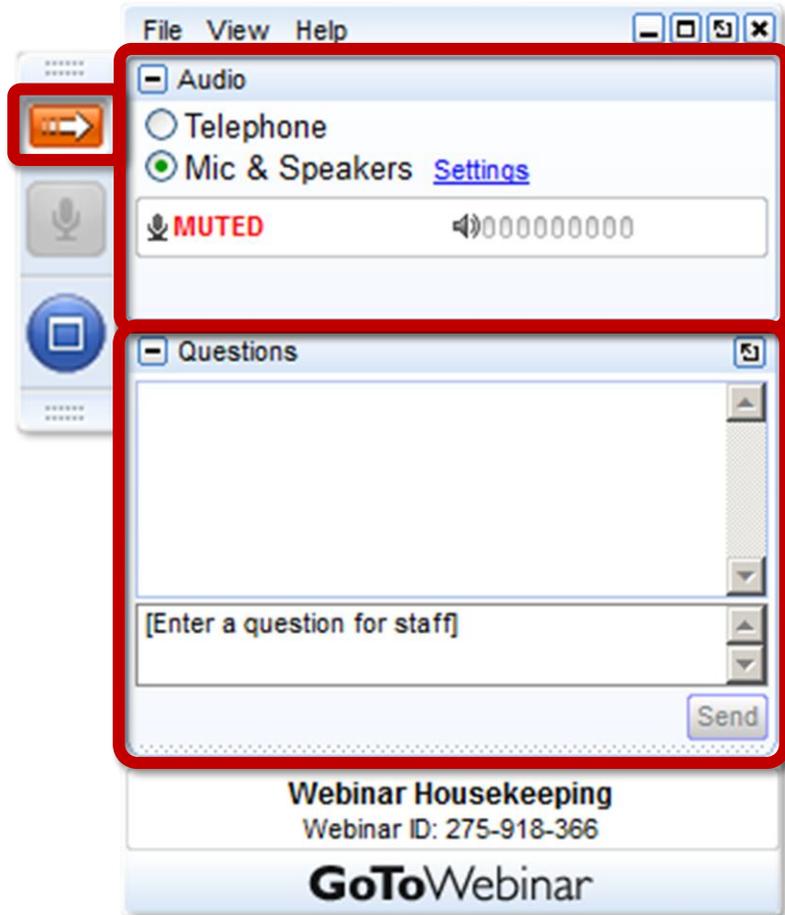
A project of **CleanEnergy**Group



## Designing Solar+Storage to Power Critical Loads

*An Introduction to New Resilient Power Features  
in NREL's REopt Lite Tool*

# HOUSEKEEPING



Join audio:

- Choose Mic & Speakers to use VoIP
- Choose Telephone and dial using the information provided

Use the orange arrow to open and close your control panel

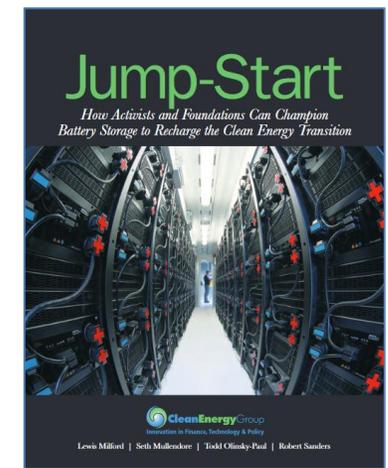
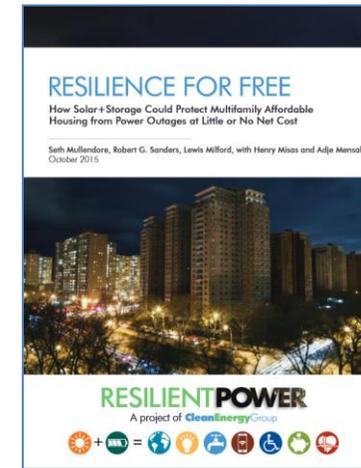
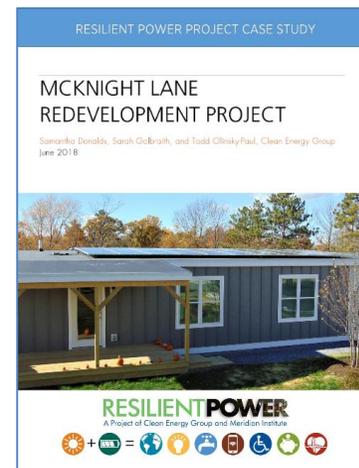
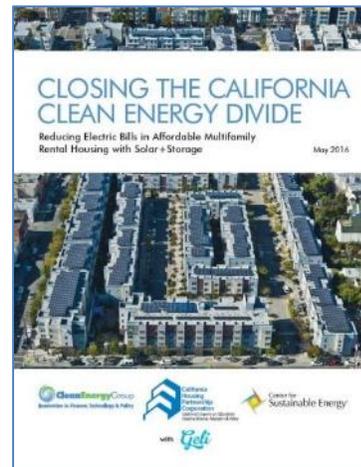
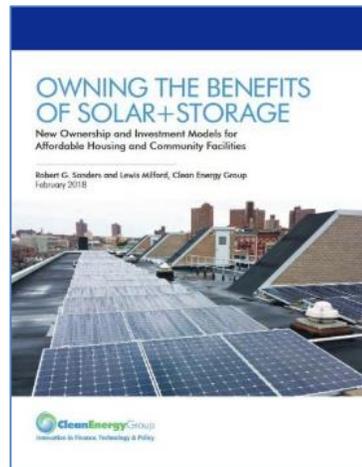
Submit questions and comments via the Questions panel

This webinar is being recorded. We will email you a webinar recording within 48 hours. CEG's webinars are archived at [www.cleangroup.org/webinars](http://www.cleangroup.org/webinars)

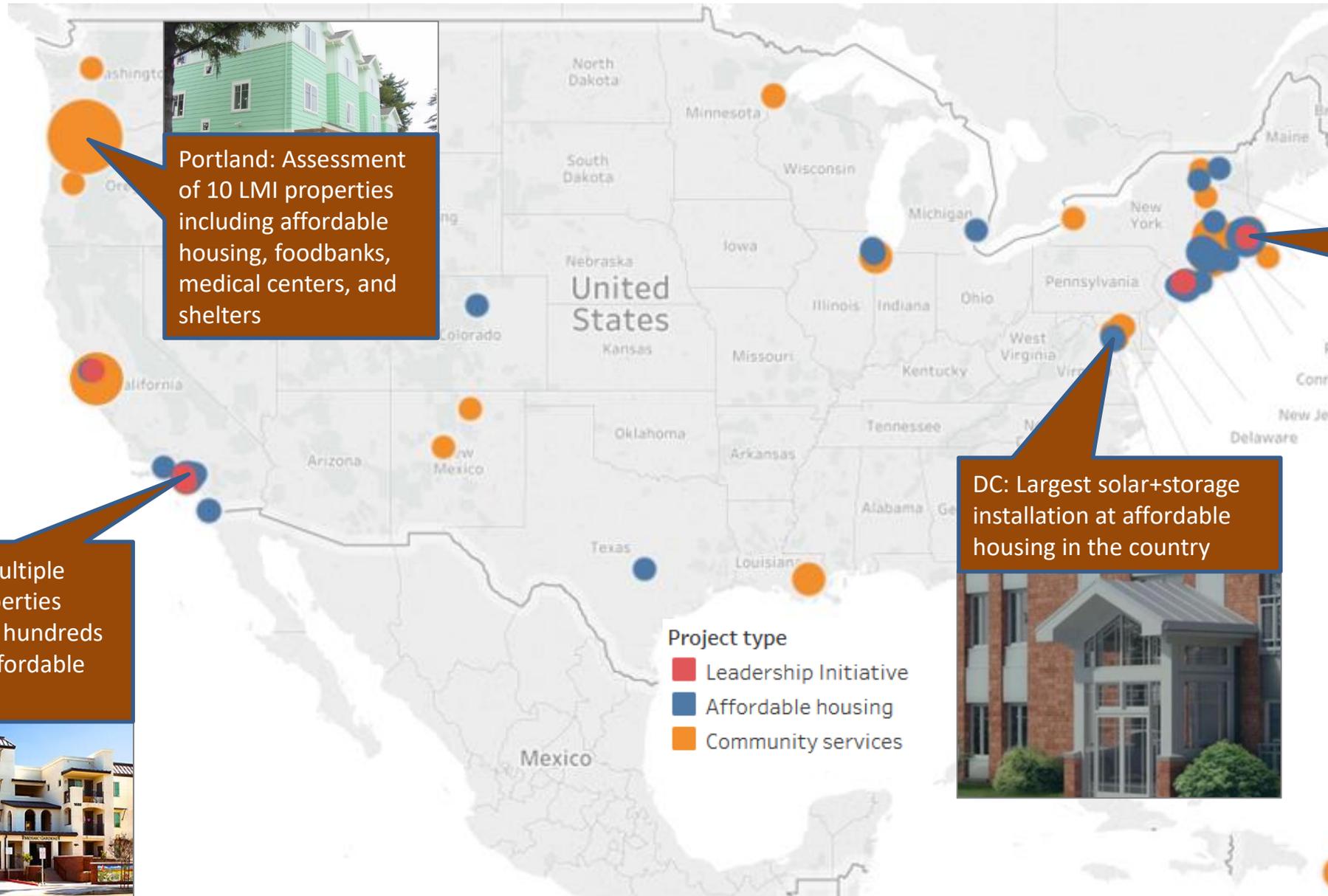


# THE RESILIENT POWER PROJECT

- Increase public/private investment in clean, resilient power systems (solar+storage)
- Protect low-income and vulnerable communities, with a focus on affordable housing and critical public facilities
- Engage city, state and federal policy makers to develop supportive policies and programs
- Visit [www.resilient-power.org](http://www.resilient-power.org) for more information and resources



# SUPPORTING 100+ PROJECTS ACROSS THE COUNTRY



Portland: Assessment of 10 LMI properties including affordable housing, foodbanks, medical centers, and shelters



Boston Medical Center: One of the first hospitals in the country to install storage for resiliency

California: Multiple housing properties representing hundreds of units of affordable housing



DC: Largest solar+storage installation at affordable housing in the country



Puerto Rico: Supporting the installation of solar+storage at more than 60 medical clinics

# WEBINAR SPEAKERS



**Kate Anderson**

Group Manager- Modeling & Analysis, National Renewable Energy Laboratory



**Andrew Jeffery**

Software Engineer, National Renewable Energy Laboratory



**Seth Mullendore**

Vice President & Project Director, Clean Energy Group (moderator)



# REopt Lite

Kate Anderson  
Andrew Jeffery

# REopt Lite

- The REopt Lite Web Tool offers a no-cost subset of NREL's more comprehensive REopt model
- **Financial mode** optimizes PV, wind and battery system sizes and battery dispatch strategy to minimize life cycle cost of energy
- **Resilience mode** sizes PV, wind, and storage systems to sustain critical load during grid outages

## Step 1: Choose Your Focus

Do you want to optimize for financial savings or energy resilience?

Financial

Resilience



## Step 2: Enter Your Data

Enter information about your site and adjust the default values as needed to see your results.

Site and Utility <small>(required)</small>	
Load Profile <small>(required)</small>	
Financial	

## Step 3: Select Your Technologies

Which technologies do you wish to evaluate?

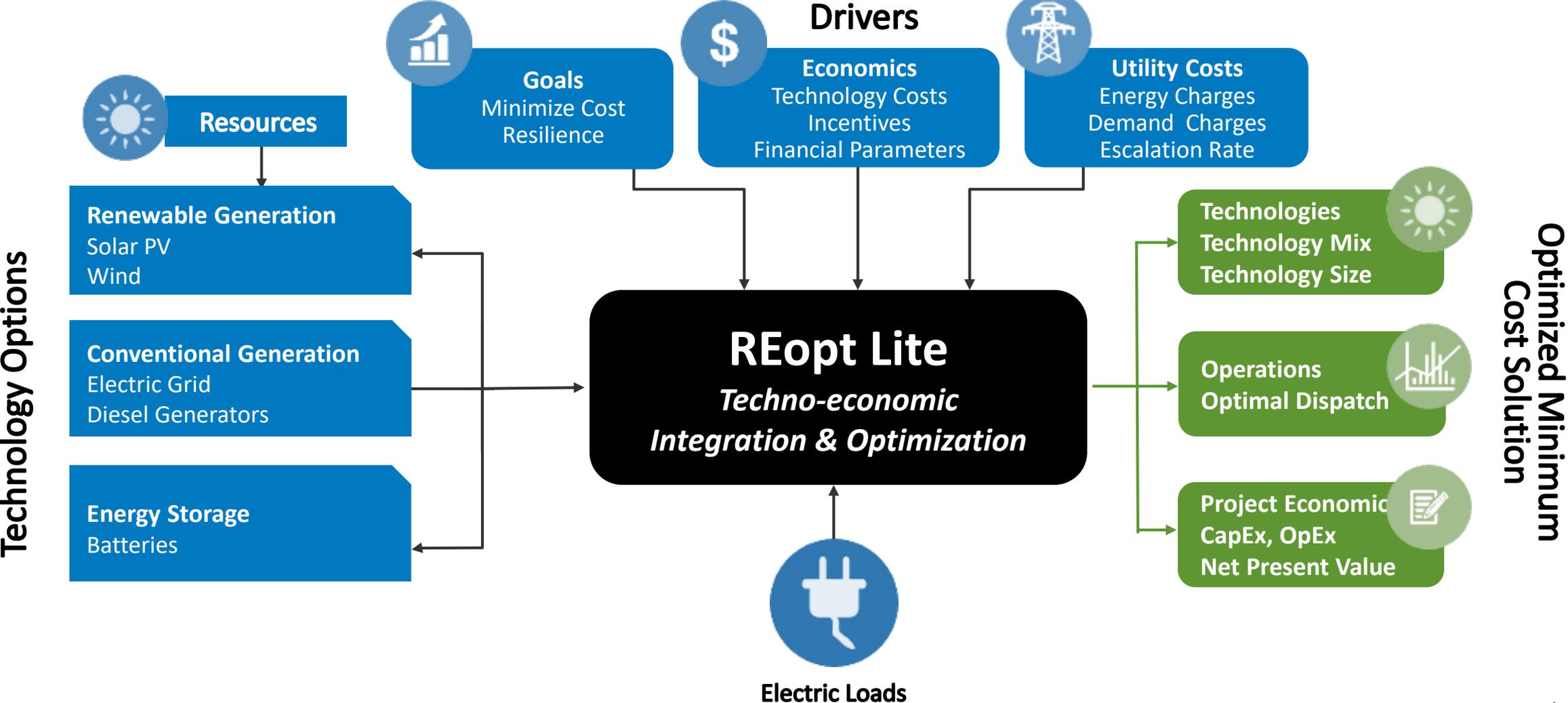
<input checked="" type="checkbox"/> PV	<input checked="" type="checkbox"/> Battery	<input checked="" type="checkbox"/> Wind
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PV	
Battery	
Wind <small>(Beta Version)</small>	

Reset to default values

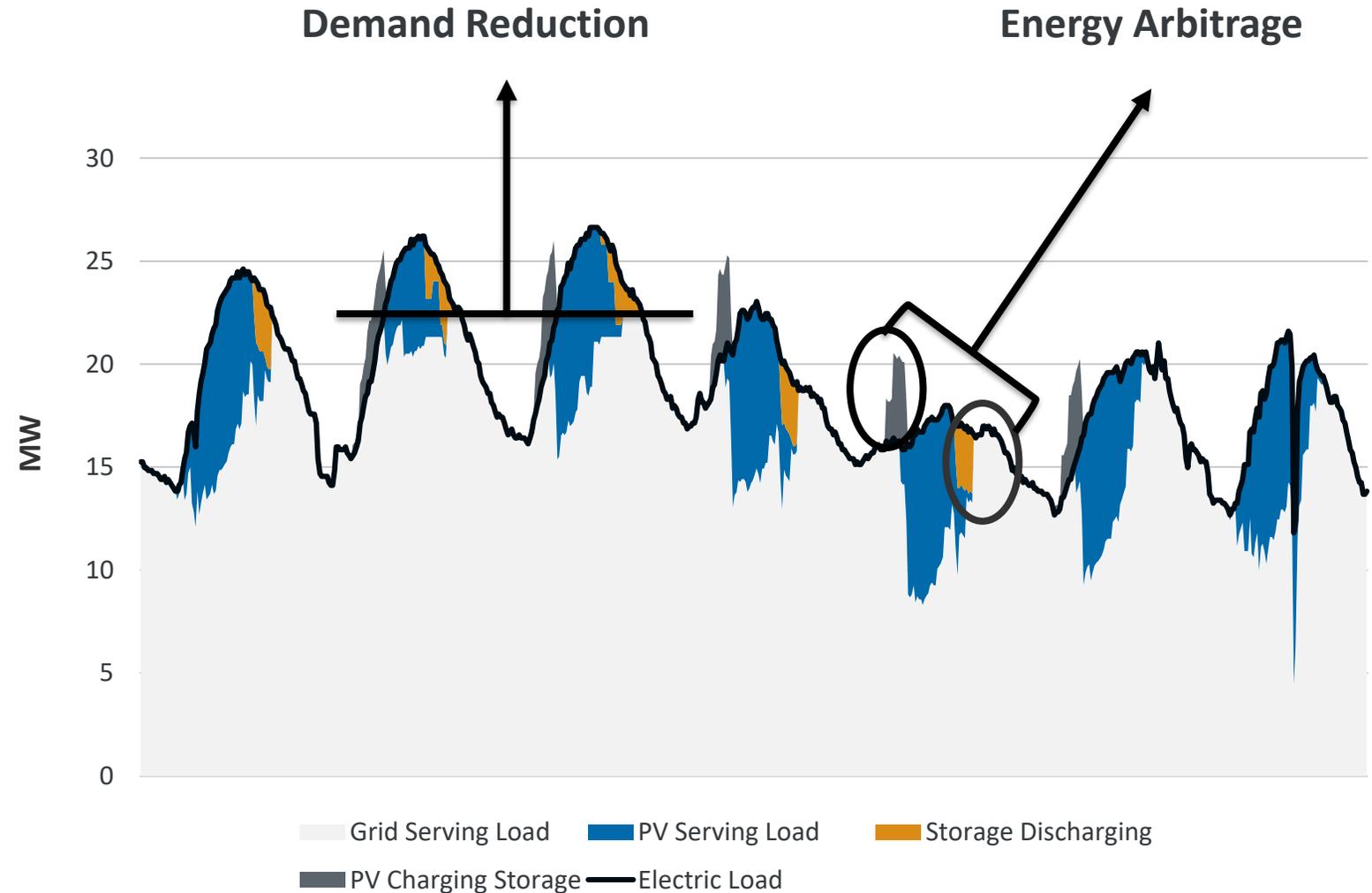
[Get Results](#)

# REopt Lite



# REopt Lite Optimizes Size and Dispatch of Integrated Systems

- REopt considers the integrated operation of multiple technologies
- Analyzes hourly data across the project lifecycle
- Evaluates the trade-off between capital costs, operating costs, and savings to find the most cost-effective mix



# Who's Using REopt Lite?



## Researchers

How will RE deployment change in the future?



## Developers

Where are the best market opportunities?



## Home and Building Owners

What technologies are best for my site?



## Utilities

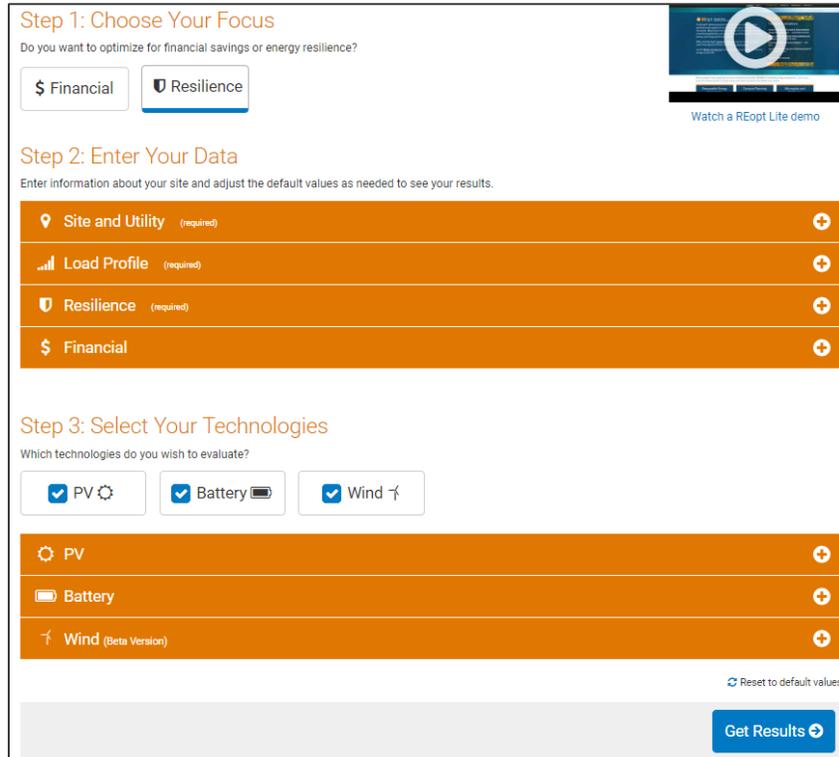
What value do these systems provide?



## Industry

How do I optimize system control for maximum value?

# Accessible Through Web Interface or API



**Step 1: Choose Your Focus**  
Do you want to optimize for financial savings or energy resilience?

Financial  Resilience

**Step 2: Enter Your Data**  
Enter information about your site and adjust the default values as needed to see your results.

- Site and Utility (required)
- Load Profile (required)
- Resilience (required)
- Financial

**Step 3: Select Your Technologies**  
Which technologies do you wish to evaluate?

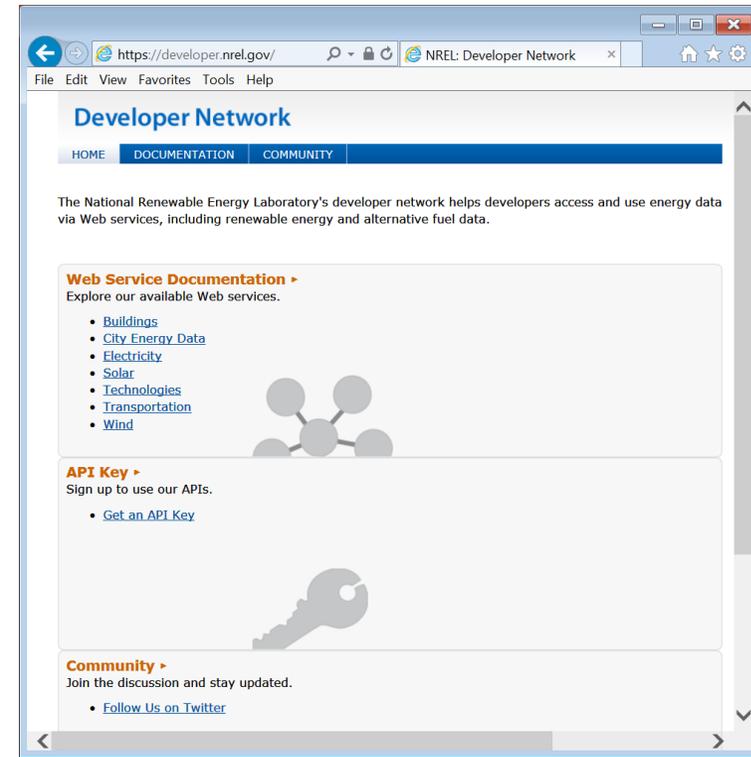
PV  Battery  Wind

PV  
 Battery  
 Wind (Beta Version)

[Reset to default values](#)

[Get Results](#)

<https://reopt.nrel.gov/tool>



**Developer Network**

HOME DOCUMENTATION COMMUNITY

The National Renewable Energy Laboratory's developer network helps developers access and use energy data via Web services, including renewable energy and alternative fuel data.

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<https://developer.nrel.gov/docs/energy-optimization/reopt-v1/>

Send feedback to: [REopt@nrel.gov](mailto:REopt@nrel.gov)

# Thank You!

Kate Anderson, NREL

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[www.nrel.gov](http://www.nrel.gov)

This work was authored by the National Renewable Energy Laboratory, operated by Alliance for Sustainable Energy, LLC, for the U.S. Department of Energy (DOE) under Contract No. DE-AC36-08G028308. Funding provided by the U.S. Department of Energy Office of Energy Efficiency and Renewable Energy Federal Energy Management Program. The views expressed in the presentation do not necessarily represent the views of the DOE or the U.S. Government. The U.S. Government retains and the publisher, by accepting the presentation for publication, acknowledges that the U.S. Government retains a nonexclusive, paid-up, irrevocable, worldwide license to publish or reproduce the published form of this work, or allow others to do so, for U.S. Government purposes.

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# Resources

- REopt website: <https://reopt.nrel.gov/>
- REopt Lite web tool: <https://reopt.nrel.gov/tool>
- REopt technical report: <https://www.nrel.gov/docs/fy17osti/70022.pdf>
- REopt fact sheet: <http://www.nrel.gov/docs/fy14osti/62320.pdf>

# THANK YOU FOR ATTENDING OUR WEBINAR

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## **Find us online:**

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# UPCOMING WEBINAR



## **State of the U.S. Energy Storage Industry: 2018 Year in Review**

*Thursday, February 28, 1-2:30pm ET*

The U.S. energy storage market experienced substantial growth in 2018. In this webinar, Dan Finn-Foley from Wood Mackenzie Power & Renewables will share insights related to recent developments in the U.S. energy storage market, including deployment trends, policy updates, and market outlook.

Read more and register at [www.cesa.org/webinars](http://www.cesa.org/webinars)