Utility-Scale PV Projects in SAM

Janine Keith
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Photo by Dennis Schroeder, NREL 55200

SAM Webinar Series 2023

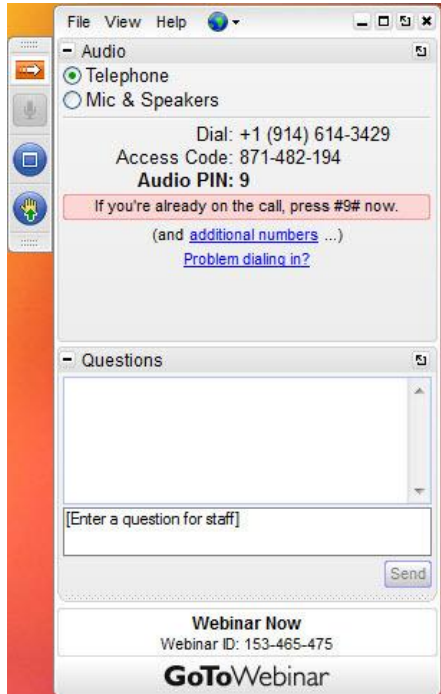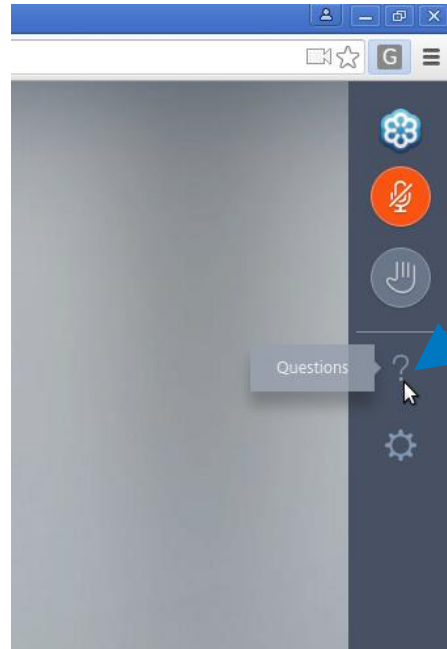|	
Geothermal Electricity Technology Evaluation Model (GETEM) in SAM	January 19
Linkages between NREL's dGen, REopt and SAM Models	July 11
Financial Models for Utility-scale Projects in SAM	July 19
Modeling Utility-scale Photovoltaic Projects in SAM	**August 23**
Modeling Behind-the-meter (BTM) Batteries in SAM	September 20

Webinars are free
- Register at https://sam.nrel.gov/events

Webinars are recorded
- https://www.youtube.com/@SAMDemoVideos
- "Videos" pages at https://sam.nrel.gov

Questions and Answers

Desktop application

Instant Join Viewer

We will either type an answer to your question or answer it at the end of the presentation.

Find webinar recordings at https://sam.nrel.gov/

Agenda

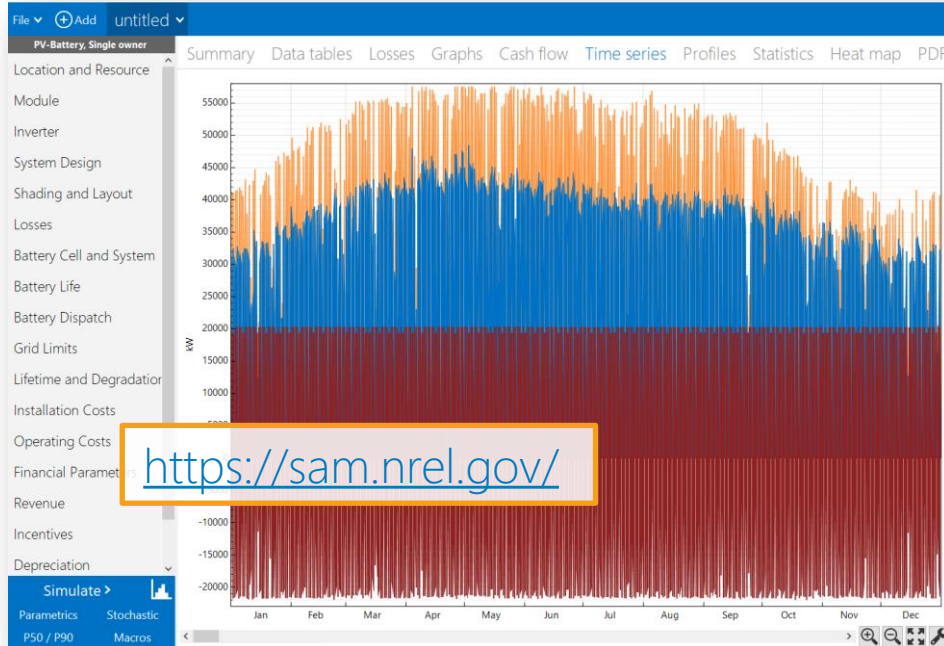**1** **What is considered utility-scale PV?**

2 **Live Demo**

3 **Other Resources**

4 **Q&A**

System Advisor Model (SAM)

Free software that enables detailed performance and financial analysis for renewable energy systems

https://sam.nrel.gov/

✓ Desktop application
✓ Software development kit with PySAM Python package
✓ Open source code repositories

What is SAM's definition of utility-scale PV?

- SAM doesn't enforce any specific definitions of scale!
- It's up to the user to choose the combination of technology and financial model options that make the most sense for their system
- The important distinction is with the financial model
  - Sells the power it generates (front-of-meter models)
  - or reduces the owner's electricity bill (behind-the-meter)

What I will be showing today is how you can use the Detailed PV model to model a large, ground-mount single-axis tracking system with central inverters

Live Demo

SAM Version 2022.11.21

Help Resources

Help System

- Press F1 key or click **Help** in SAM software
- Web version at https://sam.nrel.gov/help

SAM Forum

- https://sam.nrel.gov/forum
- Use search box to find information
- Register on website to post questions

Email
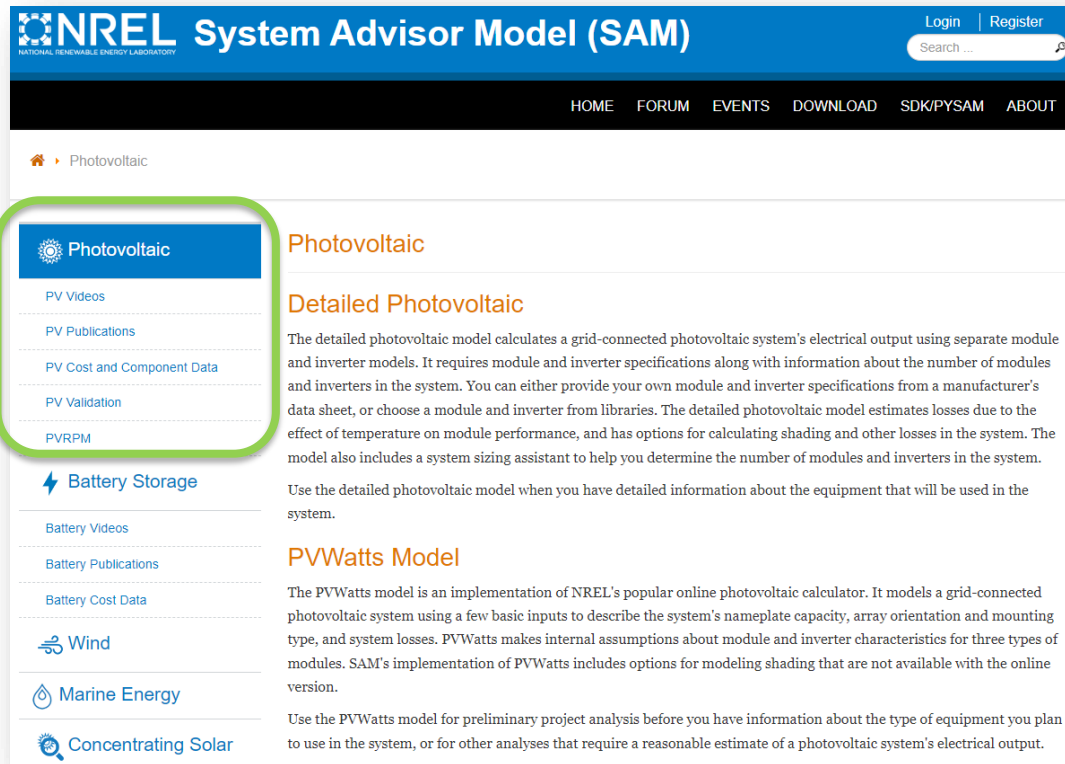
- sam.support@nrel.gov

Related Resources

- https://sam.nrel.gov/photovoltaic/pv-videos.html
  - Bifacial modeling video
  - PV Reliability Performance Model video
  - Sizing PV Systems video
- https://sam.nrel.gov/photovoltaic/pv-validation.html
- https://sam.nrel.gov/financial-models.html
- https://sam.nrel.gov/battery-storage/battery-videos.html

More PV resources on the website!

Thanks! Questions?

Janine Freeman Keith – project lead, photovoltaic and wind models

Nate Blair – emeritus lead, financials, costs, systems

Darice Guittet – software development, battery models

Brian Mirletz – software development, battery models, utility rates

Matt Prilliman – photovoltaic and marine energy models

Steve Janzou – programming, utility rate structures (subcontractor)

Paul Gilman – user support and documentation (subcontractor)

Ty Neises – concentrating solar power models

Bill Hamilton – concentrating solar power models

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