Distributed Energy Resources Siting and Optimization Tool for California

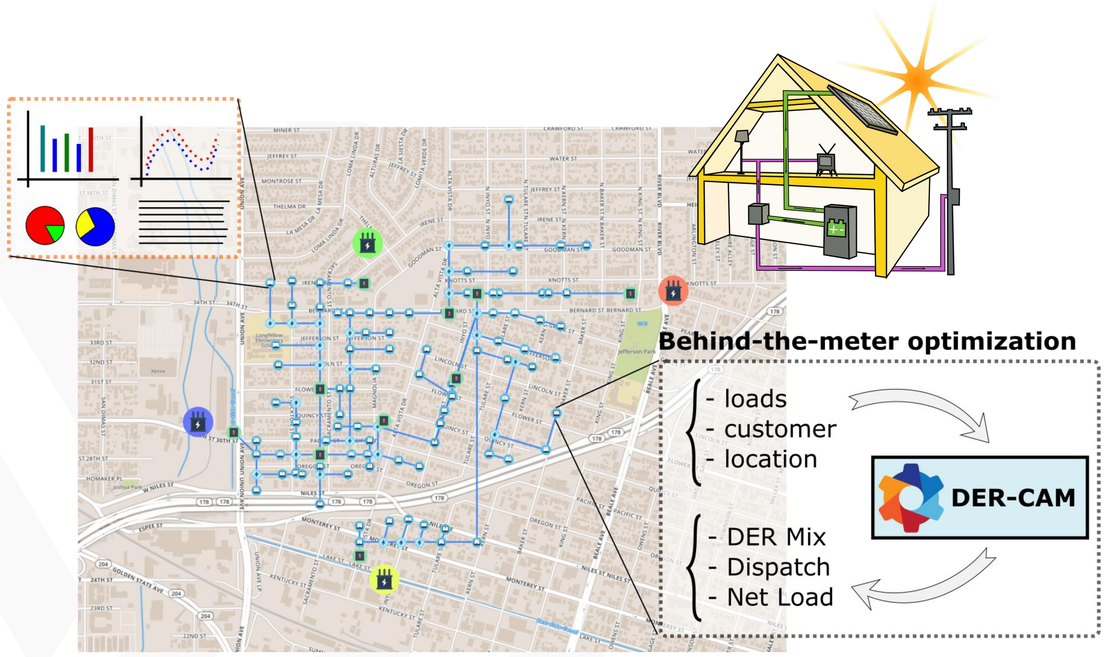
GRID MODERNIZATION INITIATIVE
U.S. Department of Energy

Partners: Lawrence Berkeley National Laboratory, Lawrence Livermore National Laboratory, SLAC National Accelerator Laboratory, National Renewable Energy Laboratory, Brookhaven National Laboratory, Argonne National Laboratory

Project Description

Prototype modeling framework for integrated **distributed resource planning and optimization,** able to identify **Distributed Energy Resources (DER) adoption** patterns, **microgrid sites**, and evaluate **DER impacts** on the distribution and transmission grid.

Combines key capabilities from national labs to address gap in DER modeling tools by linking behind-the-meter DER modeling with Transmission & Distribution co-simulation and visualization. Provides first step towards detailed holistic system-wide modeling of DER impacts and benefits.



Many states are deploying DER aggressively, the challenge is lack of tools to understand most cost-effective locations and impact on overall-system reliability.

Expected Outcomes

- Mapping of most cost-effective DER sites
- Identify DER operational strategies
- Analyze value of DER as grid assets
- Evaluate impacts of DER on the bulk electric grid system
- California as starting point for wider application

Significant Milestones	Date
Initial data collection; stakeholder engagement	06/30/16
Data collection & conversion; Behind-the-meter model automation and development of integration components	09/30/16
Finalize development of core software components	12/31/16
Final delivery of software platform, project demonstration, and outreach	09/30/17

Progress to Date

<u>End-to-end DER siting tool prototype:</u>

- Transmission & Distribution co-simulation for California
- Distributed Energy Resources Customer Adoption Model (DER-CAM) enhancements & data
- Model integration and APIs
- Visualization front-end and database

<u>Stakeholder engagements</u>:

- California Public Utilities Commission (CPUC) engagement:
  - Contributions to Distribution Resources Plan working group meetings
  - Validation of Integration Capacity Analysis methods
- Technical advisory committee meeting including CPUC, California utilities, and third-party industry representatives