U.S. DEPARTMENT OF
ENERGY

Office of
ENERGY EFFICIENCY &
RENEWABLE ENERGY

State and Local Planning for Energy (SLOPE) Platform: Overview

As more state and local governments develop comprehensive energy plans, the adoption of energy efficiency, renewable energy, and sustainable transportation technologies has become a focal point of many planning processes.

Although extensive resources and data exist to identify energy efficiency, renewable energy, and sustainable transportation opportunities, the dispersed, unintegrated, and sometimes inaccessible nature of this information makes it difficult for state and local governments to easily consider, compare, or fully capture the value of these resources.

The State and Local Planning for Energy (SLOPE) Platform, a collaboration between eight U.S. Department of Energy (DOE) technology offices and the National Renewable Energy Laboratory (NREL), is a tool to enable more data-driven state and local energy planning by integrating dozens of distinct sources of energy efficiency, renewable energy, and sustainable transportation data and analyses into an easy-to-access online platform that more effectively supports state and local energy planning and decision making. Expanding on DOE's State and Local Energy Data (SLED) Platform,[1] SLOPE Beta includes the following data components:

SLOPE Platform at a Glance

Energy Efficiency Potential	**I. State-Level Energy Efficiency Potential:** Provides data for residential, commercial, and industrial sectors as derived from an Electric Power Research Institute (EPRI) study.[2]
	II. Single-Family Home Energy Efficiency Potential: Identifies cost savings from home energy improvements from NREL ResStock[3] and provides robust calculations for efficiency potential.
	III. Current and Projected Commercial Building Stock: Offers commercial building counts at the state and county levels developed from multiple sources, including CoStar Realty Information, Inc.,[4] DOE Cities Leading through Energy Analysis and Planning (Cities-LEAP),[5] Energy Information Administration (EIA) Annual Energy Outlook (AEO),[6] and Federal Emergency Management Agency (FEMA) Hazus building stock data.[7]
Electricity and Natural Gas Consumption	**IV. Business-As-Usual Electricity and Natural Gas Consumption:** Projects consumption and expenditures from modeled baseline data[8] for the residential, commercial, and industrial sectors at the city, county, and state levels through an analysis of EIA AEO projection data.[9]
Renewable Energy Generation	**V. Renewable Energy Generation Potential:** Presents technical generation potential at the state level for many technologies, including utility-scale and rooftop solar photovoltaic (PV), concentrated solar power (CSP), onshore and offshore wind, biopower, geothermal, and hydropower. County-level data is included for solar PV, CSP, and onshore wind. Data comes from an analysis using NREL Regional Energy Deployment System (ReEDS)[10] and NREL Renewable Energy Potential (reV)[11] models.
Levelized Cost of Energy (LCOE)	**VI. LCOE:** Yields projected data by technology displayed across the 134 balancing areas (predefined regions based on electrical, political, jurisdictional, and demographic boundaries) represented in NREL ReEDS.[12]
Projected Population	**VII. Population Data:** Portrays projected population at the city, county, and state levels based on Oak Ridge National Laboratory (ORNL) LandCast,[13] a global population distribution model.

[1] https://www.eere.energy.gov/sled/
[2] https://www.energy.gov/eere/analysis/downloads/state-level-electric-energy-efficiency-potential-estimates-0
[3] https://www.nrel.gov/buildings/resstock.html
[4] https://www.costar.com; see also: https://www.energy.gov/eere/articles energy-department-announces-partnership-costar-group-inc-expand-visibility-energy
[5] https://www.energy.gov/eere cities-leading-through-energy-analysis-and-planning
[6] https://www.eia.gov/outlooks/aeo/
[7] https://www.fema.gov/hazus
[8] Projections based on modeled 2016 baseline data from SLED: https://www.eere.energy.gov/sled/
[9] https://www.eia.gov/outlooks/aeo/
[10] https://www.nrel.gov/analysis/reeds/
[11] https://www.nrel.gov/docs/fy19osti/73067.pdf
[12] More information on balancing areas is also available on ReEDS. https://www.nrel.gov/analysis/reeds/
[13] https://www.osti.gov/biblio/1232097-landcast-high-resolution-population-projection

SLOPE Background

To ensure the SLOPE Platform meets stakeholder needs and fills gaps in existing tools and resources, DOE and NREL gathered input from 2018–2019 on energy planning priorities and data needs from a geographically diverse group of more than 50 state and local governments and other key stakeholders. In addition, NREL conducted a literature review and research on the landscape of existing energy planning tools and resources.

This research demonstrated that a wide array of guidance documents and tools are available to support state and local energy planning; however, data collection at the sub-state level remains particularly onerous. Stakeholders also struggle to choose between available tools and face obstacles in the level of training and investment required to obtain useful data and outputs.

The SLOPE Platform is designed to provide these stakeholders with an accessible platform with outputs that are easily conveyed to decision makers. The platform addresses needs such as access to localized data, interoperability between tools, and integration of data across sectors and technologies to illustrate opportunities and scenarios for achieving goals and understanding the impacts of energy actions. SLOPE further provides this data in multiple formats, including maps, time series charts, and scenario models.

The components in SLOPE Beta represent priority outputs identified by stakeholders. In SLOPE Phase II that will be released in 2021, SLOPE Beta components will be represented at a finer resolution, and more energy efficiency, renewable energy, and sustainable transportation data and analyses will be added based on additional, high-impact opportunities that experts and stakeholders identify.

Audience

The SLOPE Platform targets state and local governments and other key energy planning stakeholders, primarily focusing on conveying intricate data to decision makers that can enable local analysts to pursue deeper analyses of energy planning scenarios. ■

Goals

- Assist decision makers in understanding the various cost-effective options to meet their energy efficiency, renewable energy, and sustainable transportation goals.
- Capture the value of the myriad but dispersed energy data and tools available by increasing awareness of and access to these resources.
- Provide an integrated, easy-to-use platform to explore the data and information on opportunities available to state and local governments and other key energy planning stakeholders.

For More Information

To access the SLOPE Platform, see: https://gds.nrel.gov/slope. For questions about the SLOPE Platform, please contact StateandLocal@ee.doe.gov. For additional resources related to energy data and hundreds of other resources to support the energy priorities of state and local governments and K-12 school districts, visit the State and Local Solution Center: https://energy.gov/eere/slsc.

To receive monthly updates on the newest resources, news, and funding opportunities, please subscribe to our newsletter, the State and Local Spotlight: https://energy.gov/eere/slsc/subscribe.

DOE/GO-102019-5248
December 2019

U.S. DEPARTMENT OF ENERGY | *Office of* ENERGY EFFICIENCY & RENEWABLE ENERGY