Better Buildings Webinar Series

We'll be starting in just a few minutes….

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What topics are you interested in for future webinars?

Please go to slido.com and use event code #DOE to submit your responses.
Leveling the SLOPE: Helping State and Local Governments Reach Their Energy Goals

March 16, 2021
3:00 – 4:00 pm EDT
Adam Guzzo
U.S. Department of Energy
Weatherization & Intergovernmental Programs Office (WIP)
Agenda

1. Welcome & Introduction to the State and Local Planning for Energy (SLOPE) Platform
2. Background: Milwaukee’s Goals and Energy Planning Needs
3. SLOPE Demonstration and Application for Milwaukee
4. Questions & Discussion
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We’d like to hear from you!

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SLOPE integrates and delivers data on energy efficiency, renewable energy, and (coming Spring 2021) sustainable transportation into an easy-to-access online platform to enable data-driven state and local energy planning.

Visit SLOPE: gds.nrel.gov/slope

Comments or Questions? slope@nrel.gov
What Types of Questions Can SLOPE Answer?

**Consumption**
What are the current and projected electricity consumption and expenditures by sector in my jurisdiction?

**Efficiency**
What is the energy efficiency savings potential in my jurisdiction and what are the most cost-effective measures for single-family homes in my state?

**Renewables**
What is the comparative generation potential of renewable energy technologies in my jurisdiction compared to surrounding jurisdictions?

**Sustainable Transportation** (coming soon)
What could future electricity and fuel consumption and vehicle miles traveled look like under different transportation scenarios?

**Cost of Energy**
How do the costs of utility-scale and distributed renewables, fossil fuels, energy storage, and efficiency compare in my jurisdiction?

**Generation Scenarios**
What could the mix of renewables and fossil fuel generation on my grid look like under different scenarios?
How Are State and Local Governments Using SLOPE?

New Mexico’s Energy Conservation and Management Division:
- Clean Energy Program Manager
- Clean Energy Economist
- Engineering Tech Program Manager

Seeking data to guide planning of Grid Modernization Roadmap Project

Maine Governor’s Energy Office:
- Climate Council Energy Working Group

Using levelized cost of energy (LCOE) data in modeling, and to augment professional energy modeling they have contracted

Miami Resilience and Sustainability Office:
- Climate Change Mitigation Coordinator

Informing building efficiency ordinances, renewable energy pilot programs, community outreach and education, and future generation planning (in collaboration with utility)
What Data is Available in SLOPE?1

Energy Consumption*
- Electricity and natural gas consumption and expenditures: projected in a business-as-usual case for the residential, commercial, and industrial sectors through 2050

Transportation (coming in Spring 2021)
- Current and projected on-road vehicle fuel consumption and vehicle miles traveled
- Current and projected vehicle registration data by fuel type

Energy Efficiency
- Electricity savings potential for residential, commercial, and industrial sectors through 2035
- Electricity and fuel savings potential from cost-effective single-family home energy improvements

Solar
- Utility-scale photovoltaic (PV), floating PV, residential rooftop PV, and commercial rooftop PV technical potential
- Concentrating solar power utility-scale technical potential

Wind
- Land-based, offshore, and distributed wind technical potential

Bioenergy
- Biopower technical potential

Geothermal
- Utility-scale geothermal technical potential
- Geothermal district heating economic potential in new construction and existing buildings
- Geothermal heat pump economic potential

Hydropower
- Utility-scale hydro generation potential
- New stream reach and non-powered dam generation potential

Generation Scenarios
- Modeled current and projected electricity generation mix through 2050 by state under 12 scenarios

Cost of Energy
- Levelized cost of energy: projected electricity costs for 16 generation technologies plus battery storage through 2050
- Program administration cost of saved electricity

Commercial Buildings*
- Commercial building count and area by size and property type for 2020

Demographics*
- Population: past and projected population from 2015-2050

Wind
- Land-based, offshore, and distributed wind technical potential

Solar
- Utility-scale photovoltaic (PV), floating PV, residential rooftop PV, and commercial rooftop PV technical potential
- Concentrating solar power utility-scale technical potential

*City-level data added for ~6,000 cities in December 2020. Bold text is new data added in 2020.

1For a list of SLOPE’s data sources, please see SLOPE FAQs – “What are SLOPE’s Data Sources” (https://gds.nrel.gov/slope/about)
Today’s Presenters

Megan Day
National Renewable Energy Laboratory

Matthew Donath
City of Milwaukee
Matthew Donath
City of Milwaukee
City of Milwaukee

Wisconsin’s largest City and 4th largest Great Lakes City – population ~600,000

Population Demographics – 38% Black, 35% White, 20% Hispanic, 5% Asian

Old building stock –
• 70% of single family and multi-family units built before 1955
• Commercial and industrial building stock is similarly aged – early to pre-1900’s
• ~42% of housing units are owner-occupied

Utility Electric Generation Fuel Mix – Coal 37%, Natural Gas 32%, Renewables 7%, Other 24%
Milwaukee’s Sustainability Goals

Office of Environmental Sustainability created in 2006

ReFresh MKE Sustainability Plan launched 2013

8 primary issue areas with ten-year goals & targets (2013-2023)

Major energy goals:
• 25x25 – 25% RE by 2025
• Better Buildings Challenge – 20% energy reduction across city portfolio and commercial building sector
Climate Planning in 2021

Milwaukee’s Mayor and Common Council created a City-County Task Force on Climate and Economic Equity in 2019

Established community wide GHG goals:
- 45% reduction by 2030
- Net zero by 2050 or sooner

Task Force Climate Plan – how do we reach GHG reduction goals with a focus on equity and local job creation?
Data Questions

1. What sectors should Milwaukee focus on that will have the biggest impact on reducing emissions by 2030?

2. As Milwaukee works to meet its energy and climate goals, how does the city ensure that the benefits of a clean energy economy are realized by energy burdened communities and help mitigate racial and economic inequity? And how can the city ensure that energy costs are not raised for burdened communities?

3. How much of Milwaukee’s energy consumption could be met by locally generated renewable energy?

4. What renewable technologies are most-cost effective in Milwaukee over time?
Megan Day
National Renewable Energy Laboratory
SLOPE Demonstration

Visit SLOPE: gds.nrel.gov/slope
1. Data used to suggest planning prioritization to Climate and Equity Task Force

2. Identify building sector, type, and size that would be most impactful as program priorities

3. Use SLOPE’s charts and graphics as communication tool with the public and elected officials

4. Compare SLOPE data to GHG Inventory and projections for validation
Q & A

Submit Questions
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Additional Resources

- **SLOPE**
- Upcoming SLOPE Stakeholders Webinars (opportunity to provide input on future SLOPE enhancements):
  - Register for the Tuesday, March 30, 2021 webinar
  - Register for the Thursday, April 8, 2021 webinar
- **Low-Income Energy Affordability Data (LEAD) Tool**
- Low-Income Community Energy Solutions
- State and Local Solution Center
- Energy Efficiency and Renewable Energy Resources for State and Local Leaders
- Guide to Community Energy Strategic Planning
- Milwaukee Climate and Equity Plan
Better Buildings, Better Plants
SUMMIT
A VIRTUAL LEADERSHIP SYMPOSIUM

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<tr>
<td>YOU HAVE A DATA CENTER – NOW WHAT?</td>
<td>Tue, Apr 6, 2021</td>
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BETTER BUILDINGS

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