The POWER *of* MINNESOTA

Viewing Guide

We hope the information and resources included in this guide will help create engaging conversations and inspire actions that contribute to a cleaner and more powerful Minnesota.

1 Overview

Across the state, Minnesota communities are seizing the opportunity to reduce taxes, create jobs, and become even more resilient. In these communities, students are training for the jobs of future, business owners are innovating, and farmers are diversifying their crops.

The Power of Minnesota seeks to create community conversations by elevating experiences with the transformative power of clean energy in our communities, connecting residents and businesses throughout the state with many stories about the benefits of clean energy.

2 Conversation Starters

The Power of Minnesota is about the positive impacts clean energy is having on individuals and communities across Minnesota. Below are a few questions to discuss after watching the film.

- *Which moment or individual in the video stood out the most? Why?*
- *Where does your electricity come from?*
- *What is an energy-related project that you could do?*
- *What would a future powered mostly by renewable energy look like in your community?*

3 Clean Energy Facts

Energy

- Renewable energy made up 25 percent of the state's electricity generation in 2017, up from 23 percent in 2016 and 21 percent in 2013.
- About 39% of utility-scale electricity generation in Minnesota came from coal-fired electric power plants in 2017, down from 49% in 2014. Almost all of Minnesota's coal supply comes by rail from Wyoming and Montana.
- Since 2017, Minnesota's clean energy industry grew by 5.3 percent.
- Minnesota now has 59,079 total clean energy jobs in energy efficiency, wind, solar, geothermal, and bioenergy.

Wind

- Wind turbines, composed of blades and a nacelle on top of tall towers, are an increasingly significant source of energy in Minnesota, providing nearly 20% of the state's energy in 2017.
- In 2017, Minnesota ranked eighth in the nation in electricity net generation from wind energy. The state's wind farms generated almost 10.9 million megawatt hours of electricity that year, which could power 983,000 homes.
- In 2018, MN counties will receive $12.7 million in wind energy production taxes.
- Duluth is ranked in the top 10 in the nation for transporting wind equipment.

Solar

- Solar electricity is produced when sunlight hits the many solar cell on a photovoltaic (PV) panel, creating the electrons we use in our buildings and equipment.
- Minnesotans are often surprised to learn that our state has annual solar resources similar to areas of Florida and Texas.
- After adding 436.8 megawatts in 2017, Minnesota now has a total of 744.4 megawatts of solar energy.
- Solar jobs in Minnesota rose 48.2 percent in 2017 to a total of 4,256.
- At the end of 2017, Minnesota had 94 community solar gardens powering 285,000 homes.

Sources:
US EIA: *https://www.eia.gov/state/analysis.php?sid=MN*
Clean Jobs Midwest: *https://www.cleanjobsmidwest.com/state/minnesota*

59,079 jobs

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25 percent

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4 Resources

Do Energy Efficiency First

It's important to save energy to maximize your solar or wind resource. The Home Energy Guide from Minnesota Department of Commerce provides tips to keep your home comfortable, safe, and efficient.
https://mn.gov/commerce/home-energy | *https://www.cleanenergyresourceteams.org/lighting*

Install Solar Energy

Your home, farm, or business could be a perfect fit for solar if you have a sunny and open roof or field. Find step-by-step instructions for exploring your options from Clean Energy Resource Teams (CERTs).
https://www.cleanenergyresourceteams.org/technology/solar

Find Clean Energy Jobs

The CERTs MN Clean Energy Job Board is a tool that job seekers can use to find jobs in the energy efficiency and renewable energy fields, and that employers can use to post their latest openings.
https://www.cleanenergyresourceteams.org/jobs

Explore Clean Energy Training Programs

The Minnesota Energy Center consists of ten Minnesota State colleges working together to provide energy education across the state. Approximately forty academic programs are offered among them.
http://energycareersminnesota.com

Become a Clean Energy Community

Local governments like cities, counties, and townships throughout Minnesota have the power to address barriers to solar and wind energy installations through their planning, zoning, and permitting choices.
http://www.betterenergy.org/blog/solar-toolkits | *http://www.macpza.org/2017WindModelOrdinanceFinal.pdf*

For more information, go to: www.powerofmn.com

5 Key Terms

Community Solar Garden Community Solar Gardens are centrally-located solar photovoltaic (PV) systems that provide electricity to participating subscribers. Minnesotans can subscribe to a community solar garden if a program is offered by their utility.

Electric Grid A system of interconnected power lines and generators that is managed so that power from generators is dispatched as needed to meet the requirements of the customers connected to the grid at various points. The Midcontinent Independent System Operator (MISO) manages the grid in Minnesota.

Kilowatt (kW) This is a measure of demand for power. The rate at which electricity is used during a defined period (usually metered over 15-minute intervals). Utility customers generally are billed on a monthly basis; therefore, the kW demand for a given month would be the 15-minute period in which the most power is consumed. Customers may be charged a fee (demand charge) based on the peak amount of electricity used during the billing cycle, but residential customers are generally not levied a demand charge.

Kilowatt-hour (kWh) The amount of electricity used over a period of time, typically one month for billing. Customers are charged a rate per kWh. The typical Minnesota home uses 800 kWh per month.

Megawatt (MW) A unit for measuring power that is equivalent to one million watts.

Megawatt-hour (MWh) Equal to 1,000 kilowatts of electricity used continuously for one hour. About equivalent to the amount of electricity used by 330 homes during one hour.

Land Lease This agreement is made between property owners choosing to lease their land and solar or wind developers.

Photovoltaic (PV) The letters PV stand for "Photo" = light and "Voltaics" = electricity. Solar PV panels create electricity when the sun shines on them.

Property Assessed Clean Energy (PACE) A new way to finance energy efficiency and renewable energy upgrades to the buildings of commercial property owners. Energy-saving measures pursued by the owners receive project financing and are repaid as a separate item on their property tax assessment for a set period.

Solar Farm A large solar installation, often consisting of hundreds or thousands of panels, is often called a solar farm.

Wind Farm The state's wind farms, consisting of many turbines each, take advantage of large areas of open prairie as a source of renewable energy.

> **"Clean energy jobs continue to be an important part of Minnesota's energy sector and overall economy. This industry is providing family-sustaining wage jobs to thousands of Minnesotans, all while working to preserve and improve the environment our state is known for.**
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> -Shawntera Hardy, Commissioner of DEED