



POWER GENERATION & TRANSMISSION

Elk Creek Solar is committed to helping to educate the community by providing regular communications, hosting local office hours, and engaging in local events. In this edition of the Elk Creek Solar Newsletter, we are pleased to provide detailed information about power generation and how the electricity grid works.

WHERE DOES ELECTRICITY COME FROM?

Most of Wisconsin's electricity is generated from coal and natural gas, but Wisconsin has no reserves of coal or natural gas. Wisconsin is a net importer of energy, consuming almost six times the amount of energy that it produces.¹ But, how do Wisconsin customers receive power? Whether it's from a nearby coal, natural gas, or nuclear plant, wind farm, solar facility, or other generation source, ALL utility-scale power is transmitted through the grid, which is comprised of substations, transformers, and power lines that connect the source of generation (supply) to the public consumer (demand), typically by way of a public utility company.²

After most utility-scale power is generated—via coal, natural gas, nuclear, wind, solar, etc.—it is routed to the grid. For Wisconsin and other states of the Midwest, MISO (Midcontinent Independent System Operator) is the regional transmission organization (RTO) that oversees the movement of electricity across this portion of the country.³ Similar to what Air Traffic Control does for the aviation field, MISO is the balancing authority, safely directing power from the supply to demand. They coordinate where power is needed during times of peak demand and ensure there is enough supply to meet the needs of the consumer throughout the year.

COMMUNITY ENGAGEMENT AT LOCAL EVENTS

Elk Creek Solar has had the pleasure of partnering with several local organizations to sponsor and host events throughout the county. Listed below are a few events which the project has engaged with in the community, and we look forward to building more relationships throughout the lifetime of the project.

FEBRUARY 2023:

- Elk Mound Fire Department - Chili Fest
- Dunn County Fish and Game Association

MARCH 2023:

- Menomonie Lions Club
- 2023 KidWind Challenge
- Red Cedar Watershed District Conference
- Stepping Stones - Empty Bowls





WHERE DOES ELECTRICITY COME FROM? (continued)

Similar to how water flows, power on the grid moves along the path of least resistance. If there is an energy need close to a generation site (coal, natural gas, nuclear, wind, or solar), the need will likely be fulfilled by that generation source. Once all the needs for energy near the generation site are fulfilled, energy will continue to flow down the line to meet other energy demands. It is possible for power to be transmitted further away from the site of generation to meet demand; however, the longer the transmission distance the less efficient the system. Utility-scale power generation supplied to the local grid generates local revenue and bolsters the resiliency of the local transmission system. If you'd like to know more about how the electric grid works, visit: <https://science.howstuffworks.com/environmental/energy/power.htm>

FROM SOURCE TO DEMAND

Let's break this down a bit further to better understand how power gets from the source—in this case, a renewable energy source, such as solar—to your home or business. The solar panels harvest energy from the sun. That energy is converted from direct current (DC) power to alternating current (AC) power by the inverter, which is located within the array, set back from the project's perimeter fencing. The power is then transported via medium-voltage cabling (typically underground) to the project substation, where the voltage is subsequently increased before being routed onto nearby transmission lines. The transmission lines transport the power to where there is demand—locally, in neighboring communities, or across the state.

Before power being transmitted by high-voltage transmission lines can serve your home or business needs, the voltage is stepped down (reduced) through utility-owned substations or transformers, and then routes to distribution lines connected to each consumer to supply you with power.

Tracking every electron from generation source to demand is impossible, but we can be certain that the power generated from Elk Creek Solar has the capacity to meet local energy demands by connecting to the local Wisconsin electrical grid.

¹ <https://www.eia.gov/state/?sid=WI>

² <https://www.eia.gov/energyexplained/electricity/delivery-to-consumers.php>

³ <https://www.misoenergy.org/about/>

STAY CONNECTED:

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