



# Storing Sunshine and Summer Breezes

Battery systems capture solar, wind power to ensure future energy security

**Consumers Energy** Count on Us®

***Ever want to bottle the power of a perfectly pleasant Michigan afternoon to save until you need it most?***

In a way, that's what Consumers Energy is doing with battery technology.

Our Clean Energy Plan relies on clean, renewable fuel sources such as solar and wind to generate more than 60 percent of the electricity our customers will need by 2040.

So, what happens when the sun doesn't shine, or the wind won't blow? Battery energy storage systems (BESS) are a big part of the answer.

Battery technology helps us store electricity generated by solar, wind and other renewable energy sources — and supply the on-demand power when our grid needs it most.

***Learn more on back***



Kalamazoo battery storage.

## What is battery storage?

A battery energy storage system (BESS) stores and distributes energy in the form of electricity. The technology is similar to batteries in electric vehicles, cell phones and computers. Utility-scale batteries incorporate extensive safety features such as off gas detection, smoke detectors and fire suppression systems. In addition, robust emergency response plans are developed for each site.

Typically, the systems are roughly the size of an electric substation, including steel structures filled with battery cells to store electrical energy for use at a later time.

This stored energy can:

- Shave peak demand, which can reduce the overall cost of electricity.
- Provide backup power to help stabilize the grid during outages or peak-demand periods.
- Smooth intermittent output from renewable energy.

Battery storage is another tool, along with energy efficiency, demand response and grid modernization, that will help enable the transition to renewable energy, more efficiently use the electric grid, and deliver the energy Michigan needs.

## Where are we now?

We started piloting battery technology in 2018 and recently accelerated plans to develop 75 megawatts of storage capacity by 2027. Today, we're operating battery energy storage systems in Kalamazoo, Cadillac, Grand Rapids and Standish.

Our BESS in Grand Rapids is part of Circuit West, an area that includes innovative automated switching devices to keep customers online, as well as rooftop mounted solar. Our 500-kilowatt (kW) battery storage system works in concert with 1,795 solar panels that produce renewable energy to customers spanning 13 blocks in Michigan's second largest city.

In Cadillac, our BESS stores electricity generated by one of three solar power plants in our Solar Gardens program, allowing customers to support solar energy without having to install their own systems

## Where are we headed?

We're planning battery storage systems at several more locations in our service territory as we implement our Clean Energy Plan, which calls for reaching 550 megawatts of storage capacity by 2040. We're in the early stages, for example, of developing an 85-megawatt solar power plant at the former site of the Karn generating complex near Bay City, where two coal-fired units were retired in 2023.

Recently, the Michigan Legislature adopted climate reforms that set a battery storage requirement to install over 800 megawatts of storage capacity.

To reach this goal, we're exploring the possibility of developing a utility-scale BESS at the site of our Campbell generating complex near Holland, where we'll retire our last coal-fired units in 2025.

Battery storage is a key part of our Clean Energy Plan, helping us run the grid more efficiently and boosting reliability as we transition away from coal to renewable fuel sources such as solar and wind.

To learn more, visit [ConsumersEnergy.com/Change](https://ConsumersEnergy.com/Change)



Ludington Pumped Storage plant helps us meet customers' energy needs.

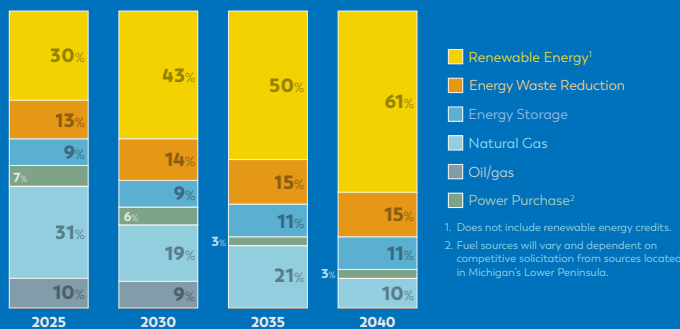
## Our Biggest "Battery"

We know a bit about how to store vast amounts of electricity for on-demand use, thanks to the Ludington Pumped Storage Plant, affectionately known as "the big battery."

Located on a 1,000-acre site on the shore of Lake Michigan, the Ludington Pumped Storage Plant is capable of generating up to 2,292 megawatts of electricity – enough to power a community of 1.4 million people for about eight hours.

The hydroelectric power plant, which started operations in 1973, uses stored water at elevation to function like a battery. When electricity prices are low, the large reservoir above Lake Michigan is filled with water from through six large pipes 28 feet in diameter, called penstocks, each equipped with a reversible pump turbine. It takes about nine hours to move enough water from Lake Michigan to fill the reservoir. When demand for electricity rises, the plant is dispatched, and water produces power like a river hydro dam turning turbines as it is released 363 feet back into Lake Michigan.

## Electric Capacity by Fuel Source



By 2040, we expect advances in battery storage and our Ludington Pumped Storage plant to help us meet customers' needs with 90 percent clean energy resources.