Your electricity

2020
Fuel sources
Air emissions
Minnesota CIP
Components of electricity

Use electricity wisely

Fuels used to generate electricity have different costs and air emissions

How are your electricity needs met?
The following chart shows the primary fuel sources used to produce electricity for Minnesota customers in 2019.

Statewide, electric utilities in Minnesota generate 60 percent of all sulfur dioxide pollution, 27 percent of all carbon dioxide pollution, 35 percent of all mercury pollution, and 9.6 percent of all nitrogen oxides pollution.¹

¹ Pollution also is emitted from other sources, such as industrial and commercial sources, cars, trucks, and home heating.

How did Otter Tail Power Company compare with the regional average in 2019?
The chart below shows how our company’s air emissions compare with the regional average.

What air emissions were produced in 2019?
Air emissions by fuel type (measured in pounds per 1,000 kilowatt-hours)

<table>
<thead>
<tr>
<th>Fuel type</th>
<th>Carbon dioxide</th>
<th>Sulfur dioxide</th>
<th>Nitrogen oxides</th>
<th>Particulate matter-10</th>
<th>Mercury</th>
</tr>
</thead>
<tbody>
<tr>
<td>Coal</td>
<td>2,415</td>
<td>4.28</td>
<td>2.39</td>
<td>0.05</td>
<td>0.000012</td>
</tr>
<tr>
<td>Fuel oil</td>
<td>4,847</td>
<td>1.56</td>
<td>18.47</td>
<td>0.58</td>
<td>0.000014</td>
</tr>
<tr>
<td>Purchases</td>
<td>1,212</td>
<td>1.32</td>
<td>0.974</td>
<td>0.0933</td>
<td>0.0000676</td>
</tr>
<tr>
<td>Natural gas</td>
<td>1,214</td>
<td>0.006</td>
<td>0.75</td>
<td>0.07</td>
<td>0.00000009</td>
</tr>
</tbody>
</table>

What can you do to help reduce air emissions?
You can participate in our company’s energy-conservation programs. Minnesota customer participation in these programs over the last 10 years reduced the need to produce 461,218,872 kilowatt-hours of electricity in 2019.

These annual savings resulted from both new and ongoing participation in our energy-conservation programs. By not producing this electricity, we avoided the following air emissions:

<table>
<thead>
<tr>
<th>Air emission</th>
<th>Tons</th>
</tr>
</thead>
<tbody>
<tr>
<td>Carbon dioxide</td>
<td>361,059</td>
</tr>
<tr>
<td>Sulfur dioxide</td>
<td>566</td>
</tr>
<tr>
<td>Nitrogen oxides</td>
<td>339</td>
</tr>
<tr>
<td>Particulate matter</td>
<td>13</td>
</tr>
<tr>
<td>Mercury</td>
<td>.002</td>
</tr>
</tbody>
</table>

Regional emission averages are developed by the Minnesota Pollution Control Agency (MPCA).

How do air emissions affect the environment?
Carbon dioxide (CO₂) is the principal greenhouse gas linked to global warming. Nitrogen oxides (NOₓ) and sulfur dioxide (SO₂) contribute to acid rain; nitrogen oxides also contribute to smog. Particulate matter (sometimes called soot) contributes to asthma attacks and other respiratory illness. Mercury accumulates in some fish to levels exceeding current health department guidelines. The Minnesota Pollution Control Agency is responsible for ensuring that emissions from utilities meet air-quality standards for nitrogen oxides, sulfur dioxide, and smog.

Wind and solar power produce none of these air emissions. Nuclear energy does not produce these air emissions but does produce both high- and low-level nuclear waste. Large hydropower may alter ecosystems and cultural resources, depending upon the location and design of the facility.
The Conservation Improvement Program (CIP) plays a key role in meeting Minnesota’s future energy plan by helping customers use energy more efficiently and reduce the need for our investment in new generation facilities.

### All customers
- **Heat pump:** Install a qualified air-source, cold-climate, or geothermal heat pump and receive a $400- to $1,000-per-ton rebate.
- **Electronically commutated motor (ECM):** Get a $100 rebate when you have a contractor install an electronically commutated motor with your new furnace.
- **Appliance recycling:** Get $50 and four LED bulbs when you let us pick up and recycle your old but still functioning fridge or freezer that’s wasting energy.

### Commercial and industrial customers
- **Rebates:** Get rebates for installing qualifying high-efficiency refrigeration, lighting, motors, and adjustable-speed drives.
- **Custom grants:** Get incentives for process improvements, cooking equipment, chillers, compressed-air system upgrades, and more.
- **Design assistance:** Use our free integrated design process to help put energy efficiency at the forefront of new construction plans.
- **CoolSavings:** Receive a $6 bill credit per ton of connected air-conditioning load June through September when you allow us to cycle your system during peak periods. This applies to small commercial customers only.

### Residential customers
- **House Therapy:** Use our home weatherization program for income-qualified households.
- **CoolSavings:** Receive an $8.25 bill credit June through September when you allow us to cycle your central air-conditioning during peak periods.
- **Lighting:** Receive an in-store instant rebate on qualifying ENERGY STAR® LEDs at participating retailers. This applies to residential customers only.

### Customers with primary electric heating
- **Insulation:** Get rebates for 20 percent of material and installation costs (up to $1,400) for air sealing and wall and attic insulation projects.
- **Smart Thermostats:** Customers with primary electric heating or cooling receive a $35 to $150 rebate on a qualified Tier II or Tier III thermostat.

### Energy-saving tips
- Have your heating and cooling systems serviced every year to ensure peak operational efficiency and safety.
- Replace your aging appliances with ENERGY STAR-qualified options to cut energy use.
- Learn more and make your own plan to save energy with Home Energy Analyzer. Get started at otpco.com/HEA.

Programs may change at any time.

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### Components of electricity

#### Learning more about electricity
Most people don’t know a lot about electricity even though it’s an essential part of our everyday lives. That’s why we’d like to help you understand this intangible commodity.

Here’s some useful information about the cost of the components of electricity and how these components contribute to your total electric service bill.

#### How do utilities determine the price of electricity?
The cost of electricity has three main components: generation, transmission, and distribution. The costs associated with each of these components are allotted to the various customer groups (residential, small commercial, and large commercial) based on the electrical needs of each group. Then rates are calculated based upon this allotment of costs.

The table below illustrates the cost break-downs by component for each customer group. These cost percentages vary based on our company’s average investment to serve each customer group.

<table>
<thead>
<tr>
<th>Components</th>
<th>Residential</th>
<th>Small commercial</th>
<th>Large commercial</th>
</tr>
</thead>
<tbody>
<tr>
<td>Generation</td>
<td>40%</td>
<td>46%</td>
<td>66%</td>
</tr>
<tr>
<td>Transmission</td>
<td>22%</td>
<td>24%</td>
<td>26%</td>
</tr>
<tr>
<td>Distribution</td>
<td>38%</td>
<td>30%</td>
<td>8%</td>
</tr>
<tr>
<td>Total</td>
<td>100%</td>
<td>100%</td>
<td>100%</td>
</tr>
</tbody>
</table>

The cost of electricity is composed of three main parts: generation, transmission, and distribution. For residential customers, each component’s share of the total cost is:

- **Generation** 58%
- **Transmission** 21%
- **Distribution** 22%

These percentages are residential group averages. Your individual use may result in percentages that vary from these averages.

Cost break-downs are calculated and updated annually.
Where does electricity come from?

Various generation resources produce electricity, while transformers adjust the voltage.

Generation

High-voltage power lines transport electricity to your community.

Transmission

Electricity flows through a substation to reduce the voltage to a usable level.

Electricity enters homes and businesses through a meter that measures how much is being used.

Distribution

Lower-voltage power lines transport the electricity to its final destination.

TailWinds renewable wind energy

Emission-free wind-generated electricity is part of our company's resource mix. You can provide additional support for advancing wind power through our TailWinds program. TailWinds subscriptions are available in 100-kilowatt-hour blocks for a small additional premium of $1.30 or less per block. One 100-kWh block of TailWinds electricity is enough energy to power a typical residential refrigerator for a month.

Learn more about your electricity

Check out these resources:

 otpco.com/WaysToSave or call 800-493-3299 for more information about our programs described in this brochure.

 http://mn.gov/commerce or call 800-657-3710 for energy-saving tips from the Minnesota Department of Commerce.

 www.pca.state.mn.us or call 800-657-3864 for information about air emissions from the Minnesota Pollution Control Agency.

Have questions?

Please call 800-257-4044 or 218-739-8877 or visit otpco.com.