

Beginner's Guide to the Electric Grid

January, 2024

Electricity plays an essential role in everyday life.

It powers our homes, offices, hospitals and schools. We depend on it to keep us warm in the winter (and cool in the summer), charge our phones and binge our favorite TV shows. If the power goes out, even briefly, our lives can be disrupted.

The system that delivers your electricity is often described as the most complex machine in the world, and it's known as the electric grid.

What makes it so complex? We all use different amounts of electricity throughout the day, so the supply and demand for electricity is constantly changing. For example, we typically use more electricity in the mornings when we're starting our day, and in the evenings when we're cooking dinner and using appliances. Severe weather and other factors also impact how much electricity we need.

The challenge for electric providers is to plan for, produce and purchase enough electricity so it's available exactly when we need it. Too much or too little electricity in one place can cause problems. So, to make sure the whole system stays balanced, the electric grid must adjust in real time to changes and unforeseen events.

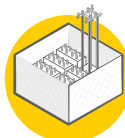
At its core, the electric grid is a network of power lines, transformers, substations and other infrastructure that span the entire country. But it's not just a singular system. It's divided into three major interconnected grids: the Eastern Interconnection, the Western Interconnection and the Electric Reliability Council of Texas. These grids operate independently but are linked to allow electricity to be transferred between regions when backup support is required.

Within the three regions, seven balancing authorities known as independent system operators (ISOs) or regional transmission organizations (RTOs) monitor the grid, signaling to power plants when more electricity is needed to maintain a balanced electrical flow. ISOs and RTOs are like traffic controllers for electricity.

HOW ELECTRICITY GETS TO YOU



step 1
Generation
Electricity is generated from various sources.



step 5
Distribution Substation
Voltage is lowered further for safe distribution.



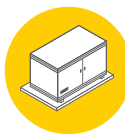
step 2
Step-Up Transformer
Voltage is increased to push the electricity over long distances.



step 6
Distribution Power Lines
Electricity travels across these lines in your community.



step 3
Transmission Power Lines
Lines carry electricity over long distances.



step 7
Final Stop
A transformer reduces voltage a final time, and electricity is sent to your home.



step 4
Transmission Substation
Voltage is lowered so electricity can travel across the local system.



CNMEC

January 2024



CNMEC is seeking outstanding high school Juniors and Seniors with leadership potential to represent their schools, communities and CNMEC in Washington D.C.

These students will join other New Mexico representatives for a tour to our Nation's Capital. They will join over 1,500 other participants from across the nation for an all-expense paid trip to Washington D.C. where they will meet with Congressional Leaders and tour sites like the Smithsonian, Arlington National Cemetery, Mount Vernon, the National Archives, and the FBI Building.

All the High Schools in the CNMEC service area will have the opportunity to send a representative. The area includes Vaughn, Corona, Estancia, Mountainair, Edgewood and Moriarty High Schools.

This is truly an adventure of a lifetime and all expenses are paid by CNMEC.

Applications can be found at www.cnmec.org.

Applications must be submitted by January 20, 2024.



CNMEC
Scholarship Foundation

CNMEC Scholarship Application Deadline is January 20, 2024.

Scholarship applications can be obtained through your school guidance counselor or may be picked up at our Moriarty or Mountainair office. Applications may also be found on the CNMEC Website at www.cnmec.org

ENERGY EFFICIENCY TIP OF THE MONTH

During winter months, ensure your home is well sealed to reduce the need for excessive heating. Seal air leaks around your home and add insulation where needed to save up to 10% on annual energy bills.

Install weather stripping on exterior doors and apply caulk around windows. Check attic insulation levels and hire a qualified contractor if additional insulation is required.

Source: energystar.gov



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