

# Powering Los Alamos National Laboratory

## Electrical Power Capacity Upgrade Project

Los Alamos National Laboratory (LANL) operates unique scientific instrumentation to conduct world-class research and support its national security missions. It is home to top supercomputers used to model weapon performance, climate change, disease progression, wildfires, and more. It also has a particle accelerator that allows the study of materials in extreme conditions, produces vital medical isotopes, leads in radiographic imaging of components in unique environments relevant to nuclear weapons and other fields including aerospace design and nuclear nonproliferation.



The existing electrical transmission line crossing the Rio Grande to LANL (called the Reeves Line). The proposed path forward would cross at the same location.

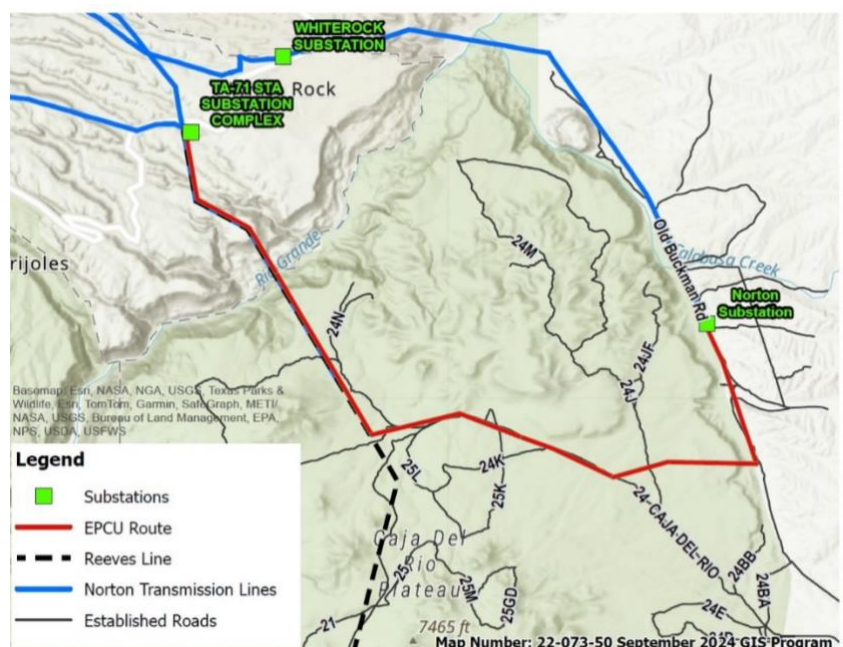
The power supply serving the lab that makes these efforts possible will reach capacity in 2027. Without more electricity, LANL will not be able to sustain its mission, and some missions may need to relocate outside of northern New Mexico to obtain sufficient electricity, potentially leading to job losses at LANL.

After studying energy sources and transmission options, and working with local stakeholders and Tribal governments, the National Nuclear Security Administration (NNSA) – the government agency that oversees LANL – determined that a new transmission line and internal system upgrades are needed to ensure the lab can continue to operate and retain vital missions.

The project to build an additional transmission line to increase capacity is called the [Electrical Power Capacity Upgrade](#) (EPCU) Project.

### Key facts: Proposed additional transmission line

- **Length:** 14 miles
- **Route:** Existing electrical power corridor through the Caja del Rio area west of Santa Fe, NM
- **Right of way width:** 100 feet
- **Electricity supplied:** Approximately 200 megawatts (MW) of power



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### Frequently asked questions

#### **Who owns the EPCU project?**

NNSA owns the project and partners with the U.S. Department of Agriculture, Forest Service (USFS) and Department of the Interior's Bureau of Land Management (BLM) to execute the National Environmental Policy Act (NEPA) regulatory process. NNSA is the lead agency for the project and for National Historic Preservation Act (NHPA) Section 106 compliance, in coordination with USFS.

#### **When will the proposed power line be built?**

As presently envisioned, the power line will become operational in 2027. This is when LANL is projected to no longer have sufficient power to meet mission demands.

#### **How does power get to Los Alamos?**

The Public Service Company of New Mexico (PNM) transmission system, which serves all of New Mexico, provides power to LANL. Through this network of transmission lines and substations, power is transmitted from an array of generation resources to provide power to Los Alamos County, including LANL. Transmission lines transmit power from where it is generated to where it is needed. Power is generated at sites where it can be most efficiently and economically produced, often hundreds of miles from the customer. All the power LANL requires is already produced regionally, so transmission capacity is the only limiting factor. Two transmission lines serve Los Alamos County: the Reeves Line and the Norton Line. Los Alamos County is also served by two onsite power generating resources: a 1 MW solar power site owned and operated by Los Alamos County and 20-27 MW combustion gas turbine generator owned and operated by LANL.

#### **Were renewable energy sources at Los Alamos Site considered as an alternative?**

Yes, a variety of renewable energy options at Los Alamos were considered and deemed insufficient. Off-site options are feasible but would require transmission lines.

- **Solar:** A 2017 feasibility study identified nine sites totaling 795 acres as potentially suitable, each with unique challenges (ongoing environmental remediation efforts, archaeological resources, floodplains, and endangered species habitat) that affect feasibility or time required for development. Over 2,000 acres (>3 square miles) would be required to generate sufficient and reliable power.
- **Wind:** The LANL campus is not ideal for wind power generation based on an analysis of the average 30-meter height wind velocity using National Renewable Energy Laboratory data.
- **Geothermal energy production:** This is technically feasible but would involve large-scale clearing of forest land in Santa Fe National Forest and the Valles Caldera National Preserve to accommodate the required wells, generator buildings, and access roads, as well as a new transmission line and a seismic study. A geothermal option would require hundreds of acres, and the removal of significant water rights from public usage.

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- **Nuclear power:** Micro-reactors would not produce sufficient energy, and Small Modular Reactor technology is not yet licensed or ready for deployment.

The EPCU project does not mean other options for clean power generation on site won't be pursued. However, none of the options explored could meet the demand by 2027.

### **Why not reductor the existing lines?**

Reconducting the existing transmission lines to increase the system's overall capacity was thoroughly analyzed. The Norton and Reeves Lines would both need to be reconducted to meet the equivalent power capacity of a new third transmission line. This requires replacing the wires and assessing the existing poles to determine if they can carry the larger size wire.

- **The traditional method** requires the power line to be taken out of service during the reconducting process. This poses risk of damages and potential safety issues at LANL facilities and in the county.
- **The energized method** requires constructing a new, temporary line parallel to the existing lines to carry the load and maintain power supply to the site during the reconducting process. While the adverse impacts to land would be temporary, the affected land route is substantially longer – 51 miles of existing power lines. Those lines go through the Pueblos of Cochiti, San Felipe, San Ildefonso, Santo Domingo, and the Caja del Rio. This technology is not typically deployed on such a complex terrain, and adding a live, energized line poses significant construction safety concerns.

### **Were Pueblos and Tribes consulted?**

Yes, NNSA has conducted tribal outreach activities. Input from the surrounding Tribes and Pueblos on the EPCU project has been integral to our decision making. NNSA plans to continue government-to-government consultations, information sharing meetings, technical briefings, field visits, notifications, and coordination meetings.

As the project progresses through the NEPA and NHPA Section 106 process, Tribes and Pueblos will be involved in consultation. In addition to the formal Section 106 consultation efforts, NHPA Section 106 Tribal consultation will continue throughout the project, including during construction.

### **Will this route disturb cultural resources?**

NNSA completed cultural resource surveys of the entire transmission line route. Four tribal monitors from Pueblos of Cochiti, San Ildefonso, and Tesuque, participated in these cultural surveys along the proposed transmission line route, and, with Pueblo input, NNSA rerouted the line to avoid or minimize impact on cultural sites. The evaluation determined that the project was unable to avoid some visual and other impacts to cultural resources, and NNSA and USFS are consulting with Tribes and Pueblos to develop mitigations to address these impacts. NNSA will have tribal monitors from the Pueblos available and on site during the construction phase of this project.

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### **What federal laws govern this project?**

NEPA requires federal agencies to assess the environmental effects of their proposed actions prior to making decisions. This project has followed all NEPA requirements, including multiple public comment periods and meetings. NNSA expects to post the final decision document and Environmental Assessment in early 2025. NHPA requires federal agencies to consider the effects on historic properties of projects they carry out, assist, fund, permit, license, or approve throughout the country. If a federal or federally-assisted project has the potential to affect historic properties, a Section 106 review will take place.