



#### WHAT IS THE WIND RATING OF A TRANSMISSION LINE?

Transmission lines are structurally designed according to the National Electric Safety Code (NESC), which primarily references standards from the American Society of Civil Engineers on structural loading. The NESC requires structures over 60 feet tall to be able to resist loading from various ice and wind scenarios. Transmission lines follow these criteria, while distribution lines are typically shorter and therefore are not required to follow structural loading criteria.

The base design wind speed for eastern Colorado is 90 MPH. This wind speed is part of an equation that also considers terrain, span length between structures and height of the structure to produce an overall wind pressure applied to the wires and the structure of the transmission line. These factors effectively increase the wind pressure applied on the structure as you go up in height. However, the structural capacity of a transmission pole is more typically controlled by icing conditions on the wire since heavy ice greatly increases tension in the wires and therefore the loading on the structure. As a result, transmission lines typically have additional structural capacity for much higher wind speeds than the NESC requires because we account for icing conditions.



### WHY ISN'T THE TRANSMISSION LINE BEING BURIED?

Burying transmission lines creates several challenges that are avoided when infrastructure is built above ground. Some of these challenges include environmental impacts due to the continuous trench required, the necessary clearing and grading in the area and the large concrete vaults or access structures required along the lines. Additionally, due to cooling needs, underground power lines are installed in concrete encased in PVC duct banks. These factors add considerable costs, up to ten times the amount of overhead construction.

While underground transmission lines are expected to have fewer weather-related outages, underground lines can still fail. It takes an average of 8 to 10 days to repair an underground line, instead of a matter of hours to repair an overhead line. Additionally, the lifespan of underground lines is estimated to be about half that of overhead lines.



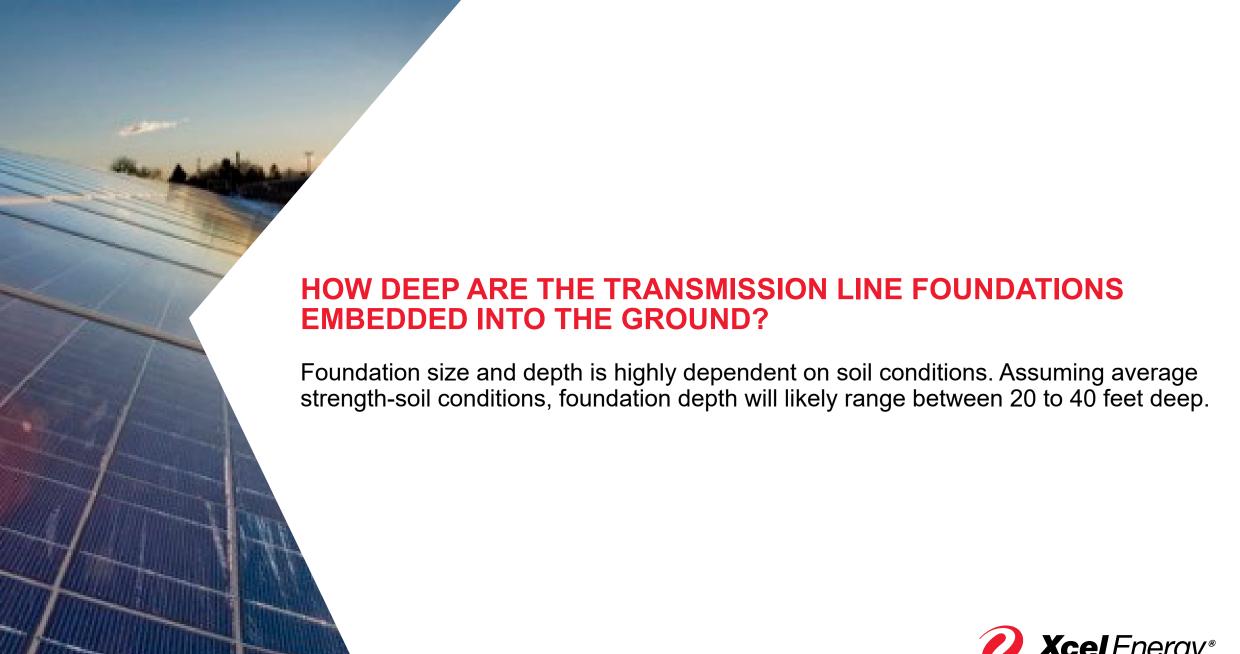
### WHAT IS XCEL ENERGY DOING TO HELP PREVENT WILDFIRES?

Safety is a core value at Xcel Energy, and we recognize that wildfires can pose a threat to our customers, communities, and state as a whole—and we proactively take steps to minimize ignition risks associated with operating our system. Our comprehensive and robust Wildfire Mitigation Program is designed to protect lives, homes and property from the threat of wildfire and includes:

- Accelerating inspections in identified Wildfire Risk Zones to further identify and address potential safety concerns.
- Replacing equipment and poles that pose an increased risk and exploring the use of new technologies.
- Analyzing the strength and ability of transmission and distribution structures to withstand higher than normal windspeeds.
- Conducting enhanced vegetation management in the areas around structures, corridors and equipment.
- Improving protocols and fire-safe work practices.
- Working directly with communities, first responders and other stakeholders to inform, educate, gather and incorporate feedback for our programs.



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#### **HOW WIDE IS THE TRANSMISSION LINE RIGHT-OF-WAY?**

The right-of-way width required for Colorado's Power Pathway is 150 feet total, 75 feet on each side of the centerline. Most land will still be usable for the same purpose after construction of the transmission line, and activities such as agriculture can continue outside of the small area occupied by the transmission structures.



## WILL AN ENVIRONMENTAL IMPACT STATEMENT (EIS) BE REQUIRED FOR COLORADO'S POWER PATHWAY?

The potential environmental impacts associated with development of Colorado's Power Pathway are being evaluated throughout project development, and coordination with applicable federal, state and local agencies and jurisdictions is ongoing. Once the preferred route for the project has been identified, we will be able to determine the exact permits required for this project. Studies under the National Environmental Policy Act (NEPA) are currently not anticipated to be required.

As part of our local permitting efforts, we will conduct environmental screening and evaluation for each segment. Xcel Energy will conduct desktop and field reviews of biological and cultural resources within and near the Project area that may be affected by development. Xcel Energy is coordinating with Colorado Parks and Wildlife and the United States Fish and Wildlife Service regarding the Project and will follow recommended non-disturbance buffers to avoid or minimize impacts on special-status species.



#### HOW FAR APART WILL TRANSMISSION LINE POLES BE SPACED?

The distance between transmission poles, or span length, varies and is based on voltage and pole height. The typical span length for Colorado's Power Pathway is anticipated to be 950 feet.



#### WHAT HAPPENS AFTER THE CONCLUSION OF THE OPEN **HOUSES IN MARCH?**

After the conclusion of open houses in early March:

- We will determine the need for additional public meetings in segments where the preferred transmission line route has not been identified.
- Link-specific feedback will continue being incorporated into the routing process.
- Engineering design work will start in segments where the preferred transmission line route has been identified.
- The county land use permitting process will start for Segments 2 and 3. Additional public input opportunities will take place at the county level during public hearings for the land use permit in each jurisdiction.
- Project representatives will reach out to individual landowners as the routing process progresses to discuss preferred transmission line route and easements.

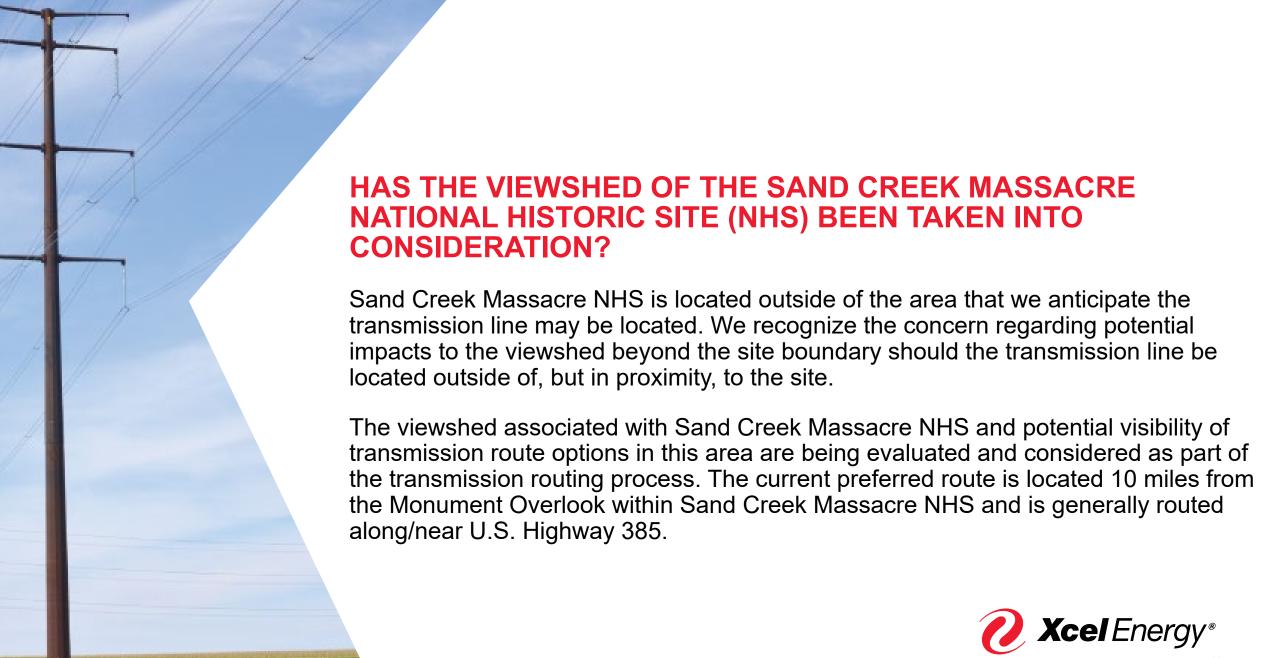


#### WHO BENEFITS FROM COLORADO'S POWER PATHWAY?

Colorado's Power Pathway supports the state-mandated goal of an 80% reduction in carbon emissions by 2030, which all electric utilities must comply with. Because Colorado's open transmission system carries electricity generated by multiple utilities that is distributed to homes and businesses by local power companies, both electric utilities and electricity users around the state benefit.

Colorado's Power Pathway will provide significant economic benefits to rural communities across eastern and southern Colorado over the short- and long-term. More immediately, construction will require substantial amounts of contract labor, while also providing local jurisdictions and host communities with additional tax revenue. Moreover, once complete, Colorado's Power Pathway will drive ongoing job opportunities and employment through clean energy projects (wind, solar, etc.) that ultimately interconnect.

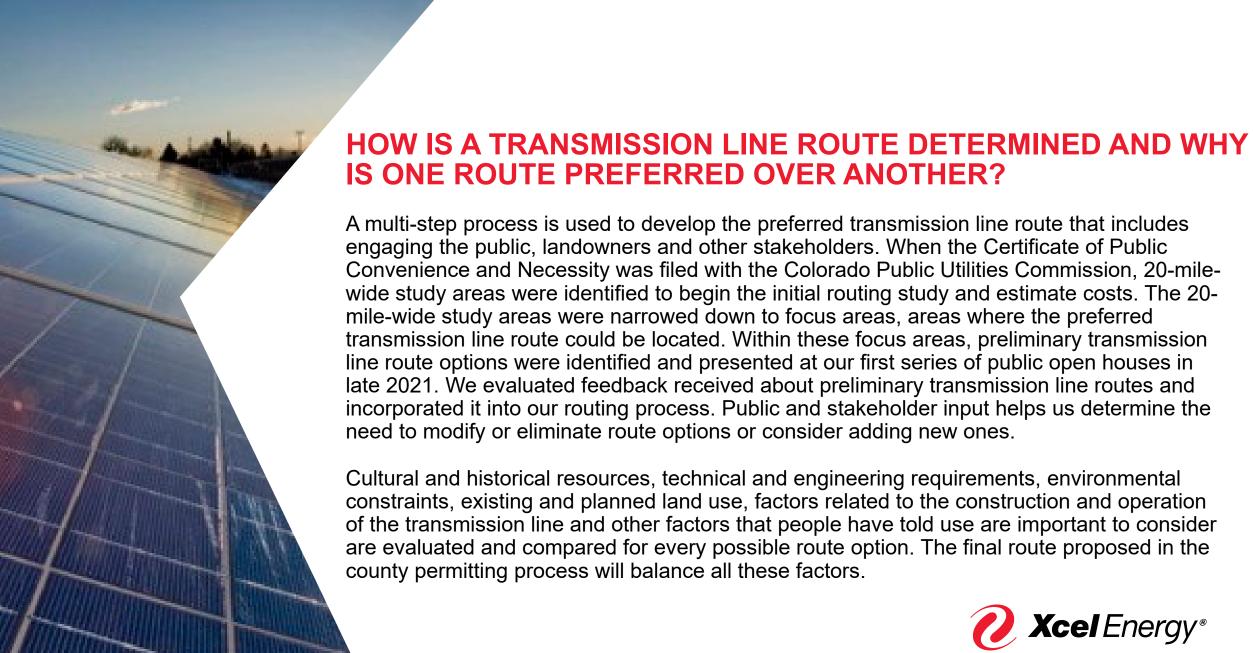




## WHAT IS THE DIFFERENCE BETWEEN AND EASEMENT AND A RIGHT-OF-WAY?

A **right-of-way** is the actual land area acquired for a specific purpose, such as a transmission line, roadway or other infrastructure. An **easement** is the legal document that must be signed by the landowner before the utility can proceed and explains what uses a landowner can continue to conduct within the right-of-way. In this case, a utility requires certain rights (an easement) to build and maintain the utility facilities such as a transmission line. Landowners are paid a fair market value for the easement and can continue to use the land so long as their use does not interfere with the operation and maintenance of the transmission line. An easement is the legal document signed by the landowner and it explains the uses allowed within the right-of-way.





## I'M BEING APPROACHED BY A RENEWABLES DEVELOPER ABOUT LEASING MY LAND. ARE THEY WORKING WITH XCEL ENERGY?

Xcel Energy representatives working on Colorado's Power Pathway will always identify themselves and their affiliation with the company and the project. It is possible that landowners may be approached by renewables developers or their representatives about leasing land for wind or solar projects and associated generation tie lines, but those projects are not proposed as part of Colorado's Power Pathway.



### HOW DOES XCEL ENERGY DISPOSE OF WIND TURBINES AFTER USE?

At this time, wind farms have a life of approximately 20 years or more and ideally, all parts of a turbine are designed to last the full lifespan of the facility. When a wind farm reaches its end of life, it is either retired or retrofitted to newer equipment:

- There are a host of recyclable materials that make up wind turbines, including metals and other materials that are recyclable (nacelle, tower sections, internal gearing). The oils used in turbines are also recycled.
- Blades are made of fiberglass and other recyclable materials. They are cut into manageable sections to remove the recyclable materials. The remaining fiberglass sections are disposed of in an approved landfill. These fiberglass components are classified as nonhazardous construction debris.
- A contractor is used to dismantle and remove the turbines. They determine the
  final landfill for remaining waste, making sure it meets our requirements for
  disposal through our waste management procedures and the landfill is permitted
  for proper disposal.

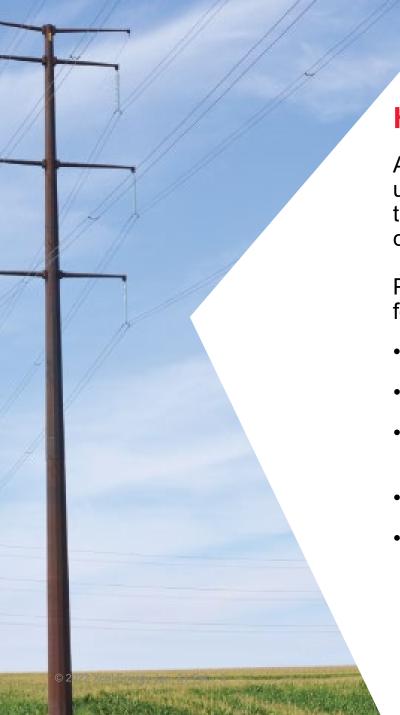
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## HOW DOES XCEL ENERGY MAINTAIN ITS RELIABILITY GOAL WHILE RELYING ON GREATER AMOUNTS OF INTERMITTENT ELECTRICITY GENERATION?

All wind and solar are intermittent and variable generation resources. Our resource planning group analyzes the availability of wind and solar resources to ensure adequate capacity is available through a combination of renewable and dispatchable resources including coal, natural gas, hydro, wind and solar. Maintaining system reliability as we close coal plants and increasingly rely on wind and solar is a key goal of Xcel Energy and required by state statute. Existing and incremental gas fired generation and storage resources will be used to provide the needed generation flexibility around intermittent wind and solar generation as our coal plants retire.



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#### **HOW IS THE TRANSMISSION LINE'S SAFETY MONITORED?**

All power lines in our system are monitored 24/7 for line contact. If there is an unanticipated event, the line is tripped out to protect the public. While designing the line, we follow national design standards to ensure the lines are robust and can withstand several extenuating circumstances.

Power lines are inspected regularly (usually during fall or winter months) to look for the following:

- Non-compatible vegetation and hazards within the right-of-way.
- Equipment needing repair or replacement.
- Right-of-way encroachments, which can be hazardous to safety and reliable operations.
- Anything that might jeopardize safe, reliable operation of the power line.
- Utilities must visit the right-of-way for these inspections, but visits may be minimal, and landowners will be contacted prior to inspections or maintenance. In cases of emergency, advanced contact may not be possible.

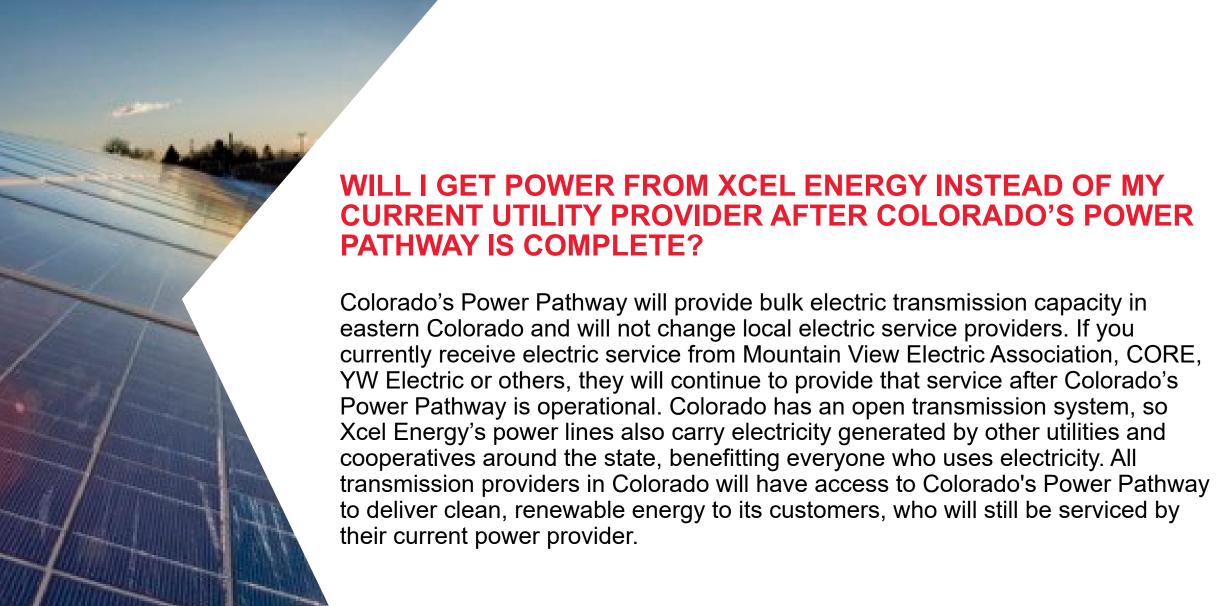


## HOW DO YOU AVOID IMPACTING BIRDS THAT NEST NEAR THE PROJECT ROUTE?

In 2002, Xcel Energy was the first utility in the country to enter into agreement with the U.S. Fish and Wildlife Service to address potential issues involving birds and power lines. As part of our Avian Protection Plan, Xcel Energy uses three main strategies to reduce the number of birds that are injured or die when they contact power lines or electrical equipment. The strategies are:

- Preventive Facility design meets industry standards to prevent or mitigate avian incidents.
- Proactive Xcel Energy employees are educated on bird/power line interactions and are involved in organizations that conduct avian interaction research. For Colorado's Power Pathway specifically, we are evaluating data for nesting birds as part of our transmission line routing study and any required pre-construction surveys will be completed.
- Reactive Xcel Energy employees document mortalities, notify resource agencies and apply remedial measures where appropriate.





# A copy of this presentation is available at ColoradosPowerPathway.com/Library

