



### 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?

Unlike lower-voltage distribution power lines which deliver electricity to homes and business, higher-voltage transmission lines are not frequently installed underground primarily because of cost, but also because of operations and maintenance.

Underground transmission lines require insulated underground cables and a concrete trench with truck-size manholes along the length of the line. This results in a much wider area of disturbance due to concrete installation along the entire route. Underground lines can also have a greater visual impact than an overhead transmission line since all vegetation would need to be removed in the right-of-way.

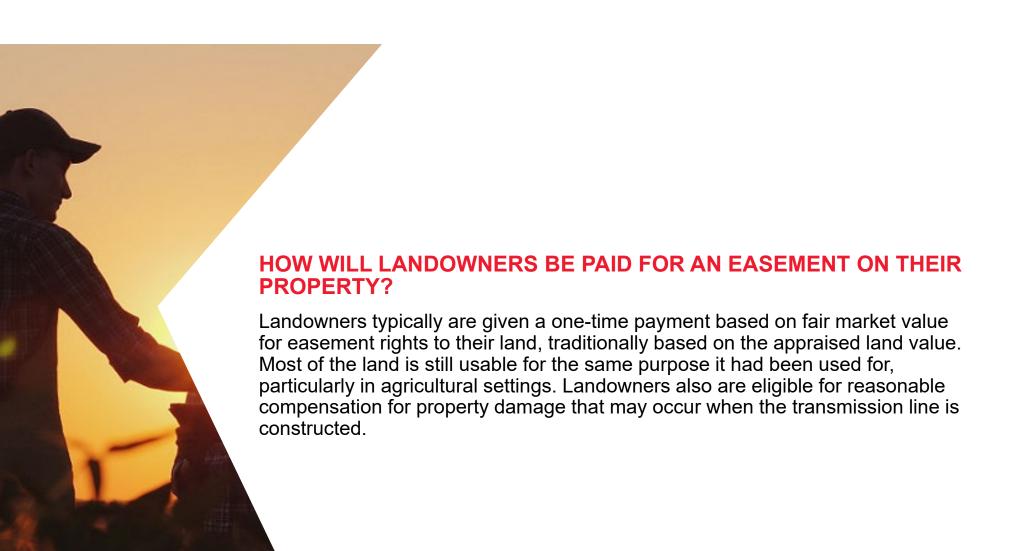
Who benefits and who pays for undergrounding is also an important issue, sometimes involving third-party cost sharing. While underground transmission lines are expected to have fewer weather-related outages, underground lines can still fail. And when outages occur, it takes an average of 8 to 10 days to repair an underground line, instead of hours to repair an overhead line. Also, the lifespan of underground lines is estimated to be about half that of overhead lines.



# WHY IS THE SEGMENT 5 TRANSMISSION LINE NOT INTERCONNECTING AT OTHER LOCATIONS LIKE PRONGHORN OR MISSILE SITE??

It's important to note that the Segment 5 transmission line is needed to increase the electric power transfer capability of the electric transmission grid. To achieve this, both endpoints of Segment 5 must be terminated at locations that allow Segment 5 to be tightly integrated into the electric grid. Having the north endpoint at Harvest Mile allows achieving the higher power transfer capability objective most efficiently by leveraging the electric grid to circumvent the existing capacity "bottlenecks" that cause electricity flow congestion. Relocating the north endpoint to Missile Site or Pronghorn results in more electricity routing through the existing bottlenecks in the electric grid and thus aggravates the existing congestion. Changing the north endpoint of Segment 5 to Missile Site or Pronghorn would not only prevent achieving the intended objective of higher transfer capability, but it would also exacerbate the existing congestion in the electric transmission grid.







# HOW CLOSE WILL THE POWERLINES BE BUILT TO A HOUSE AND WHAT WILL YOU DO WITH EXISTING BUILDINGS ALONG THE ROUTE?

The right-of-way width required for the proposed 345-kilovolt transmission line is 150 feet. At the very least, the lines will be built 75 feet from a home. As part of the routing criteria, we try to optimize staying away from homes to the extent feasible. As we go through the routing process, one of our main goals will be to avoid residences where feasible.

As part of our routing process, we have collected data of inhabited structures within the project area, and we are ground truthing this data as well. We are classifying those structures as avoidance areas. We will do everything we can do avoid routing the line over those inhabited structures.





### **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:

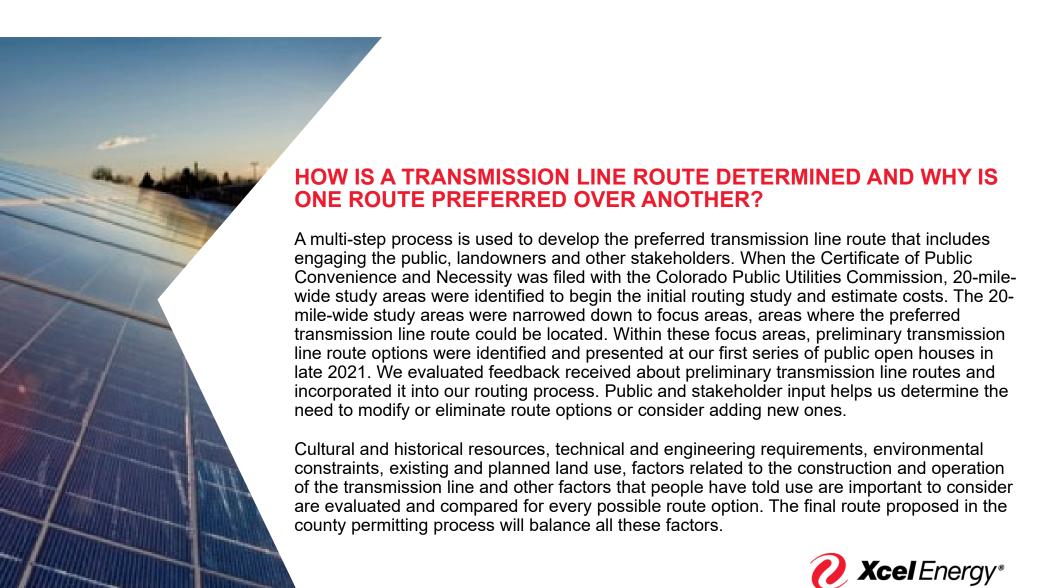
- Non-compatible vegetation and hazards within the right-of-way
- · Equipment needing repair or replacement
- Right-of-way encroachments, which can be hazardous to safety and reliable operations
- Anything that might jeopardize safe, reliable operation of the power line
- Utilities must visit the right-of-way 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



## IS COLORADO'S POWER PATHWAY BEING ROUTED WHERE FUTURE WIND AND SOLAR PROJECTS WILL BE PLACED?

Colorado's Power Pathway is being routed through some of the best wind and solar resource zones in Colorado. New renewable energy generation is anticipated to be developed in these zones. The location of these new generation resources is currently unknown and could be located near the new transmission line or many miles away. Generally, new generation resources are expected to interconnect at substations located at segment endpoints. New generation resources would require obtaining land rights and local land use permits that would be subject to local review and approval before being constructed. Permitting approvals for Colorado's Power Pathway will not include new generation resources which would be permitted separately.

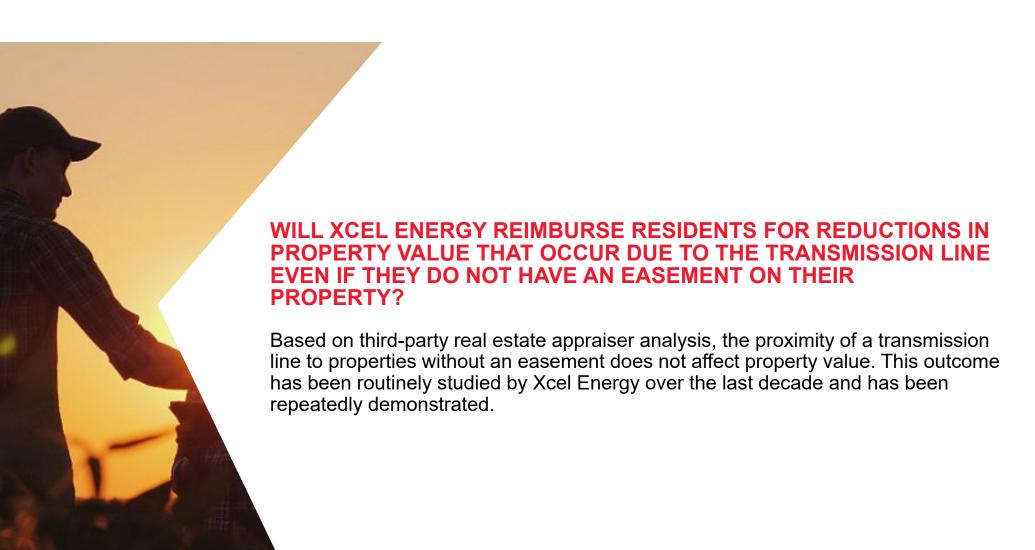




### WILL AN ENVIRONMENTAL IMPACT STATEMENT (EIS) BE REQUIRED FOR COLORADO'S POWER PATHWAY?

The potential environmental impacts associated with development of Colorado's Power Pathway are being evaluated throughout the routing and siting process, and coordination with applicable federal, state and local agencies and jurisdictions is ongoing. Once the final preferred route for Segment 5 has been identified, we will work with each county to identify and obtain required permits. Studies under the National Environmental Policy Act, including but not limited to an Environmental Impact Statement, are currently not anticipated to be required due to the lack of a federal nexus (e.g., Colorado's Power Pathway does not use federal funding, cross federal lands or require federal permits or approvals). As part of our local permitting efforts and in accordance with jurisdiction-specific requirements, we will assess the existing conditions and evaluate the anticipated impacts of the project along each segment. This evaluation will include desktop and field survey of biological and cultural resources.

Xcel Energy has met with Colorado Parks and Wildlife staff at public meetings, project meetings and workshops and has also engaged with the United States Fish and Wildlife Service regarding Colorado's Power Pathway and will follow recommended non-disturbance buffers and construction timing restrictions to avoid or minimize impacts on special-status species. Xcel Energy in engaging with Colorado's State Historic Preservation Office regarding Colorado's Power Pathway and has evaluated results of previous surveys as part of our routing and siting process.



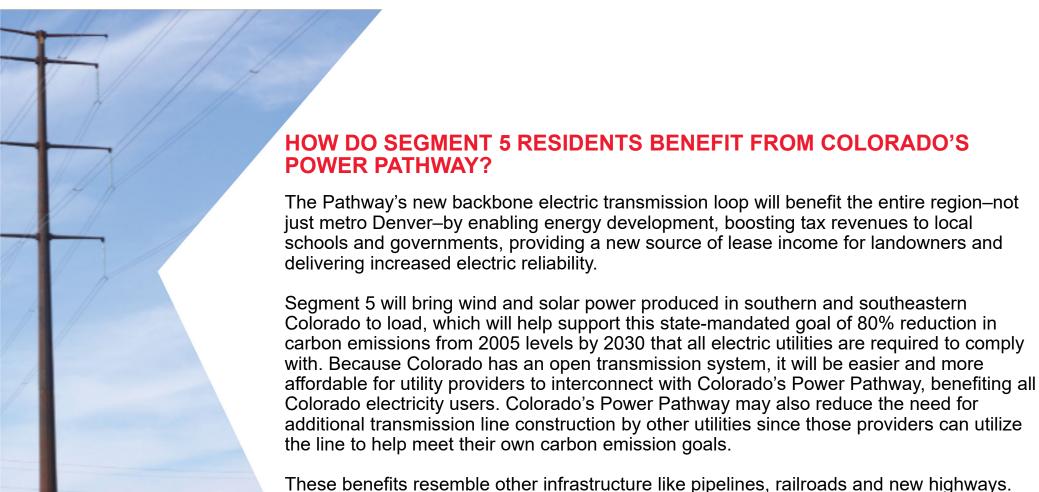


# WHAT STEPS IS XCEL ENERGY TAKING TO REDUCE IMPACTS TO LARGE MAMMALS LIKE PRONGHORN, DEER OR ELK?

Electric transmission lines most commonly affect large mammals in forested areas where removal of tall vegetation (such as trees) is required. Most of Colorado's Power Pathway crosses short vegetation and cropland, resulting in fewer changes to habitat than lines through forested areas. Large mammals tend to avoid active construction areas and return after crews finish their work.

As part of our local permitting efforts and in accordance with jurisdiction-specific requirements, we will assess the existing conditions and evaluate the anticipated impacts of Colorado's Power Pathway along each segment. This evaluation will include desktop and field surveys of biological resources. Xcel Energy will continue to engage with Colorado Parks and Wildlife and the United States Fish and Wildlife Service and will follow recommended non-disturbance buffers to avoid or minimize impacts on special-status species.





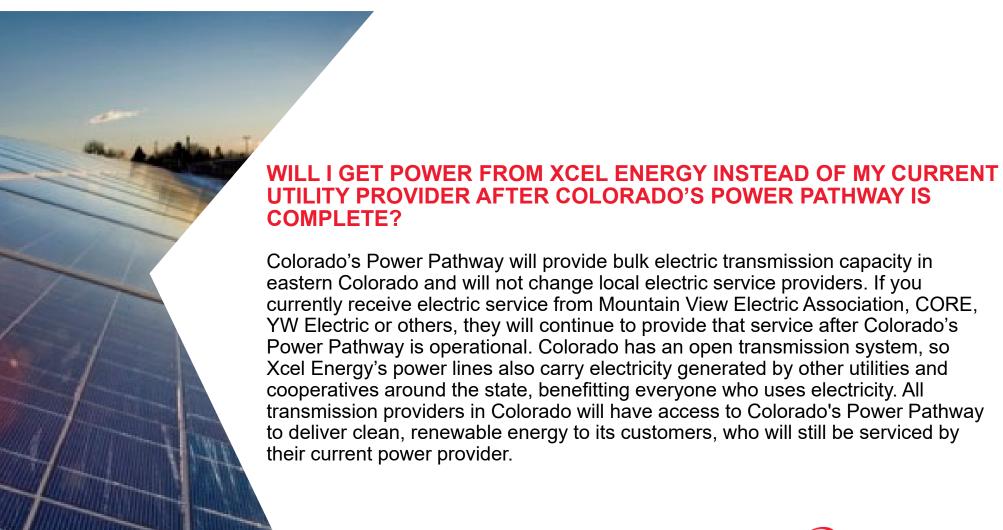
We may not always use every road in our areas, but they're all there when we need them.

# I AM INTERESTED IN A TRANSMISSION LINE EASEMENT ON MY PROPERTY. WHAT ARE MY NEXT STEPS?

Ask to speak to a land agent at one of our open houses to discuss the easement acquisition process or:

- Email ColoradosPowerPathway@xcelenergy.com.
- Call our toll-free hotline at 855-858-9037.
- Submit a comment form, which are available at the open houses and online.





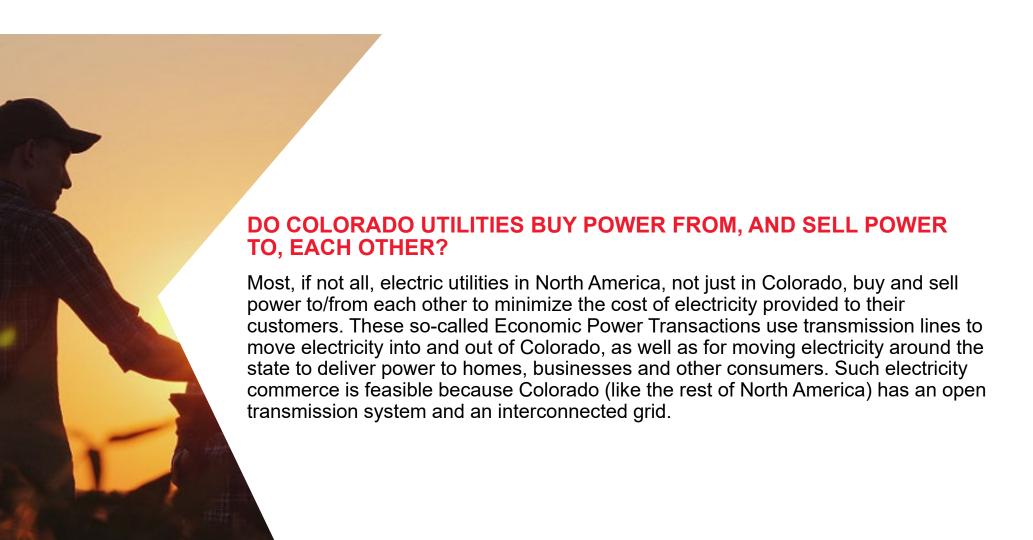
### WHAT IS XCEL ENERGY DOING TO HELP PREVENT WILDFIRES?

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.

Visit **XcelEnergyWildfireProtection.com** for more information.







# HOW WILL XCEL ENERGY REDUCE TRANSMISSION LINE IMPACTS TO HAWKS, EAGLES, OSPREY AND OTHER AVIAN SPECIES?

Xcel Energy uses several strategies to protect birds from being injured or killed from contact with power lines or electrical equipment. The strategies include:

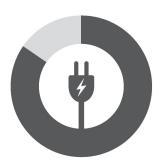
- Preventive conducting risk assessments and installing avian- safe standards where possible. When appropriate, Avian Protection Plans are developed, and equipment will be installed to divert birds away from power lines.
- Reactive documenting mortalities, notifying resource agencies and applying remedial measures where appropriate
- Proactive educating employees and being involved in organizations that conduct avian interaction research

Because transmission line structures and equipment can be attractive to birds for building nests, Xcel Energy also uses nest management programs include installing nest boxes or platforms in safe areas on or near structures, where warranted. Additionally, utility personnel are educated on nest reporting, nest removal and platform construction.



### **COLORADO'S POWER PATHWAY BY THE NUMBERS**





80% Electric utility greenhouse gas emissions reduction required by 2030 per Colorado House Bill 19-1261

2016

Last major addition or upgrade to backbone transmission in eastern Colorado

The energy capacity provided by Colorado's Power Pathway is the equivalent of powering

2,500,000

Colorado homes annually















162,000+

Postcards mailed



7,000+

Newsletters emailed



750,000+

Facebook public meeting ad views



Meetings with agencies, cities and counties



70,000+

Website pageviews



20,000+

Unique website visitors Colorados Power Pathway.com Public meetings\*

3 Upcoming open houses

34 Open houses previously held

Virtual town halls

613

General project questions and comments received

Public commentors



2,369

Public meeting attendees



164 Newspaper ads in

35 Local papers\*



425 Radio ads on

Miles of transmission route options shared with the public to solicit feedback

Resources evaluated to identify transmission line routes and substation sites

30+

<sup>2,000+</sup> 

