

FRONTERA – KEY SWITCH TRANSMISSION IMPROVEMENTS PROJECT



Welcome! Thank you for visiting our virtual open house to learn more about the project and share your input to help us develop project plans. We welcome feedback through the project website, phone, email and mail as we strive to make the most informed decisions possible.

The virtual open house includes details on the following information:

- Project Need & Benefits
- Project Map
- Routing Process
- Engineering
- Right-of-Way Practices
- The Construction Process
- Vegetation Management
- Licensing Board
- Environmental Criteria
- Agencies Contacted

PROJECT NEED & BENEFITS



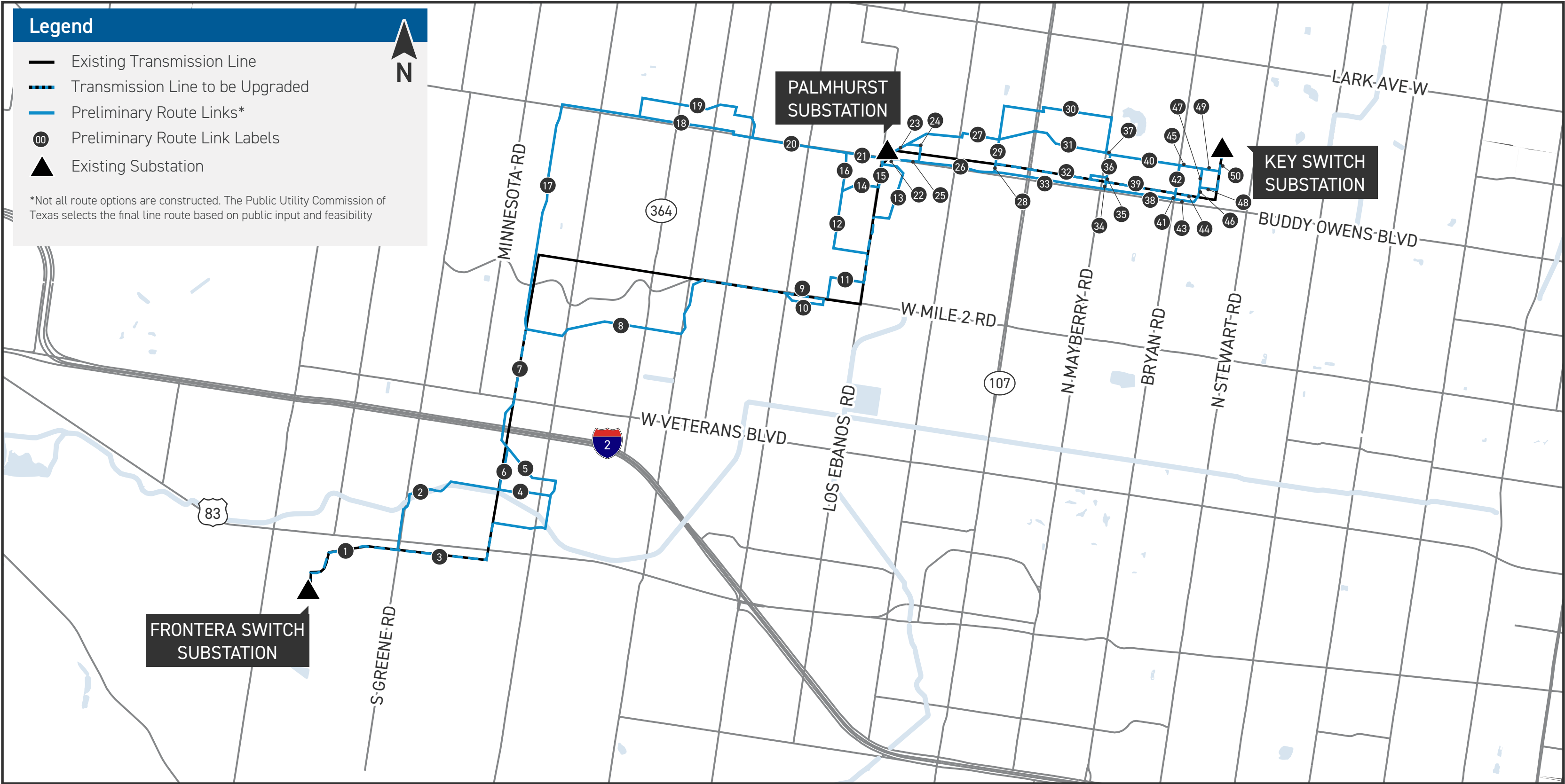
The Project Involves:

- Rebuilding approximately 9 miles of existing 138-kilovolt (kV) transmission line between the Frontera Substation and the Key Switch Substation.
- Upgrading equipment at Frontera Substation and Key Switch Substation to meet current AEP engineering and operational standards.
- Rerouting the line from the Frontera Switch Substation to the Key Switch Substation.

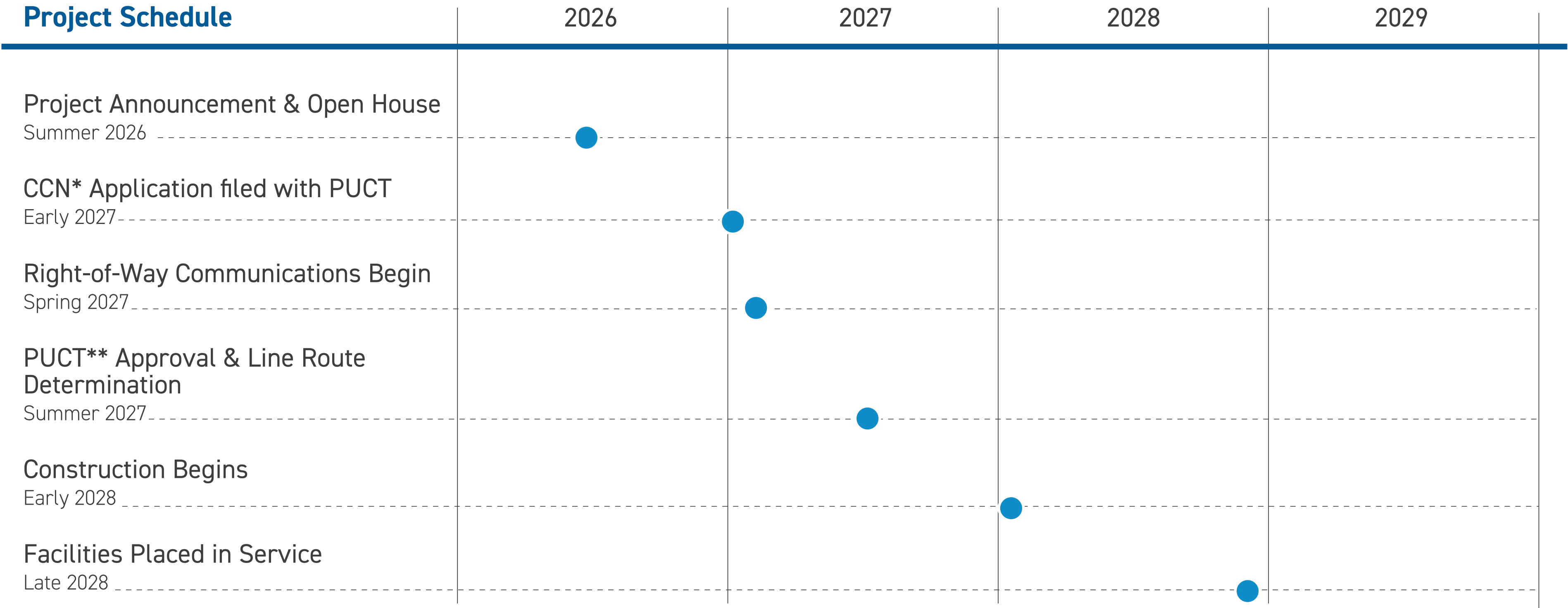
Why is the project important to our community?

- The project provides additional electric capacity to support and meet the economic growth and development in the Rio Grande Valley region.

PROJECT MAP



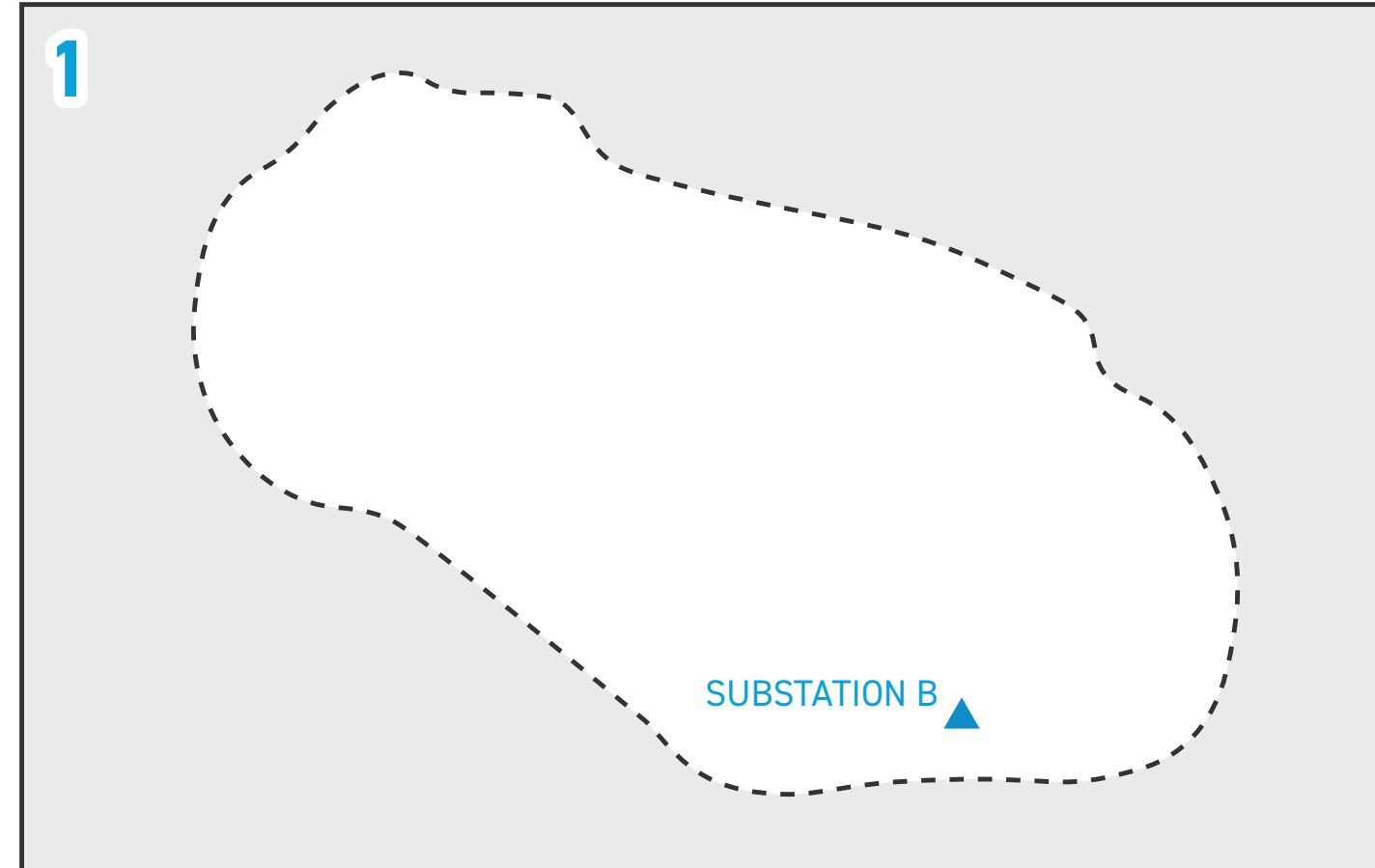
PROJECT TIMELINE



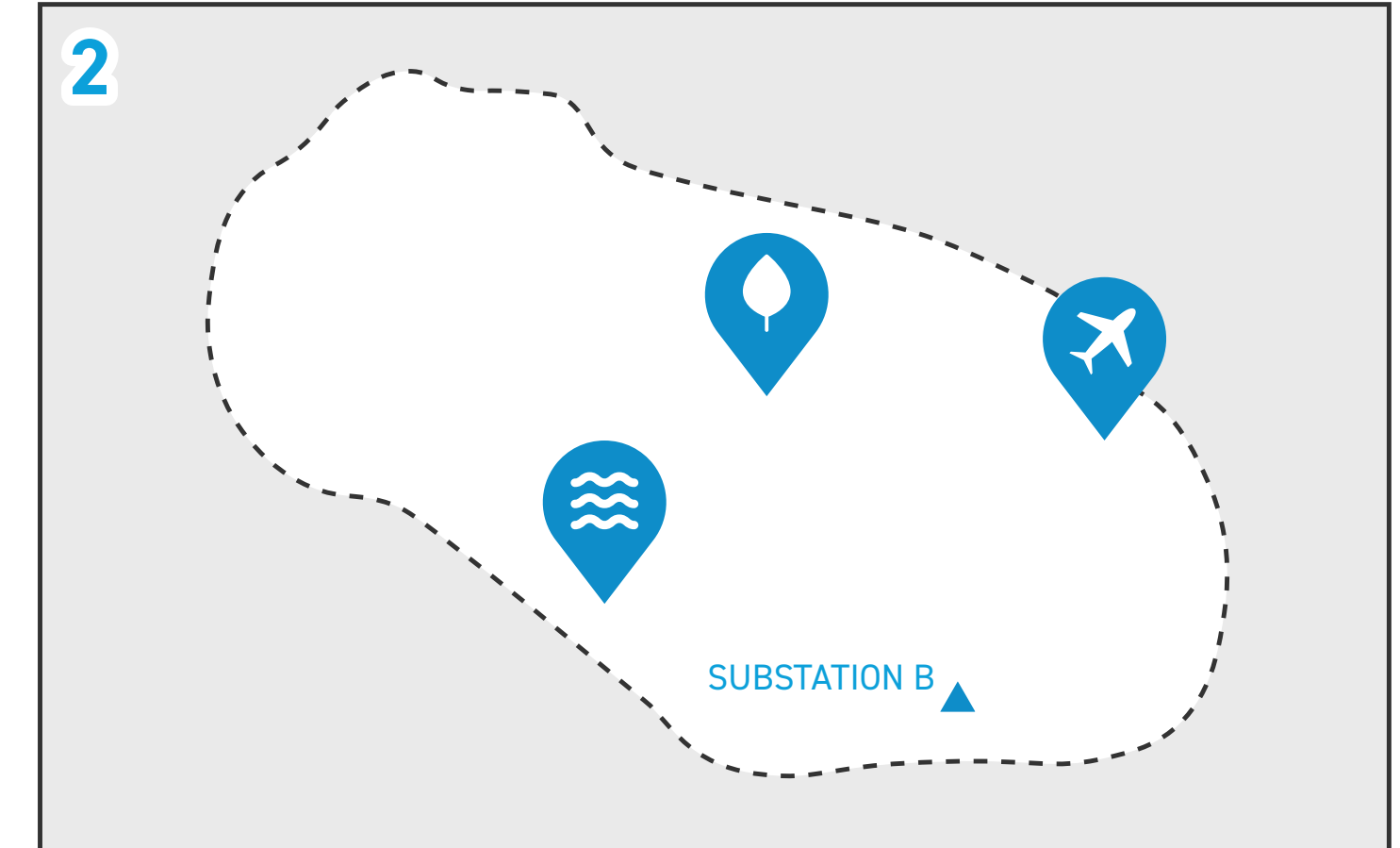
**Timeline subject to change.*

ROUTING PROCESS

We implement a comprehensive routing process that takes land use, the environment, public input and engineering guidelines into account to develop a transmission line route. The information below illustrates each stage of the routing process.

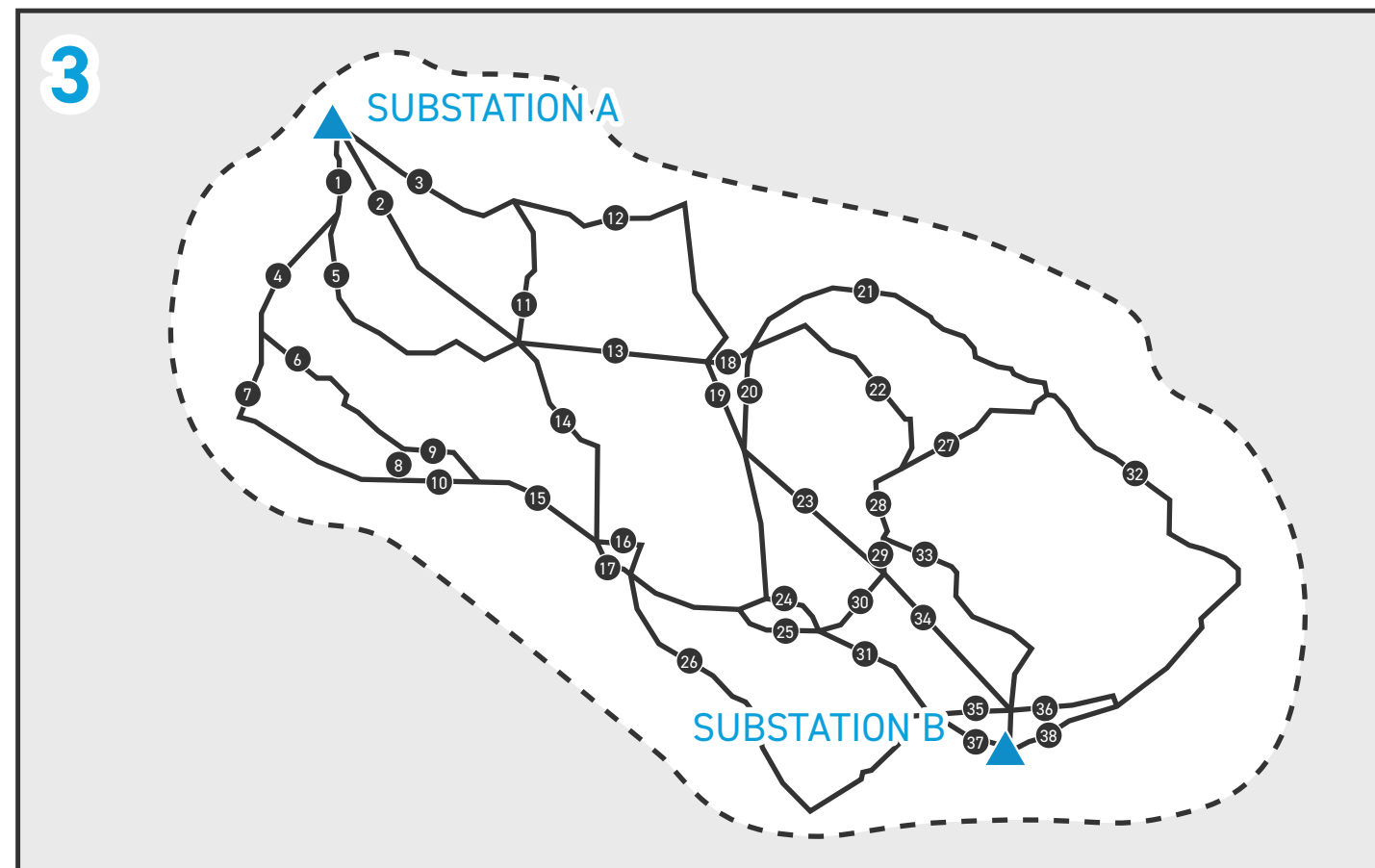


1. Study Area: Develop a study area for the project that incorporates both end points of the power line and the area between.

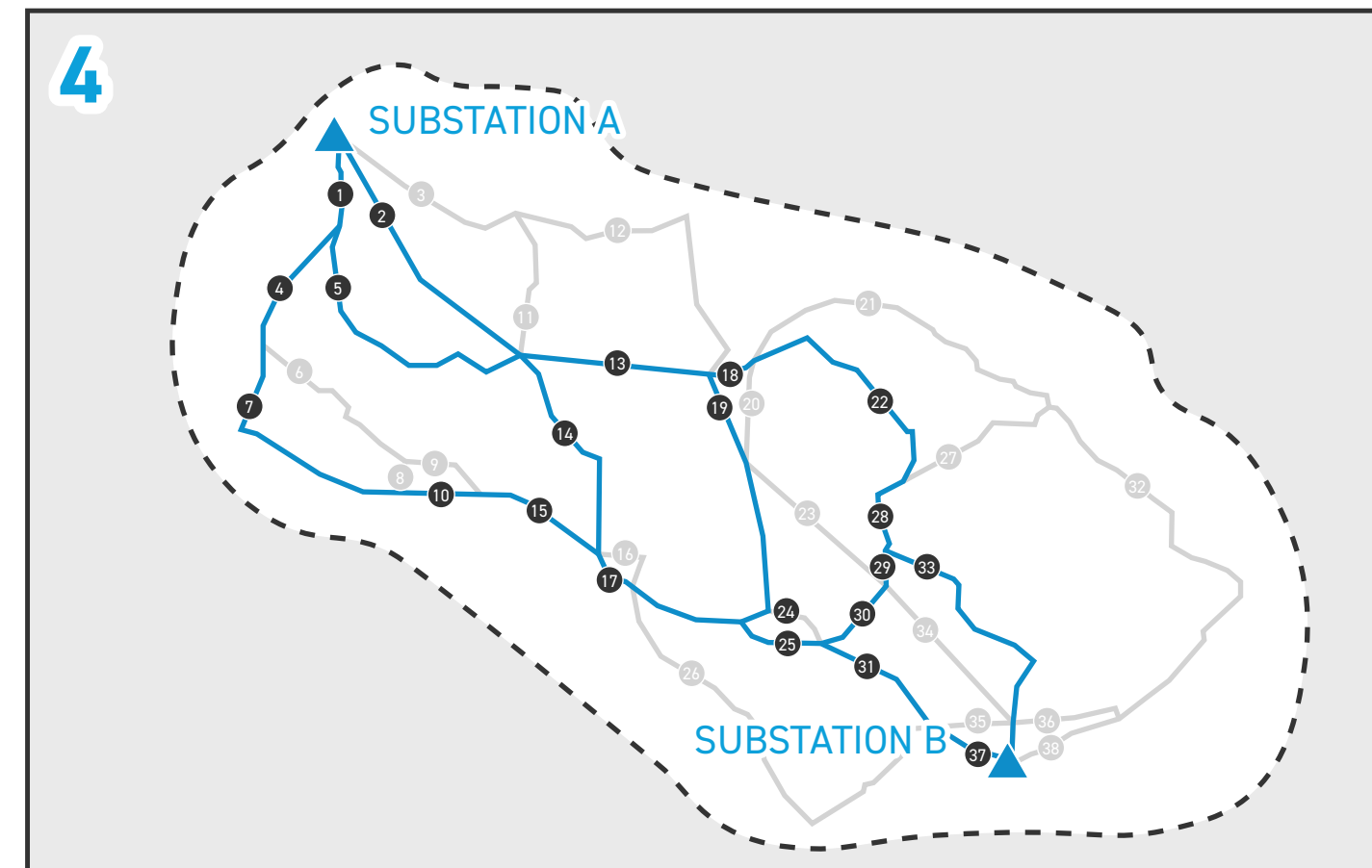


2. Information Gathering: Data is gathered for the defined study area including environmental, land use, historic and cultural resources, existing infrastructure and sensitive areas.

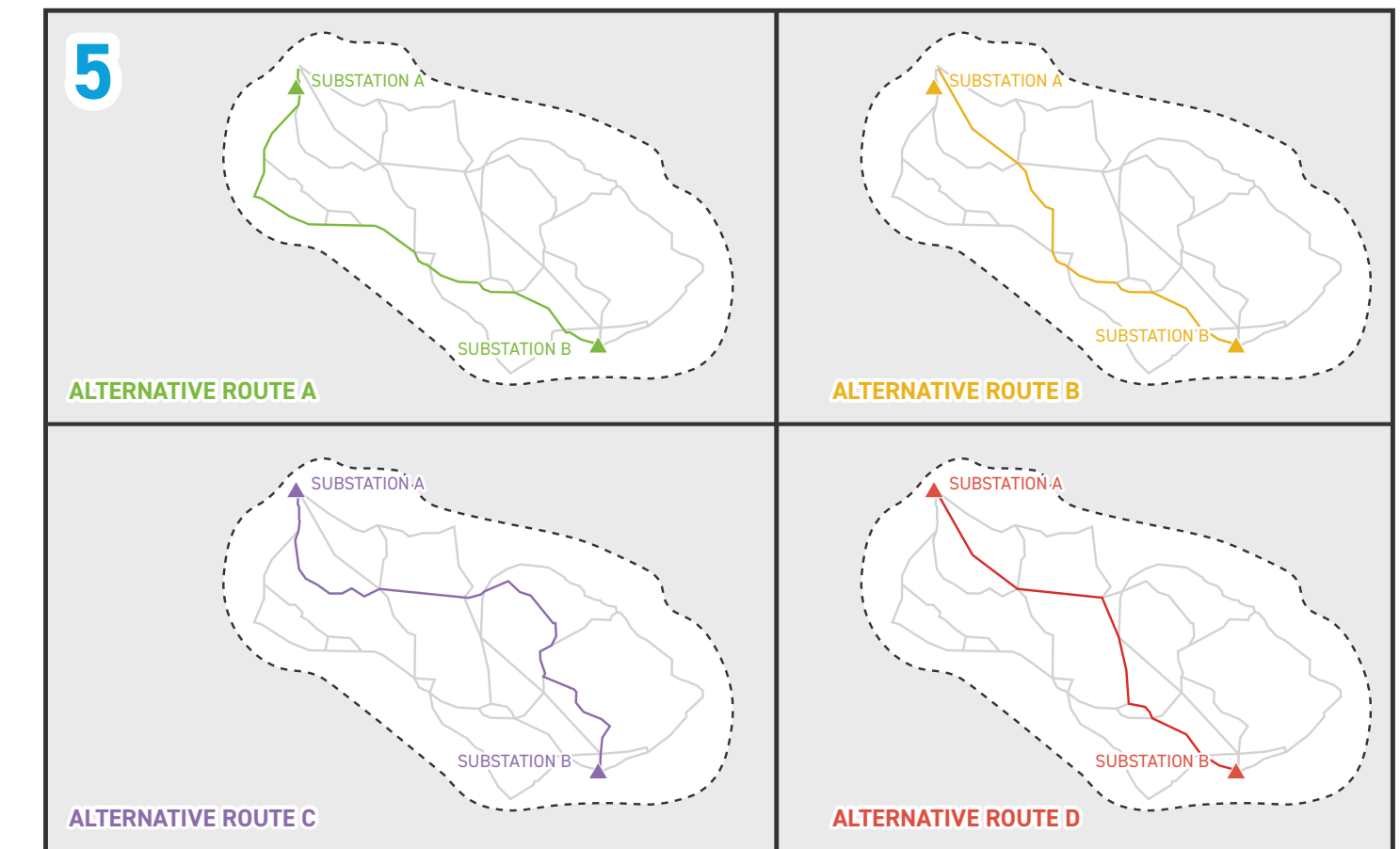
ROUTING PROCESS



3. Preliminary Links: The routing team uses data gathered to develop Preliminary Links adhering to a series of general routing and technical guidelines. Preliminary Links are formed between two common points of intersection.

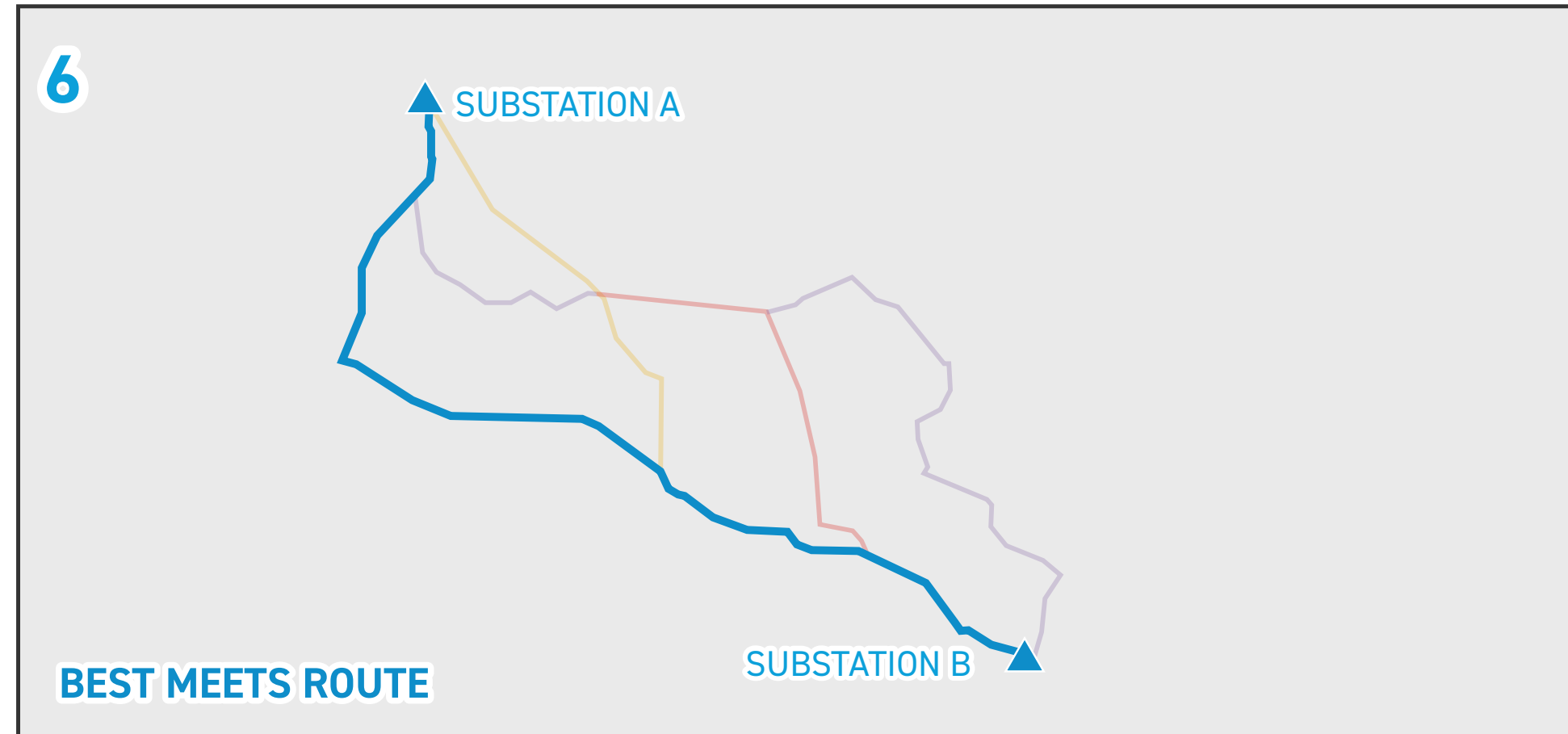


4. Primary Alternative Links: As more information is gathered, including input from regulatory agencies, local officials and the public, the Preliminary Links are refined. Some Preliminary Links are eliminated or modified resulting in a set of Primary Alternative Links.



5. Alternative Routes: The Primary Alternative Links are used to create Alternative Routes that are feasible, geographically diverse and forward progressing. Alternative Routes are evaluated using criteria to determine potential impacts to existing land use and environmental resources.

ROUTING PROCESS



6. Best Meets Route: Alternative Routes are assessed and a Best Meets route is chosen based on the requirements of Public Utility Regulatory Act (PURA) and PUCT Substantive Rules. The proposed route minimizes impact to the community and environment, while considering cost, line length, and design requirements. The Best Meets Route will be one of multiple alternative routes presented to the PUCT as part of the CCN application.

ROUTING CONSIDERATIONS



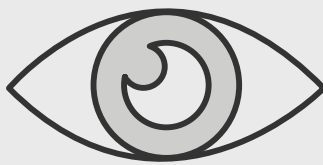
We aim to build transmission lines that power communities and the economy while minimizing community and environmental impacts.



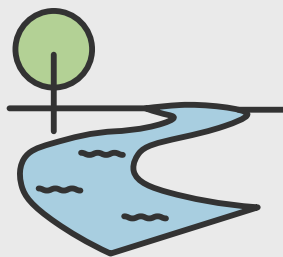
Our project teams review a variety of environmental factors including:



Current and proposed public and private land uses



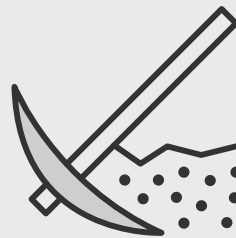
Aesthetics and visual impacts



Water quality, including potential impacts on wetlands, streams and water bodies



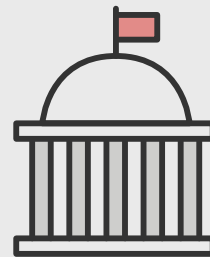
Wildlife, vegetation and fisheries, including threatened and endangered species



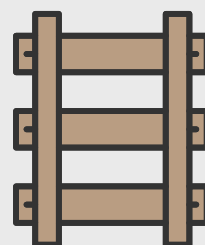
Soils and geology



Community and neighborhood growth and development



Historic and archaeological sites



Existing Infrastructure, such as power lines, roads, railroads, pipelines and renewables



Environmental & Social Justice Impacts

We identify and comply with all required local, state and federal permitting agencies.

TYPICAL STRUCTURE



AEP Texas crews plan to install single steel poles on this project.

Typical Structure Height: 85 - 110 feet

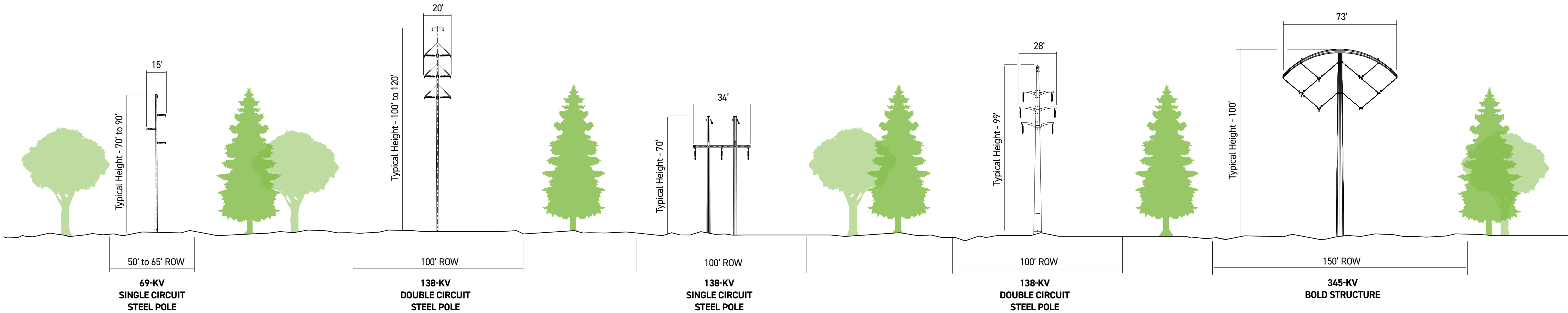
Typical Distance Between Structures: 350 - 600 feet

Typical Right-of-Way Width: 100 feet

*Exact structure, height, and right-of-way requirements may vary.

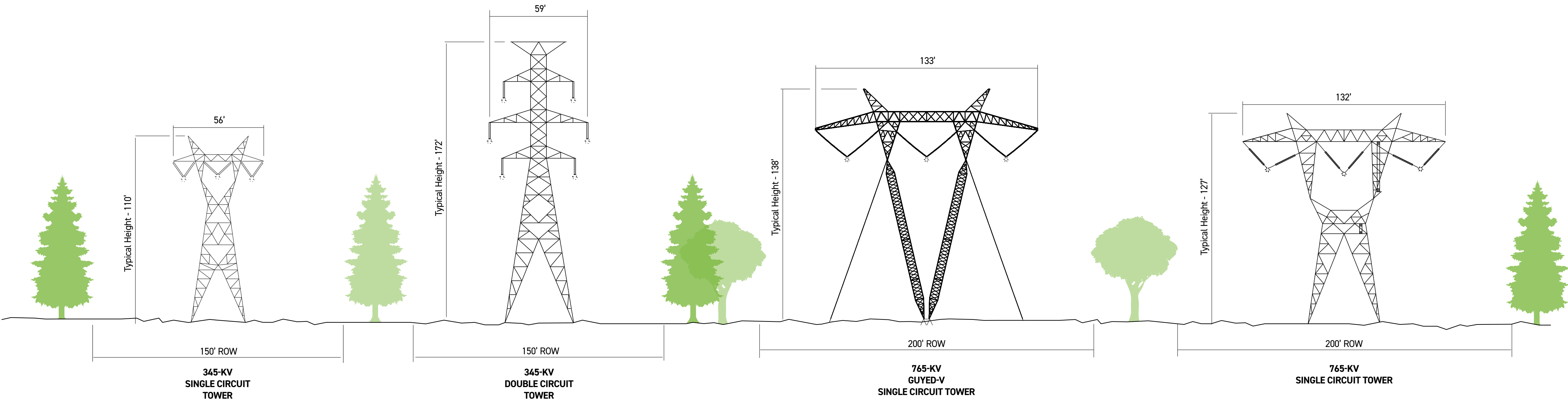
STRUCTURE COMPARISON

Typical structure type, height, and right-of-way (ROW) width vary depending on kilovolts (kV), terrain and engineering. These structures are not to scale but are shown in proportion to one another. Structure heights are based on voltage and configuration.

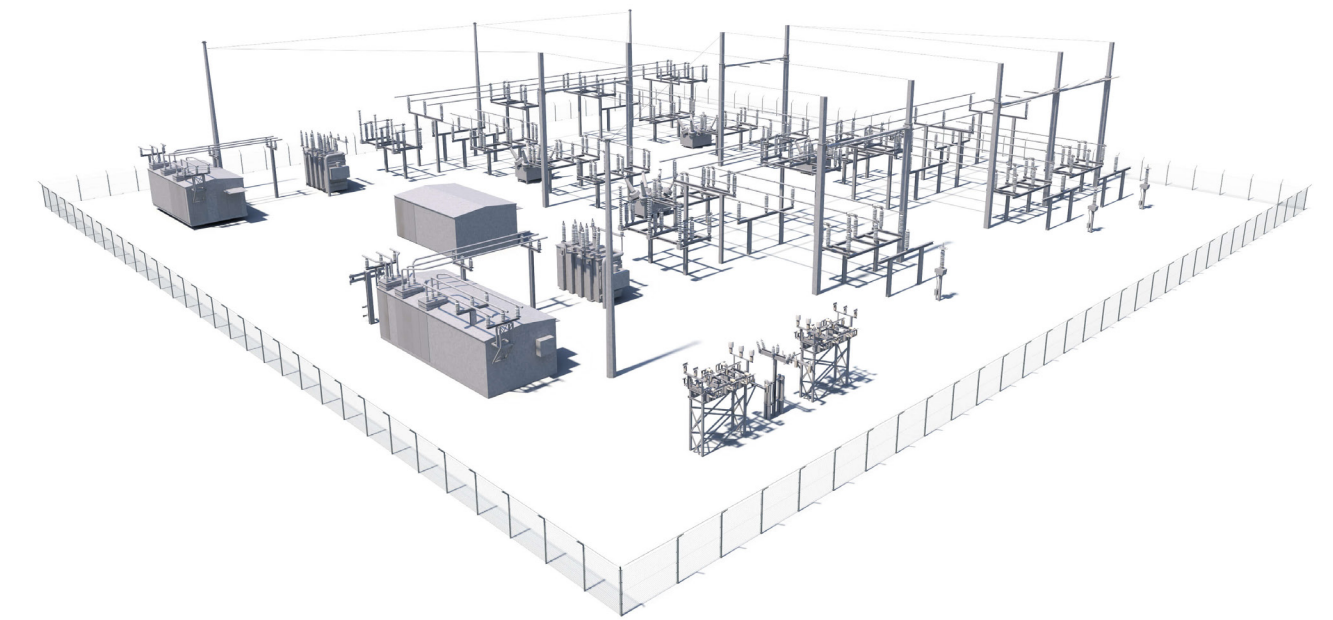
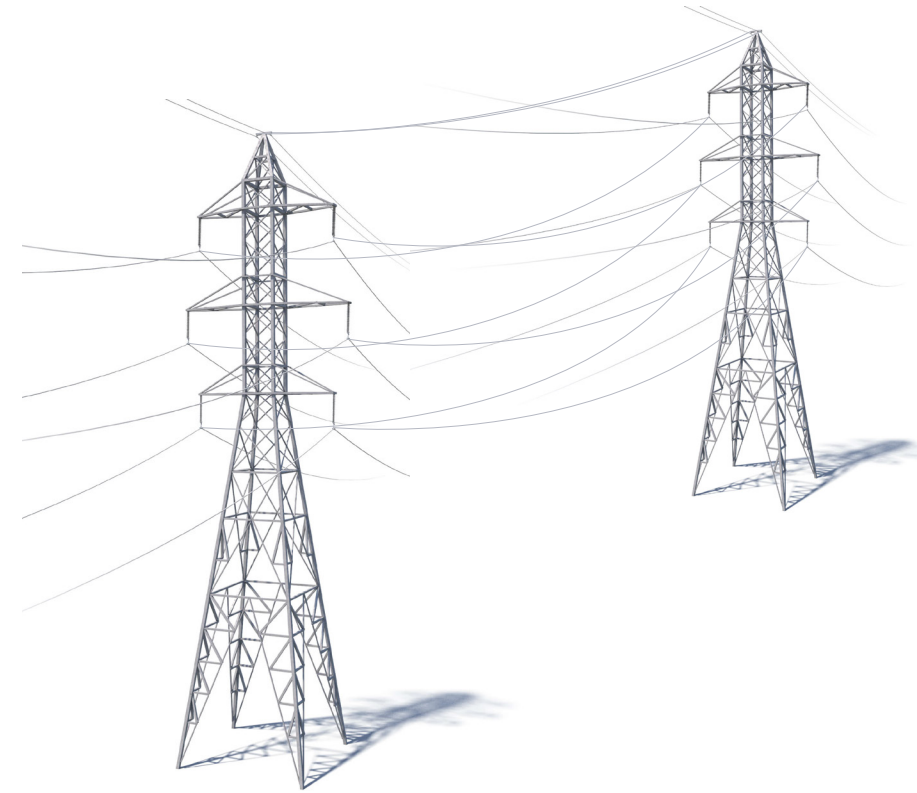
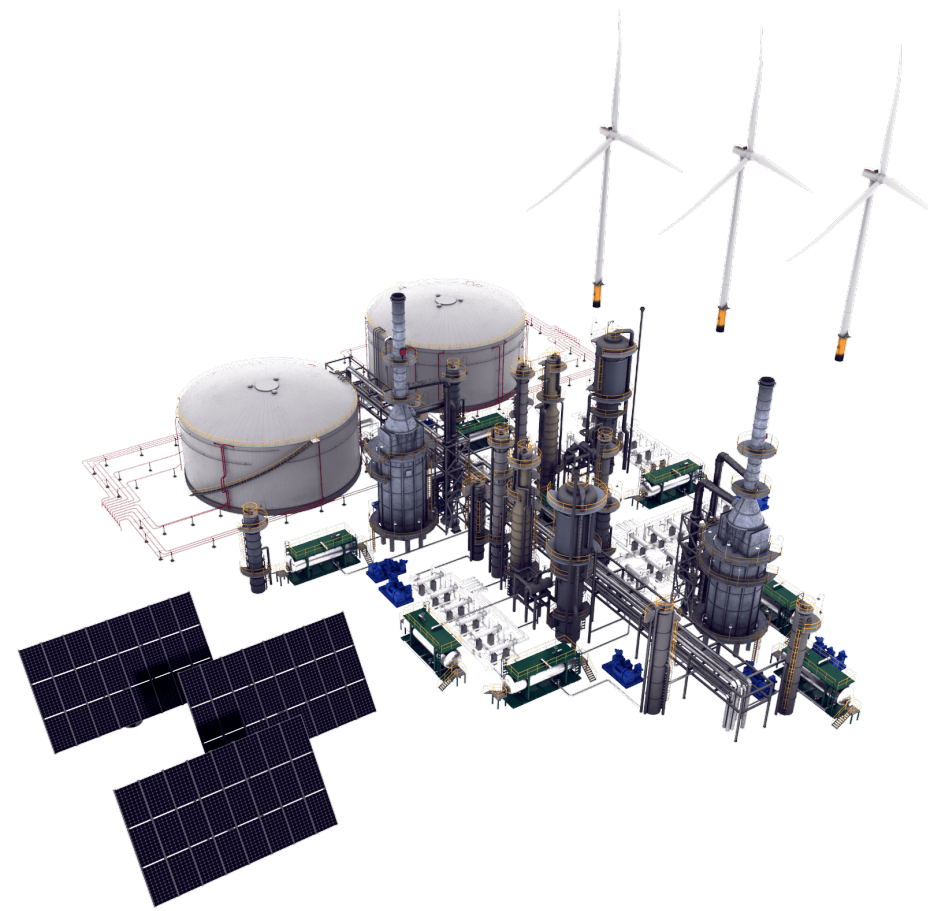


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HOW THE SYSTEM WORKS



1. Generation Stations: →

A generation station produces power to be transported long distances through transmission lines.

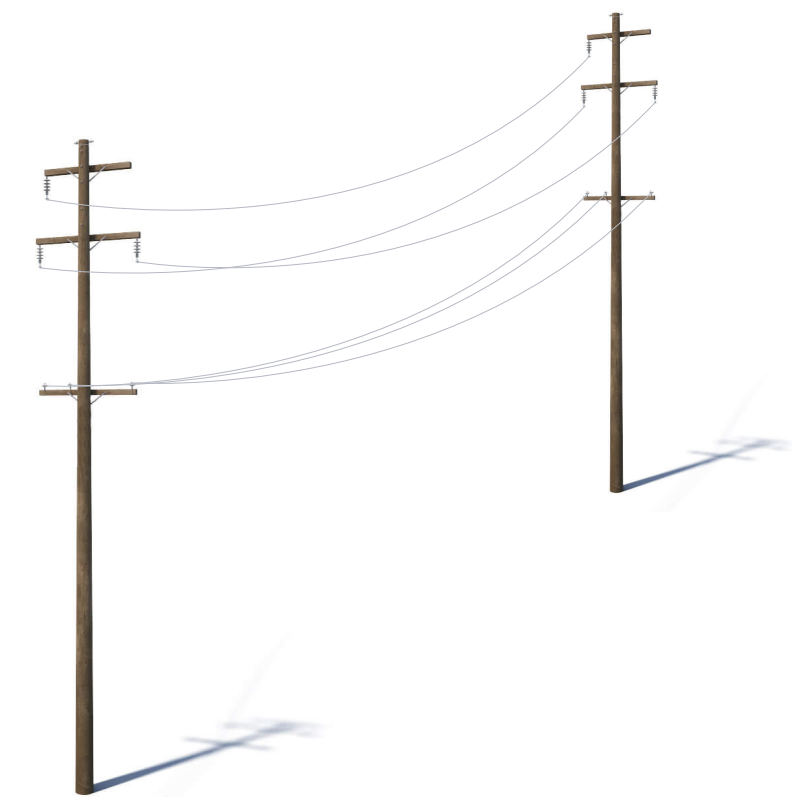
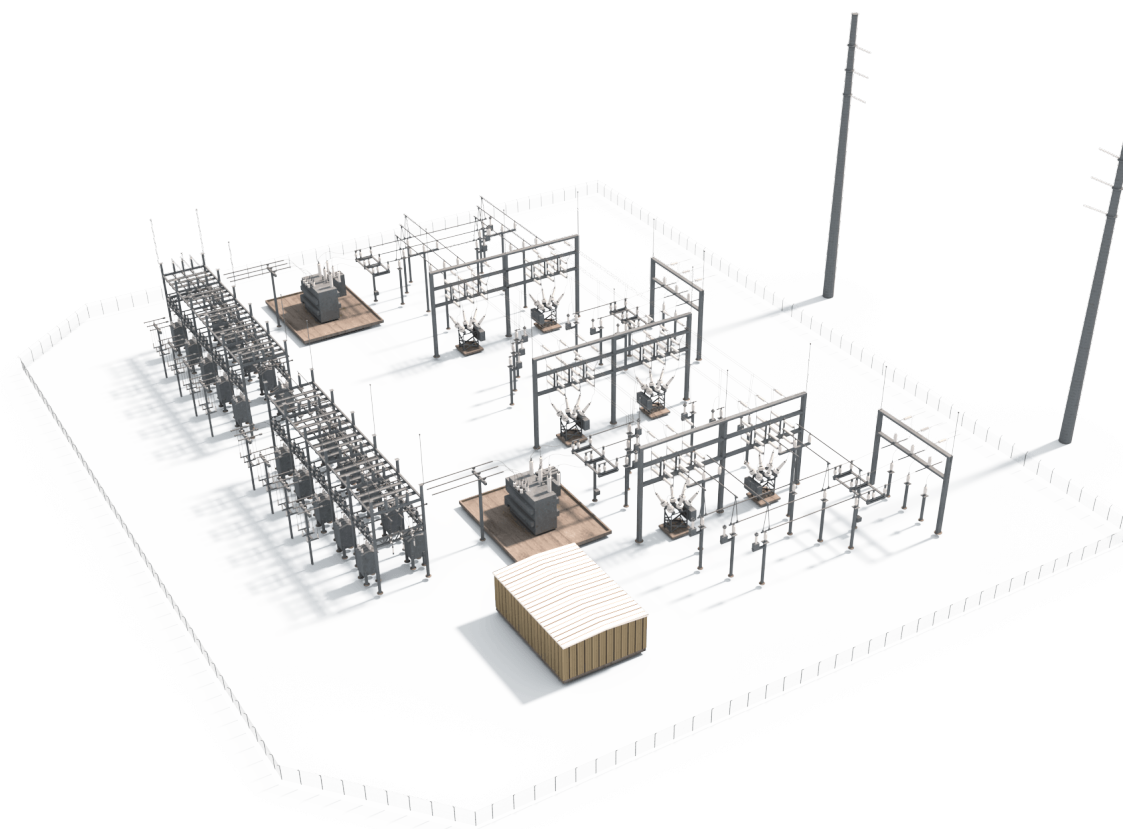
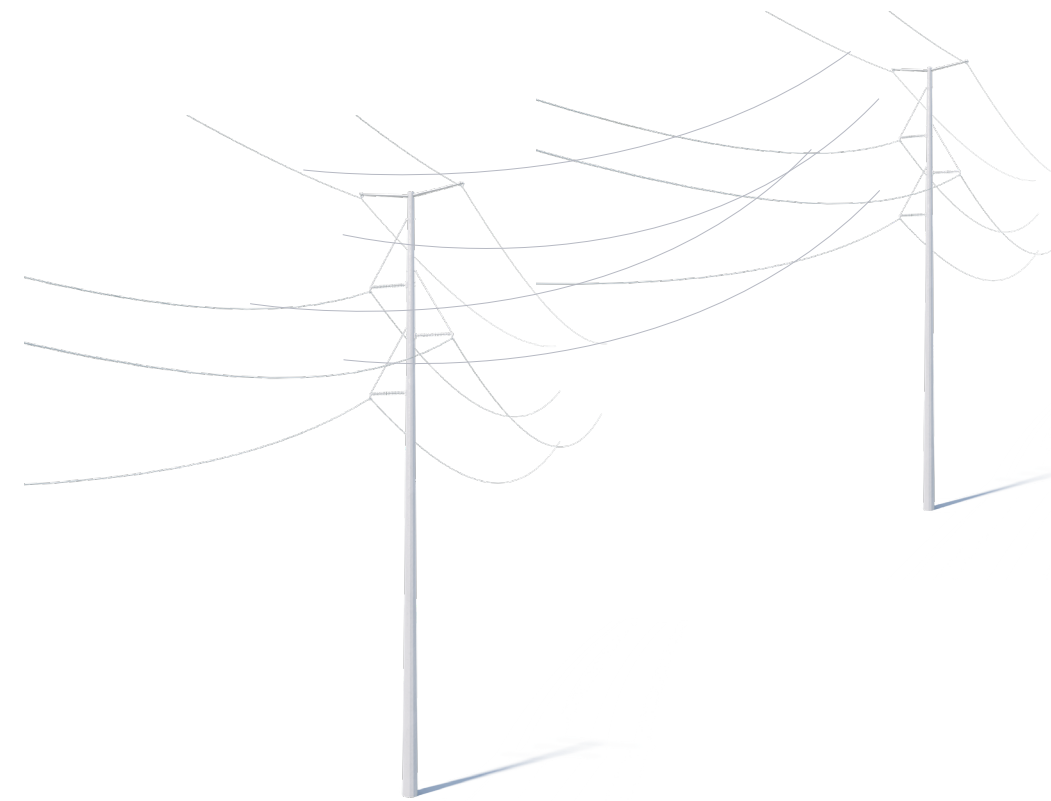
2. EHV Transmission: →

Extra-high voltage (EHV) electric transmission lines are generally 765-kilovolt (kV), 500-kV and 345-kV.

3. Transmission Substations: →

Substations direct the flow of electricity and either decrease or increase voltage levels for transport.

HOW THE SYSTEM WORKS



4. Local Transmission:

We typically use 69-kV and 138-kV transmission lines to move power shorter distances – for example, to different parts of a city or county.

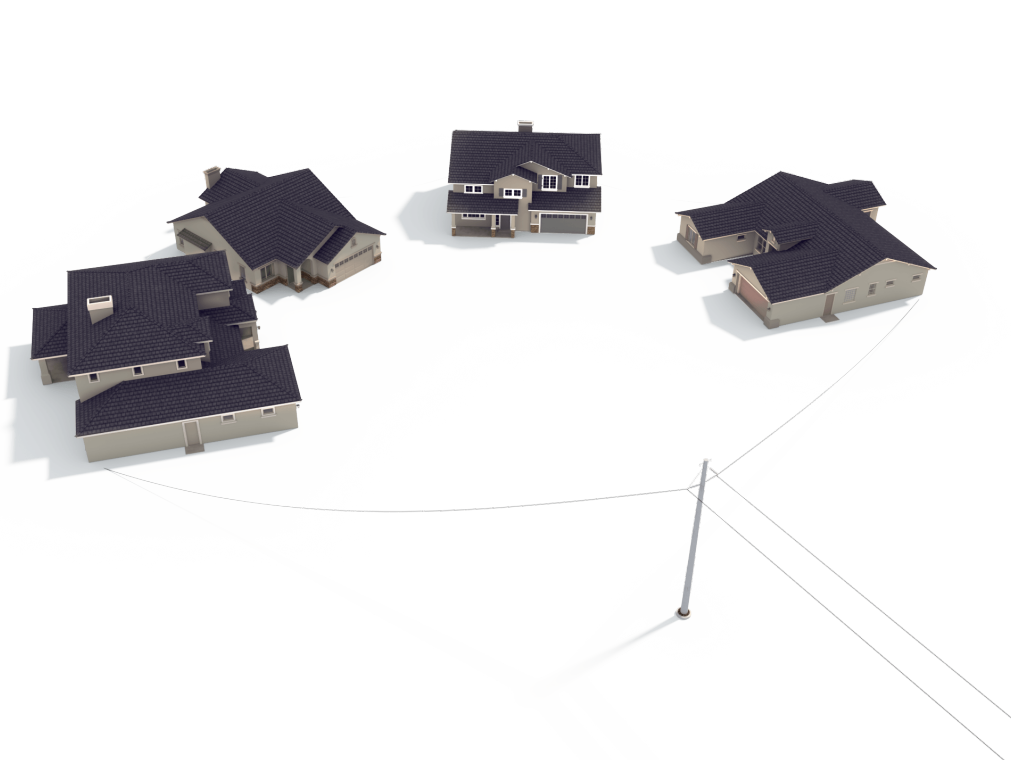
5. Distribution Substations:

Substations transform 69-kV and 138-kV electricity into lower distribution-level voltages such as 34.5-kV, 12-kV, or 7.2-kV.

6. Primary Distribution:

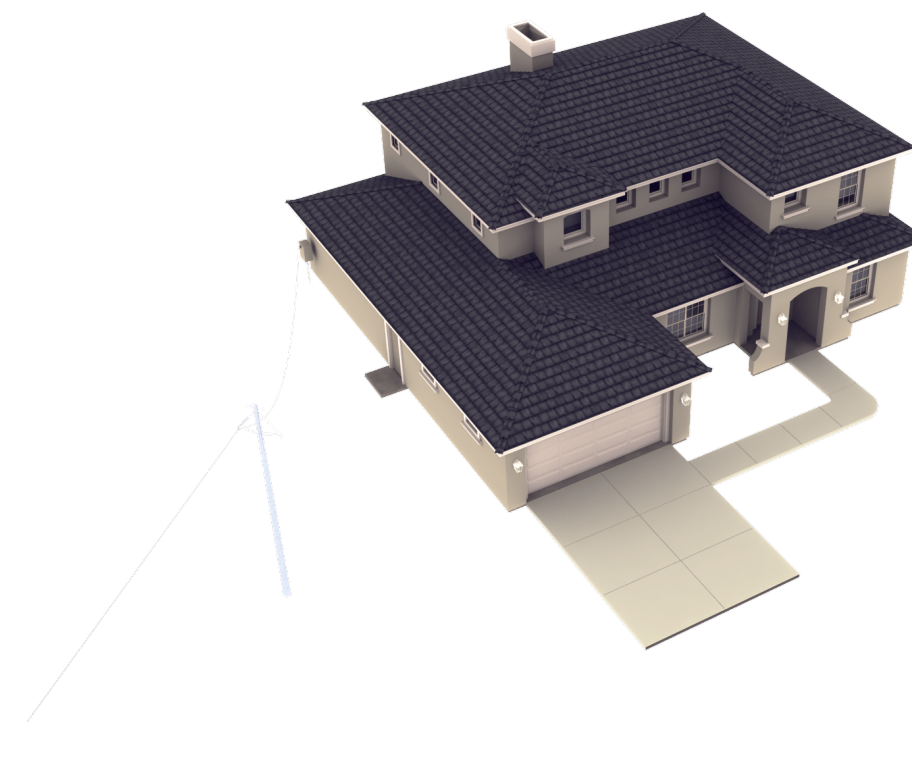
These main lines (also called circuits) connect substations to large parts of the community.

HOW THE SYSTEM WORKS



7. Lateral Distribution:

These lower-capacity lines deliver electricity to neighborhoods and other smaller groups of customers.



8. Individual Service:

Smaller transformers step down voltage to levels customers can use. Individual homes typically use 120/240 volts.

To use an analogy, electric transmission is like our national road system. Three kinds of power lines exist between power plants, homes and businesses:

- EHV lines are like interstate highways.
- High-voltage local transmission lines are like four-lane roads.
- Distribution lines are like two-lane roads that eventually connect to a driveway.

RIGHT-OF-WAY ACTIVITIES

We have two key philosophies regarding power line rights-of-way:

1. Routes should minimize disturbance to the community and the environment.
2. Property owners should be fairly compensated for any acquired land rights.



Once we study the land and propose line routes, we reach out to landowners for the following:

To obtain permission to access your property for activities such as:

- Environmental assessments
- Appraisal work
- Land surveying, soil boring and other field activities
- Cultural and historical resource reviews

To secure rights-of-way and communicate:

- Easement compensation
- Easement terms and conditions
- Right-of-way width

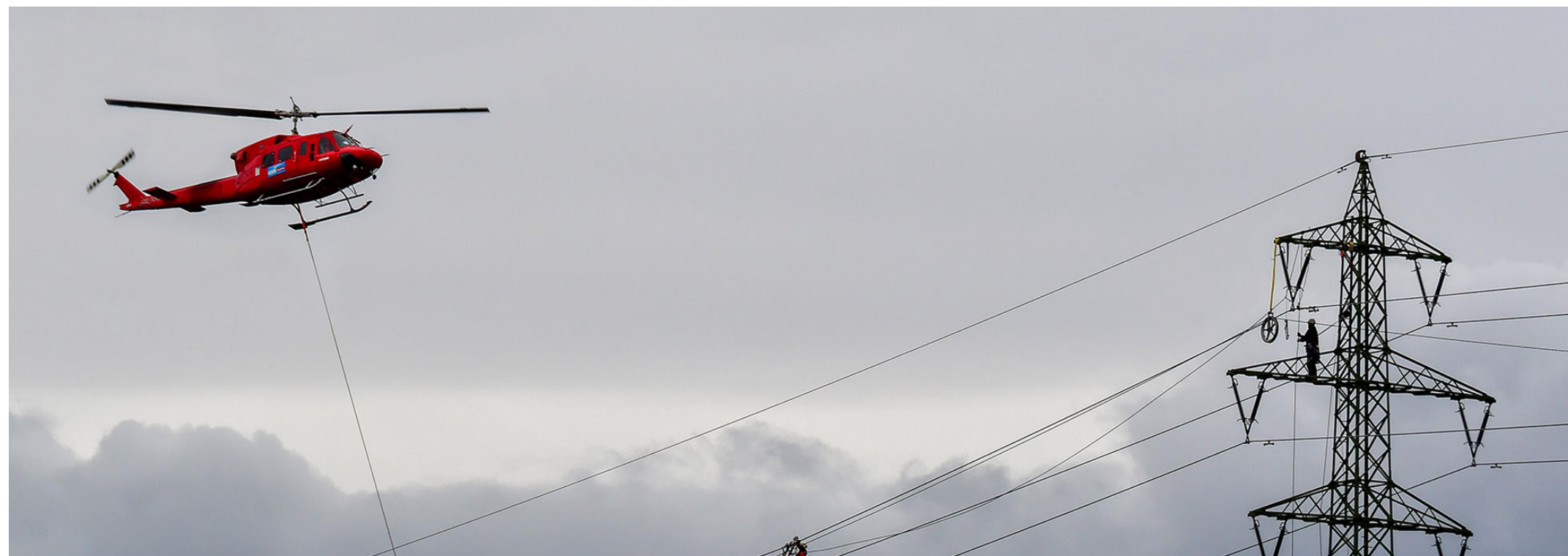
To outline our construction process with a specific focus on:

- Property access and special conditions
- Property restoration
- Damage mitigation as appropriate

FIELD ACTIVITIES



Ground Penetrating Radar: Ground Penetrating Radar (GPR) helps identify the location of underground utilities. A device that looks similar to a lawnmower, and is nondestructive to the soil, uses radio frequencies to detect objects below the ground's surface. Maps and images are created from the data.

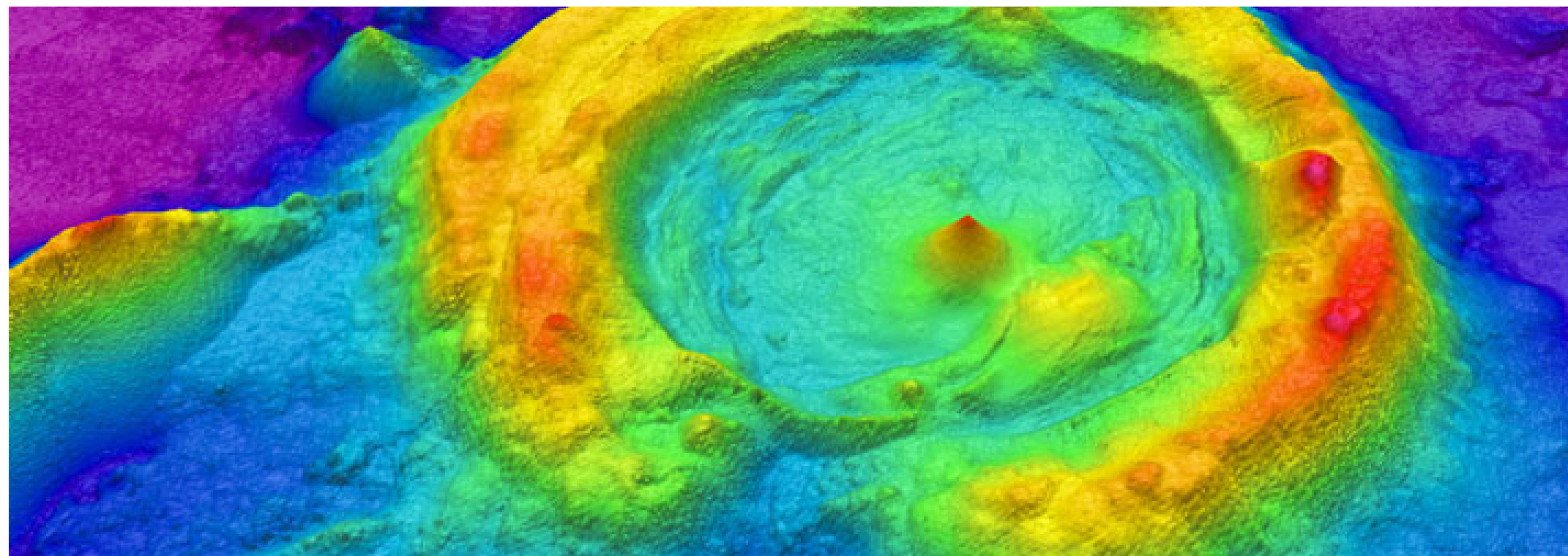


Helicopter: Challenging terrain or other restrictions/obstructions can make accessing certain parts of a project area difficult. In these locations, crews use helicopters to install structures, string conductors, perform line work and maintain electric facilities. Company representatives work with local media outlets to communicate these activities to the public.

FIELD ACTIVITIES



Hydro Excavation: Crews use hydro excavation (hydrovac) in areas where many underground utilities are located near each other. This process involves using pressurized water to break down soil to expose underground utilities. Afterward, crews backfill the area. The process helps prevent damage to underground infrastructure while gathering important information.



LiDAR: LiDAR (Light Detection and Ranging) uses laser pulses to measure the distance of an object to the source. The data points result in digital 3D maps for accurate design and engineering. LiDAR surveying crews use mobile (car or aerial vehicle) or static (tripod) equipment.

FIELD ACTIVITIES



Soil Borings: Field crews use a drill to bring up soil samples and then backfill the holes. Testing the core samples helps determine soil conditions in the area. Soil conditions and types can affect structure location and foundation design.



Cultural Resource Study: Field crews walk the area and conduct multiple excavation tests to identify historical and archaeological artifacts. Landowners also provide information about their property to survey crews.

FIELD ACTIVITIES



Environmental Survey: Surveyors collect information about the habitats and physical attributes of the project area. They also look for ecological concerns like wetlands, flood plains and forests. This process can help protect endangered species, such as the Indiana Bat and American Burying Beetle.



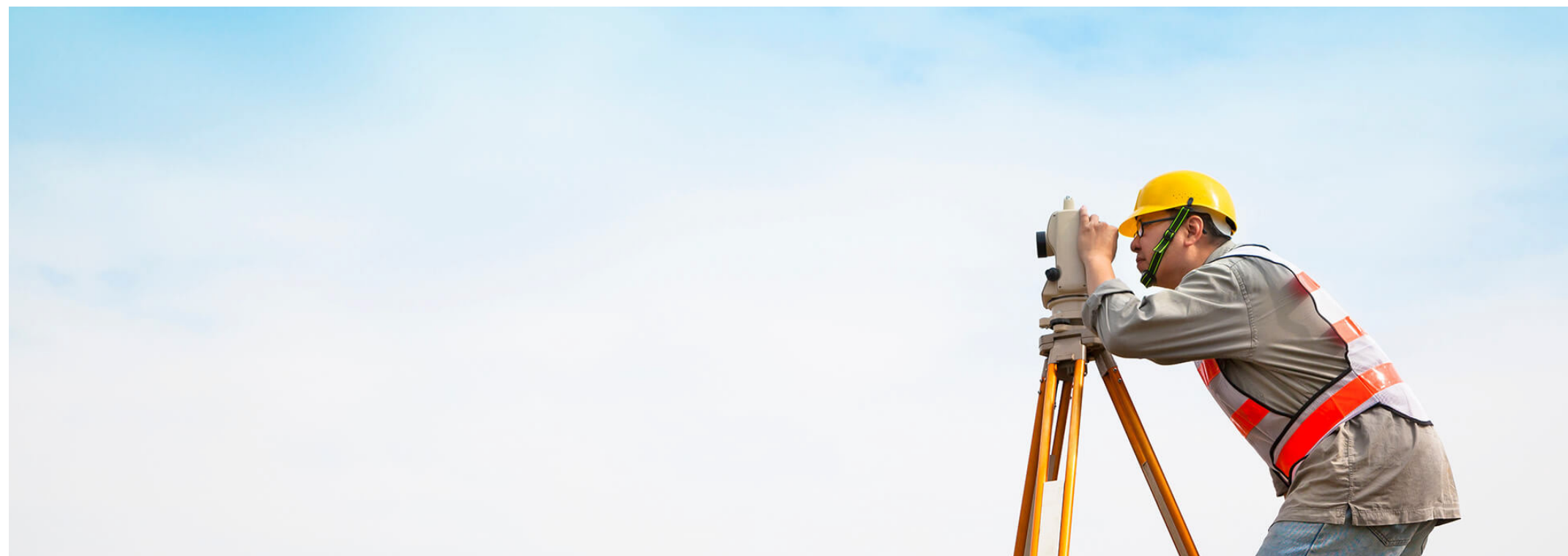
Unmanned aerial vehicles: Unmanned aerial vehicles (UAVs), or drones, perform aerial inspections and safely gather data and detailed images of electric facilities. Company employees and vendors comply with all commercial Federal Aviation Administration (FAA) guidelines. Company representatives work with local media outlets to communicate these activities to the public.

FIELD ACTIVITIES



Staking:

- Field crews use staking to mark the project area, identify utility equipment and pinpoint future structure locations. This process essentially transfers engineering and construction plans to the field.
- Right-of-way crews use staking to identify parcel boundaries, easement boundaries and other utility locations within the company's rights-of-way.
- Environmental crews use staking to identify wetlands or other environmentally sensitive areas.



Field Survey:

- Field survey crews help determine an appropriate route for a new transmission line by identifying constraints within the project area.
- Engineers conduct extensive studies of the terrain and soil to determine what types of structures and foundations are most suitable. They also gather information to create digital 3D maps of the project area to help engineer and design the project.

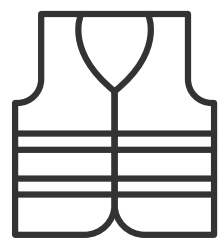
VEGETATION MANAGEMENT

What is vegetation management? AEP's vegetation management approach involves controlling the growth of trees and other vegetation in transmission rights-of-way, the sections of land where transmission power lines are located.

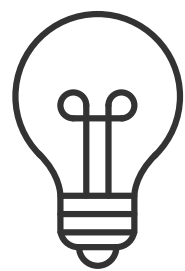
AEP Transmission's vegetation management program helps balance the need for reliable service with respect for the natural environment. The company uses contract forestry crews to complete vegetation management work.

Why is it done? To reduce power outages caused by trees and other plants contacting power lines.

Our vegetation management program aims to:



Work safely and efficiently



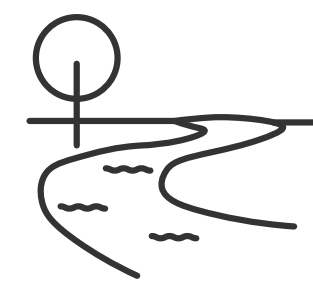
Protect the electric grid and reduce power outages



Foster positive relationships with customers and communities



Comply with federal, state and local regulations



Minimize negative impacts to the environment

The North American Electric Reliability Corporation (NERC) sets standards that require utilities to establish minimum clearance distances between transmission lines and the nearest vegetation. Non-compliance can lead to significant community-wide power outages.

- Crews may clear identified danger trees outside the right-of-way as allowed per easement language.
- When possible and practical, crews use selective clearing practices to retain low-growth shrubs and bushes.

*Landowners should speak with a company representative to identify plants that are safe to place in the right-of-way.

WHAT TO EXPECT DURING CONSTRUCTION



Construction Corridor Development

Crews prepare for construction by:

- Building access roads.
- Marking utilities and pole locations along the power line route using stakes and flags.
- Removing obstructions from the right-of-way easement area.
- Installing safety and environmental controls such as fencing.

As part of this process, crews clear the right-of-way:

- Forestry crews prepare for transmission line construction by clearing trees and woody-stemmed vegetation from the right-of-way.
- Crews may clear identified danger trees outside the right-of-way as allowed per the easement language.

WHAT TO EXPECT DURING CONSTRUCTION



Pole Installation

At most pole locations, crews:

- Assemble the pole and place it near the installation area.
- Install and stabilize the base of the new pole.
- Install and secure the new pole.

WHAT TO EXPECT DURING CONSTRUCTION



Wire Installation

Crews install new wires on the new poles along the power line route.

WHAT TO EXPECT DURING CONSTRUCTION



Facilities Placed In Service

Crews energize the equipment after finishing pole and wire installations.

Post-Construction & Site Restoration

We restore properties to as close to their pre-construction condition as possible. Our teams work with individual landowners to address any property damage.

ENVIRONMENTAL AND LAND USE CRITERIA FOR TRANSMISSION LINE EVALUATION



LAND USE

1. Length of Alternative Route
2. Number of habitable structures^a within 300 feet^b of ROW centerline
3. Length utilizing existing transmission line ROW
4. Length of ROW parallel to existing transmission line ROW
5. Length of ROW parallel to other existing compatible ROW (roads, highways, railways, etc. – excluding oil and gas pipelines)
6. Length of ROW parallel to apparent property lines (not following existing ROW)^c
7. Sum of evaluation criteria 4, 5, and 6
8. Percent of evaluation criteria 4, 5, and 6
9. Length of ROW across parks/recreational areas^d
10. Number of additional parks/recreational areas^d within 1,000 feet of ROW centerline
11. Length of ROW across cropland
12. Length of ROW across pastureland/rangeland
13. Length of ROW across cropland or pastureland with mobile irrigation systems
14. Length of ROW parallel to existing pipeline^e ROW <500 feet from route centerline
15. Number of pipeline crossings^e
16. Number of transmission line crossings
17. Number of US and State highway crossings
18. Number of Farm-to-Market (FM)/Ranch-to-Market (RM) road crossings
19. Number of FAA-registered public/military airfields^f within 20,000 feet of ROW centerline (with runway >3,200 feet)
20. Number of FAA-registered public/military airfields^f within 10,000 feet of ROW centerline (with runway <3,200 feet)
21. Number of private airstrips within 10,000 feet of ROW centerline
22. Number of heliports within 5,000 feet of ROW centerline
23. Number of commercial AM radio transmitters within 10,000 feet of ROW centerline
24. Number of FM radio transmitters, microwave towers, and other electronic installations within 2,000 feet of ROW centerline
25. Number of recorded water wells within 200 feet of ROW centerline
26. Number of recorded oil and gas wells within 250 feet of ROW centerline

ENVIRONMENTAL AND LAND USE CRITERIA FOR TRANSMISSION LINE EVALUATION



AESTHETICS

- 27. Estimated length of ROW within foreground visual zone^g of Interstate, United States, and State highways
- 28. Estimated length of ROW within foreground visual zone^g of FM/RM roads
- 29. Estimated length of ROW within foreground visual zone^g of parks/recreational areas^d

ECOLOGY

- 30. Length of ROW across upland woodland/brushland
- 31. Length of ROW across bottomland/riparian woodland/brushland
- 32. Length of ROW across National Wetland Inventory-mapped wetlands
- 33. Length of ROW across USFWS designated critical habitat for federally-listed threatened or endangered species
- 34. Number of stream crossings
- 35. Length of ROW parallel (within 100 feet) to streams
- 36. Length of ROW across open water (ponds, lakes, etc.)
- 37. Length of ROW across 100-year floodplains

CULTURAL RESOURCES

- 38. Number of recorded cultural resource sites crossed by ROW
- 39. Number of recorded cultural resource sites within 1,000 feet of ROW centerline
- 40. Number of cemeteries within 1,000 feet of ROW centerline
- 41. Number of National Register of Historic Places (NRHP)-listed or determined-eligible sites crossed by ROW
- 42. Number of NRHP-listed or determined-eligible sites within 1,000 feet of ROW centerline
- 43. Length of ROW crossing areas of high archeological/historical site potential

(a) Single-family and multifamily dwellings and related structures, mobile homes, apartment buildings, commercial structures, industrial structures, business structures, places of worship, hospitals, nursing homes, schools, or other structures normally inhabited by humans or intended to be inhabited by humans on a daily or regular basis within 300 feet of the centerline of a transmission project of less than 230 kV.

(b) Due to the potential inaccuracies of the aerial photography and data utilized, all habitable structures within 320 feet have been identified.

(c) Property lines created by existing road, highway, or railroad ROW are not double counted in the "Length of ROW parallel to property lines" criterion.

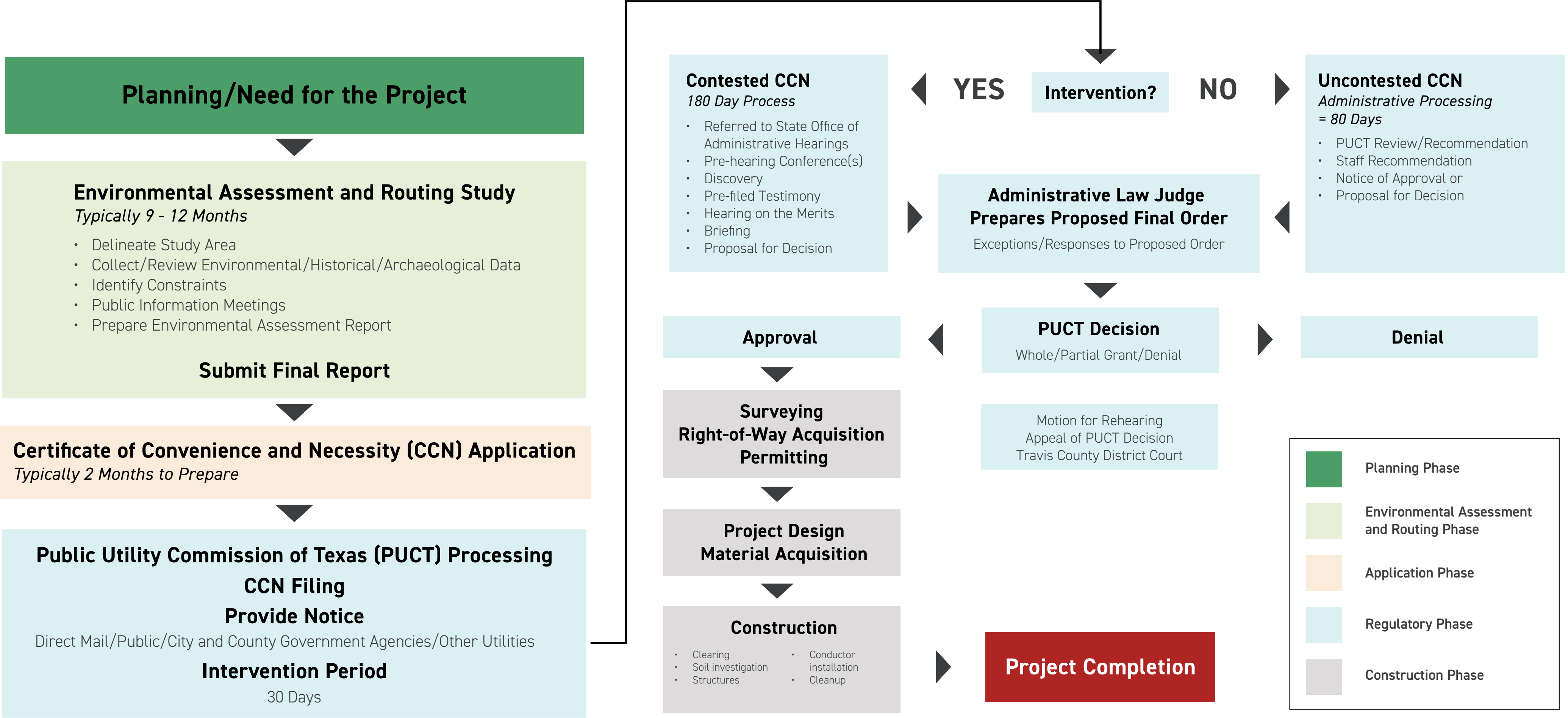
(d) Defined as parks and recreational areas owned by a governmental body or an organized group, club, or place of worship.

(e) Pipelines 8.0 inches diameter or greater.

(f) As listed in the Chart Supplement South Central U.S. (formerly known as the Airport/Facility Directory South Central U.S.).

(g) 0.5 mile, unobstructed.

LICENSING PROCESS



AGENCIES CONTACTED



Federal

- Federal Aviation Administration (FAA)
- Federal Emergency Management Agency (FEMA)
- National Parks Service (NPS)
- Natural Resources Conservation Services (NRCS)
- U.S. Army Corps of Engineers (USACE)
- Military Aviation and Installation Assurance Siting Clearinghouse (DOD)
- U.S. Environmental Protection Agency (EPA)
- U.S. Fish and Wildlife Service (FWS)

Non-Governmental Organization

- The Nature Conservancy
- Texas Land Trust Council
- Texas Land Conservancy
- Texas Agricultural Land Trust

State

- Railroad Commission of Texas
- Texas Commission on Environmental Quality (TCEQ)
- Texas Department of Transportation (TxDOT)
- Texas General Land Office (GLO)
- Texas Historical Commission (THC)
- Texas Parks and Wildlife Department (TPWD)
- Texas Water Development Board (TWDB)

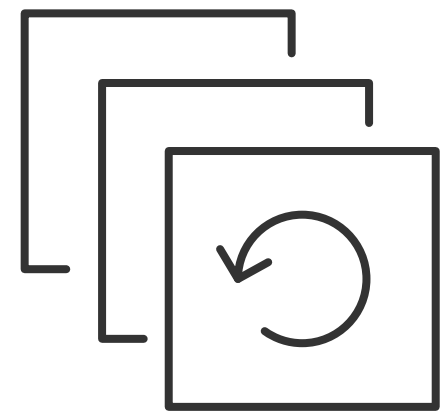
Hidalgo County

- Hidalgo County Judge
- Hidalgo County Commissioners
- Hidalgo County Planning Department
- Hidalgo County Historical Commission
- La Joya Independent School District
- Mission Consolidated Independent School District
- Sharyland Independent School District
- City of Palmview
- City of Palmhurst
- City of Mission
- City of Alton
- Sharyland Water Supply Corporation
- August Special Utility District

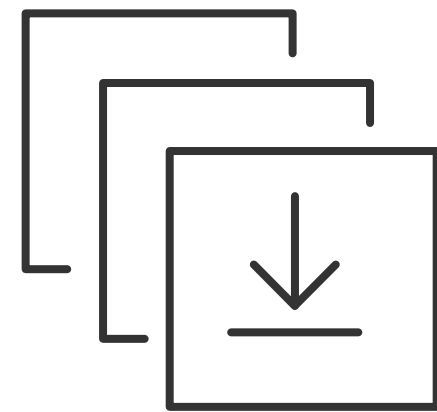
THANK YOU!



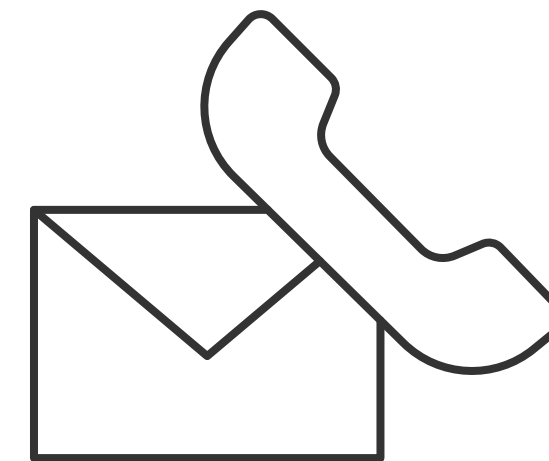
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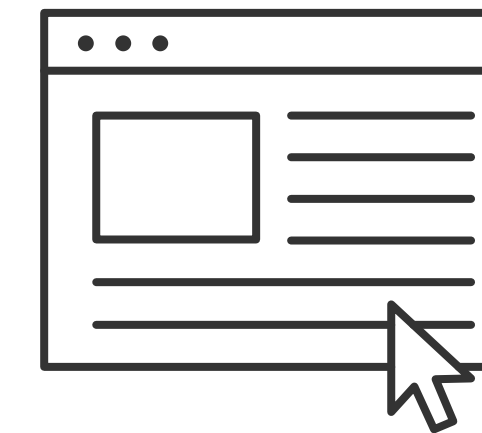
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