APPALACHIAN POWER℠

An AEP Company

BOUNDLESS ENERGY™

# KINCAID AREA
## TRANSMISSION LINE PROJECT

## WELCOME TO OUR VIRTUAL OPEN HOUSE

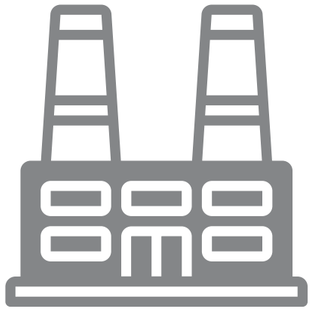
As a result of the COVID-19 pandemic and social distancing recommendations made by the Centers for Disease Control and Prevention (CDC), Appalachian Power invites you to attend this virtual open house in order to minimize in-person contact. Appalachian Power remains committed to listening to your concerns and answering your questions, but we are also committed to keeping our customers and employees safe and healthy. We welcome your feedback via telephone and email as we strive to make the most informed decisions possible.

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# HOW THE SYSTEM WORKS

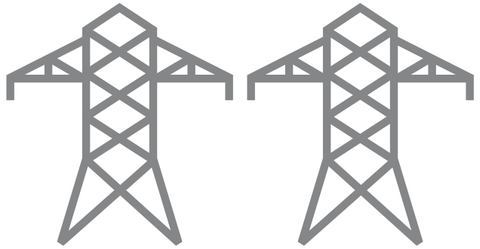
## HIGH VOLTAGE

LOCAL TRANSMISSION >>



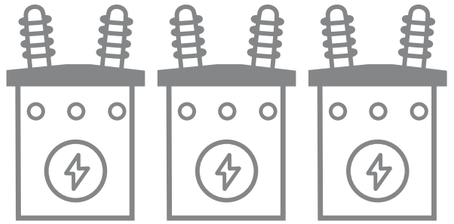
### 1) GENERATION STATIONS

Appalachian Power produces electricity at coal, natural gas, nuclear, wind and hydro-electric power stations and then transports it long distances over transmission lines.



### 2) EHV TRANSMISSION

Extra High Voltage (EHV) electric transmission lines are generally 765 kilovolt (kV), 500 kV, and 345 kV on Appalachian Power's system.



### 3) SUBSTATIONS

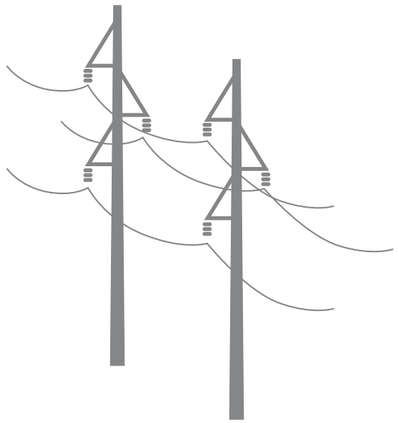
Substations direct the flow of electricity and either decrease or increase voltage levels for transport.

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# HOW THE SYSTEM WORKS

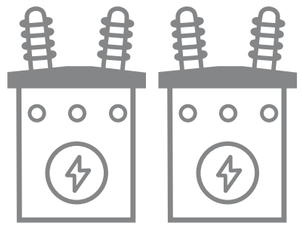
## LOCAL TRANSMISSION

DISTRIBUTION >>



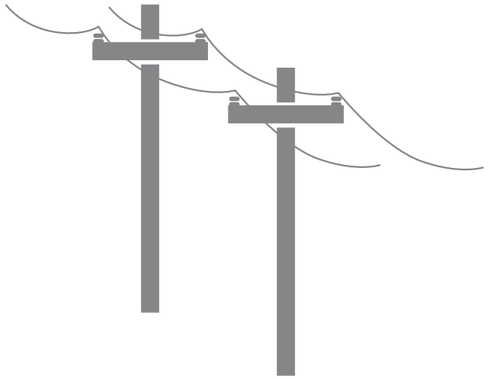
### 4) LOCAL TRANSMISSION

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



### 5) SUBSTATION

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



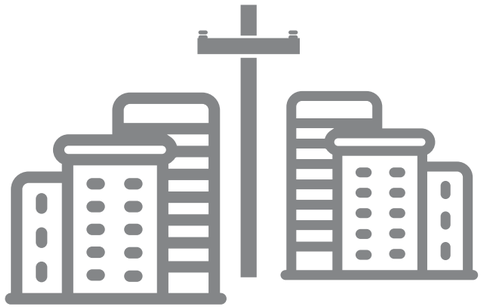
### 6) PRIMARY DISTRIBUTION

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

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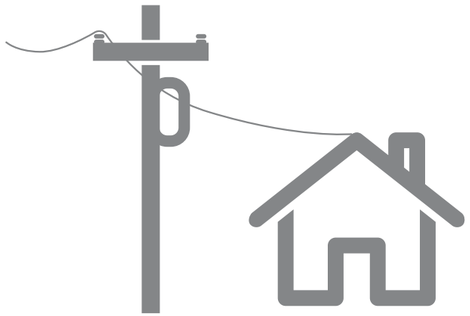
# HOW THE SYSTEM WORKS

## DISTRIBUTION



### 7) LATERAL DISTRIBUTION

These smaller 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 120/240 volts is typical for an individual residence.

### TO USE AN ANALOGY, ELECTRIC TRANSMISSION IS SIMILAR TO OUR NATIONAL ROAD SYSTEM. THREE KINDS OF POWER LINES EXIST BETWEEN POWER PLANTS AND HOMES AND BUSINESSES:

- Extra High Voltage lines (EHV) are like electrical interstate highways.
- High voltage local transmission lines are like four-lane roads.
- Distribution lines are like two-lane roads that eventually connect to your driveway.

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# PROJECT NEED

## WHY IS THE PROJECT IMPORTANT TO OUR COMMUNITY?

### MODERN EQUIPMENT

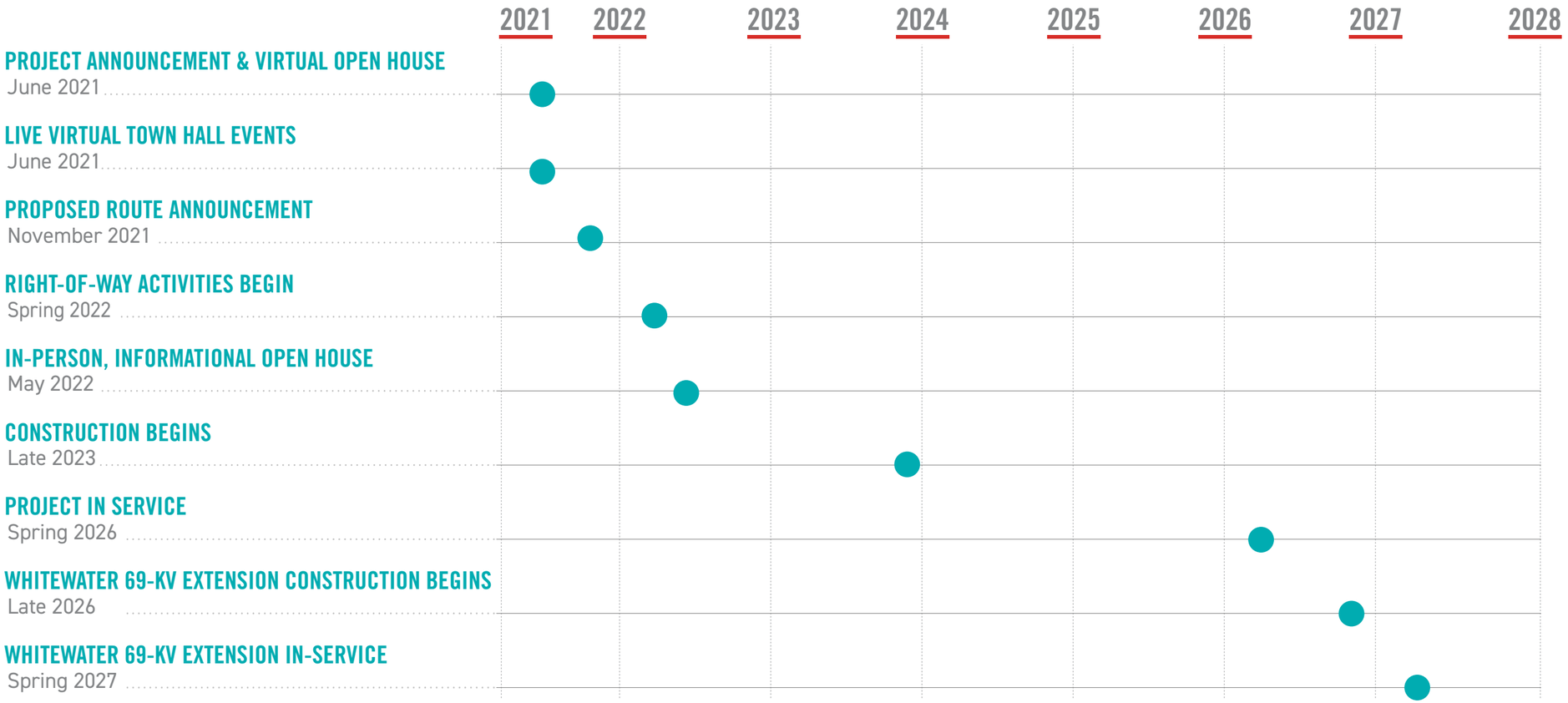
This project allows crews to retire approximately 10 miles of transmission line that includes deteriorating wooden poles and steel towers originally installed in 1913. The existing line has experienced multiple power outages in recent years.

### IMPROVED RELIABILITY

The proposed upgrades help to reduce outages and strengthen the local electric system, providing increased electric reliability for area customers.

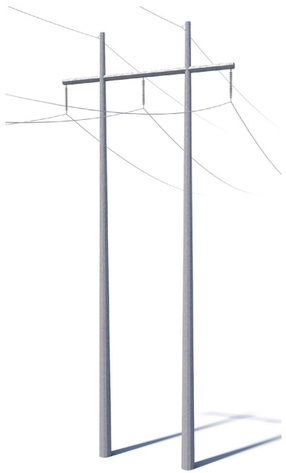
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# PROJECT SCHEDULE

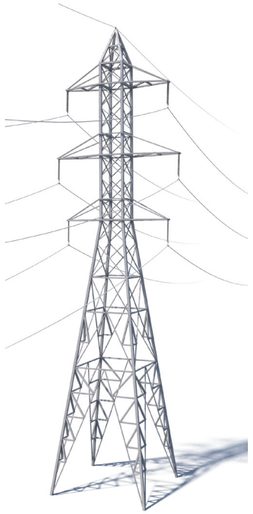



*Timeline subject to change.

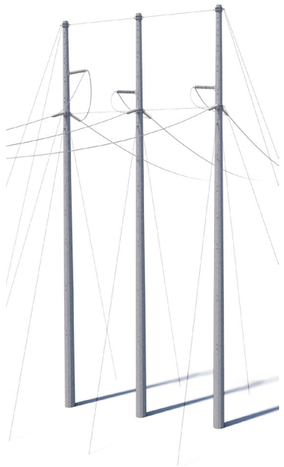
# PROPOSED STRUCTURES



H-FRAME



LATTICE TOWER



THREE-POLE STRUCTURES

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

Crews plan to build the transmission line using a combination of steel H-frame poles and lattice towers.

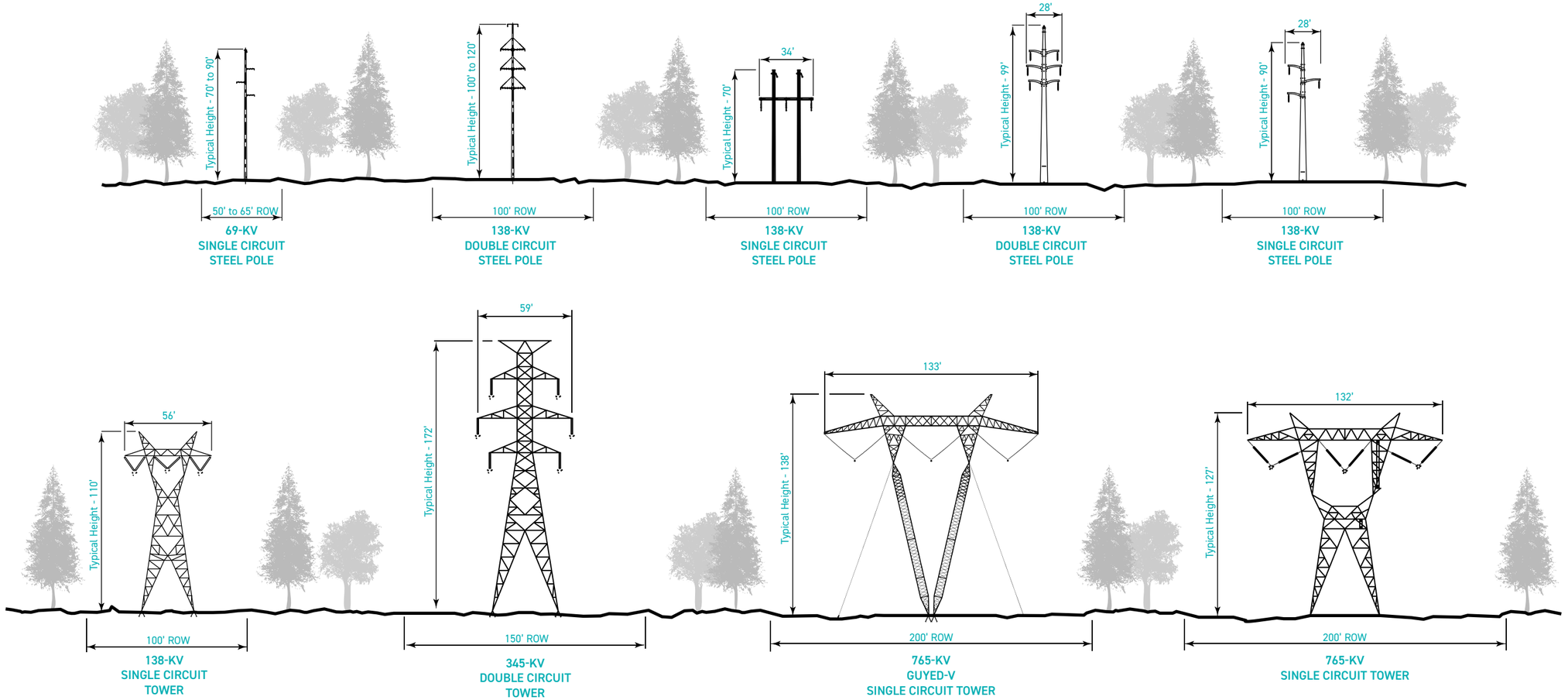
Structure Height: Approximately 85 feet*
Right-of-Way Width: Approximately 100 feet*

At Appalachian Power, we are committed to meeting the energy needs of customers while protecting the environment and natural beauty of the region.

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# STRUCTURE COMPARISON

Typical structure heights are based upon voltage and configuration. Structures are not to scale but are shown in proportion to each other. Actual heights will vary depending on terrain.



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# RIGHT-OF-WAY

## APPALACHIAN POWER HAS TWO KEY PHILOSOPHIES THAT PERTAIN TO POWER LINE RIGHTS-OF-WAY:



1 Routes should cause the least possible disturbance to people and the environment, and



2 Property owners should be fairly compensated for any land rights that must be acquired.

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# RIGHT-OF-WAY

Appalachian Power studies the land and, wherever possible, proposes routes that reduce impacts on property owners. Appalachian Power reaches out to landowners in the following ways:

## TO GAIN RIGHT-OF-ENTRY TO BEGIN:

- Environmental assessments
- Appraisal work
- Land surveying, soil boring and below grade study
- Cultural and historic resource reviews

## TO SECURE RIGHT-OF-WAY AND COMMUNICATE:

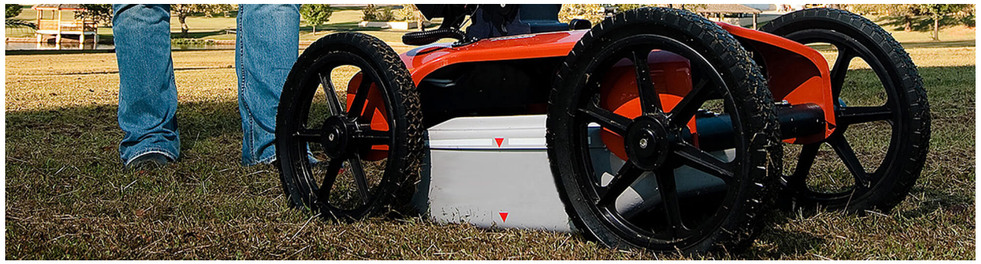
- Landowner compensation
- Terms and conditions of easement
- Width of the right-of-way

## TO OUTLINE APPALACHIAN POWER'S CONSTRUCTION PROCESS WITH A SPECIFIC FOCUS ON:

- Property restoration
- Damage mitigation as appropriate

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# 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.



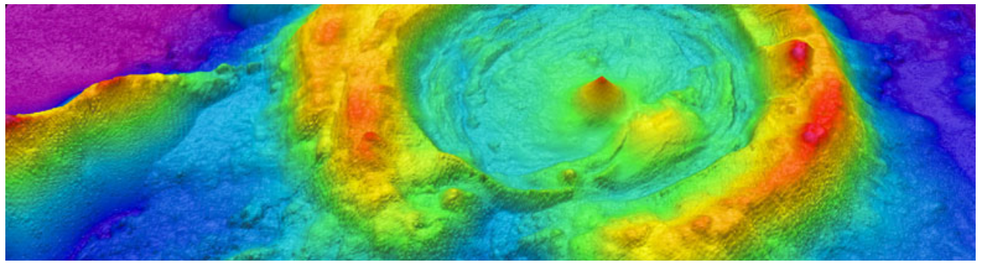
## HELICOPTER

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, per form line work and maintain electric facilities. Company representatives work with local media out lets to communicate these activities to the public.



## 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.

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# 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 SURVEY

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.



## 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 (DRONES)

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.

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# 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.

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# VEGETATION MANAGEMENT



## WHAT IS VEGETATION MANAGEMENT?

The practice of controlling the growth of trees and other woody stemmed vegetation in line corridors and around substations, while maintaining respect for the environment.

## WHY IS IT DONE?

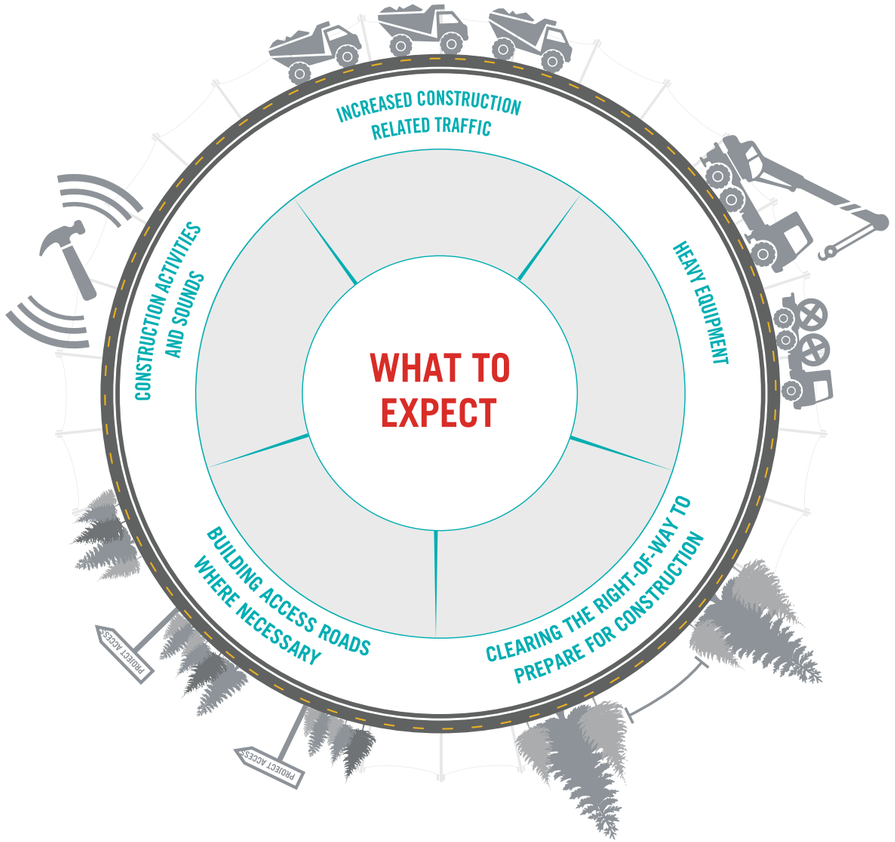
To minimize power outages caused by trees and other plants coming into contact with power lines.

## THE GOALS OF APPALACHIAN POWER'S VEGETATION MANAGEMENT PROGRAM ARE TO:

- Protect our system and minimize outages
- Minimize any adverse environmental impacts
- Ensure compliance with all applicable laws and regulations
- Perform our work as safely as possible
- Maintain a positive relationship with land owners and the public



# CONSTRUCTION PROCESS

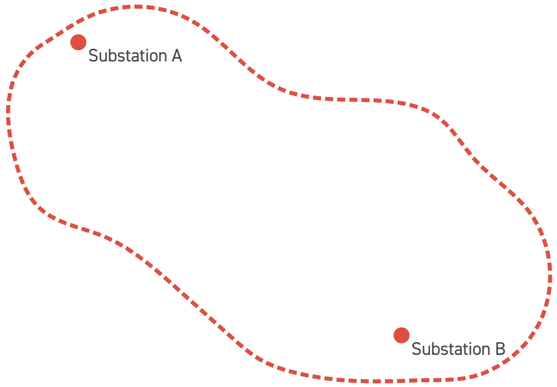


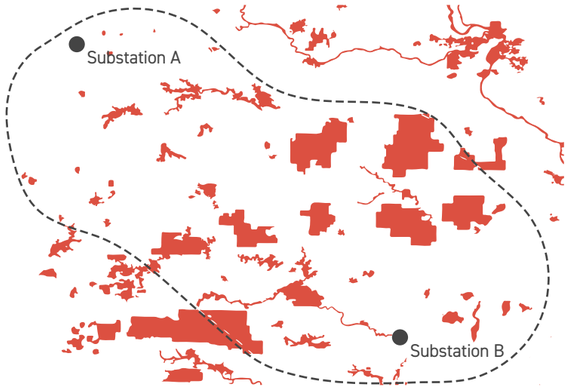

Appalachian Power understands the work related to transmission grid improvements can sometimes be an inconvenience. That's why we make every effort during the construction process to be respectful of the environment and our neighbors, while safely working to ensure reliable electric service.

Appalachian Power plans to work with individual property owners throughout the construction process. Team members will provide details of upcoming work and listen to customer feedback on how we can lessen the impact of our work. In the event damages should occur during the construction process, we will work to restore property as close to its original state as possible.

# ROUTING PROCESS

Appalachian Power implements a comprehensive siting process that takes into account land use, the environment, public input, and engineering guidelines to develop a transmission line route. This process is inherently iterative with route segments changing over time as more information is gathered. Below is a discussion of the terminology used at each stage in the process.



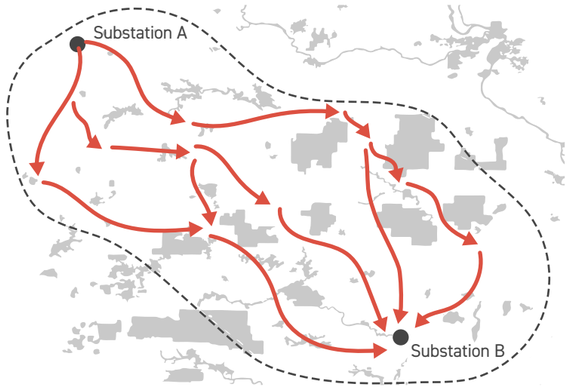

## 1) STUDY AREA

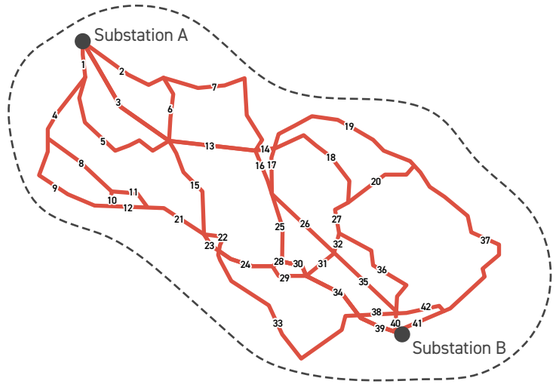
Appalachian Power develops a Study Area for the Project that incorporates the two end points and the area in between.

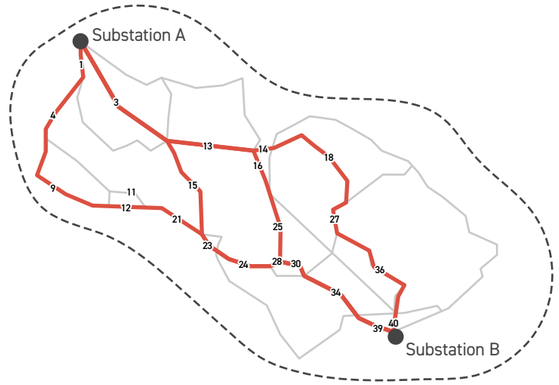
## 2) DATA GATHERING

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

# ROUTING PROCESS




## 3) CONCEPTUAL ROUTES

The Routing Team uses this information to develop Conceptual Routes adhering to a series of general routing and technical guidelines.

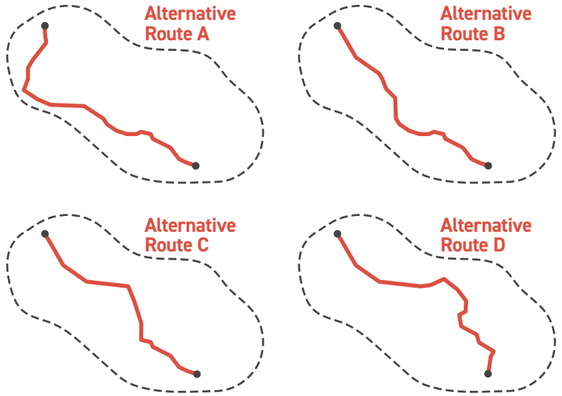
## 4) STUDY SEGMENTS

Where two or more Potential Study Segments intersect, a node is created, and between two nodes, a link is formed. Together, the network formed by these links is referred to as Potential Study Segments.

## 5) REFINED STUDY SEGMENTS

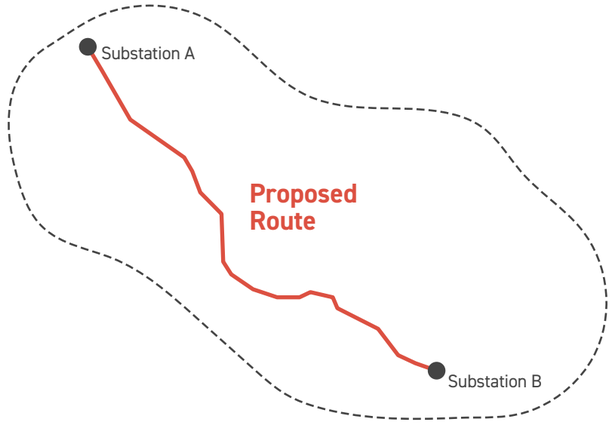
As more information is gathered, the Study Segments are refined.  Some Study Segments are eliminated or modified, leaving the Refined Study Segments for further consideration

# ROUTING PROCESS




## 6) ALTERNATIVE ROUTES

After public input is incorporated, the Refined Study Segments are further evaluated and a selection of the most suitable segments is assembled into Alternative Routes.




## 7) PROPOSED ROUTE

Potential impacts are assessed and compared with land uses, natural and cultural resources, and engineering and construction concerns for all the Alternative Routes. Ultimately, a Proposed Route is selected that minimizes the effect of the Project on the natural and human environment, while avoiding circuitous routes, extreme costs, and non-standard design requirements.

# PROJECT MAPS

## OVERVIEW MAP

**Step 1:** Below is an Overview Map that displays the entire project area. Please use the Overview Map to find the general location of your property.

## DETAILED MAPS

**Step 2:** Each outlined area on the Overview Map represents a single, numbered Map Page that shows that section in greater detail. Visit the appropriate Map Page below for your area.

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## TRANSMISSION LINE PROJECT

# THANK YOU!

Thank you for visiting the project virtual open house. For more information and project updates please visit the project website, or contact us with any additional questions.



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