

# GLENMARY

## SUBSTATION PROJECT



## [PROJECT NEED AND BENEFITS]

### WHY IS THE PROJECT IMPORTANT TO OUR COMMUNITY?

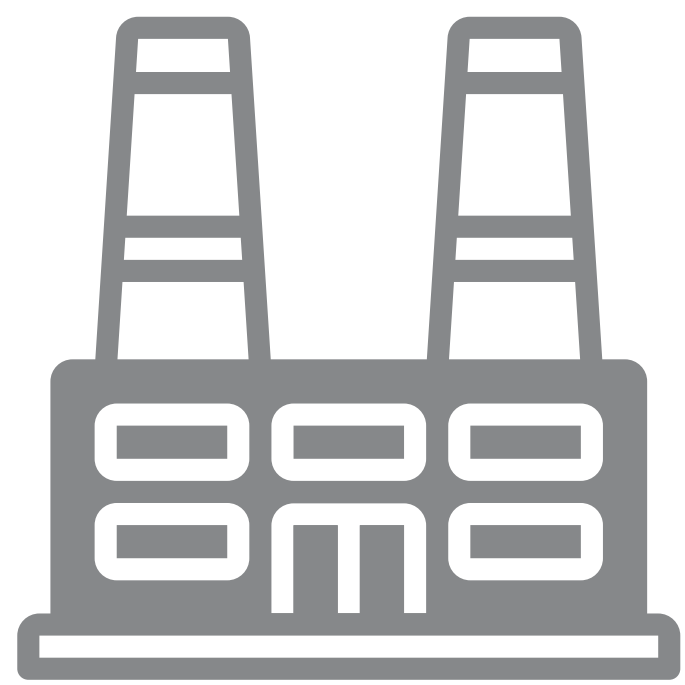
#### IMPROVED RELIABILITY

Upgrading transmission infrastructure improves reliability for residential, commercial and industrial customers.

#### ECONOMIC DEVELOPMENT

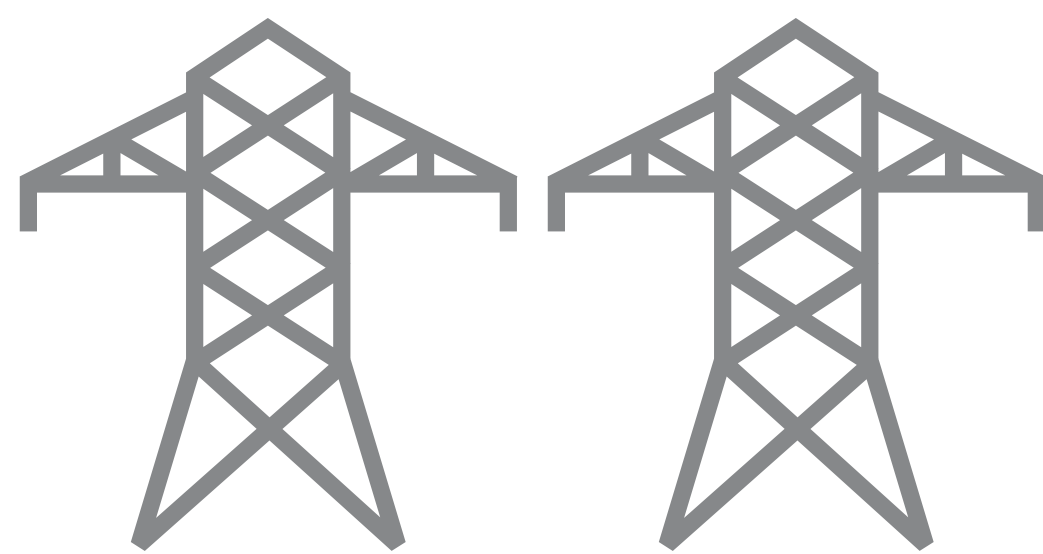
The new substation will provide an additional source of power to the Roanoke County Center for Research and Technology and to Appalachian Power's new office.

# HOW THE SYSTEM WORKS



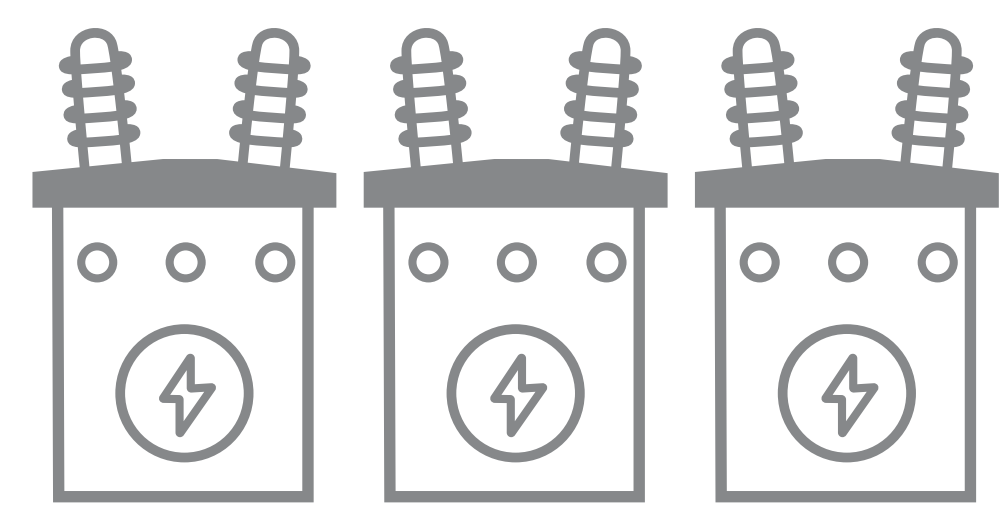
## 1) GENERATION STATIONS

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



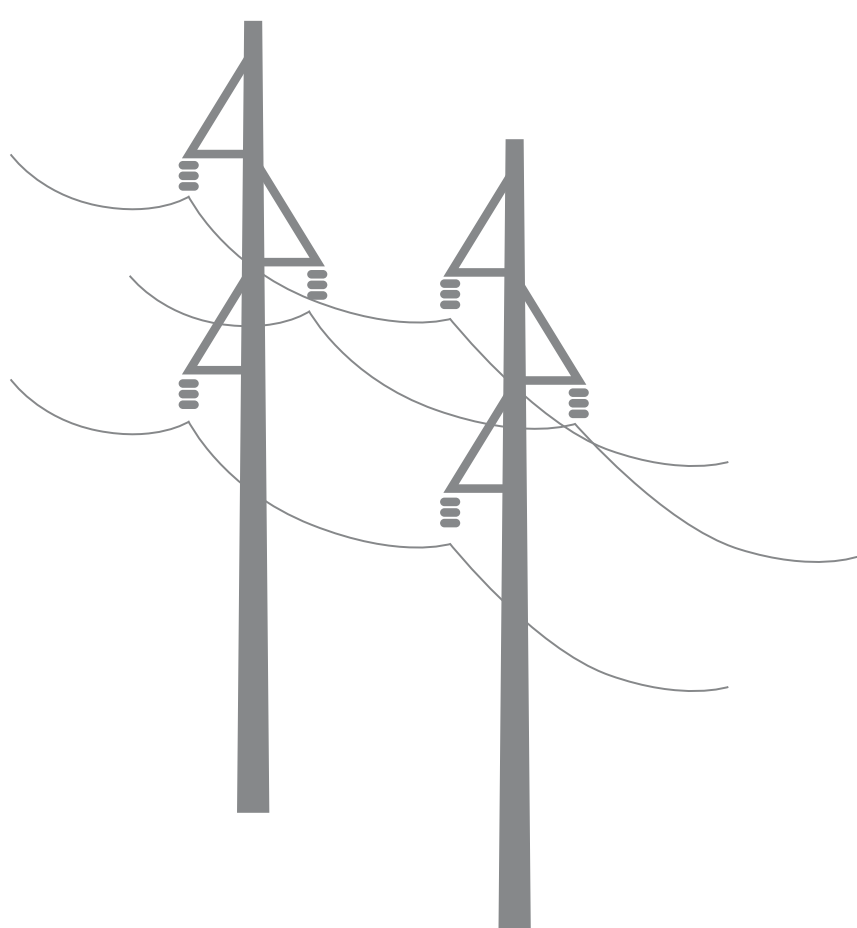
## 2) EHV TRANSMISSION

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



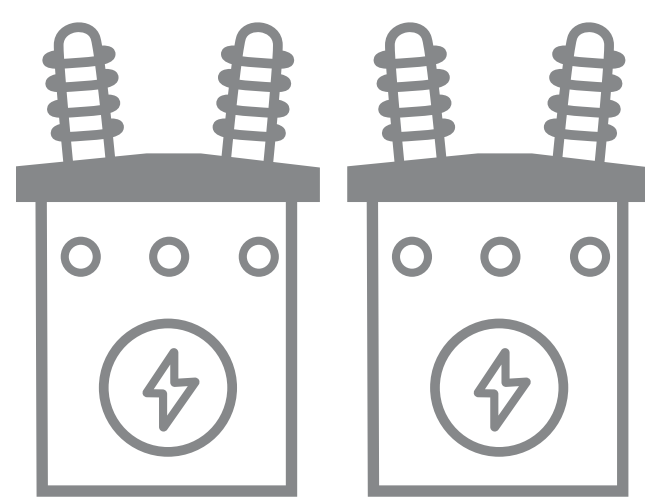
## 3) SUBSTATIONS

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



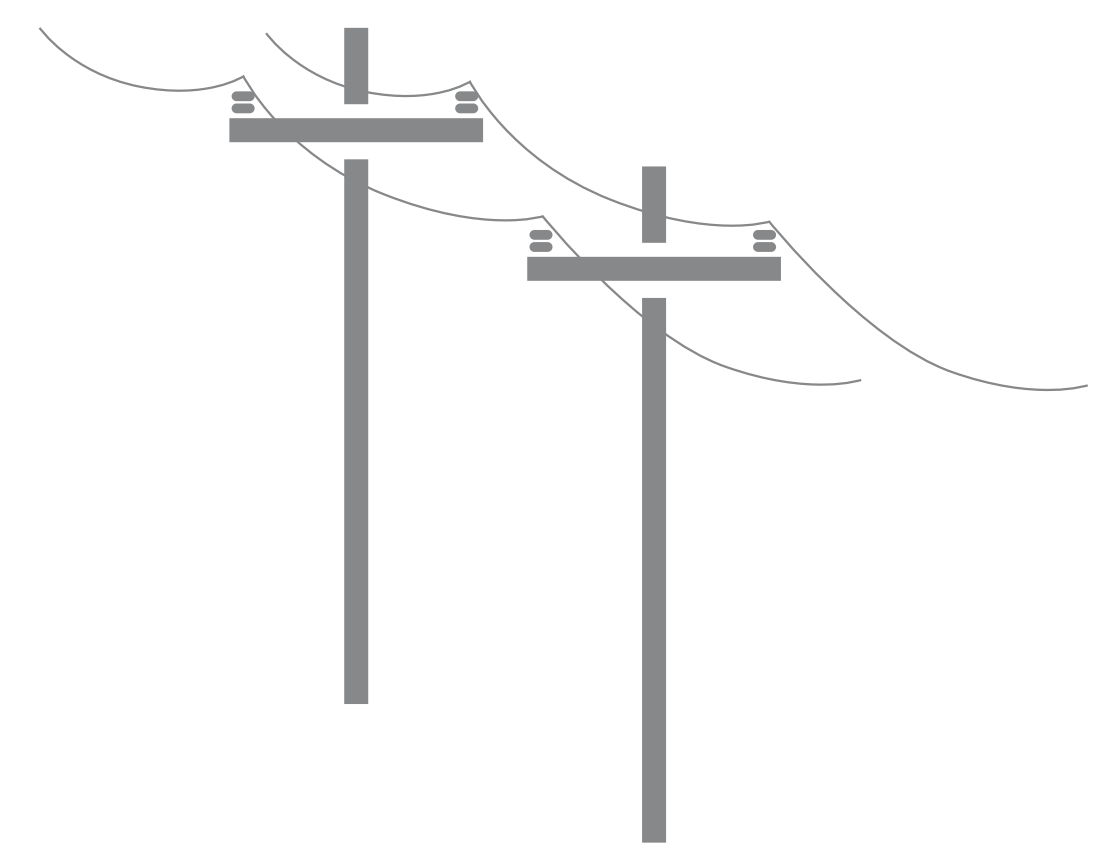
## 4) LOCAL TRANSMISSION

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.



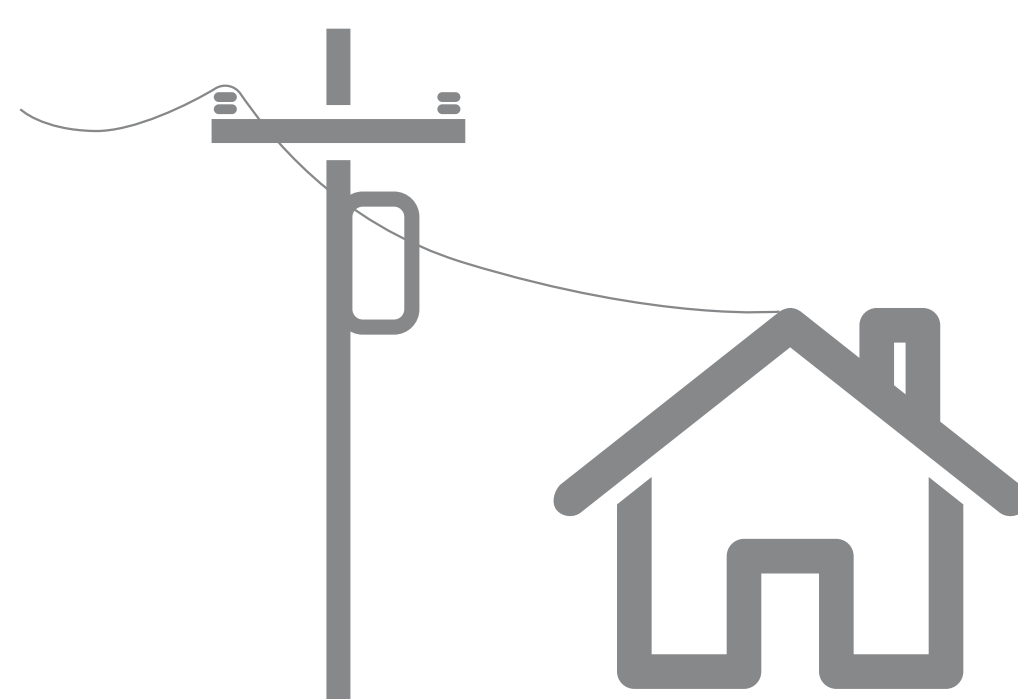
## 6) PRIMARY DISTRIBUTION

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



## 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.

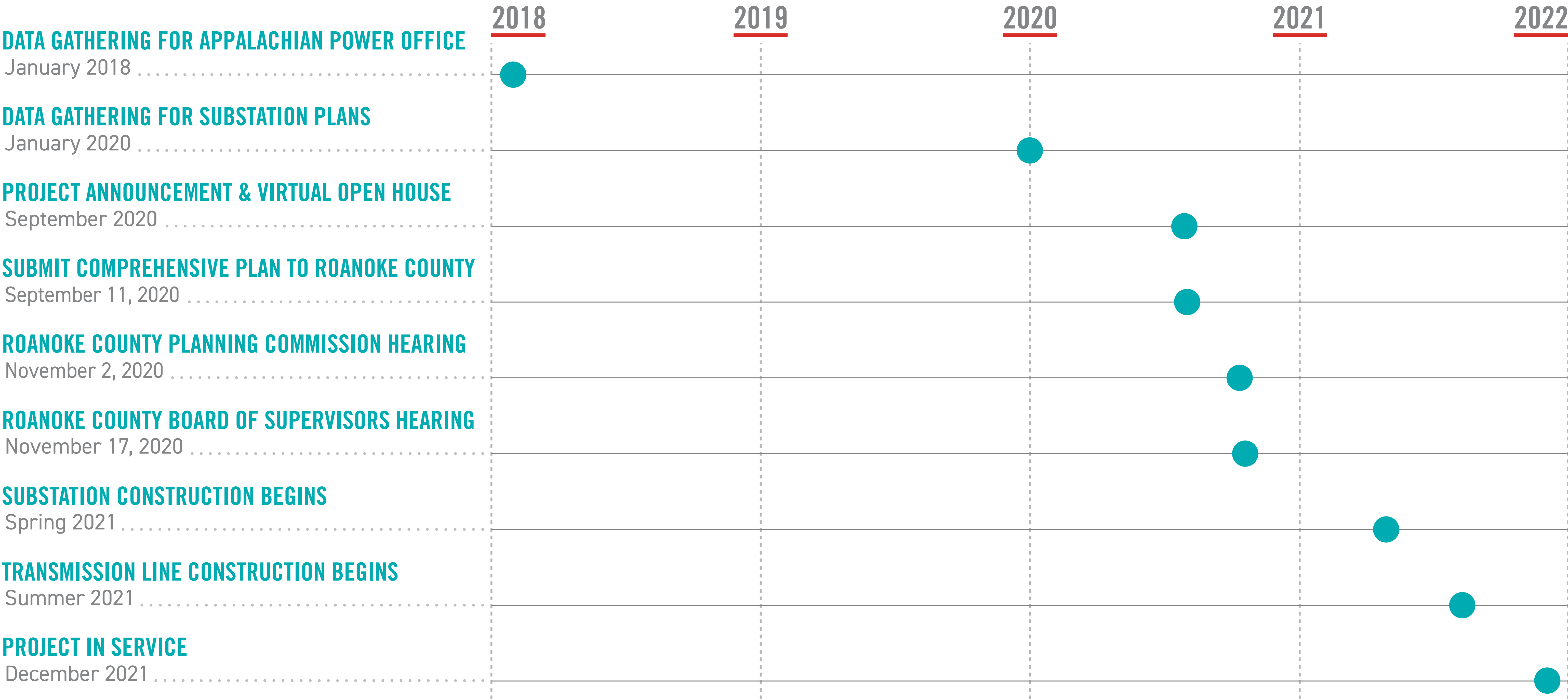
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### [PROJECT SCHEDULE]

\*Note: Project schedule is subject to change.





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## [TYPICAL SUBSTATION]

Substations serve as electrical intersections converting the power to voltage levels for use in homes, businesses and industrial facilities.

\*Substation shown is a general depiction of the proposed facilities for the project.  
It does not represent final design.



# RIGHT-OF-WAY ACTIVITIES



## 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.

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

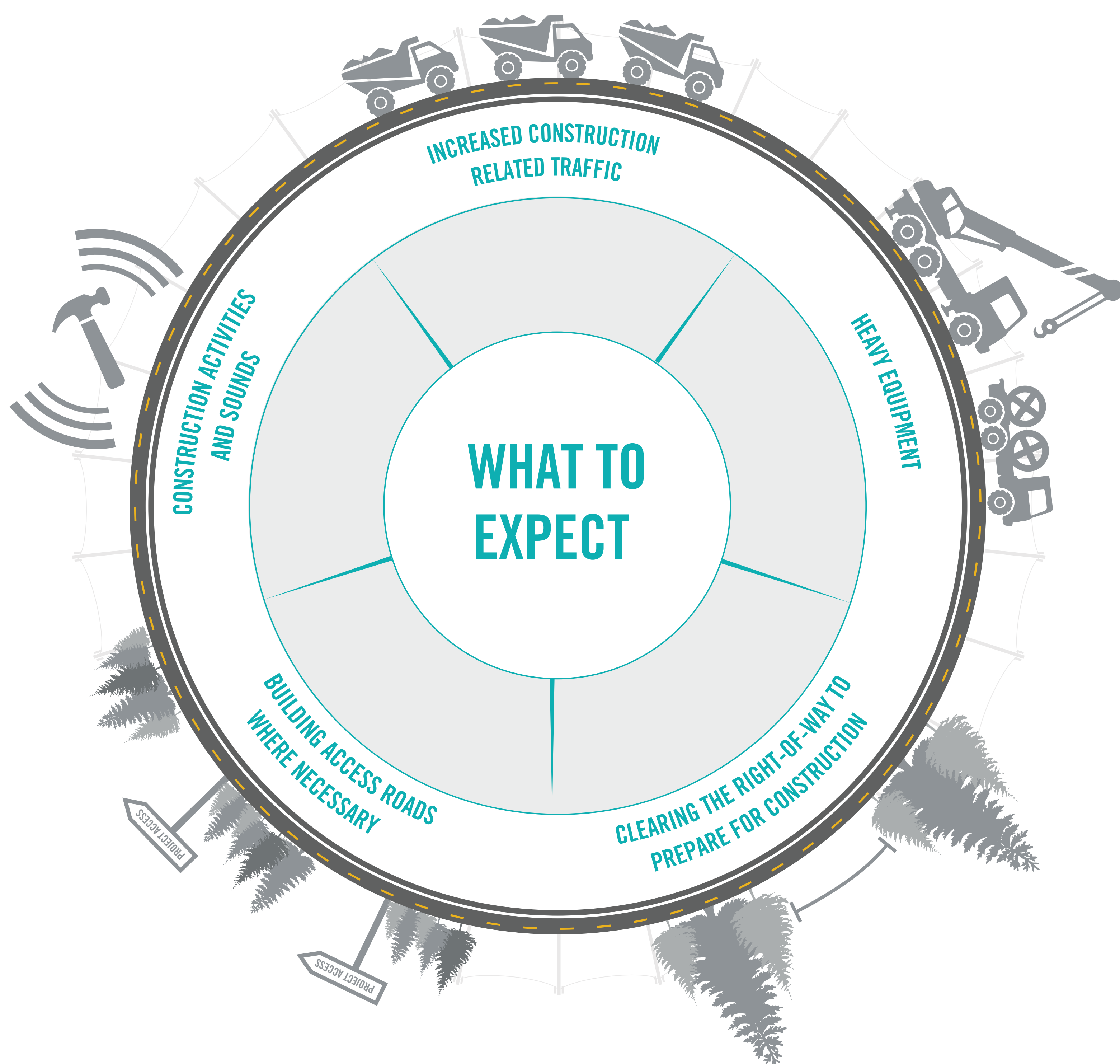
### TO OUTLINE APPALACHIAN POWER'S CONSTRUCTION PROCESS WITH A SPECIFIC FOCUS ON:

- Property restoration
- Damage mitigation as appropriate



# 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.