

UNDERGROUND VS. OVERHEAD TRANSMISSION LINES

While putting transmission lines underground keeps them out of sight, it has several drawbacks. They include the following detrimental impacts.

ENVIRONMENTAL. While it may be aesthetically preferable to some to put transmission lines underground, the environmental disturbances are typically much more significant. The reason is that placing a line underground requires one or more sizeable trenches or bores along the entire length of the line, including waterways. This results in soil disruption. Once the line is in service, there may also be changes in thermal temperature, and both of these factors may negatively affect threatened and endangered or sensitive species. Manholes, an additional disturbance, are also needed at regular intervals to provide access to portions of the buried cable. Underground lines also require the construction of a maintained access road along the length of the route. The possibility of oil leaks can be a concern for some types of cables. Further, in the event of a failure, significant excavation is usually required for cable repairs.

There are even greater restrictions on what can be planted near an underground transmission line than there are for overhead lines. Low-growing plants are permitted along overhead transmission lines. By contrast, vegetation must be removed from the right-of-way of an underground line to avoid direct interference by tree roots and to avoid removal of soil moisture, which is needed to cool the cables.

REPAIR TIME. Failures in underground transmission lines are infrequent. However, when they occur, they are extremely costly and time intensive to repair. Line outages can last up to a month or more as a result of the difficulty in determining the exact location in the line that needs repair. In contrast, required repairs to overhead lines can usually be completed within 24 hours.

ECONOMICS. Cost is also a significant factor, with underground transmission line construction costing several times more than new overhead line construction.

Because of these drawbacks, underground cables tend to make sense only where there is no viable overhead corridor, such as in densely populated urban areas or in the vicinity of airports. Less than one percent of American Transmission Company's 8,900-mile transmission network is located underground.