

Position Paper Underground vs. Aerial Installation of Power Lines

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Position

North America's electrical distribution grid is an aging infrastructure which requires extensive upgrades to effectively meet 21st century energy demands and expectations for grid reliability and resiliency. Severe weather is the number one cause of power outages in the United States, costing the economy between \$18 and \$33 billion every year in lost output and wages, spoiled inventory, delayed production and damage to grid infrastructure¹. Climate change is expected to increase the frequency and intensity of severe weather events. Also, threats to aerial installations from traffic and wildlife are ubiquitous.

Underground installation of power distribution lines using high-density polyethylene (HDPE) conduit is a reliable, sustainable and economical solution. When utilities have a choice between burying power lines underground and installing aerial power lines in vulnerable or unsightly locations, the Plastic Pipe Institute (PPI) encourages them to analyze lifetime costs of underground vs. aerial installations on a case-by-case basis, considering technical, economic and environmental factors.

Background

Although *initial installation costs* of underground power distribution lines are sometimes higher, installation by plowing HDPE conduit and pulling cable can be close to the cost of aerial construction. By utilizing modern horizontal directional drilling (HDD) technologies, underground power installations can be far less disruptive than installing aerial power lines.

The long-term savings inherent through underground installation in conduit may be realized through:

1. Reduced Maintenance Repair & Operation (MRO) costs for tree trimming and ground clearing
2. Reduced risk of damage to assets caused by external factors such as vehicles and wildlife
3. Eliminated aging of poles, exposed switches, supports and insulators
4. Improved service reliability by eliminating disruptions caused by weather, vehicles and wildlife
5. Reduced costs of Right of Way (ROW) acquisition and maintenance
6. Improved appearance of streets and roads with underground buried utilities and resulting higher residential property values

¹ <http://energy.gov/articles/top-9-things-you-didnt-know-about-americas-power-grid>