



# Fact Sheet

October 2016

## BPA considerations in siting communications sites

When siting communications facilities, BPA's main considerations are **SAFETY, RELIABILITY AND SECURITY**. Although each radio site location is unique, specific aspects of these three considerations overlap and support one another. This fact sheet provides an overview of these considerations.

### Safety

Safety is a core value at BPA and the agency goes to great lengths to assure that its workers, the general public and its transmission grid are safe at all times. BPA's communications sites must support safety in two capacities: keeping people safe and keeping the site safe.

#### KEY SAFETY CONSIDERATIONS

- Provide mobile radio coverage of BPA facilities and transmission assets within 50 miles of a communication site so that BPA workers can communicate in remote areas where cell phone coverage is limited.
- Ensure site's buildings, tower, ice-bridge, waveguide and equipment are grounded according to BPA grounding standards to protect from lightning strikes, power surges, static discharge and electrical noise scenarios.

- Ensure the site's buildings enable BPA personnel to enter the station and service equipment in all weather conditions; depending on specific site conditions, a BPA communications building must be sized, designed and built to allow for snow-season entry and egress from the facility.
- Ensure all site buildings comply with federal safety regulations for workers.

### Reliability

As stewards of Pacific Northwest resources, including the federal transmission system, BPA must meet stringent transmission performance requirements set by the Department of Energy and regulatory bodies such as the North American Electric Reliability Corporation, the Federal Energy Regulatory Commission and the Western Electricity Coordinating Council. To ensure reliability, BPA communications sites are designed to operate 99.9 percent of the time; this equates to a maximum outage time of about five minutes over an entire year.

#### KEY RELIABILITY CONSIDERATIONS

- Ensure access to the site is passable by four-wheel drive vehicle.
- Power service should either be available or easily accessible to any site. If not readily available to a site, the cost of serving a site would be one of the factors that we would look at in determining what alternatives would be considered in detail in the environmental review.



- Onsite propane-fired generation and reserve fuel must provide 21 days of backup power to keep the station functional if commercial power fails.
- Onsite DC batteries must provide 48 hours of power to enable the station to continue to function in the event both commercial power and the generator fail.
- The microwave portion of the communications must be frequency diverse, have an unobstructed line of sight to another BPA network point and the microwave path must support 99.9 percent two-way communications availability.
- The site must accommodate a stable structure (typically a three- or four-leg self-supporting steel structure) and ice-bridge to support the microwave dish antenna, very high frequency (VHF) whip antennas, waveguide and hardware at the appropriate elevation and azimuth.
- The building that houses radio, communications and supporting infrastructure must be a secure, environmentally-controlled, water-tight structure with room to house at least six communications racks (19 inches wide by 8 feet tall), with adequate clearance for access and maintenance of equipment.
- When considering alternative locations to an existing site, the alternatives should maintain or exceed VHF coverage provided from the existing location.

## Security

BPA communications sites must provide adequate levels of security, both electronic and physical. All BPA sites are fully alarmed and continuously monitored. The electronic security perimeter helps prevent potential cyberattacks that could affect the bulk electric system. Physical security includes specifically limiting entry to the grounds, outdoor facilities and the building. This prevents intrusion from unauthorized parties who could damage or disable the site, and also protects the public from safety hazards present at communications sites. Because of BPA's security needs (as well as safety and reliability considerations), colocation with other users within the same facility is considered on a case-by-case basis.

### KEY SECURITY CONSIDERATIONS

- Ensure there is a secure site perimeter (i.e., a fence) to prevent vandalism or unauthorized access.
- Physical facilities at the site must be locked to prevent unauthorized access and must be continuously alarmed electronically.
- Ensure equipment at BPA communications sites serving main-grid substations is physically separated from equipment operated by nonfederal entities by secure barriers. Personnel from any collocated, nonfederal users are not allowed access to any BPA equipment areas.
- If sites are collocated, separate AC and DC power sub-main panels must be installed to assure that non-BPA users cannot turn off power to BPA's communications equipment.