

4.3.22 Utility Interruption

4.3.22.1 Location and Extent

Interruptions in basic utilities (e.g., power, data/telecommunications, water, sewer) can have a detrimental impact on the Lehigh Valley. Utilities that employ above-ground wiring (i.e., power and data/telecommunications) are vulnerable to the effects of other hazards such as high wind, heavy snow, ice, rain, and vehicular accidents.

Utility interruptions occur throughout the Lehigh Valley, but are usually of small scale and short duration. Interruptions are possible anywhere there is utility service. Some utility facilities are especially vulnerable. For instance, water intakes and many water control facilities lie in the 1% annual chance floodplain (National Flood Insurance – Special Flood Hazard Area); a flood of this magnitude may seriously impact water service.

4.3.22.2 Range of Magnitude

No injuries/deaths related to utility interruptions have been reported in the Lehigh Valley, and the total number of people historically affected by these outages is unknown. Generally speaking, the most severe utility interruptions are regional power outages. Regional loss of power affects lighting, HVAC and other support equipment, communications, fire and security systems, and refrigerators, which can, in turn, cause loss of water/sewer service, food spoilage, etc. These effects are especially severe for individuals with functional needs and the elderly.

The Lehigh Valley suffered its worst utility interruption in October 2011, when an early snowstorm dropped 6-10” of wet snow on trees that still had leaves on them, causing historic numbers of tree limbs and wires down, resulting in massive power outages. PPL and FirstEnergy, the two largest electric utilities companies in the Lehigh Valley, reported over 109,000 customers without power for up to a week. Regional shelters and warming stations were opened throughout the Lehigh Valley to care for people without power.

4.3.22.3 Past Occurrence

Table 4.3.22-1 below shows the number of utility interruptions, by type, between 2001 and 2011.

Table 4.3.22-1: Utility Interruptions from 2001-2011

Type	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	Total
911 Issue	0	2	0	0	1	2	3	1	3	1	3	16
Gas	22	24	22	24	23	22	32	26	11	5	7	196
Phone	2	0	0	0	1	1	2	3	4	4	1	18
Power	0	2	2	1	0	7	28	18	26	58	50	192
Sewer	NR	NR	NR	2	NR	NR	1	3	NR	2	NR	5
Water	0	0	0	0	1	1	14	14	12	30	23	95
Wires Down	NR	NR	NR	NR	NR	NR	NR	NR	16	20	6	42
Total	2	28	24	25	26	33	79	65	72	120	90	564

Source: Pennsylvania Emergency Incident Reporting System (PEIRS); Knowledge Center
NR: None reported

4.3.22.4 Future Occurrence

Because their causes vary from minor vehicle accidents to severe weather, utility interruptions can happen at any time. Table 4.3.22-2 shows the expected annual number of interruptions and the corresponding likelihood category for each type. Overall, utility interruptions are considered *highly likely* based on the Risk Factor Methodology Probability Criteria.

Table 4.3.22-2: Likelihood of Future Occurrence of Utility Interruptions

Type	Avg. #/Year	% Probability	Category*
911 Issue	1.5	100	Highly Likely
Gas	17.8	100	Highly Likely
Phone	1.6	100	Highly Likely
Power	17.5	100	Highly Likely
Sewer	0.5	50	Likely
Water	8.6	100	Highly Likely
Wires Down**	3.8	100	Highly Likely
Overall	51.3	100	Highly Likely

* See Table 4.4-1 for definitions of each category.

** Some incidents were reported only as “wires down,” which may include power or phone transmission lines.

4.3.22.5 Vulnerability Assessment

Utility interruptions most severely affect individuals with access and functional needs (e.g., children, the elderly, individuals with special medical needs). Special medical equipment will not function without power. Likewise, a loss of air conditioning during periods of extreme heat or the loss of heat during extreme cold can be especially detrimental to those with medical needs, children, and the elderly. A lack of clean, potable water has health implications for all people, and a lack of water supply may also impact the sewer system and the availability of sewer service.

All facilities considered to be critical infrastructure are vulnerable to utility interruptions, especially the loss of power. The establishment of reliable backup power at these facilities is extremely important to continue to provide for the health, safety, and well-being of the Lehigh Valley’s population.

No data regarding economic impacts from utility interruptions in the Lehigh Valley are available. However, utility interruptions can cause economic impacts stemming from lost income, spoiled food and other goods, costs to the owners/operators of the utility facilities, and costs to government and community service groups.