

## 2.6 DEMOGRAPHY

### 2.6.1 Regional Demography

The GEIS presents a population characterization method that is based on two factors: “sparseness” and “proximity” (NRC 1996, Section C.1.4). “Sparseness” measures population density and city size within 20 miles of a site and categorizes the demographic information as follows:

#### Demographic Categories Based on Sparseness

<b>Category</b>	
Most sparse	<ol style="list-style-type: none"> <li>1. Less than 40 persons per square mile and no community with 25,000 or more persons within 20 miles</li> <li>2. 40 to 60 persons per square mile and no community with 25,000 or more persons within 20 miles</li> <li>3. 60 to 120 persons per square mile or less than 60 persons per square mile with at least one community with 25,000 or more persons within 20 miles</li> </ol>
Least sparse	<ol style="list-style-type: none"> <li>4. Greater than or equal to 120 persons per square mile within 20 miles</li> </ol>

Source: NRC 1996.

“Proximity” measures population density and city size within 50 miles and categorizes the demographic information as follows:

#### Demographic Categories Based on Proximity

<b>Category</b>	
Not in close proximity	<ol style="list-style-type: none"> <li>1. No city with 100,000 or more persons and less than 50 persons per square mile within 50 miles</li> <li>2. No city with 100,000 or more persons and between 50 and 190 persons per square mile within 50 miles</li> <li>3. One or more cities with 100,000 or more persons and less than 190 persons per square mile within 50 miles</li> </ol>
In close proximity	<ol style="list-style-type: none"> <li>4. Greater than or equal to 190 persons per square mile within 50 miles</li> </ol>

Source: NRC 1996.

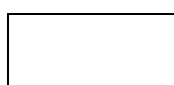
The GEIS then uses the following matrix to rank the population category as low, medium, or high.

**GEIS Sparseness and Proximity Matrix**

		Proximity			
		1	2	3	4
Sparseness	1	1.1	1.2	1.3	1.4
	2	2.1	2.2	2.3	2.4
	3	3.1	3.2	3.3	3.4
	4	4.1	4.2	4.3	4.4



Low  
Population  
Area



Medium  
Population  
Area



High  
Population  
Area

Source: NRC 1996, pg. C-159.

PPL Susquehanna used 2000 census data from the U.S. Census Bureau (USCB) website (USCB 2003a, 2003b, 2004) and geographic information system software (ArcView®) to determine most demographic characteristics in the SSES vicinity. As derived from 2000 USCB information, 330,488 people live within 20 miles of SSES (USCB 2003b). Applying the GEIS sparseness measures, SSES has a population density of 263 persons per square mile within 20 miles and falls into the least sparse category, Category 4 (greater than or equal to 120 persons per square mile within 20 miles).

As estimated from 2000 USCB information, 1,684,794 people live within 50 miles of SSES (USCB 2003b). This equates to a population density of 215 persons per square mile. Applying the GEIS proximity measures, SSES is classified as Category 4 (greater than or equal to 190 persons per square mile within 50 miles). Using the GEIS sparseness and proximity matrix, the SSES ranks of sparseness Category 4 and proximity Category 4, result in the conclusion that SSES is located in a high population area.

All or parts of 22 counties, and the cities of Wilkes-Barre, Scranton, Allentown, Pottsville, Carbondale, and Williamsport, PA, are located within 50 miles of SSES (Figure 2.1-1).

Because more than 89 percent of employees at SSES reside in Luzerne or Columbia Counties, PA, the socioeconomic analysis focuses on these counties. (see Section 3.4).

From 1970 to 2000, Pennsylvania’s average annual population growth rate was 0.1 percent (USCB 1995 and USCB 2004). For the same period, Luzerne County’s average annual growth rate was -0.2 percent (USCB 1995 and USCB 2004). Columbia County’s average annual growth rate was 0.5 percent (USCB 1995 and USCB 2004).

Table 2.6-1 estimates populations and annual growth rates for Luzerne and Columbia Counties through the license renewal term. Between the years 2000 and 2050, the population of Luzerne County is projected to decrease at an average annual rate of -0.25 percent (TtNUS 2005). Between the years 2000 and 2050, the population of Columbia County is projected to increase at an average annual rate of 0.48 percent (TtNUS 2005). The population of Pennsylvania is projected to grow at an average annual rate of 0.10 percent (TtNUS 2005).

**Table 2.6-1. Estimated Populations and Annual Growth Rates in Luzerne and Columbia Counties from 1970 to 2050.**

Year	Luzerne County		Columbia County	
	Number	Average Annual Percent Change	Number	Average Annual Percent Change
1970 <sup>a</sup>	342,301	NA	55,114	NA
1980 <sup>a</sup>	343,079	0.02%	61,967	1.24%
1990 <sup>a</sup>	328,149	-0.44%	63,202	0.20%
2000 <sup>b</sup>	319,250	-0.27%	64,151	0.15%
2010 <sup>c</sup>	312,174	-0.22%	68,195	0.63%
2020 <sup>c</sup>	303,766	-0.27%	71,030	0.42%
2030 <sup>c</sup>	295,357	-0.28%	73,864	0.40%
2040 <sup>c</sup>	286,949	-0.28%	76,699	0.38%
2050 <sup>c</sup>	278,541	-0.29%	79,533	0.37%

- a. USCB 1995.
- b. USCB 2004.
- c. TtNUS 2005.

## 2.6.2 Minority and Low-Income Populations

NRC performed environmental justice analyses for previous license renewal applications and concluded that a 50-mile radius could reasonably be expected to encompass any potential environmental impact sites and that the host state was the appropriate geographic area for comparative analysis. PPL Susquehanna has adopted this approach for identifying minority and low-income populations that could be affected by SSES operations.

PPL Susquehanna used ArcView® geographic information system software to combine USCB TIGER line data with 2000 census data to determine the minority characteristics by block group. PPL Susquehanna included all of a block group if any part of it was within 50 miles of SSES. The 50-mile radius includes 1,493 block groups ([Table 2.6-2](#)).

#### 2.6.2.1 Minority Populations

The NRC “Procedural Guidance for Preparing Environmental Assessments and Considering Environmental Issues” defines a minority population as: American Indian or Alaskan Native; Asian; Native Hawaiian or other Pacific Islander; Black races; all other single races; multi-racial; and Hispanic ethnicity (NRC 2001, Appendix D). The guidance indicates that a minority population exists if either of the following two conditions exists:

1. The minority population in the census block group or environmental impact site exceeds 50 percent.
2. The minority population percentage of the environmental impact area is significantly greater (typically at least 20 percentage points) than the minority population percentage in the geographic area chosen for comparative analysis.

PPL Susquehanna defines the geographic area for SSES as the Commonwealth of Pennsylvania. NRC guidance calls for using the most recent USCB decennial census data. PPL Susquehanna used 2000 census data from the USCB website (USCB 2003a, 2003b, 2004) to determine the percentage of the total population in Pennsylvania for each minority category, and to identify minority populations within 50 miles of SSES.

PPL Susquehanna divided USCB population numbers for each minority population within each block group by the total population of that block group to obtain the percent of the block group’s population represented by each minority. For each of the 1,493 block groups within 50 miles of SSES, PPL Susquehanna compared the result of this calculation to the corresponding geographic area’s minority threshold percentages to determine whether minority populations exist.

USCB data (USCB 2003b) ([Table 2.6-2](#)) for Pennsylvania characterizes 0.15 percent of the Commonwealth as American Indian or Alaskan Native, 1.79 percent as Asian, 0.03 percent as Native Hawaiian or other Pacific Islander, 9.97 percent as Black races, 1.53 percent as all other single minorities, 1.16 percent as multi-racial, 15.95 percent as an aggregate of minority races, and 3.21 percent as Hispanic ethnicity.

Table 2.6-2 presents the numbers of block groups in each county in the 50-mile radius that exceed the threshold for minority populations. Figures 2.6-1 through 2.6-4 locate the minority block groups within the 50-mile radius.

No census blocks within the 50-mile radius had American Indian or Alaska Native, Asian, Native Hawaiian or Pacific Islander, or multi-racial minority populations that exceeded the State average by at least 20 percent.

Eleven census blocks within the 50-mile radius have Black Races populations that exceed the state average by 20 percent or more (Figure 2.6-1). None of those 11 census blocks have Black Races populations of 50 percent or more.

Twenty-one census blocks within the 50-mile radius, all in Lehigh County, have all other single minority populations that exceed the state average by 20 percent or more (Figure 2.6-2). None exceed the 50 percent criterion.

Fifty-four census blocks within the 50-mile radius have aggregate minority populations that exceed the state average by 20 percent or more (Figure 2.6-3). Of those, 27 have aggregate minority populations of 50 percent or more.

Forty census blocks within the 50-mile radius, all in Lehigh County, have Hispanic Ethnicity populations that exceed the state average by 20 percent or more (Figure 2.6-4). Of those, eight have Hispanic Ethnicity populations of 50 percent or more. PPL Susquehanna's community outreach has identified small yet growing Hispanic populations in the Hazleton, Bethlehem, and Berwick areas. As a general matter there are relatively few census blocks exceeding the threshold for minority populations within a 50-mile radius, and none in close proximity of the station.

#### 2.6.2.2 Low-Income Populations

NRC guidance defines low-income based on statistical poverty thresholds (NRC 2001 Appendix D). PPL Susquehanna divided the number of USCB low-income households in each census block group by the total households in that block group to obtain the percentage of low-income households per block group. USCB data (USCB 2004) characterize 11.0 percent of Pennsylvania households as low-income households. A low-income population is considered to be present if:

1. The low-income households in the census block group or the environmental impact site exceed 50 percent.
2. The percentage of households below the poverty level in an environmental impact area is significantly greater (typically at least 20 percentage points) than the low-

income households percentage in the geographic area chosen for comparative analysis.

[Table 2.6-2](#) identifies the low-income block groups in the region of interest. [Figure 2.6-5](#) locates the low-income block groups.

Fifty census blocks within the 50-mile radius have low-income households that exceed the state average by 20 percent or more. Of those 50 census blocks, 7 have 50 percent or more low-income households. As a general matter there are relatively few census blocks exceeding the threshold for low income populations within a 50-mile radius, and none in close proximity to the station.

Figure 2.6-1 Black Population Races

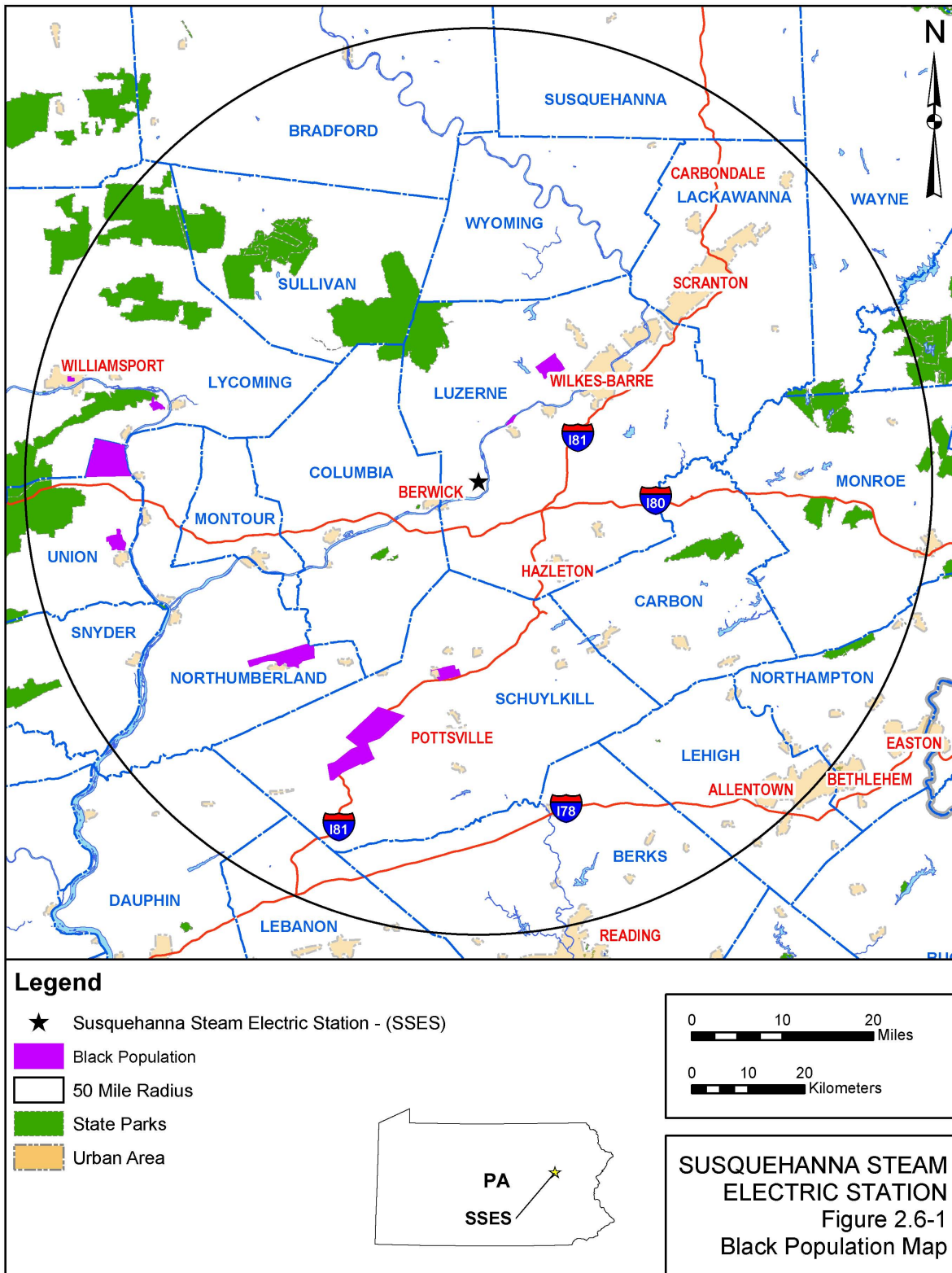


Figure 2.6-2 All Other Single Minorities Population Map

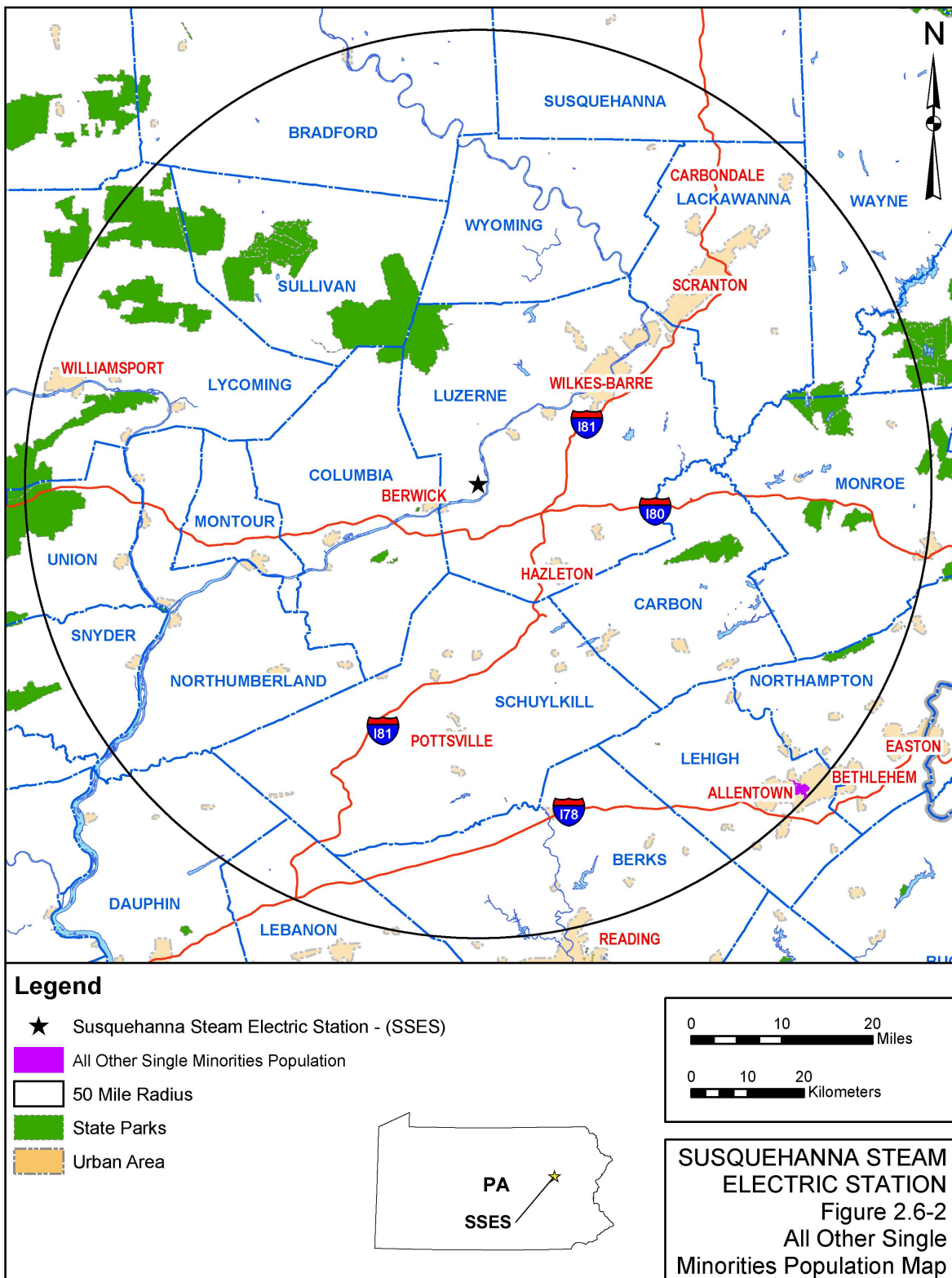




Figure 2.6-3 Aggregate of Minority Races Population Map

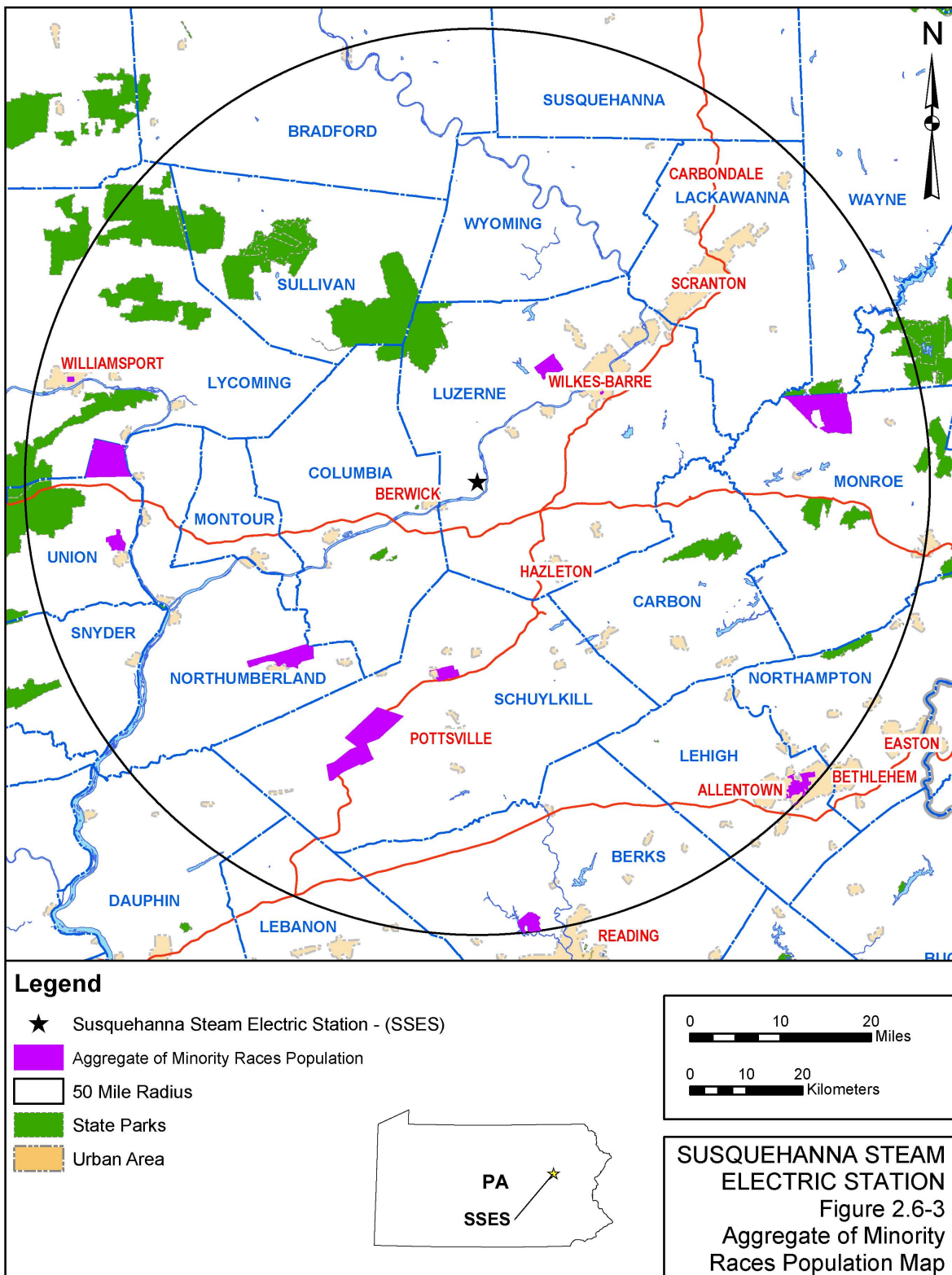


Figure 2.6-4 Hispanic Population Map

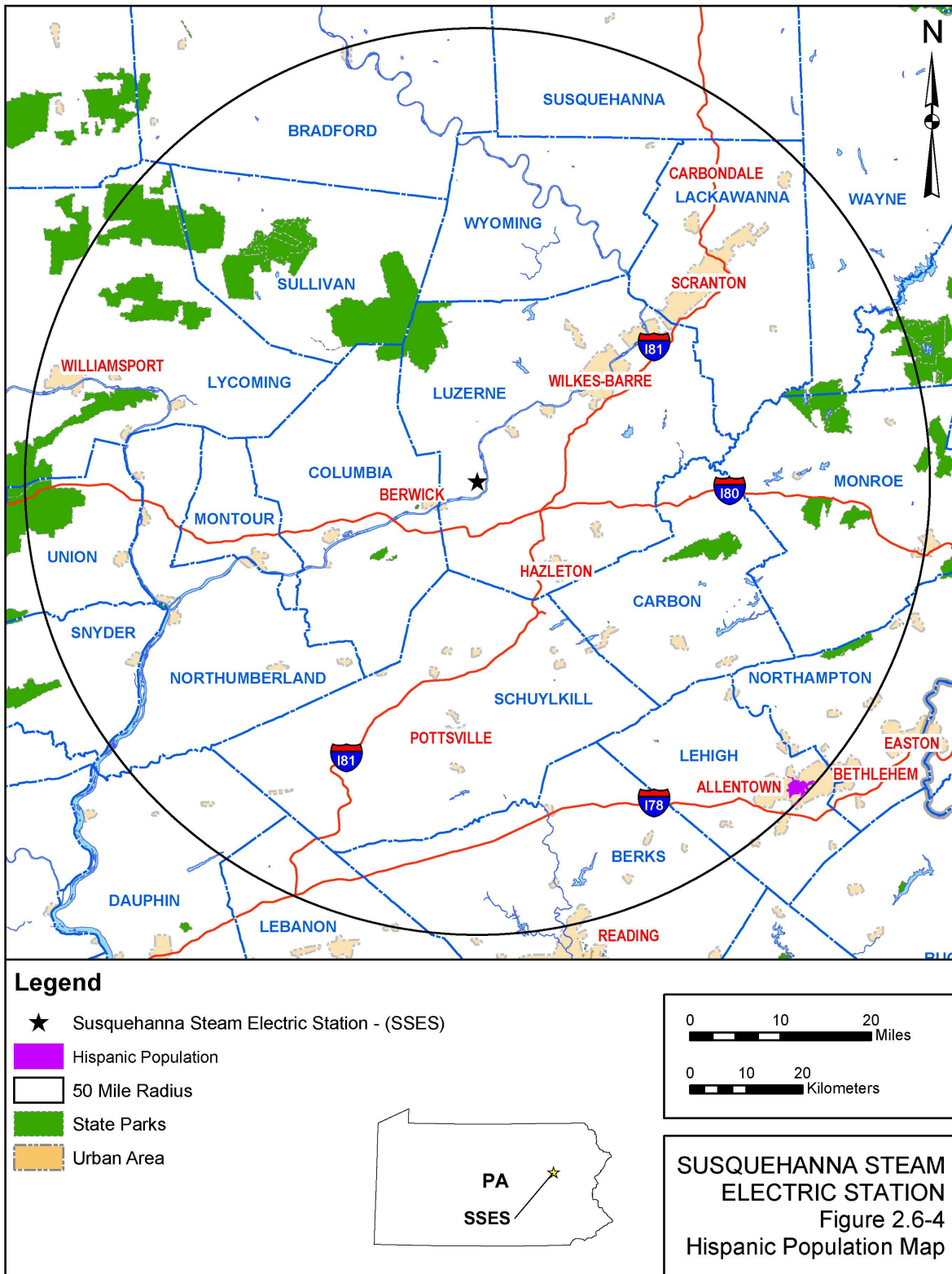
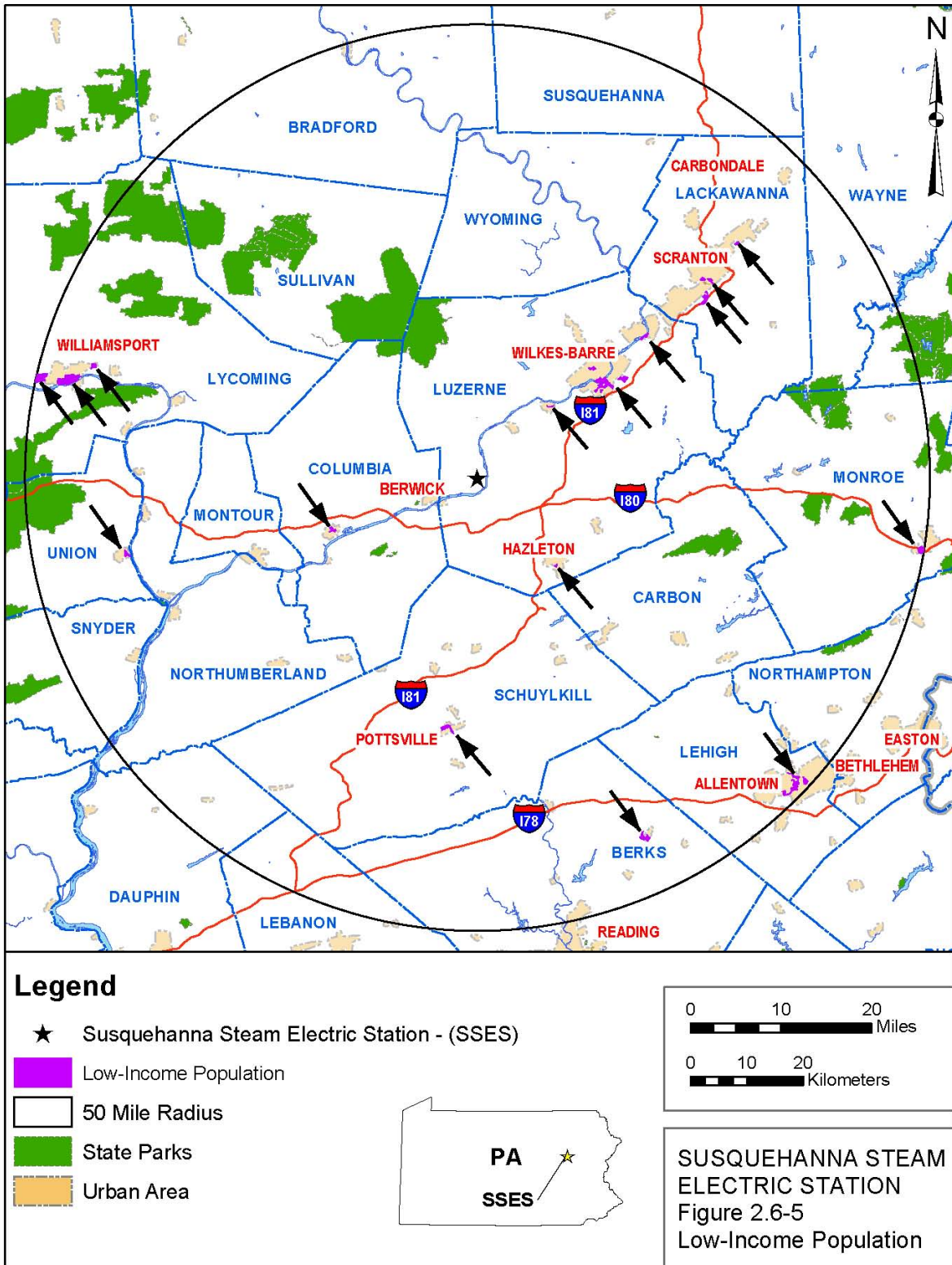


Figure 2.6-5 Low-Income Population



**Table 2.6-2. Minority and Low-Income Population Census Blocks within 50-Mile Radius of SSES****50 Mile Radius Total Block Groups**

County	State	Total Block Groups Within 50 Miles	American Indian or Alaskan Native	Asian	Native Hawaiian or Other Pacific Islander	Black Races	All Other Single Minorities	Multiracial Minorities	Aggregate of Minority Races	Hispanic Ethnicity	Low-Income Block Groups Within 50 Miles	2000 Population Adjusted for Area Within 50 Miles
Berks	Pennsylvania	74	0	0	0	0	0	0	1	0	1	102687.01
Bradford	Pennsylvania	23	0	0	0	0	0	0	0	0	0	17573.15
Carbon	Pennsylvania	48	0	0	0	0	0	0	0	0	0	58802
Columbia	Pennsylvania	55	0	0	0	0	0	0	0	0	3	64151
Dauphin	Pennsylvania	11	0	0	0	0	0	0	0	0	0	10304.53
Lackawanna	Pennsylvania	195	0	0	0	0	0	0	0	0	6	212479.84
Lebanon	Pennsylvania	14	0	0	0	0	0	0	0	0	0	14138.95
Lehigh	Pennsylvania	181	0	0	0	0	21	0	41	40	11	226047.75
Luzerne	Pennsylvania	314	0	0	0	2	0	0	2	0	12	319249.994
Lycoming	Pennsylvania	101	0	0	0	4	0	0	4	0	9	95471.02
Monroe	Pennsylvania	54	0	0	0	0	0	0	1	0	1	102977.04
Montour	Pennsylvania	14	0	0	0	0	0	0	0	0	0	18236
Northampton	Pennsylvania	59	0	0	0	0	0	0	0	0	0	76011.04
Northumberland	Pennsylvania	97	0	0	0	1	0	0	1	0	4	94080.72
Pike	Pennsylvania	4	0	0	0	0	0	0	0	0	0	2684.58
Schuylkill	Pennsylvania	145	0	0	0	2	0	0	2	0	2	150336.08
Snyder	Pennsylvania	21	0	0	0	0	0	0	0	0	0	22927.94
Sullivan	Pennsylvania	6	0	0	0	0	0	0	0	0	0	6556
Susquehanna	Pennsylvania	14	0	0	0	0	0	0	0	0	0	10674.83
Union	Pennsylvania	24	0	0	0	2	0	0	2	0	1	37393.26
Wayne	Pennsylvania	16	0	0	0	0	0	0	0	0	0	13931.52
Wyoming	Pennsylvania	23	0	0	0	0	0	0	0	0	0	28080
TOTALS		1493	0	0	0	11	21		54	40	50	1684794.254

**Table 2.6-2. Minority and Low-Income Population Census Blocks within 50-Mile Radius of SSES.  
(Continued)**

**50 Mile Radius  $\geq$  50% Block Groups**

County	State	Total Block Groups Within 50 Miles	American Indian or Alaskan Native	Asian	Native Hawaiian or Other Pacific Islander	Black Races	All Other Single Minorities	Multiracial Minorities	Aggregate of Minority Races	Hispanic Ethnicity	Low-Income Block Groups Within 50 Miles	2000 Population Adjusted for Area Within 50 Miles
Berks	Pennsylvania	74	0	0	0	0	0	0	0	0	0	102687.01
Bradford	Pennsylvania	23	0	0	0	0	0	0	0	0	0	17573.15
Carbon	Pennsylvania	48	0	0	0	0	0	0	0	0	0	58802
Columbia	Pennsylvania	55	0	0	0	0	0	0	0	0	2	64151
Dauphin	Pennsylvania	11	0	0	0	0	0	0	0	0	0	10304.53
Lackawanna	Pennsylvania	195	0	0	0	0	0	0	0	0	1	212479.84
Lebanon	Pennsylvania	14	0	0	0	0	0	0	0	0	0	14138.95
Lehigh	Pennsylvania	181	0	0	0	0	0	0	23	8	2	226047.75
Luzerne	Pennsylvania	314	0	0	0	0	0	0	1	0	0	319249.994
Lycoming	Pennsylvania	101	0	0	0	0	0	0	0	0	1	95471.02
Monroe	Pennsylvania	54	0	0	0	0	0	0	0	0	0	102977.04
Montour	Pennsylvania	14	0	0	0	0	0	0	0	0	0	18236
Northampton	Pennsylvania	59	0	0	0	0	0	0	0	0	0	76011.04
Northumberland	Pennsylvania	97	0	0	0	0	0	0	0	0	1	94080.72
Pike	Pennsylvania	4	0	0	0	0	0	0	0	0	0	2684.58
Schuylkill	Pennsylvania	145	0	0	0	0	0	0	1	0	0	150336.08
Snyder	Pennsylvania	21	0	0	0	0	0	0	0	0	0	22927.94
Sullivan	Pennsylvania	6	0	0	0	0	0	0	0	0	0	6556
Susquehanna	Pennsylvania	14	0	0	0	0	0	0	0	0	0	10674.83
Union	Pennsylvania	24	0	0	0	0	0	0	2	0	0	37393.26
Wayne	Pennsylvania	16	0	0	0	0	0	0	0	0	0	13931.52
Wyoming	Pennsylvania	23	0	0	0	0	0	0	0	0	0	28080
Total		1493	0	0	0	0	0	0	27	8	7	1684794.254

**Table 2.6-2. Minority and Low-Income Population Census Blocks within 50-Mile Radius of SSES.  
 (Continued)**

**State Percentages**

American Indian or Alaskan Native	Asian	Native Hawaiian or Other Pacific Islander	Black Races	All Other Single Minorities	Multiracial Minorities	Aggregate of Minority Races	Hispanic Ethnicity	Low-Income
0.15	1.79	0.03	9.97	1.53	1.16	14.63	3.21	10.99

## 2.7 TAXES

In the past, PPL Susquehanna paid real estate taxes to the Commonwealth of Pennsylvania for their generating, transmission, and distribution facilities. Under authority of the Pennsylvania Utility Realty Tax Act (PURTA), real estate taxes collected from all utilities (water, telephone, electric, and railroads) were redistributed to the taxing jurisdictions within the Commonwealth. In Pennsylvania, these jurisdictions include counties, cities, townships, boroughs, and school districts. The distribution of PURTA funds was determined by formula, and was not necessarily based on the individual utility's effect on a particular government entity.

In 1996, Electricity Generation Customer Choice and Competition Act became law, which allowed consumers to choose among competitive generation suppliers. As a result of utility restructuring, Act 4 of 1999 revised the tax base assessment methodology for utilities from the depreciated book value to the market value of utility property. Additionally, as of January 1, 2000, PPL Susquehanna was required to begin paying real estate taxes directly to local taxing jurisdictions, ceasing payments to the Commonwealth's PURTA fund.

PPL Susquehanna pays annual real estate taxes to the Berwick Area School District (BASD), Luzerne County, and Salem Township.

Luzerne County revenues fund County operations, judicial services, correctional facilities, emergency management services, parks and recreation, public works, social services, public safety, the community college, nursing homes, libraries, and conservation and development projects (Luzerne County 2002). From 2000 through 2004, Luzerne County collected between \$48 and \$69 million annually in total real estate tax revenues (Table 2.7-1). Between 2000 and 2004, SSES's real estate taxes represented 1.8 to 2.4 percent of Luzerne County's total real estate tax revenues (Table 2.7-1).

From 2000 through 2004, the BASD collected between \$28 and \$35 million annually in total real estate tax revenues (Table 2.7-1) (BASD 2003 and Martz 2005). Between 2000 and 2004, SSES's real estate taxes represented 5.5 to 6.9 percent of the Berwick Area School District's total tax revenues (Table 2.7-1).

From 2000 to 2004, Salem Township collected between \$118,000 and \$124,000 in municipal and street taxes (Table 2.7-1). Between 2000 and 2004, SSES's real estate taxes represented 50.3 to 53.9 percent of Salem Township's municipal and street taxes.

**Table 2.7-1. Susquehanna Steam Electric Station Real Estate Tax Information 2000-2004.**

Year	Berwick Area School District (BASD)			Luzerne County			Salem Township		
	BASD Annual Revenues	Real Estate Tax Paid to BASD by SSES	Percent of Annual BASD Revenues	Real Estate Tax Collections	Real Estate Tax Paid to Luzerne County by SSES	Percent of Luzerne County Real Estate Tax Collections	Salem Township Municipal and Street Taxes	Taxes Paid to Salem Township by SSES	Percent of Salem Township Tax Collections
2000	\$28,992,654 <sup>a</sup> (2000-2001)	\$1,602,850 (2000-2001)	5.5	\$47,635,994 <sup>b</sup>	\$1,128,775	2.4	NA <sup>e</sup>	NA <sup>e</sup>	NA <sup>e</sup>
2001	\$30,888,277 <sup>a</sup> (2001-2002)	\$1,703,022 (2001-2002)	5.5	\$60,024,566 <sup>b</sup>	\$1,135,552	1.9	\$123,480 <sup>f</sup>	\$62,140	50.3
2002	\$28,534,127 <sup>a</sup> (2002-2003)	\$1,905,304 (2002-2003)	6.7	\$60,643,642 <sup>b</sup>	\$1,135,552	1.9	\$123,480 <sup>f</sup>	\$62,140	50.3
2003	\$31,724,705 <sup>c</sup> (2003-2004)	\$1,906,035 (2003-2004)	6.0	\$61,285,895 <sup>d</sup>	\$1,111,857	1.8	\$123,480 <sup>f</sup>	\$62,140	50.3
2004	\$34,059,674 <sup>c</sup> (2004-2005)	\$2,365,363 (2004-2005)	6.9	\$68,540,477 <sup>d</sup>	\$1,217,324	1.8	\$118,626 <sup>g</sup>	\$63,895	53.9

Note: Between years 2003 and 2004 there was a 24% increase in the school tax.

- a. BASD 2003
- b. Luzerne County 2002
- c. Martz 2005
- d. Allabaugh 2005
- e. Year 2000 numbers are not applicable for Salem Township
- f. Fields 2005b
- g. Sampson 2005



## **2.8 LAND USE PLANNING**

This section focuses on Luzerne or Columbia Counties because the majority of the permanent SSES workforce lives in Luzerne or Columbia Counties (see Section 3.4). Luzerne County's population has decreased 6.7 percent from 1970 to 2000. Columbia County's population has increased 16.4 percent for the same 30-year period, an average annual increase of 0.5 percent. Regional and local planning officials have shared goals of encouraging expansion and development in areas where public facilities, such as water and sewer systems, have been planned, and discouraging incompatible land use mixes in contiguous areas and strip development.

### **Luzerne County**

Luzerne County is approximately 891 square miles (USCB 2000a) and has 76 municipalities. The County is located in northeastern Pennsylvania, in the heart of the eastern "coal field" region. Anthracite coal mining played a large role in shaping the economy and the landscape of the county. However, there has been a decline in the coal industry over the past 30 to 60 years, as well as in the textile and steel industries, and it has impacted Luzerne County residents. In addition, coal mining has contaminated portions of the land (EPA 2000). The inventory of abandoned and underutilized industrial and commercial properties includes abandoned mine lands (Dooley 2005). Land use in the county is classified as follows: forest – 73.4 percent, pasture – 9.8 percent, residential – 4.3 percent, commercial/industrial/transportation – 3.2 percent, row crops – 3.1 percent, quarry/strip mine – 2.3 percent, open water 2.3 percent, wetlands – 1.5 percent, and transitional – 0.2 percent (King's College 2002).

Two-thirds of the more than 300,000 residents live in urban areas (EPA 2000). Most development (residential, commercial, industrial, recreational, and public/quasi-public) is in the northeast quadrant of the county along the U.S. Route 11 corridor which follows the banks of the Susquehanna River. There is also a significant amount of mining within these developed areas. This quadrant contains the communities of Pittston, Nanticoke, Wilkes-Barre, Dallas, and Kingston and the Frances Slocum State Park. The southeast quadrant of the county contains land that is rural, forested and mined. It also contains Freeland Borough. The northwestern quadrant is composed primarily of forested land and land that is undeveloped, open, or agricultural. It includes part of the Ricketts Glen State Park. The southwestern quadrant is characterized by forests, open, undeveloped, agricultural, mined, and developed land. The developed portions of this quadrant are located in and around the city of Hazleton and the eastern outskirts of Berwick Borough.

From 1970 to 2000, the population of Luzerne County has decreased, overall, with declines in natural growth and net migration. The majority of this reduction occurred in the urban centers. Areas adjacent to urban centers and rural areas experienced population increases, a trend similar to that in many American towns; people migrate from the commercial/industrial centers of town to the suburbs and beyond.

Additionally, although the coal and steel industry and population levels have declined, there have been small expansions in the commercial, industrial, and residential development of the County. Areas surrounding Pittston, Hazleton, and the borough of Warrior Run have experienced an increase in industrial and commercial activity. Areas in and around the Borough of Dallas, Wright Township, Rice Township, and Fairview Township have experienced the largest increase in residential development (Dooley 2005). Luzerne County planners indicated that, in most cases, the expansion of public facilities and infrastructure to meet new commercial, industrial, and residential demand has been costly and slow. County revenues are not sufficient to meet all expansion efforts when they are needed. Often times, private developers are asked to fund infrastructure changes that are required (Dooley 2005).

As stated previously, coal mining has contaminated portions of the land. There is an on-going effort by the government (e.g. EPA, state, and local) and private stakeholders to reclaim the abandoned mine lands and render them useful for residential and commercial/industrial development. Two of the largest economic development initiatives underway in Luzerne County are 1) the development of Keystone Opportunity Zones (KOZs) and 2) the remediation and conversion of mine-contaminated lands by the Earth Conservancy (Lackawanna/Luzerne 2003). Many acres have already been successfully remediated and converted (Dooley 2005 and EPA 2000). In Luzerne County, the largest number of vacant development parcels can be found between Interstate 81 and the Susquehanna River in the City of Wilkes-Barre, the City of Hazleton, Hanover Township, Nanticoke City, and Newport Township. In Hazleton for example, there are plans to cleanup three unpermitted landfills, abandoned mine lands, and other environmental problems at a 277-acre redevelopment site (PDEP 2005)

### **Columbia County**

Columbia County is approximately 486 square miles (USCB 2000b). According to the Comprehensive Plan for Columbia County (Columbia County 1993), land use falls into 10 categories: agricultural - 40.4 percent; woodland - 52.4 percent; residential - 4.0 percent; mining/quarry - 0.7 percent; public/quasi-public - 0.3 percent; commercial - 0.3 percent; recreation - 0.2 percent; industrial - 0.3 percent; transportation - 1.4 percent; public utilities - 0.2 percent (Columbia County 1993).

Most development (residential, commercial, industrial, recreational, and public/quasi-public) is in the North Central Planning Area. This planning area encompasses the primary county population and the development centers of the Town of Bloomsburg and Berwick Borough, as well as several other municipalities containing substantial development including Briar Creek, Scott, and South Centre Townships, and Briar Creek Borough (Columbia County 1993).

The land adjacent to US Route 11 serves as a high-density mixed-use development corridor within the county. Beyond this corridor, both north and south, the county is dominated by woodlands with large pockets of low-density residential development. Three exceptions to these rural outlying areas are the Millville, Benton, and Catawissa Boroughs. Agricultural land is currently being protected in Columbia County through three incentive programs: differential assessment, agricultural security areas, and purchase of agricultural conservation easements (Columbia County 1993).

Population and employment projections have been used by the county to develop estimates of future land use needs. The county estimates that approximately 3,680 to 16,000 acres will be needed to accommodate future population increases. Columbia County has approximately 67,000 undeveloped acres with no impediments to development and 102,400 undeveloped acres restricted from development because the soil does not provide adequate percolation to meet sewage treatment requirements. The restricted acreage could be developed if a centralized wastewater collection/treatment system were to be constructed. It is evident when comparing future total projected land use acreage needs to the available unrestricted land, that sufficient land area is available to accommodate future growth (Columbia County 1993).

## **2.9 SOCIAL SERVICES AND PUBLIC FACILITIES**

### **2.9.1 Public Water Supply**

Because SSES is in Salem Township (in Luzerne County) and most of the SSES employees reside in Luzerne or Columbia Counties, the discussion of public water supply systems will be limited to Luzerne and Columbia Counties. SSES provides potable water for drinking, pump seal cooling, sanitation, and fire protection through the onsite groundwater well system. Three additional wells provide water to the Energy Information Center, Riverlands Recreation Area, and the West Building (former Emergency Operations Facility) (see Section 3.1.2 for greater detail). SSES does not use municipal water.

#### **Luzerne County**

Surface water is the primary source of potable water for the majority of Luzerne County residents. Sources include lakes, rivers, reservoirs, and their tributaries, but not the Susquehanna River. The Susquehanna River is a source for drinking water for residents south of Danville Borough, Montour County, PA (Gavin 2005). Currently, both surface and groundwater sources in the county provide adequate supply for the population. At times, water quality issues have identified in selected surface water bodies and groundwater sources from both point source and non-point source pollution. These issues have included excessive metals concentrations, acid mine drainage, turbidity, excessive sedimentation, sewage contamination, landfill leachate, and excessive volatile chemicals, nitrates/nitrites, pesticides, petroleum products and underground storage tank contamination (PDEP Undated). Although water quality has been an issue at some source locations, most sources and municipal water suppliers are able to provide water yields capable of sustaining both domestic and non-domestic uses.

[Table 2.9-1](#) lists the largest municipal water suppliers (serving greater than 4,500 people) in Luzerne County.

#### **Columbia County**

Columbia County has 13 surface water sources and 11 groundwater sources. Water quality issues have been identified in two surface water bodies and some groundwater sources. These include excessive metals concentrations, acid mine drainage, sedimentation, sewage contamination, landfill leachate, and underground storage tank contamination. Columbia County's Comprehensive Plan (Columbia County 1993) states that, although water quality has been an issue in some source locations, most

sources are able to provide water yields capable of sustaining both domestic and non-domestic uses through 2010 estimates of need.

Table 2.9-2 lists the largest municipal water suppliers (serving greater than 4,500 people) in Columbia County.

**Table 2.9-1. Major Luzerne County Public Water Suppliers<sup>a</sup>**

Water Supplier <sup>b</sup>	Water Source <sup>b</sup>	Average Production (GPD) <sup>c</sup>	Maximum Production (GPD) <sup>c</sup>	Design Capacity (GPD) <sup>c</sup>
Freeland Borough Municipal Water Authority	GW	430,438	709,000	1,613,200
HCA Water System Filter Plant -Hazleton	SW	5,394,000	7,700,000	10,000,000
Pennsylvania American Water Company -Ceasetown <sup>d</sup>	SW	3,500,000	3,950,000	N/A
Pennsylvania American Water Company -Crystal Lake	SW	3,420,000	5,000,000	6,000,000
Pennsylvania American Water Company -Huntsville <sup>e</sup>	SW	N/A	4,500,000	N/A
Pennsylvania American Water Company -Nesbitt <sup>e</sup>	SW	10,000,000	11,000,000	12,000,000
Pennsylvania American Water Company -Watres <sup>d</sup>	SW	10,000,000	16,000,000	16,000,000
United Water Pennsylvania -Dallas	GW	462,000	569,000	1,566,000

GW = Groundwater

SW = Surface water

GPD = Gallons per Day

N/A – Not Applicable or No Information Available.

a. Municipal water suppliers serving populations greater than 4,500.

b. EPA 2004

c. PDEP 2004

d. Ceasetown and Watres are part of the same water system.

e. Huntsville and Nesbitt are part of the same water system.

**Table 2.9-2. Major Columbia County Public Water Suppliers<sup>a</sup>**

<b>Water Supplier<sup>b</sup></b>	<b>Water Source<sup>b</sup></b>	<b>Average Production (GPD)<sup>c</sup></b>	<b>Maximum Production (GPD)<sup>c</sup></b>	<b>Design Capacity (GPD)<sup>c</sup></b>
Pennsylvania American Water Company -Berwick	GW	1,739,000	2,477,000	4,600,000
United Water Pennsylvania -Bloomsburg	SW	2,581,000	3,479,000	4,147,200

GW = Groundwater

SW = Surface water

GPD = Gallons per Day

N/A – Not Applicable or No Information Available.

a. Municipal water suppliers serving populations greater than 4,500.

b. EPA 2004

c. PDEP 2004

## 2.9.2 Transportation

Road access to SSES is via US Route 11, a two-lane paved road with a northeast-southwest orientation (Figures 2.1-2 and 2.1-3). SSES lies to the west of US Route 11 and the Susquehanna River. Approximately four miles north of SSES, US Route 11 intersects with State Route (SR) 239, which travels in a northwest-southeast direction. East of this intersection, SR 239 crosses the Susquehanna River. Several miles south of SSES, US Route 11 intersects with SR 93. East of this intersection, SR 93 crosses the Susquehanna River. East of the intersection of SR 93 and the Susquehanna River, SR 93 intersects SR 339, which has a northeast-southwest orientation. Five to ten miles south of SSES, SRs 93 and 339 intersect with Interstate 80, which has an east-west orientation. Five to ten miles southeast of SSES, Interstate 80 intersects with Interstate 81, which has a northeast-southwest orientation. Employees traveling from the north or northwest of SSES would use SR 239 and US Route 11 to reach the station. Employees traveling from the northeast would use US Route 11. Employees traveling from the south or southwest of SSES could use varying combinations of the following roads to reach the station: Interstate 80, SR 339, SR 93, and US Route 11. Employees traveling from the east and southeast could use SR 239, Interstates 80 and 81, SR 93, and US Route 11. When nearing SSES, all employees must use US Route 11.

## Luzerne County

Luzerne County has, in conjunction with Lackawanna County, developed a Long Range Transportation Plan (Lackawanna/Luzerne Counties 2003). The Plan depicts the

existing transportation system, proposed modifications, and future projections for the system in these counties. For the purposes of this report, Luzerne County information only will be the focus of this subsection.

The existing Luzerne County highway system provides local access to Scranton, Wilkes-Barre, Hazleton, and regional access to New York City, Philadelphia, and other major northeast cities. Public transit in the Luzerne County Area is based in the cities of Hazleton and Kingston Borough (with the hub located in Wilkes-Barre). The Luzerne County Transportation Authority and the City of Hazleton manage these systems. The Luzerne County Rail Corporation operates rail services within Luzerne County. Services include freight and limited passenger rail. Airports serving Luzerne County include the Wilkes-Barre/Scranton International Airport, Seaman's Field, the Wyoming Valley Airport, and the Hazleton Airport (Lackawanna/Luzerne Counties 2003).

Luzerne County is host to a diverse highway network. Interstate 80 runs east-west through the southern half of Luzerne County providing direct access east to New Jersey and New York City, less than 100 miles away, and access to Ohio and the western states. Interstate 80 is a four-lane divided highway built to accommodate large volumes of passenger vehicles and motor freight. Oriented north-south are Interstates 81 and 476 (the Pennsylvania Turnpike Northeast Extension). Interstate 81 runs north through Hazleton and Wilkes-Barre into upstate New York and south to Harrisburg and the Maryland border. The Pennsylvania Turnpike Northeast Extension is a direct route from Interstate 80 north to Wilkes-Barre and Scranton terminating at Interstate 81. The Extension provides access to regional centers to the south, including Allentown and Philadelphia. U.S. Route 11 runs northeast-southwest through Wilkes-Barre, connecting it with Harrisburg and New York State (Lackawanna/Luzerne Counties 2003).

Traffic volumes are measured in terms of Average Annual Daily Traffic (AADT), which is an average of daily traffic for every day of the year. In Luzerne County, traffic volumes are highest on the interstate highways such as Interstate 81, Interstate 80, and 476. Heavier traffic volumes are especially concentrated around the cities of Wilkes-Barre and Hazleton (Lackawanna/Luzerne Counties 2003).

Between 1992 and 2001, traffic has grown on all interstate highways in Luzerne County. Between 1992 and 2001, increases in traffic volumes on Interstate 80 have ranged from 24 percent to 110 percent or from 4,550 to over 15,000 AADT (Lackawanna/Luzerne Counties 2003). On some roadway segments, truck traffic has increased at a greater rate than passenger vehicle traffic. Historic traffic volume data have shown that this is the case on sections of Interstate 80 in Luzerne County (Lackawanna/Luzerne Counties

2003). In an effort to maintain the ability to accommodate an ever-increasing number of vehicles, state and local authorities have implemented a number of maintenance and improvement projects to alleviate problems (Lackawanna/Luzerne Counties 2003).

### **Columbia County**

Columbia County is well-served by its existing roadways. The two primary east-west corridors are U.S. Route 11 and Interstate 80 which travel through Columbia County's midsection. These primary roadways are intersected by several north-south corridors which provide immediate access to Bloomsburg and Berwick. Interstate 80 is a four-lane divided highway built to accommodate large volumes of passenger vehicles and motor freight. Since the mid-1970s, Columbia County's primary roadway network has experienced a substantial increase in traffic volumes. In an effort to maintain the ability to accommodate an increasing number of vehicles, state and local authorities have implemented a number of maintenance and improvement projects (Columbia County 1993).

In determining the significance levels of transportation impacts for license renewal, the NRC uses the Transportation Research Board's level of service (LOS) definitions (NRC 1996). The Pennsylvania Department of Transportation makes LOS determinations for roadways involved in specific projects. However, there are no current LOS determinations for the roadways analyzed in this document (Luben 2004). Because LOS data are unavailable, AADT volumes were substituted. [Table 2.9-3](#) lists roadways in the vicinity of SSES and the AADT volumes, as determined by the Pennsylvania Department of Transportation.



**Table 2.9-3. AADT Counts for Roads in the Vicinity of SSES.**

Roadway and Location	Annual Average Daily Traffic (AADT)	Year (Most Current)
US 11 – east of the intersection with Interstate 80	17,000	2002
US 11 – between Secondary Route 4037 and the intersection with SR 93.	11,000	2002
US 11 – between Secondary Route 4037 and the intersection with Secondary Route 4002.	8,300	2002
US 11 – between the intersection with Secondary Route 4002 and the intersection with Secondary Route 4004.	6,600	2002
US 11 – near the intersection with SR 239.	11,000	2002
US 11 -- between the intersection with SR 239 and the intersection with Secondary Route 4016.	7,200	2002
US 11 -- between the intersection with Secondary Route 4016 and the confluence of US 11 and SR 29.	11,000	2002
US 11 -- near the intersection with Secondary Route 0011.	18,000	2002
SR 239 – between the intersection with US 11 and the intersections with Secondary Routes 4010, 4007, and 4012.	5,700	2002
SR 93 -- just south of the intersection with US 11.	12,000	2002
Interstate 80 – near the intersection with SR 93.	32,000	2002
SR 93 – between the intersection with Interstate 80 and the intersection with Secondary Route 3036.	5,500 to 5,900	2002
SR 339 – between the intersection with Interstate 80 and the intersection with SR 93.	2,300 to 6,500	2002

Source: PDOT 2004.

Note: All AADTs represent traffic volume during the average 24-hour day during the year indicated.

## **2.10 METEOROLOGY AND AIR QUALITY**

SSES is located in Luzerne County in east central Pennsylvania. The area is characterized by considerable snow during the winter and relatively hot humid summers with precipitation distributed evenly throughout the year (PPL 2005). Meteorological information relevant to the severe accident mitigation alternatives analysis is provided in Attachment E.

The U.S. Environmental Protection Agency (EPA) has established National Ambient Air Quality Standards (NAAQS) for six common pollutants. These “criteria pollutants” include nitrogen dioxide, sulfur dioxide, particulate matter, carbon monoxide, lead, and ozone. The EPA has designated all areas of the United States as having air quality better than (attainment) or worse than (non-attainment) the NAAQS.

Luzerne County is part of the Scranton-Wilkes-Barre, Pennsylvania metropolitan statistical area (MSA). With the exception of ozone, this MSA is designated as an attainment area for all NAAQS currently in effect (EPA 2003b).

In July 1997, the EPA issued final rules establishing new annual arithmetic mean and 24-hour standards for fine particulate matter with aerodynamic diameters of 2.5 microns or less (PM-2.5) and a new 8-hour ozone standard. After several years of litigation, the PM-2.5 and 8-hour ozone standards have been upheld.

On April 15, 2004, the EPA issued final rules establishing the air quality designations and classifications under the 8-hour ozone NAAQS for every area in the United States (69 FR 23857). Effective June 15, 2004, the Scranton-Wilkes-Barre MSA was designated as a basic non-attainment area under the 8-hour ozone NAAQS.

On January 5, 2005, the EPA issued final rules establishing the air quality designations and classifications under the PM-2.5 NAAQS for every area in the United States (70 FR 945). Effective April 5, 2005, 22 Pennsylvania counties were designated as non-attainment areas under the PM-2.5 NAAQS. The EPA did not designate any counties in the Scranton-Wilkes-Barre MSA as PM-2.5 non-attainment areas. However, eleven counties in southeastern Pennsylvania, including Berks (32 miles from SSES), Montgomery (49 miles from SSES), and Bucks (48 miles from SSES) counties, were designated as PM-2.5 non-attainment areas.

## **2.11 HISTORIC AND ARCHAEOLOGICAL RESOURCES**

### **Area History in Brief**

#### **Prehistoric**

Aboriginal people migrated to Pennsylvania approximately 10,000 to 15,000 or more years ago. Three major cultural traditions dominated the prehistory of Pennsylvania: (1) the Paleo-Indian Tradition (15,000+ to 10,000 years ago); (2) the Archaic Tradition (10,000 to 3,000 years ago); and (3) the Woodland Tradition (3,000 years ago to European contact) (CAI 1981).

The Paleo-Indian period corresponds with the waning of the last glaciers. During glaciation, environmental zones were shifted hundreds of miles to the south, and now-extinct megafauna roamed the landscapes. It is believed that nomadic Paleo-Indians hunted these large animals. This period is characterized by the Clovis point, a distinctive, fluted, lanceolate point that is widely distributed throughout Pennsylvania, especially in the Susquehanna and Delaware River drainages. Pennsylvania Paleo-Indian sites also contain scrapers; spurred-end scrapers; drills; cores; bifaces; microblades; and small uniface, biface, and flake knives.

As the glaciers retreated into Canada, environmental zones shifted northward, eventually assuming positions closely approximating those of today. The largest fauna became extinct and humans adapted to exploit modern flora and fauna, particularly deer, elk, rabbits, and squirrels, and vegetable products of the forest, such as nuts and greens. The Archaic period was concomitant with the retreat of the glaciers and is characterized by the increasing use of a greater diversity of forest products and an apparent population increase. It is subdivided into the Early, Middle, and Late periods, each lasting two to three thousand years, and has several major cultural traditions – particularly the Laurentian, Lamoka, and Piedmont. Warming and the retreat of glaciers led to the succession of vegetation zones, tundra-spruce-fir-pine-mixed deciduous-oak-hickory, passing through Pennsylvania. Tool forms changed and the culture showed stylistic changes and increased diversity of forms. As megafauna became extinct, so did the fluted lanceolate point. It was replaced by forms more locally styled. Knives, scrapers, drills, and other chipped stone tools, as well as bone tools continued as important elements of Archaic assemblages.

The Archaic period was followed by the Woodland period, which is also subdivided into the Early, Middle, and Late periods. The major trait delineating the Woodland from the Archaic is the addition of ceramics. The practice of horticulture, the construction of earthen mounds for burial of the dead and, later, the introduction of the bow and arrow

are also considered Woodland innovations. During this period the Hopewell culture dominated much of the eastern United States. Traces of the Hopewell culture are present in Pennsylvania.

### **Historic**

In the mid 17th century, when the first Europeans came to the area now known as Pennsylvania, they found Late Woodland people, known as the Delaware, Shawnee, Iroquois, and Susquehannock. The Susquehannocks inhabited the area now occupied by SSES. They were an Iroquoian-speaking tribe who lived along the Susquehanna River in Pennsylvania and Maryland. Living in Algonkian-speaking tribes' territory, they engaged in many wars. In the end, they were victims of diseases brought by European settlers, and to attacks by Marylanders and the Iroquois which destroyed them as a nation by 1675. A few descendants were among the Conestoga Indians who were massacred in 1763 in Lancaster County (PGA Undated).

The rise of nation-states in Europe coincided with the gaining of lands in North America. Wars in southern Germany caused many Germans to migrate to Pennsylvania. The struggle in England between the Crown and Parliament and the quest for religious freedom brought Quakers, Puritans, and Catholics from England, and Scot Calvinists via Ireland. Huguenots left France for America (PGA Undated).

The first recorded European contact with present-day Pennsylvania was made by Captain John Smith who journeyed from Virginia up the Susquehanna River in 1608, visiting the Susquehannock Indians. Between 1609 and 1681, the Dutch, Swedes, and English inhabited and fought over the region that would later become eastern Pennsylvania. Ultimately, the English prevailed and the area fell under English rule.

William Penn was born in London on October 24, 1644. As a young man, he converted to the Society of Friends, or Quakers, then a persecuted sect. Seeking a haven in the New World for persecuted Friends, Penn asked the King to grant him land in the territory between Lord Baltimore's province of Maryland and the Duke of York's province of New York. With the Duke's support, Penn's petition was granted. The King signed the Charter of Pennsylvania on March 4, 1681, and it was officially proclaimed on April 2. The King named the new colony in honor of William Penn's father (PHMC Undated a).

Although William Penn was granted all the land in Pennsylvania by the King, he and his heirs chose not to grant or settle any part of it without first buying the claims of Native Americans who lived there. In this manner, all of Pennsylvania except the northwestern third was purchased by 1768. The Commonwealth bought the claims to the remainder of the land by 1789 (PHMC Undated-a).

English Quakers were the dominant settlers, although many of them were Anglican. Thousands of Germans were also attracted to the colony and, by the time of the American Revolution, they comprised a third of the population. Another immigrant group was the Scotch-Irish, who migrated from about 1717 until the American Revolution in a series of waves caused by hardships in Ireland (PHMC Undated-a).

Other Quakers were Irish and Welsh. They, together with the French Huguenots, Jewish settlers, Dutch, Swedes, and other groups, contributed in smaller numbers to the development of colonial Pennsylvania (PHMC Undated-a).

Despite Quaker opposition to slavery, about 4,000 slaves were brought to Pennsylvania by 1730, most of them owned by English, Welsh, and Scotch-Irish colonists. The census of 1790 showed that the number of African-Americans had increased to about 10,000, of whom about 6,300 were free (PHMC Undated-a).

### **Regional Profile**

The area surrounding SSES had a number of prehistoric populations. Remains of their subsistence-settlements are frequently found along major waterways, including the Susquehanna River and its branches. Village sites and trails associated with the Delaware, Nanticoke, Shawnee, Iroquois, Susquehannock, and other Native American tribes were located in the Susquehanna Valley. By the mid-eighteenth century, settlers began to occupy and lay claim to the Luzerne and Columbia County areas, which was then called Wyoming. In the years that followed, periods of unrest and war were frequent as various European, pioneers, and Native American groups sought possession of the Wyoming lands. The nineteenth century marked the beginning of settlement and stabilization in the Luzerne and Columbia County portions of Wyoming. By the beginning of the 20th century, the economic base of the area had shifted from agriculture, fishing, and lumbering to mining and manufacturing centered in three urban areas: Wilkes-Barre, Hazleton, and Pittston (NRC 1981).

### **Luzerne County**

Luzerne County was created on September 25, 1786 from part of Northumberland County and named for the Chevalier de la Luzerne, French minister to the United States. Wilkes-Barre, the county seat, was laid out in 1772 and named for two members of the English Parliament, John Wilkes and Isaac Barre, both advocates of American rights. It was incorporated as a borough on March 17, 1806 and as a city on May 4, 1871 (PHMC Undated-b). Presently, Luzerne County produces about one-fourth of the anthracite coal in the state, mostly by surface operations. Economically, the county has had heavy unemployment since World War II, although new mining machines had made mining labor-efficient long before the market diminished in the

1960s. Only about one-eighth of Luzerne is farmed; harvested crops, especially potatoes, are more valuable than animal products (PHMC Undated-b).

### **Columbia County**

Columbia was created on March 22, 1813 from part of Northumberland County. Bloomsburg, the county seat, was incorporated as a town on March 4, 1870, and is the only incorporated town in the state. Its name comes from Bloom Township, which was named for Samuel Bloom, a commissioner of Northumberland County. Berwick, the borough in Columbia County nearest SSES, was laid out in 1783 (PHMC Undated-b).

In Columbia County's history, boom-bust economics have had an impact. A boom in anthracite mining and the lumber industry occurred, however, similar to Columbia's farming, these industries yielded to competition in the 1930s. Abandoned coal mines are numerous and spread throughout eastern Pennsylvania. Also, a railroad car complex and Bloomsburg's silk and carpet works prospered until the national trend toward deindustrialization began in recent decades (Undated – incomplete reference).

### **Initial Construction and Operation**

The Final Environmental Statement (FES) for construction of SSES listed eight important historic landmarks in Luzerne and Columbia Counties [Atomic Energy Commission (AEC 1973)]. Four were National Historic Register sites: Eckley Historic District, 19 miles southeast of SSES; Denison House, 20 miles northeast in Forty Fort; George Catlin Hall, Wilkes-Barre; McClintock House, Wilkes-Barre. The other sites were: Wapwallopen Native American Village, two miles southeast; Nescopeck Native American Village, five miles southwest; Council Cup Native American meeting place, near Wapwallopen; and the North Branch Canal. The AEC concluded that the construction of SSES would have no effect on any national historical landmarks and reported that Mr. Ira F. Smith, Archeologist at the William Penn Museum, and Mr. William J. Wewer, Executive Director of the Pennsylvania Historical and Museum Commission and State Liaison Officer for Historical Preservation, stated that the SSES project would not adversely impact any known archaeological or historical resources of value (AEC 1973).

In the FES for operation of SSES, the NRC concluded that direct impacts of the Station's operation on cultural resource sites would be expected to be minimal if known prehistoric sites were protected by a well-designed mitigation/avoidance program, and if care was exercised to recognize and protect cultural resources discovered during operational activities involving disruption of topsoil or vegetation (NRC 1981).

The NRC indicated that two Pennsylvania Power and Light Company (PP&L)-funded cultural resource studies of SSES property had taken place since the construction FES (NRC 1981).

**The Knouse Site, an Historical Site in Luzerne County, Pennsylvania. 1978.**

The first study was conducted in 1978 in response to an effort by PP&L to develop land across the Susquehanna River from the PPL Susquehanna station site. It was a study and subsequent salvage excavation of an historic Native American cemetery in an area called the Knouse site. Twenty-one burials and associated artifactual materials were removed by the Pennsylvania Historical and Museum Commission for further study. (NRC 1981).

**Archaeological Investigations at the Susquehanna Steam Electric Station**

In 1980, PP&L funded a second archaeological investigation at the SSES site (CAI 1981). The investigation identified prehistoric cultural resources on the floodplain below the site on the west side of the Susquehanna River. Eight sites were identified on SSES property. Of the eight sites, three were considered to be significant and offered possibilities for recommendation to the National Register by the Pennsylvania State Archaeologist. One additional site was considered to be potentially significant. Of the three significant sites, only one was considered to be in danger of adverse impact. Mitigating actions were recommended at site SES-6 and, at the time of publication of the document for this investigation, PP&L was in the process of implementing the recommendations (CAI 1981). The other two significant sites and the potential site required preservation only from future relandscaping and construction activities. In this investigation, it was concluded that, “[n]one of these recommendations should significantly alter PP&L’s plans or schedule of activities for completion of the SES project.”

A field review of the four archaeological sites of interest at the SSES was conducted on October 11, 2004. These sites have been monitored occasionally since the initial report of 1981 and additional mitigation actions have not been necessary.

The first site (SES 3) is located along the access road to the Environmental Laboratory. The site has not been disturbed and is covered either by the access road or dense shrub vegetation maintained under the power lines. No future disturbance is anticipated.

The second site (SES 6) is located along a drainage way between agricultural fields opposite Lake Took-A-While. Although this area was flooded during Hurricane Ivan in September, 2004, there was no erosion and planted vegetative cover remains in place.

The banks of the cut have been covered with grass after grading pursuant to the recommendations in (CAI 1981). There are no plans to disturb this area.

The third site (SES 8) is located in agricultural fields. At the time of this survey, field corn and potatoes were present (neither had been harvested). This area has been in continuous agriculture, but no disturbance below the plow line is evident.

The fourth site (SES 11) lies in a secondary flood plain forest near the Susquehanna River opposite Gould Island. This area has been undisturbed and is vegetated with a young forest of river birch, silver maple, and black cherry. No disturbance is evident or is planned at this site.

**Current Status**

As of 2004, the National Register of Historic Places listed 31 locations in Luzerne County and 29 locations in Columbia County, Pennsylvania (U.S. Department of the Interior 2004). Of these 60 locations, five fall within a 6-mile radius of SSES. [Table 2.11-1](#) lists the five National Register of Historic Places sites within the 6-mile radius of SSES.

**Table 2.11-1. Sites Listed in the National Register of Historic Places that fall within a 6-mile Radius of SSES**

Site Name	Location
Bittenbender Covered Bridge	South of Huntington Mills off of LR 40076, Huntington Township.
Benjamin Evans House	Off of PA 93, Nescopeck.
Berwick Armory	201 Pine Street, Berwick.
Fowlersville Covered Bridge	SR 19039, Fowlersville.
Jackson Mansion and Carriage House	344 Market Street, Berwick.

Source: U.S. Department of the Interior 2004.

PPL Susquehanna has consulted with the State Historic Preservation Officer, who has agreed that the license renewal will have no adverse effect on significant cultural resources within the project area (PHMC 2005).



## **2.12      KNOWN OR REASONABLE FORSEEABLE PROJECTS IN SITE VICINITY**

### **EPA-Permitted Dischargers to Air, Water, and Soil**

PPL Susquehanna has applied for an Extended Power Uprate for SSES. The impacts evaluated in this environmental report consider extended operations at the increased power levels associated with this uprate.

The Safety Light Corporation is a manufacturing facility in Bloomsburg, approximately 17 miles southwest of Berwick. Safety Light Corporation currently uses tritium in the manufacture of self-illuminated signs. In the late 1940s U.S. Radium Corporation began operations at the site and used radium-226, strontium-90, promethium-147, thallium-204, nickel-63, cesium-137, and krypton-85. U.S. Radium buried radioactive wastes on-site, which resulted in the contamination of on-site soils and groundwater. The site has been proposed for listing on the National Priorities List.

### **Utilities within the Vicinity of SSES**

#### **Hunlock Power Station**

The Hunlock Power Station (HPS) is approximately 10 miles northeast of SSES. It is a two-unit electric power station with 94 MW net capacity. One unit is a 50 MW coal-fired plant which began operation in 1959 and the other is a 44 MW natural gas-fired plant which began operation in 2000. HPS is owned by UGI Development Company (EIA 2004).

## 2.13 REFERENCES

Note to reader: Some web pages cited in this document are no longer available, or are no longer available through the original URL addresses. Hard copies of cited web pages are available in PPL Susquehanna files. Some sites, for example the census data, cannot be accessed through their given URLs. The only way to access these pages is to follow queries on previous web pages. The complete URLs used by PPL Susquehanna have been given for these pages, even though they may not be directly accessible. Also, all references are specific to respective chapter.

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