



May 29, 2013

ATTN: Document Control Desk
U.S. Nuclear Regulatory Commission
Washington, DC 20555-0001

**BELL BEND NUCLEAR POWER PLANT
COD SENSITIVITY
BNP-2013-075 Docket No. 52-039**

The purpose of this letter is to transmit PPL Bell Bend's (PPL's) evaluation of the impact of an updated Commercial Operation Date (COD) for the Bell Bend Nuclear Power Plant (BBNPP) in several areas of the BBNPP Environmental Report (ER).

Based on discussions with our Environmental Project Manager, the following ER Sections were reviewed, with results as presented below:

Census Data for Socioeconomic Analyses (ER Section 2.5): Information based on updated census data was provided in PPL's response to NRC Need for Information S/EJ-01 (Enclosure 1 to Letter BNP-2012-131, dated May 31, 2012, salient portion provided as Attachment 1 herein).

Socioeconomic Impacts (ER Section 4.4): The review of this section generated the following conclusions:

4.4.1: The physical impacts analyzed would not change due to the updated COD. These impacts would be the same whenever the plant is built. A sensitivity study of traffic impacts based on the updated COD is presented in Attachment 2. The study concludes there are no significant environmental impacts to a change in COD. Study conclusions are as follows:

- With one exception, the COD Change does not result in a change in the Level of Service (LOS) category at any intersection, nor any change in delay per vehicle greater than 1.0 sec/vehicle, nor in any violation of the 10-second PennDOT change threshold that requires mitigation.
- For one intersection, there was a change that exceeded the 10-second change threshold relative to the "future no build" scenario (it went from 9.8 to 10.5 sec/vehicle), but the mitigation is identified and very minor.

4.4.2, 4.4.3: Socioeconomic and Environmental Justice impacts are driven by the influx of new workers. The peak workforce required would not change based on the updated COD. Accordingly, no changes to the impacts as presented are identified.

Construction Worker Dose (ER Section 4.5): PPL's response to NRC Request for Additional Information (RAI) 116 (Reference: BNP-2012-264, dated October 30, 2012) addresses this issue. The analysis was not time-dependent, because it was assumed that the Susquehanna SES Independent Spent Fuel Storage Installation was filled to capacity, as reflected in COLA Revision 4 Part 3 ER Section 4.5.

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Need for Power (ER Chapter 8): A sensitivity study of this section based on the updated COD is presented in Attachment 3. The study confirms the need for power in the timeframe of the revised COD. Study conclusions are as follows:

8.2: The electric outlook in Pennsylvania remains unchanged. Power Demand escalation is projected to continue well into the 2020's. In addition, the transmission system will continue to have the capability to add generation in the future.

8.3: Power supply continues to be diminished by old plant retirements and new build plants dropping out of the PJM queue. The amount of generation to be retired by 2019 has increased since the previous update in PPL's Response to NRC Need for Information Request NFP-01 (Reference : BNP-2012-131, dated May 31, 2012).

8.4: Assessment for Need for Power – Based on a review of updated references (PJM, NERC, Reliability First Corporation) as reflected in Attachment 3, the benefits listed in ER Revision 4.0 Section 8.4.3 remain unchanged.

Energy Alternatives (ER Section 9.2): The review of this section generated the following conclusions:

9.2.1, 9.2.2: The current conclusions that such measures are not sufficient to provide the 1600 MWe of baseload capacity, or would create greater environmental impacts than the proposed action, remain accurate based on the updated COD.

There have been no technological breakthroughs since 2008 that make a change to these conclusions based on proven technology, identify any new technology with the capability to provide the 1600 MWe of baseload capacity, or that create a lesser environmental impact than the proposed action.

9.2.3: The environmental impacts reviewed in Table 9.2-1, "Impacts Comparison Table" are not impacted by the updated COD. It is acknowledged that the economic impacts have changed, and will continue to change with time; however, the associated alternatives do not require further review because they have not been deemed to be environmentally preferable to the proposed action.

Should you have questions, please contact the undersigned at 610.774.7552.

I declare under penalty of perjury that the foregoing is true and correct.

Executed on May 29, 2013.

Respectfully,



Rocco R. Sgarro

RRS/kw

Attachments: As stated

cc: (w/ Attachments)

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Attachment 1

PPL's Response to NRC Need for Information S/EJ-01 (from Enclosure 1 to Letter
BNP-2012-131, dated May 31, 2012

S/EJ-01: Provide the author of the demographics analysis to discuss the availability of updated census data to identify current demographic and economic characteristics within the 50 square mile geographic area of comparison in the two county region of influence. Be prepared to discuss the availability of updated census data for all relevant socioeconomic and environmental justice sections of the ER.

Audit Disposition: Upon review of this NFI response the NRC requested to be provided a docketed copy, included in its entirety below.

Response: The following is a comparison of the socioeconomics and environmental justice ER sections, which were prepared using 2000 U.S. Census data, with updated census data. Since the 2000 U.S. Census data was published, the U.S. Census Bureau has published the 2006–2010 American Community Survey (ACS) data and the 2010 Decennial Census data. The comparison is for the 50-mile (80-kilometer) geographic area around the BBNPP site and the two-county region of influence (ROI) that includes Luzerne County and Columbia County. A review of updated census data indicates that there is not a large change in the demographic composition of the population between the 2000 and 2006-2010 census periods.

1. Socioeconomic Characteristics

To determine whether the socioeconomic characteristics of the 50-mile study area have changed over the last 10 years, key socioeconomic variables such as total population, age, gender, employment, housing, ethnic composition, and poverty were reviewed across the 2000, 2010 and 2006-2010 datasets.

As shown in Table 1, between 2000 and 2010 the population within the Commonwealth of Pennsylvania grew by 3.4%, from 12,281,054 persons to 12,702,379 persons. This rate of growth is much lower than the levels reported within the United States on average. Nationwide, population growth between the two census periods was reported to be 9.7%, from 281.4 million in 2000 to 308.7 million in 2010. During the same period, the 22 counties located within the 50-mile radius circle of the proposed Bell BBNPP site, grew by 7%, from 2,815,105 persons to 3,010,800 persons, an increase of 195,695 persons. Based on the 2006-2010 ACS data, growth rate in the 22-county area was greater than that of the Commonwealth. The 22-county area grew by 6% and the Commonwealth grew by 2.7%. The fastest growing counties, such as Pike, Monroe, and Carbon Counties, are all located east of the proposed BBNPP site towards the outer periphery of the study area. Growth within Columbia and Luzerne Counties shows mixed trends. Between 2000 and 2010, Columbia County reported a growth of 4.9%, whereas Luzerne County reported a modest 0.5% growth. Combined, the two counties had a population growth of 1.3%, less than both the 22-county region and the Commonwealth.

Table 1: Population Change, 2000 and 2010

Geographic Area	Census 2000	2006-2010 American Community Survey	Census 2010	Change: 2000 to 2010	
	Number	Number	Number	Number	Percent
Pennsylvania	12,281,054	12,612,705	12,702,379	421,325	3.4%
Berks	373,638	407,310	411,442	37,804	10.1%
Bradford	62,761	62,415	62,622	-139	-0.2%
Carbon	58,802	64,563	65,249	6,447	11.0%
Columbia	64,151	66,642	67,295	3,144	4.9%
Dauphin	251,798	264,823	268,100	16,302	6.5%
Lackawanna	213,295	213,731	214,437	1,142	0.5%
Lebanon	120,327	131,341	133,568	13,241	11.0%
Lehigh	312,090	343,946	349,497	37,407	12.0%
Luzerne	319,250	319,120	320,918	1,668	0.5%
Lycoming	120,044	116,376	116,111	-3,933	-3.3%
Monroe	138,687	168,080	169,842	31,155	22.5%
Montour	18,236	18,152	18,267	31	0.2%
Northampton	267,066	294,536	297,735	30,669	11.5%
Northumberland	94,556	94,099	94,528	-28	0.0%
Pike	46,302	56,993	57,369	11,067	23.9%
Schuylkill	150,336	148,288	148,289	-2,047	-1.4%
Snyder	37,546	39,400	39,702	2,156	5.7%
Sullivan	6,556	6,467	6,428	-128	-2.0%
Susquehanna	42,238	43,343	43,356	1,118	2.6%
Union	41,624	44,866	44,947	3,323	8.0%
Wayne	47,722	52,302	52,822	5,100	10.7%
Wyoming	28,080	28,262	28,276	196	0.7%
Total (22 county area)	2,815,105	2,985,055	3,010,800	195,695	7.0%

Source: U.S Census Bureau, 2000 and 2010 Census. 2006–2010 American Community Survey Data.

Table 2 shows the socioeconomic characteristics of the population within the block groups that are either fully within or partially within the 50-mile study area. Between the 2000 and 2010, the population within the study area increased by 99,181 persons, an increase of just 5.6% over the 10-year period. In terms of age distribution of the population, persons 18 years and over increased by 7.5% over the 10-year period and seniors, while persons above the age of 65 years, increased by 2.2%. The number of females in the study area increased from 900,643 persons in 2000 to 942,120 persons in 2010, an increase of 4.6% over the 10-year period.

Table 2: Socioeconomic Characteristics of Population

Demographic and Economic Characteristics	0-10 mi	10-20 mi	20-30 mi	30-40 mi	40-50 mi	0-50 mi	0-50 mi Percent Change (2000 and 2010)	0-50 mi Percent Change (2000 and 2006 ACS)
Total Population (2000)	68,732	320,441	364,475	552,939	822,679	1,760,217		
Total Population (2006-2010 ACS)	70,840	324,451	361,547	562,162	887,011	1,842,752		4.7%
Total Population (2010)	71,969	325,418	363,231	570,285	898,126	1,859,398	5.0%	
Age Composition								
Persons under 5 years (2000)	3,353	15,738	17,887	29,539	46,856	94,329		
Persons under 5 years (2006-2010 ACS)	3,289	16,440	17,984	29,057	50,766	100,134		6.2%
Persons under 5 years (2010)	3,427	16,719	17,927	29,370	49,785	99,864	5.9%	
Persons 18 years and over (2000)	53,402	253,247	287,028	425,423	624,769	1,361,146		
Persons 18 years and over (2006-2010 ACS)	55,857	259,424	289,537	443,739	684,515	1,444,109		6.1%
Persons 18 years and over (2010)	57,711	260,443	292,055	451,545	695,989	1,463,432	7.5%	
Persons 65 years and over (2000)	11,688	61,430	70,617	89,492	126,043	302,783		
Persons 65 years and over (2006-2010 ACS)	12,309	56,842	66,592	91,821	135,902	304,124		0.4%
Persons 65 years and over (2010)	12,867	55,937	67,932	94,817	139,746	309,455	2.2%	
Gender Composition								
Females (2000)	34,628	166,062	185,946	279,799	416,081	900,643		
Females (2006-2010 ACS)	35,901	164,935	181,630	283,152	447,168	935,038		3.8%
Females (2010)	36,084	164,737	182,860	286,953	451,866	942,120	4.6%	

Sources: U.S Census Bureau, 2000 and 2010 Census; 2006–2010 American Community Survey Data.

Based on 2010 census block data, the population within the 50 -mile study area increased by 5.6%, a little more than 2% above the Commonwealth of Pennsylvania, which increased by 3.4%. When comparing census block level data to the 22 counties within which the study area is located, the study area reported a lower rate of growth, 5.6% versus 7%, respectively. The distribution of the data by age-cohorts and gender within the study area is also similar to the percentages exhibited by the population within larger 22 county area and the Commonwealth of Pennsylvania. Overall, there is not a large change in the demographic composition of the population between the two census periods.

Employment

Based on the most recent employment data (Table 3), the two-county ROI has been affected by the recent downturn in the nationwide economy. Unemployment rates in both counties have increased post 2006, but differently depending on the county. The unemployment rate in Luzerne County, for instance, has nearly doubled over the last 10 years, from 5.6% to 10.5%. The unemployment rate in Columbia County, on the other hand, has increased marginally over the same period (5.5% to 6.0%). The unemployment rate in the combined two-county ROI is about the same as in the Commonwealth of Pennsylvania, 9.8% versus 9.6%, respectively.

Table 3: Employment Characteristics

Labor Force	Luzerne County	Columbia County	Commonwealth of Pennsylvania	U.S.
	Number	Number	Number	Number
Individuals in Labor Force (2000)	151,869	32,403	6,000,512	138,820,935
Civilian Labor Force	151,748	32,376	5,992,886	137,668,798
Employed	143,492	30,006	5,653,500	129,721,512
Unemployed	8,256	2,370	339,386	7,947,286
Percent of Civilian Labor Force Unemployed	5.40%	7.3%	5.7%	5.8%
Individuals not in Labor Force	108,543	20,096	3,692,528	78,347,142
Individuals in Labor Force (2006)	156,404	33,251	6,277,605	152,193,214
Civilian Labor Force	156,352	33,211	6,269,806	151,203,992
Employed	147,674	31,398	5,881,115	141,501,434
Unemployed	8,678	1,813	388,691	9,702,558
Percent of Civilian Labor Force Unemployed	5.6%	5.5%	6.2%	6.4%
Individuals not in Labor Force	101,710	21,194	3,710,321	82,050,749
Individuals in Labor Force (2010)	159,375	32,790	6,470,008	156,966,769
Civilian Labor Force	159,305	32,741	6,463,490	155,917,013
Employed	142,502	30,787	5,842,790	139,033,928
Unemployed	16,803	1,954	620,700	16,883,085
Percent of Civilian Labor Force Unemployed	10.5%	6.0%	9.6%	10.8%
Individuals not in Labor Force	105,592	23,601	3,803,556	86,866,154

Sources: U.S Census Bureau, 2000 and 2010 Census; 2006–2010 American Community Survey Data.

As noted in ER Sections 2.5.2.1.3 and 2.5.2.1.4, the construction industry has historically been a small contributor to the overall employment pool, representing approximately 5% to 7% of the total labor force within the two counties. The trend continues based on 2008-2010 American

Community Survey data, with approximately 6% of the labor force within each county is employed in construction-related fields.

Housing

As described in ER Sections 2.5.1 and 2.5.2, a large portion of the construction and maintenance/operations workforce for the proposed BBNPP site are expected to reside within Luzerne and Columbia Counties. In 2000, the two counties had a combined residential vacancy rate of 19.9%, or a total of 16,817 vacant units. In 2010, vacancy rates within the two counties increased marginally to 21.5%, or a total of 19,835 units. See Table 4.

Table 4: Housing Characteristics

Housing Units	Luzerne County		Columbia County	
	Number	Percent	Number	Percent
2000				
Total Housing	144,686	100.00%	27,733	100.00%
Total Occupied Units	130,687	90.3%	24,915	89.8%
Owner-Occupied	91,914	70.3%	18,030	72.4%
Renter-Occupied	38,773	29.7%	6,885	27.6%
Total Unoccupied Units	13,999	9.7%	2,818	10.2%
Year-around Units	11,482	7.9%	1,514	5.5%
Seasonal, recreational, or occasional use	2,517	1.7%	1,304	4.7%
2006				
Total Housing	147,321	100.0%	28,811	100.0%
Total Occupied Units	130,034	88.3%	25,302	87.8%
Owner-Occupied	94,840	72.9%	19,569	77.3%
Renter-Occupied	35,194	27.1%	5,733	22.7%
2010				
Total Housing	148,748	100.0%	29,498	100.0%
Total Occupied Units	131,932	88.7%	26,479	89.8%
Owner-Occupied	89,742	68.0%	18,387	69.4%
Renter-Occupied	42,190	32.0%	8,092	30.6%
Total Unoccupied Units	16,816	11.3%	3,019	10.2%
Year-around Units	13,404	9.0%	1,801	6.8%
Seasonal, recreational, or occasional use	3,412	2.3%	1,218	6.6%

Sources: U.S Census Bureau, 2000 and 2010 Census; 2006–2010 American Community Survey Data.

Based on the analysis presented in ER Section 4.4.2.4, the in-migration construction workforce could require up to 1,690 housing units. An estimated 550 housing units would be required for the operational workforce (ER Section 5.8.2.2). The total number of housing units required is calculated assuming all persons would choose to rent or purchase existing homes and not reside in apartments, hotels, or townhome communities.

As noted above, the two counties have 19,835 vacant units (Table 4). The 550 housing units required represents approximately 2.8% of the available housing units. As a result, the demand from the in-migration of construction and operations work force will continue to be as described in the ER, namely, no adverse effect to the housing market within the ROI, including demand, prices, or rents.

2. Environmental Justice

To determine whether the environmental justice analysis performed in ER Section 2.5.4 has changed over the last 10 years, the minority and low income populations residing within a 50-mile study area were reviewed across the 2000 and 2010 datasets. The review applied the same methodology, definitions, and NRC guidance used in the ER.

Minority Populations

From NRC guidance, a minority population exists if either of the following two criteria is met:

1. The minority population of the census block group or environmental impact area (in this case the 50-mile comparative geographic area) exceeds 50%; or
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 (in this case the 50-mile comparative geographic area).

Table 5 shows the percentage of minority persons within the study area. In 2000, the percentage of minorities within the study area is estimated at 5.29%. Based on 2010 data, that percentage increased to 9.94%. The percentage of minorities within the Commonwealth of Pennsylvania is 18.1% of the total population (2010 U.S. Census), which is higher than the percentage of minorities within the study area. Based on 2000 Census data, 126 block groups were identified as having minority populations using the criteria identified above. In 2010, that number dropped to 112 block groups. Median household incomes within the study area have increased between 2000 and 2010.

Table 5: Ethnic Composition and Income Characteristics

Area - 50 mile (80 km) radius	African-Americans	Native Americans, Indians, or Alaskans	Asians	Native Hawaiians or Other Pacific Islanders	Some Other Race	Multi-Racial	Aggregate (Total) of Racial Minorities	Percent of Hispanic/Latino
Percentage (2000)	2.26%	0.13%	0.79%	0.02%	1.21%	0.88%	5.29%	2.85%
Percentage (2010)	3.94%	0.21%	1.30%	0.03%	2.81%	1.65%	9.94%	6.71%
Income Characteristics	0-10 mile	10-20 mile	20-30 mile	30-40 mile	40-50 mile	0-50 mile		
Median Household Income (2000)	\$38,164	\$35,279	\$35,821	\$39,431	\$44,289	\$39,531		
Median Household Income (2010)	\$46,405	\$43,203	\$46,003	\$50,127	\$55,791	\$49,919		

Source: U.S Census Bureau, U.S Census 2000 and 2010. ¹

¹ Variation in the wording of the Census questionnaires between the 2000 and 2010 Census and aggregation of responses on persons of Hispanic Origin may have led to the large increase in minority persons between the two census periods.

Figures 3 and 4 (figures located at end of response) show the locations of the block groups that exhibited a higher percentage of minority persons based on the two criteria mentioned above. Figure 3 shows the locations of block groups based on 2000 U.S Census data and Figure 4 shows the locations of block groups based on 2010 Census data. As shown in Figure 4, high minority areas within the 50-mile circle radius are low in number and there is no concentration of these blocks groups in any one area. Additionally, there is not a marked change in the distribution of these high minority areas between 2000 and 2010. As a result, the information provided in ER Section 2.5.4 regarding minority populations would remain applicable.

Low-Income Populations

To determine the number and locations of low-income populations within the 50-mile study area, the Census Bureau's definition of a low-income household, based on governmental statistical poverty thresholds, was used. Because the Census Bureau did not report poverty-related data at the census block level as part of the 2010 Census data releases, census tract information was used. For the purposes of presenting these data, poverty data at the census tract level for both the 2000 and 2006-2010 American Community Survey data were compared. A census tract is considered to be low income if either of the following two criteria is met:

1. The number of low-income households in the census tract or the environmental impact site (in this case the 50-mile geographic area) exceeds 50%; or
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 population percentage in the geographic area chosen for comparative analysis (in this case, the 50-mile [80-kilometer] comparative geographic area).

Within the 50-mile study area, the percentage of persons below the poverty level was reported as 9.8% in 2000 and 11.7% in 2010. Figures 5 and 6 show the locations of census tracts that exceeded that threshold by 20 percentage points or more in 2000 and 2010, respectively. Between 2000 and 2010, the number of census tracts identified as low-income has increased from 14 to 24. As shown in Figure 6, there are very few concentrations of low-income persons within 50 miles of the site. There is also little change in the locations of low-income persons between 2000 (Figure 5) and 2010 (Figure 6). As a result, the information provided in ER Section 2.5.4 regarding low-income populations remains applicable.

3. Summary

Based on the information above, there is limited trend change in the following key socioeconomic variables in the 50-mile comparative geographic area between the 2000 and 2010 census periods:

- Population growth in the two-county ROI is less than the 50-mile study area, where the largest population growths occurred towards the outer periphery of the study area.
- Unemployment is about the same in the two-county ROI as in the Commonwealth of Pennsylvania.
- Ample housing units still remain to support the in-migration of construction and operations work force.

- The percentage of minority and low-income populations remain within NRC guidelines for environmental justice as to whether there are disproportionately high effects to these groups.

As a result, Revision 3 to the ER uses information that presents a realistic representation of the demographics and socioeconomic characteristics within the 50-mile geographic area of comparison and the two county region of influence.

References:

U.S. Census Bureau (USCB), 2000. U.S. Census Bureau, U.S. Department of Commerce. SF1 and SF3 data tables. Website: <http://www.census.gov>, Data accessed April 11, 2012.

USCB, 2011. U.S. Census Bureau, U.S. Department of Commerce. American Community Survey 2006–2010 Estimates. Website: http://www2.census.gov/acs2006_5yr/summaryfile/, Date Accessed April 11, 2012.

USCB, 2011. U.S. Census Bureau, U.S. Department of Commerce. American Community Survey 2008–2010 Estimates. Website: http://www2.census.gov/acs2006_5yr/summaryfile/, Date Accessed April 16, 2012.

USCB, 2011. U.S. Census Bureau, U.S. Department of Commerce. Website: <http://www.factfinder2.census.gov/>, Date Accessed April 12, 2012.

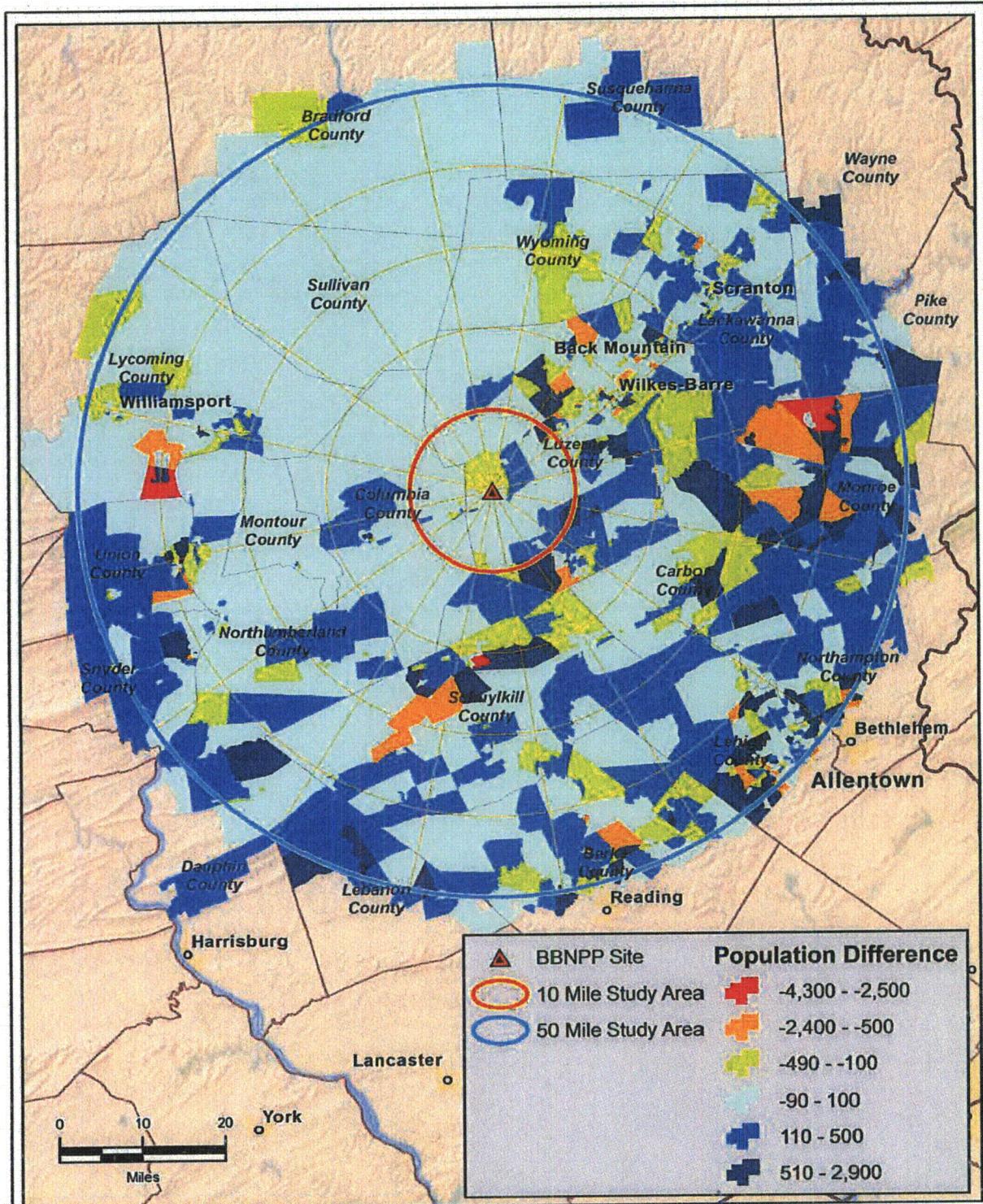


Figure 1. Range of Population Changes between 2000 and 2010 Census Block Groups

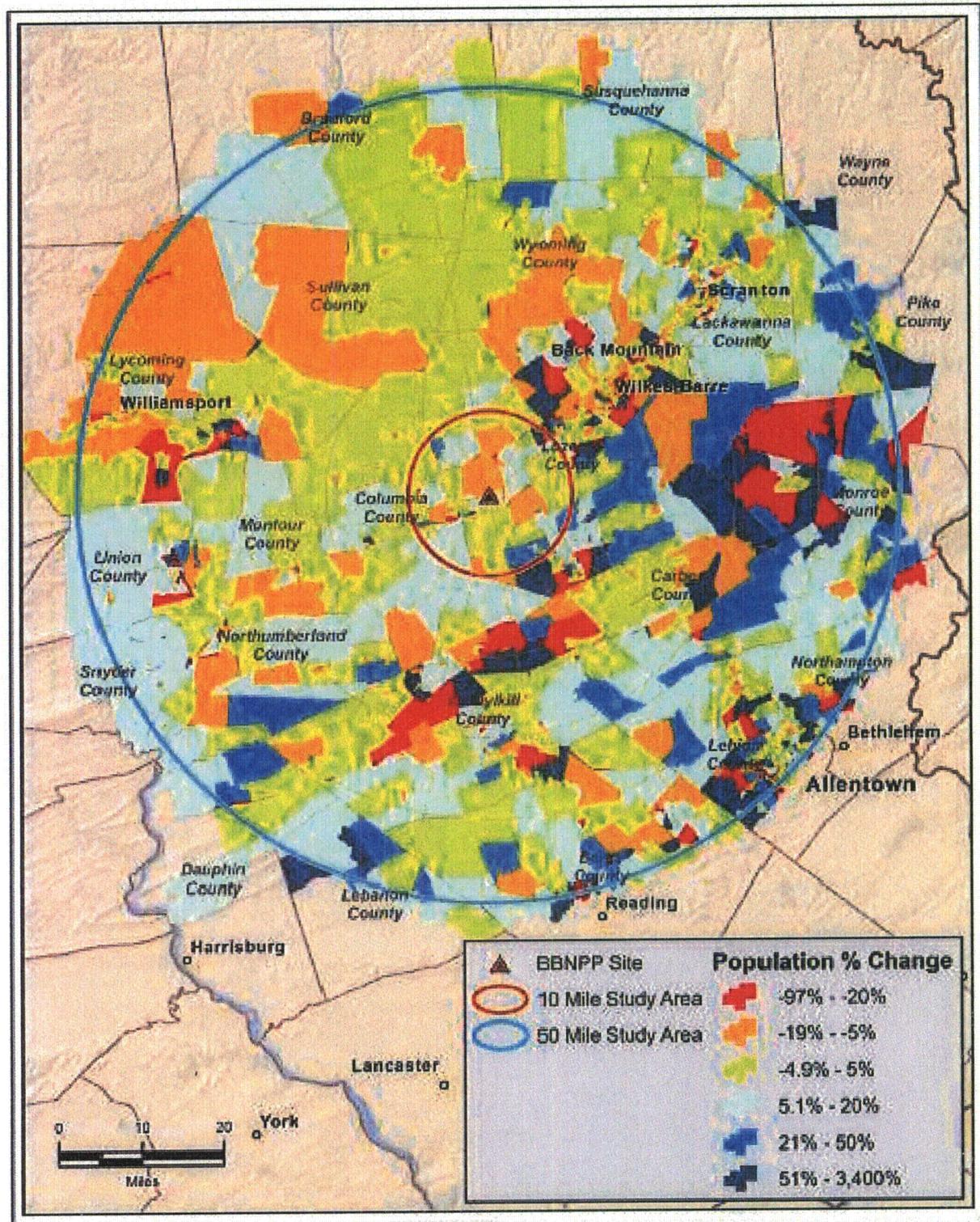


Figure 2. Range of Population Percent Change between 2000 and 2010 Census Block Groups

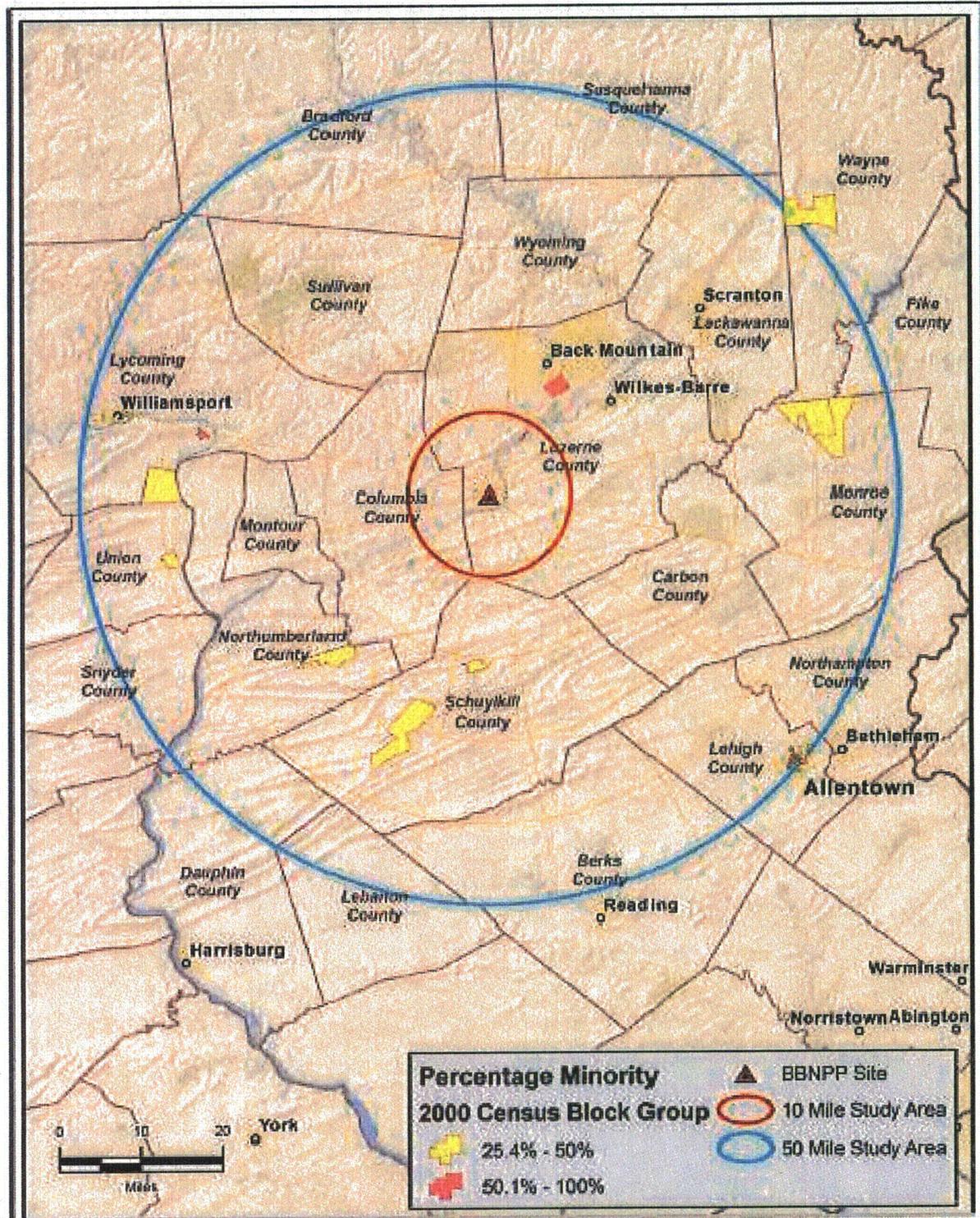


Figure 3: 2000 Minority Populations by Census Block Group

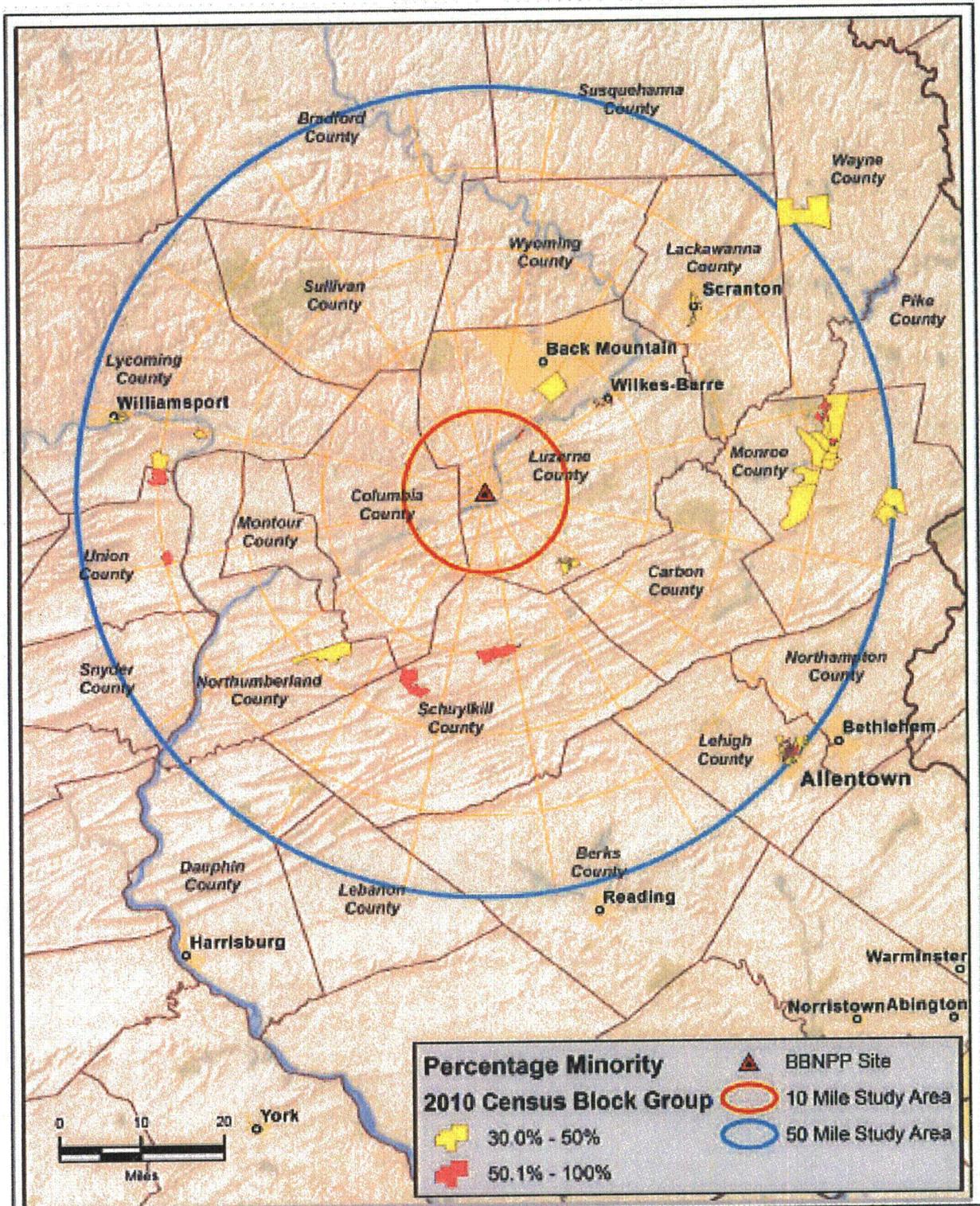


Figure 4: 2010 Minority Populations by Census Block Group

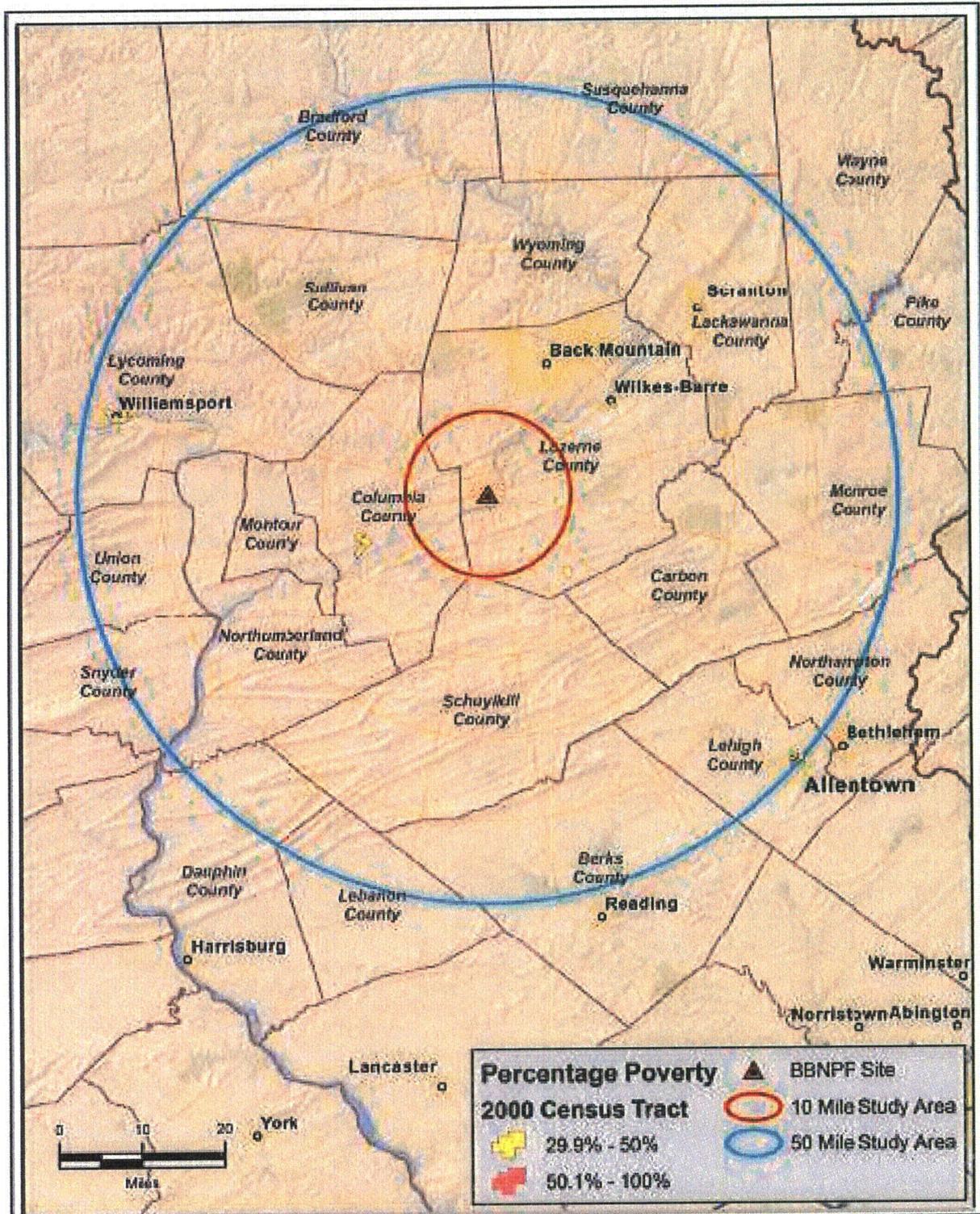


Figure 5: 2000 Poverty Populations by Census Tract

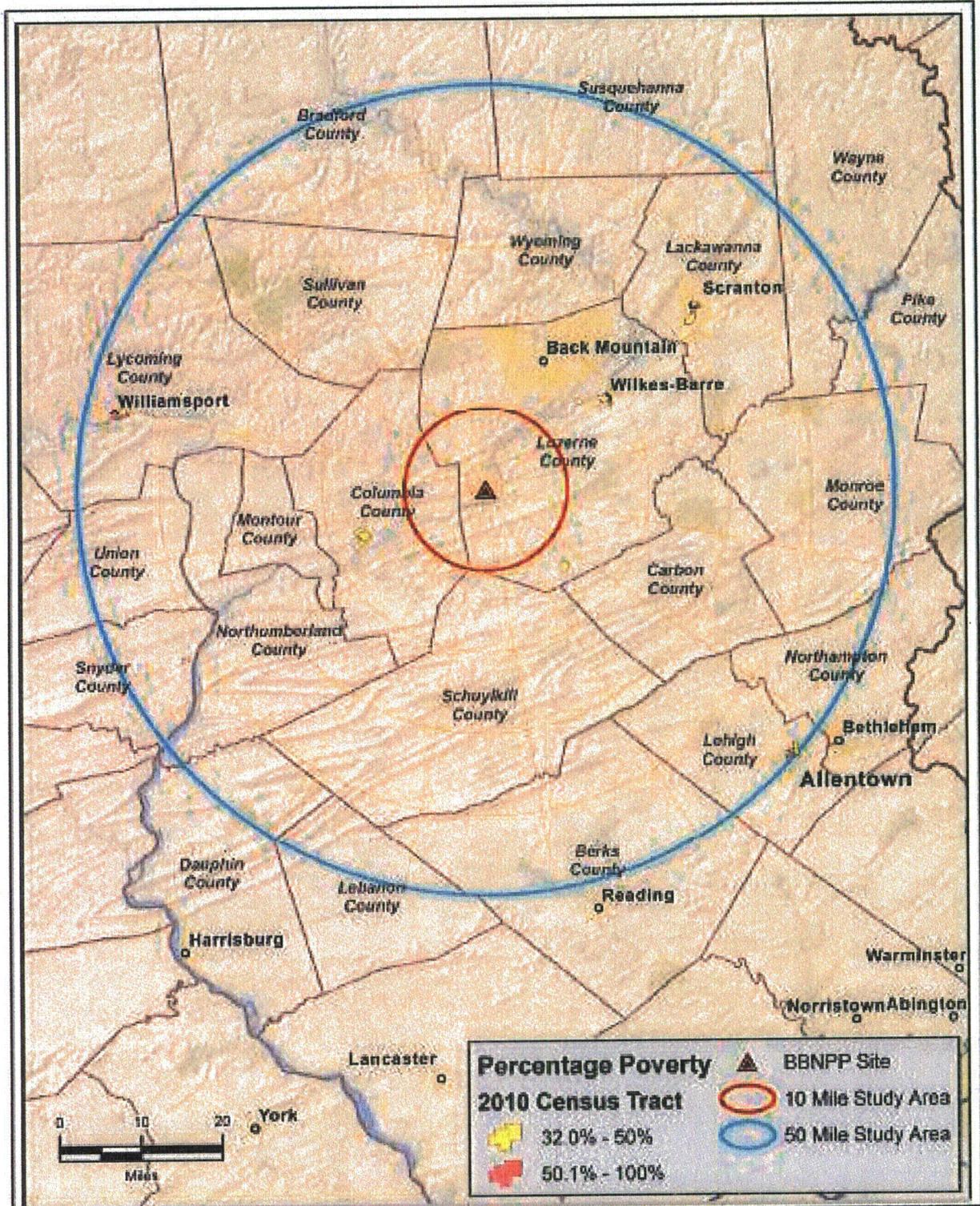


Figure 6: 2010 Poverty Populations by Census Tract Using 2006-2010 ACS Data

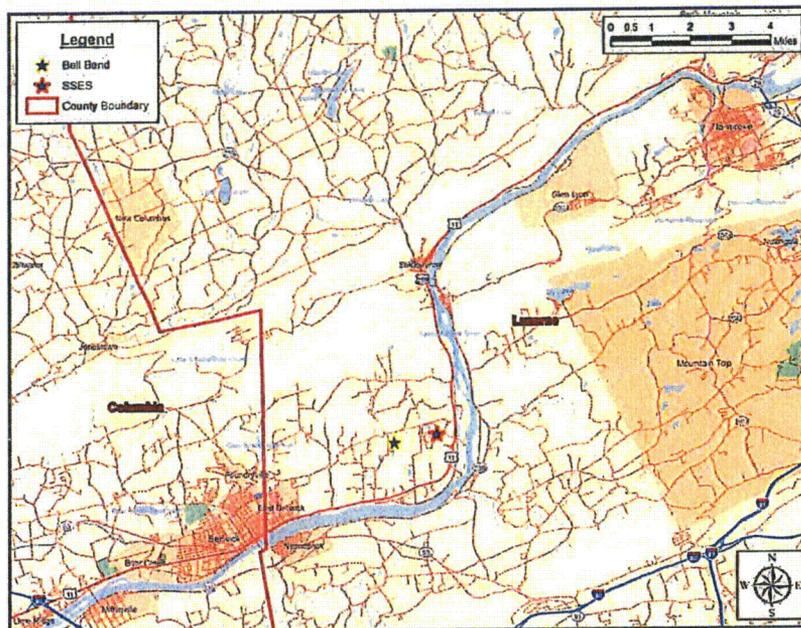
Attachment 2

Sensitivity Study of Traffic Impacts Based on the Updated COD



Traffic Impact Study Related to the Proposed Construction and Operation of the Bell Bend Nuclear Power Plant

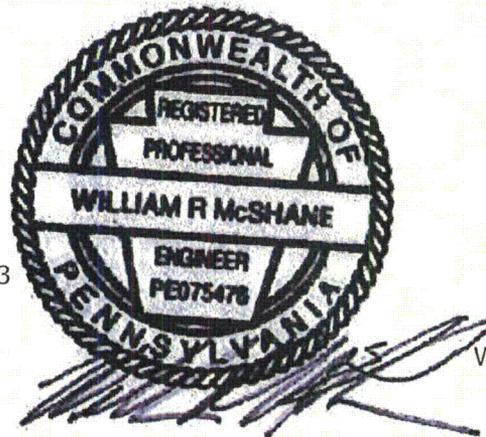
Construction/Operation Schedule Sensitivity Study



Prepared for
PPL Bell Bend LLC
2 North 9th Street
Allentown, PA 18101

Date Prepared: April 3, 2013

TR-546
Rev. 0



Prepared by
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A revised construction and commercial operation schedule was recently provided in the Bell Bend COLA (Rev 4). The construction is now planned for the period April 2016 to June 2022, and the commercial operation date (COD) is now planned for June 2023.

This document serves as a sensitivity study with regard to traffic impact and related mitigation due to changes to the overall construction and expected commercial operation schedule.

With regard to the traffic impact and related mitigation, there are two relevant periods for the sensitivity study:

- The peak within the construction period consists of all traffic elements during the busiest construction year that also contains an outage. None of the traffic elements change due to the shift, except for the background traffic. Based upon the new schedule and the Traffic Impact Study rev5 (TIS rev5), this shifts to a later date by 24 months, to March of 2020;
- The commercial operation date (COD) affects the "future build" traffic condition as well as the "future no build" traffic condition. Based upon the new schedule and the TIS rev5, this shifts to a later date by 18 months, to June of 2023.

Because the Traffic Impact Study rev5 (TIS rev5) analysis was done with relatively conservative (that is, later) dates for both the peak construction years and the COD at that time, the shifts are only 24 and 18 months respectively for this sensitivity study.

For both of the above time periods, the relevant background traffic was increased by using annual factors obtained from the PennDOT website, consistent with the practice in the TIS rev5.

In addition to the intersections cited in the TIS rev5, the additional intersections studied as part of the "Salem Township Supplemental Study" and the "Hunlock Creek Supplemental Study" were also included in the sensitivity study.

In accord with standard PennDOT practice, the Level of Service (LOS) during the peak construction period is compared the baseline "future no build" LOS to assess impacts.

The sensitivity analysis was conducted, and the findings are:

- 1) With one exception, the indicated shifts do not result in a change in the LOS category¹ at any intersection, nor any change in delay per vehicle greater than 1.0 sec/vehicle, nor in any violation of the 10-second PennDOT change threshold that requires mitigation;

¹ Letter grades "A" through "F" are assigned based upon standard ranges of delay (sec/vehicle).

- 2) For one intersection [SR 11 & Poplar St.], there was a change that exceeded the 10-second change threshold relative to the "future no build" (it went from 9.8 to 10.5 sec/vehicle), but the mitigation is simply signal phasing and retiming. When the mitigation is introduced, the 10.5 sec/veh was reduced to 5.8 sec/veh, well below the threshold level. The mitigation was simply allowing a permissive left on the southbound approach, following the existing protected left turn movement. Refer to ER Rev 4, Figure 4.4-1, for an illustration of this intersection.

Therefore, there are no significant changes in the traffic impact and mitigation findings, due to the change in COD and related schedule changes.

Attachment 3

Sensitivity Study of Need for Power (ER Chapter 8) Based on the Updated COD

Sensitivity Study on COLA Part 3 (ER) Chapter 8 Need for Power

Report #: BB-NFP-0001

Revision #: 0

Date: 4/22/2013

This Need for Power sensitivity update is being provided to supplement the response to NFI NFP-01 provided 5/31/2012 in letter BNP-2012-131. This update provides a sensitivity analysis based on factors that have changed since the NFP-01 response in 2012 as well as the change in COD date from 2018 to June, 2023.

Based on the sensitivity analysis performed there are no significant changes to the Need for Power due to the change in COD to June 2023. It is shown that there continues to be a need for power in the PJM region in the early to mid-2020's timeframe. In addition, the benefits provided by Bell Bend remain the same as stated in ER Section 8.4.3.

ER Chapter 8.1, Description of Power System

There have been no changes to the PJM reliability evaluation process since the response to NFI NFP-01.

ER Chapter 8.2, Power Demand

Power System Description

The power system has not changed significantly since the response to NFI NFP-01. In addition, the Pennsylvania Public Utility Commission has not released an updated electric power outlook since the one cited in 2011 NFP-01 response. There is no information indicating there are any changes to the electric power outlook in Pennsylvania.

Power Demand

As of the end of 2012, PJM had approved approximately \$24 billion of transmission expansion projects since 1997 that will enable the interconnection of over 70,000 MW of new generation capacity and merchant transmission projects (PJM, 2013a). This represents an approximately 59.1% increase over the amount of transmission expansion capacity reported in the original response to NFI NFP-01 and shows that the transmission system will have the capability to add generation capacity in the future.

ER Chapter 8.3, Power Supply

This section provides an update on the NFP-01 response using the latest published information.

As of December 31st, 2012, PJM's installed capacity was 181,990 MW, an increase of 3,143.5 MW (~1.8%) from 2011. This installed capacity is provided by coal units (41.8%), nuclear units (18.1%), natural gas units (28.6%), hydroelectric units (4.3%), wind units (0.4%), waste units (0.4%), and oil units (6.3%) (PJM 2013b). Even though the generation mix has shifted slightly since 2011 the total installed capacity has only experienced a small increase.

The 2012 PJM State of the Market Report (PJM 2013b) shows that as of December 31st, 2012, 76,387 MW of capacity were in generation request queues for construction through 2018, compared to 90,725 MW of capacity in PJM's generation request queues for construction at the end of 2011. Given an increase of 3,143.5 MW in capacity since

2011 this shows that 11,194.5 MW of capacity has been removed from the generation request queues for construction since 2011.

Recent planned deactivation/retirement information shows that from January 1st, 2011 to January 1st, 2013 a total of 8,453.2 MW of generation capacity have retired. From 2011 to 2019, it is expected that a total of 21,524.9 MW of generation capacity will retire (PJM 2013b). This represents an increase from the 18,886 MW of generation capacity that had been expected to retire in the same timeframe (2011 – 2019) as stated in the 2012 NFP-01 Response.

ER Chapter 8.4, Assessment of Need for Power

The need for new capacity based on projected demand is discussed in Section 8.4 of the ER.

Based on the 2012 PJM Reserve Requirement Study (RRS), PJM recommends a 15.9% Installed Reserve Margin (IRM) for the 2013/2014 Delivery Year, a 15.9% IRM for the 2014/2015 Delivery Year, a 15.3% IRM for the 2015/2016 Delivery Year, and a 15.6% IRM for the 2016/2017 Delivery Year (PJM 2012b). Only existing certain capacity and future planned capacity are counted towards meeting the reserve requirement. Conceptual capacity is fully counted only when an Interconnection Service Agreement (ISA) has been executed. The IRM's for the 2013/2014, 2014/2015, and 2016/2017 all represent slight increases of the projected IRM's for these years compared to the 2012 NFP-01 Response.

ReliabilityFirst Corporation's (RFC) 2012 Long Term Resource Assessment (LTRA) projects a summer season reserve margin for the PJM Regional Transmission Organization (RTO) of 28.9% in 2013 and 19.4% in 2022, based on net internal demand (NID) and existing, future and conceptual Net Capacity Resources (RFC, 2012). The 2012 RFC LTRA indicates that these reserve margins will be adequate to satisfy the PJM reserve margin requirements throughout the assessment period (2013 through 2022).

On December 16th, 2011 the Environmental Protection Agency (EPA) issued a rule to reduce the amount of toxic air pollutants emitted from power plants known as the EPA Mercury and Air Toxics Standard (MATS). This rule is aimed at emissions from existing coal and oil fired plants by requiring they install environmental controls. Due to this rule, and other environmental regulations, generation owners will be charged with deciding to retire the unit or install the environmental controls. Largely due to these new federal environmental regulations, and low natural gas prices, the magnitude of fossil fired retirements remains uncertain although they are expected to be significant (NERC, 2012).

According to the 2012 RFC LTRA there are 14,598 MW of generation capacity scheduled for retirement by 2016 in the PJM RTO. This could lower the reserve margin in 2020 below the projected Reserve Margin Target of 15.30% down to 15.0%. Thus, PJM would need additional generation capacity starting in 2020. From 2020 to 2022 the projected reserve margin deficit grows from 466 MW in 2020 to 4,779 MW in 2022 (RFC, 2012). These reserve margins are based on currently existing resources as well as planned capacity additions and retirements. In order to meet the reserve margin in these years additional conceptual capacity additions would need to be realized. These

capacity additions would be in addition to generators in the PJM queue that have already signed an Interconnection Service Agreement (ISA).

In summary, the benefits listed in ER Section 8.4.3 remain unchanged:

- The proposed BBNPP would alleviate existing congestion in the west-to-east transmission of energy across the Allegheny Mountains.
 - This benefit remains unchanged.
- The proposed BBNPP would provide much needed baseload power for an area that is expected to have the average annual peak forecast grow between 1.2 and 1.5% per year over the next 10 years.
 - The expected load growth in the next 10 years is slightly higher than what was projected in the 2012 PJM Load Forecast. According to the 2013 PJM Load Forecast the projected summer peak load growth for the PJM RTO is projected to grow 1.3% over the next 10 years, and 1.2% over the next 15 years (PJM, 2013c).
- The proposed BBNPP would allow PJM to continue to meet the growing demand for an average of 1,654 MW per year of added capacity since 2000.
 - The summer peak load growth in the PJM RTO is projected to increase by approximately 1,800 MW/year over the 10 year period from 2013 to 2022 (NERC, 2012). This growth is in line with, but slightly higher than, the 1,654 MW/year of growth given in the response to NFI NFP-01. In addition, despite the current economic conditions, accelerated growth is projected in later years of the LTRA.
- The proposed BBNPP would enable PJM to sustain the reserve margins necessary to prevent a reduction in the supply of energy and to meet the expected future demand trends.
 - The additional generation capacity from the BBNPP would allow PJM to cover the projected deficits in the necessary reserve margins that start in 2020 (NERC, 2012).
- Given concerns throughout the northeastern United States about climate change and carbon emissions, the proposed BBNPP serves another important need by reducing carbon emissions. The proposed BBNPP would displace significant amounts of carbon as soon as the plant becomes operational, as compared to the coal fired generation that likely would be expected to meet the identified need for power.
 - BBNPP still represents a way to meet the need for power while reducing carbon emissions.

Based on the latest reports available from NERC, PJM, and RFC as well as the change in the proposed Bell Bend COD there continues to be a need for power in the early to mid-2020's timeframe. The additional generation capacity will be needed starting in 2020, and the need for additional capacity will increase yearly after that. This confirms a

need for the additional capacity Bell Bend will provide based on a proposed mid-2023 COD.

References:

NERC, 2012. 2012 Long-Term Reliability Assessment, November 2012.

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PJM, 2013a. PJM 2012 RTEP in Review, Book 1, February 28, 2013.

PJM, 2013b. State of the Market Report for PJM, Volume 2: Detailed Analysis, prepared for PJM by Monitoring Analytics, LLC, March 14, 2013.

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RFC, 2012. Long Term Resource Assessment, 2013-2022, November 2012.