



U.S. EPR DCWG Meeting
October 30, 2008
USNRC Offices, Rockville, MD



US EPR DCWG Meeting

Agenda Overview

Thursday, October 30, 2008

- 0900 (NRC) Introductions
- 0910 (NRC) Acceptance Review Status of Nine Mile Point 3 SCOLA, Bell Bend SCOLA and Callaway SCOLA
- 0930 (NRC) Status of Calvert Cliffs RCOLA Review
- 1030 Break
- 1040 (NRC) Status of Calvert Cliffs RCOLA Review (cont.)
- 1110 Public Comments
- 1125 (UniStar) Overview of the Nine Mile Point Unit 3 SCOLA
- 1155 Lunch

Agenda Overview (cont.)

Thursday October 30, 2008

- 1300 (UniStar) Overview of the Nine Mile Point Unit 3 SCOLA Review (cont.)**
- 1330 (PPL) Overview of the Bell Bend SCOLA**
- 1430 Public Comments**
- 1445 Break**
- 1500 (UniStar) Organization of US EPR DCWG**
- 1510 (NRC) Status of EPR Application Review**
- 1540 (AREVA/UniStar) Timing of Revisions to All EPR Design Center Applications**
- 1640 Public Comments**

Nine Mile Point 3 Nuclear Power Plant SCOL Application Overview

U.S. EPR DCWG Meeting
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Participants

George Wrobel

- Director, UniStar Nuclear – Regulatory

Stephen Geier

- Vice President, New Nuclear Site Projects

Nine Mile Point 3 Project



Nine Mile Point 3 Nuclear Power Plant SCOLA

- Plant name: Nine Mile Point 3 Nuclear Power Plant (NMP3NPP)
- Announcement of Intent: May 2007 (location identified February 2008)
- NRC Site Evaluations:
 - Geology/Hydrology: October 2007
 - C1 visit: May 2008
 - C3 visit: August 2008
- COLA Submittal Date: September 30, 2008
- Co-applicants: Nine Mile Point 3 Nuclear Project, LLC and UniStar Nuclear Operating Services, LLC
- Owner: Nine Mile Point 3 Nuclear Project, LLC
- Operator: UniStar Nuclear Operating Services, LLC
- U.S. EPR Reference COLA: Calvert Cliffs Unit 3 (Revision 3)
- Contacts for additional information: George Wrobel, Stephen Geier

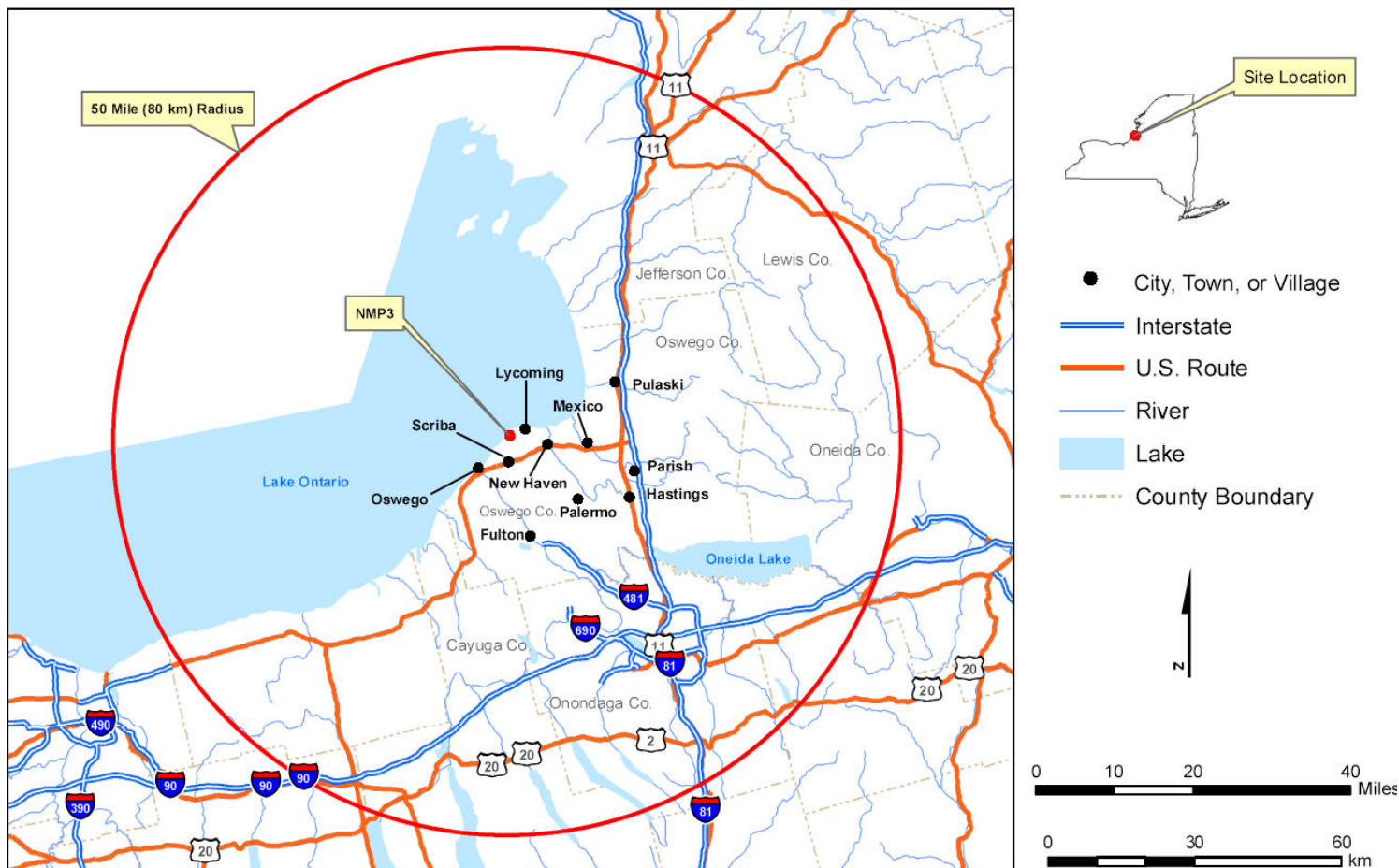
Overview Topics

- Plant Location
- General Plant Description
- Environmental Discussion (including supplements)
- System, Structure and Component Differences
- Departures & Exemptions (site-specific only)
- Industry COLA Experience
- EPR COLA Experience
- SCOLA Impacts on RCOLA

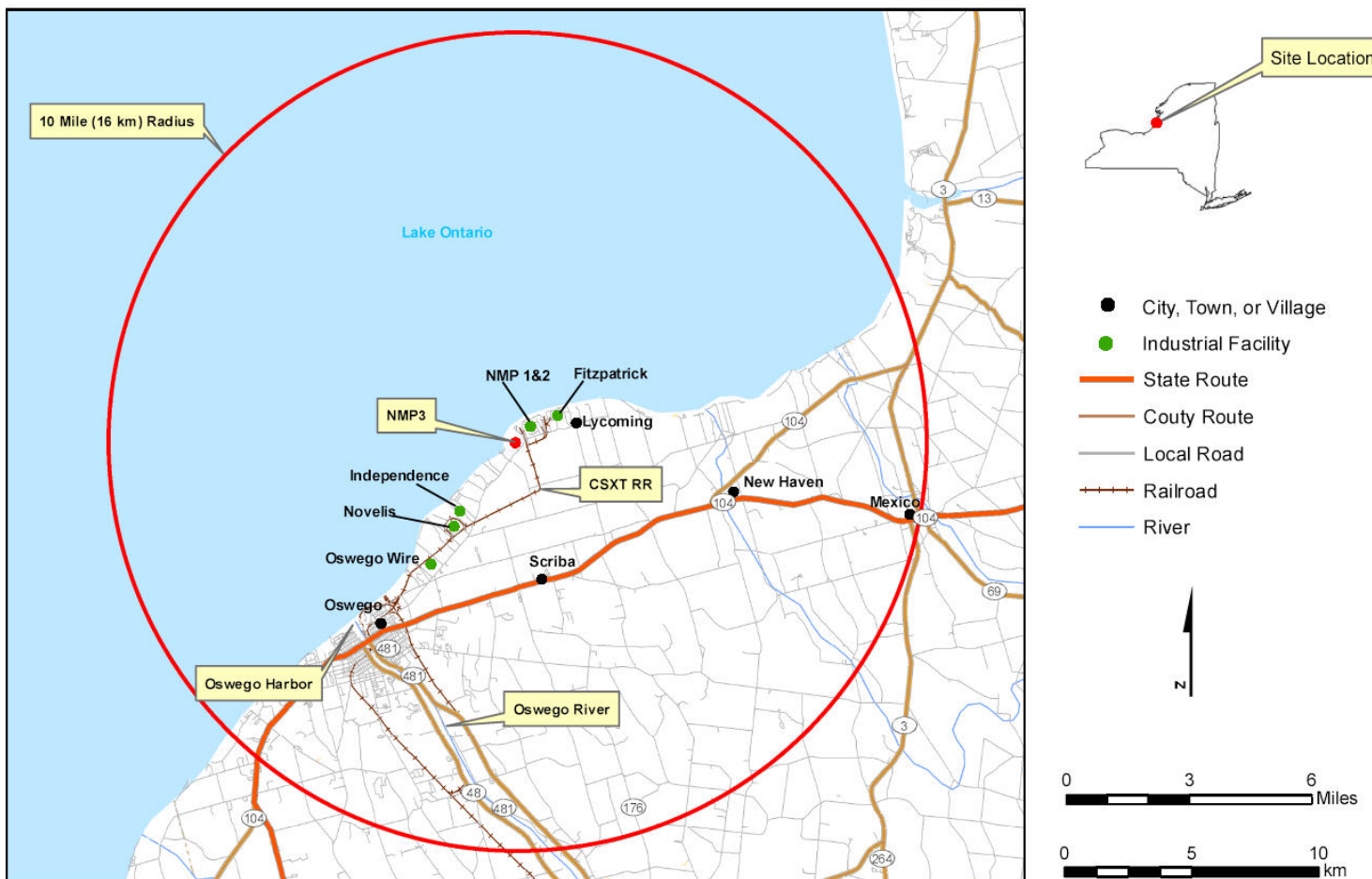
Plant Location

- Approximately 36 miles north-northwest of Syracuse, New York and 5 miles north-northeast of the City of Oswego
- Borders southeastern shore of Lake Ontario
- Finished plant grade elevation
 - Approximately 270 feet msl, and
 - Approximately 25 feet above nominal Lake Ontario water level elevation

Plant Location – 50 Mile Radius



Plant Location – 10 Mile Radius



General Plant Description

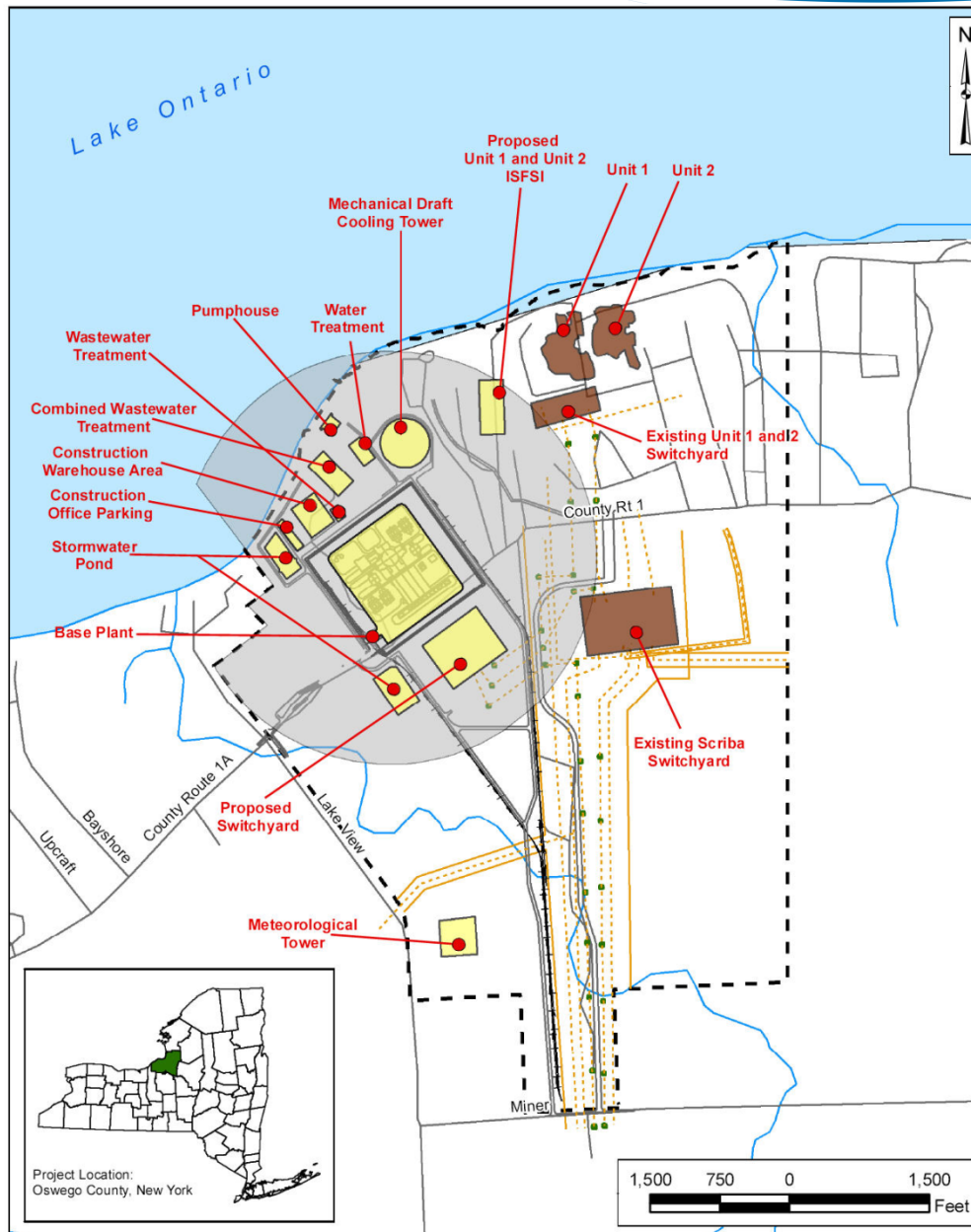
- NMP3NPP is a single unit U.S. EPR
 - Draft U.S. EPR Final Safety Analysis Report is in ADAMS
 - Net output: ~1600 Mwe
- NMP3NPP is located with the Nine Mile Point Nuclear Station (NMPNS) site, which includes Nine Mile Point Units 1 and 2.
 - NMPNS site (owner controlled area): ~ 921 acres
 - NMPNS area used by NMP3NPP: ~ 494 acres
 - NMP3NPP is separate from NMP Units 1 and 2 – limited shared systems (offsite transmission, EOF, potable water, meteorological tower, Lake Ontario)
 - NMP3NPP and NMP Units 1 and 2 have individual Emergency and Security Plans



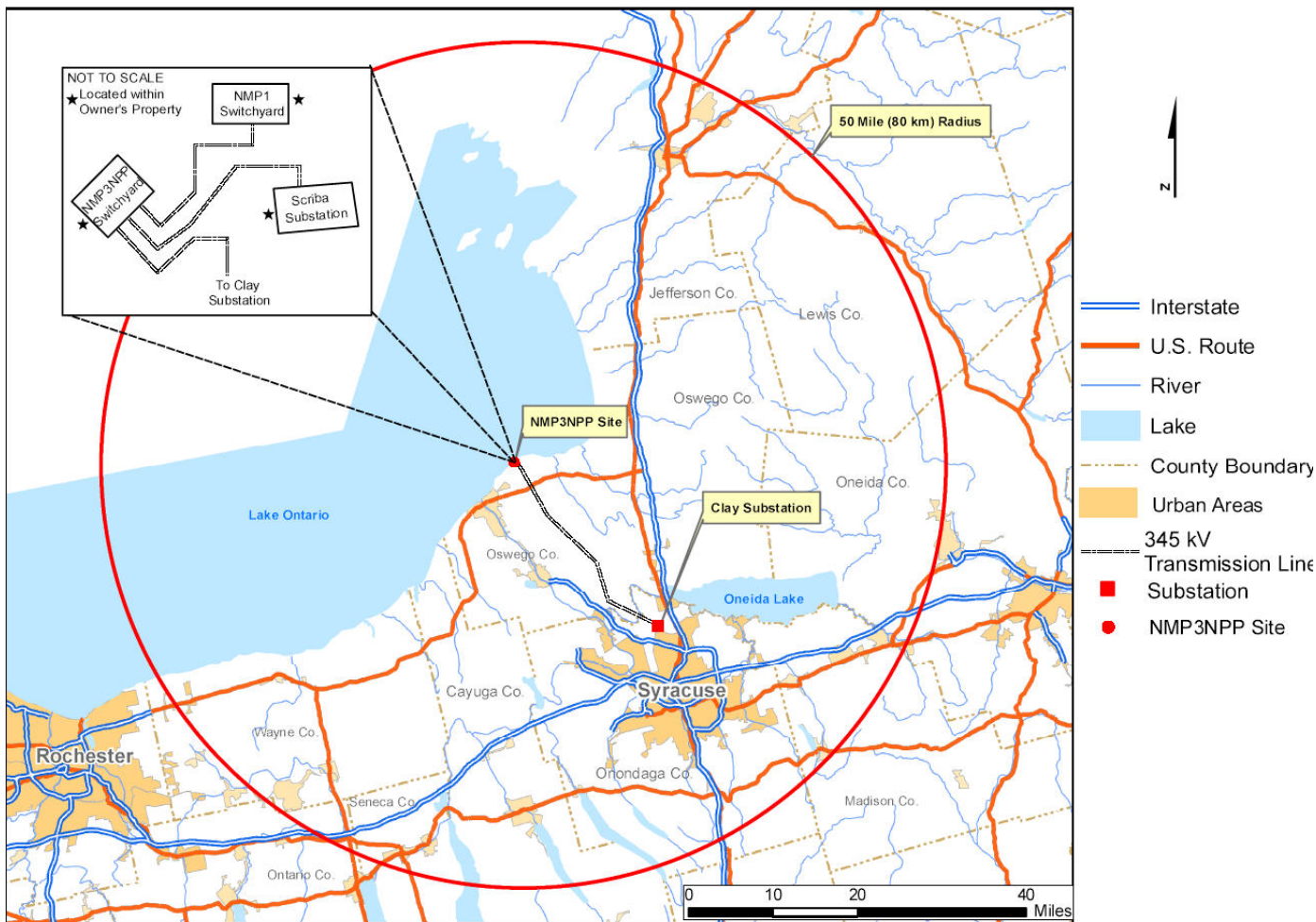
Site Map

Legend

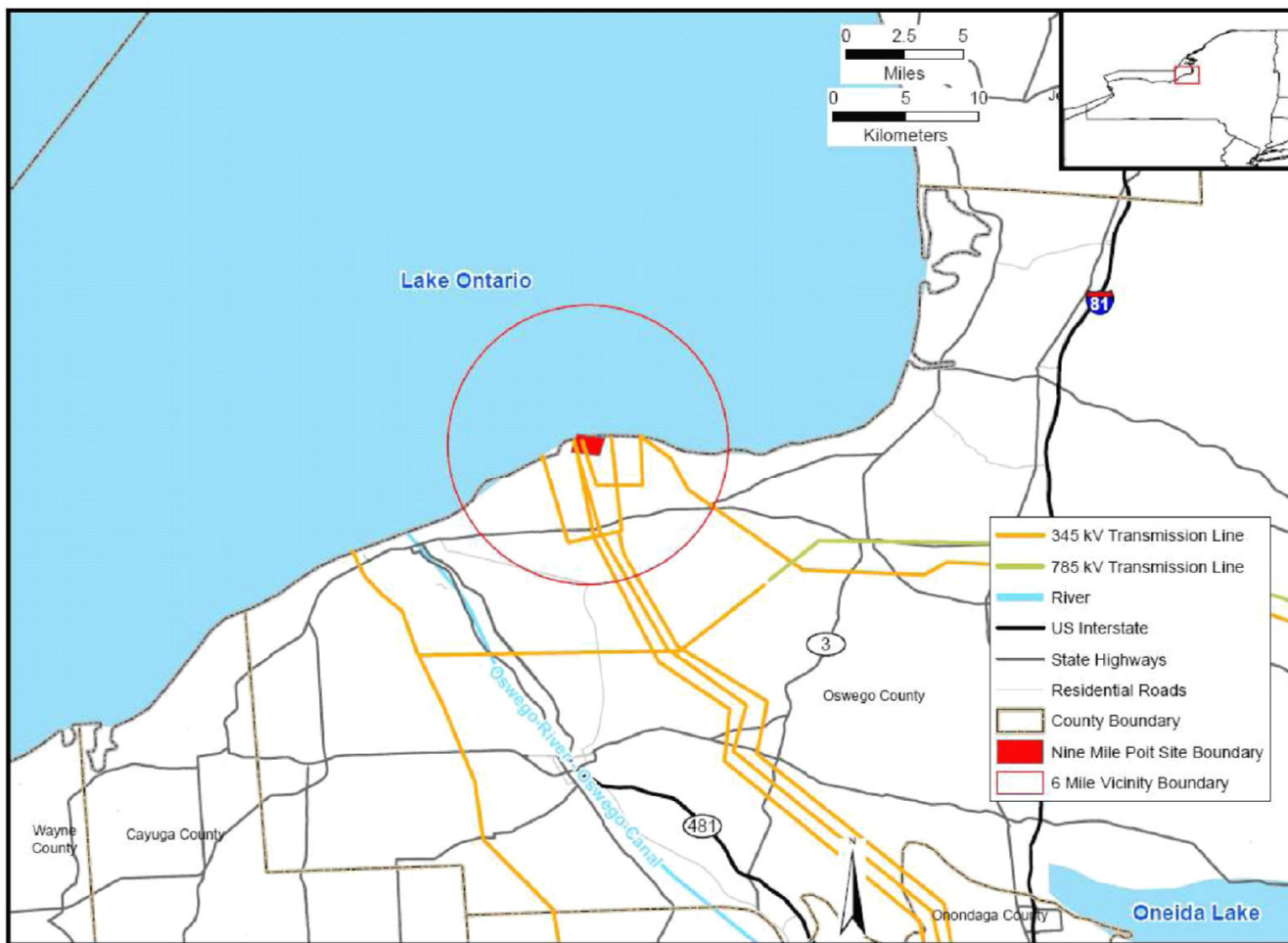
- Exclusion Area Boundary
- Owner Controlled Area
- Proposed Facilities
- ROW Line
- Railroad
- Roads
- Existing Facilities
- Transmission Lines
- Transmission Structures
- Streams



Switchyard Changes for NMP3NPP



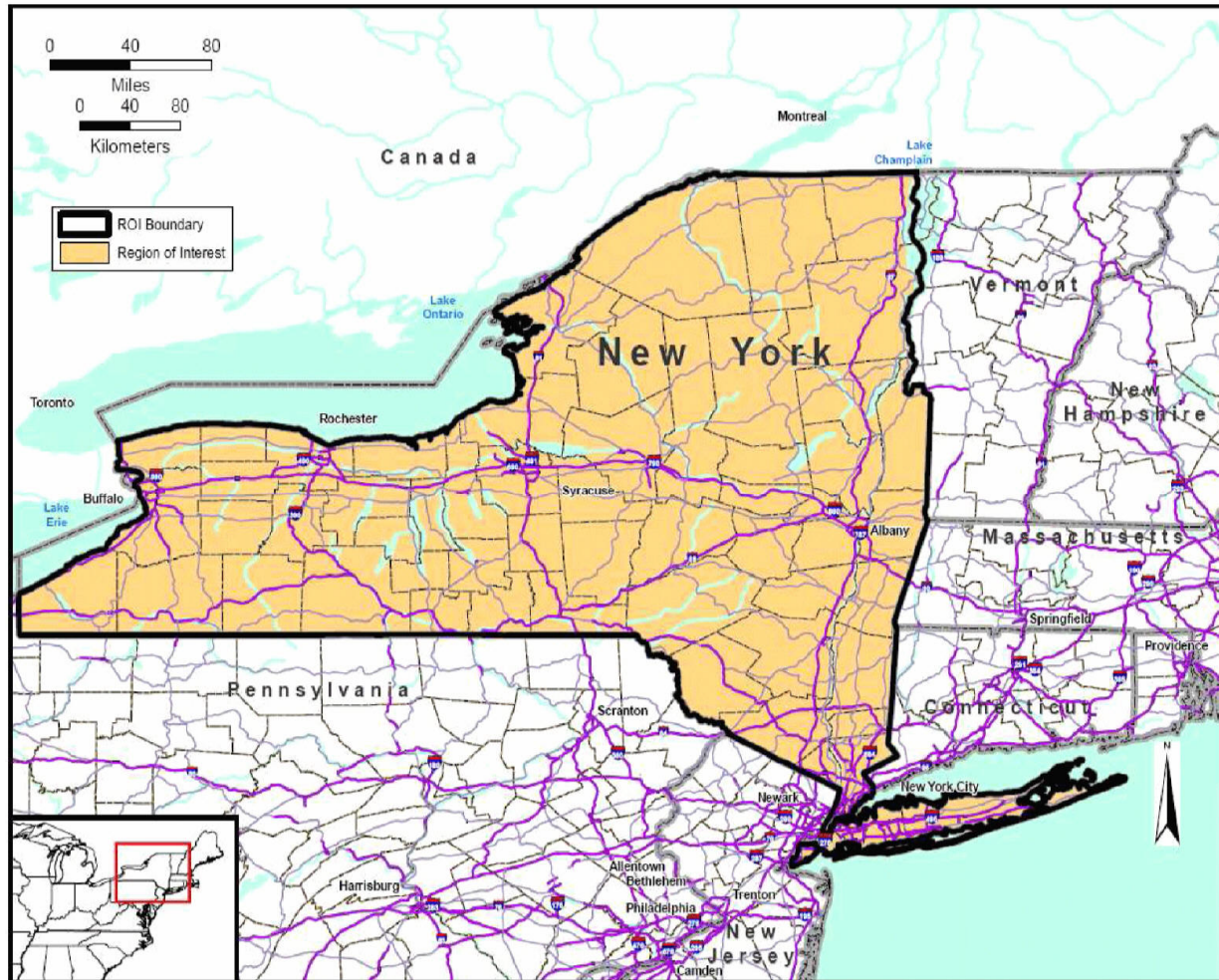
Existing Transmission Network



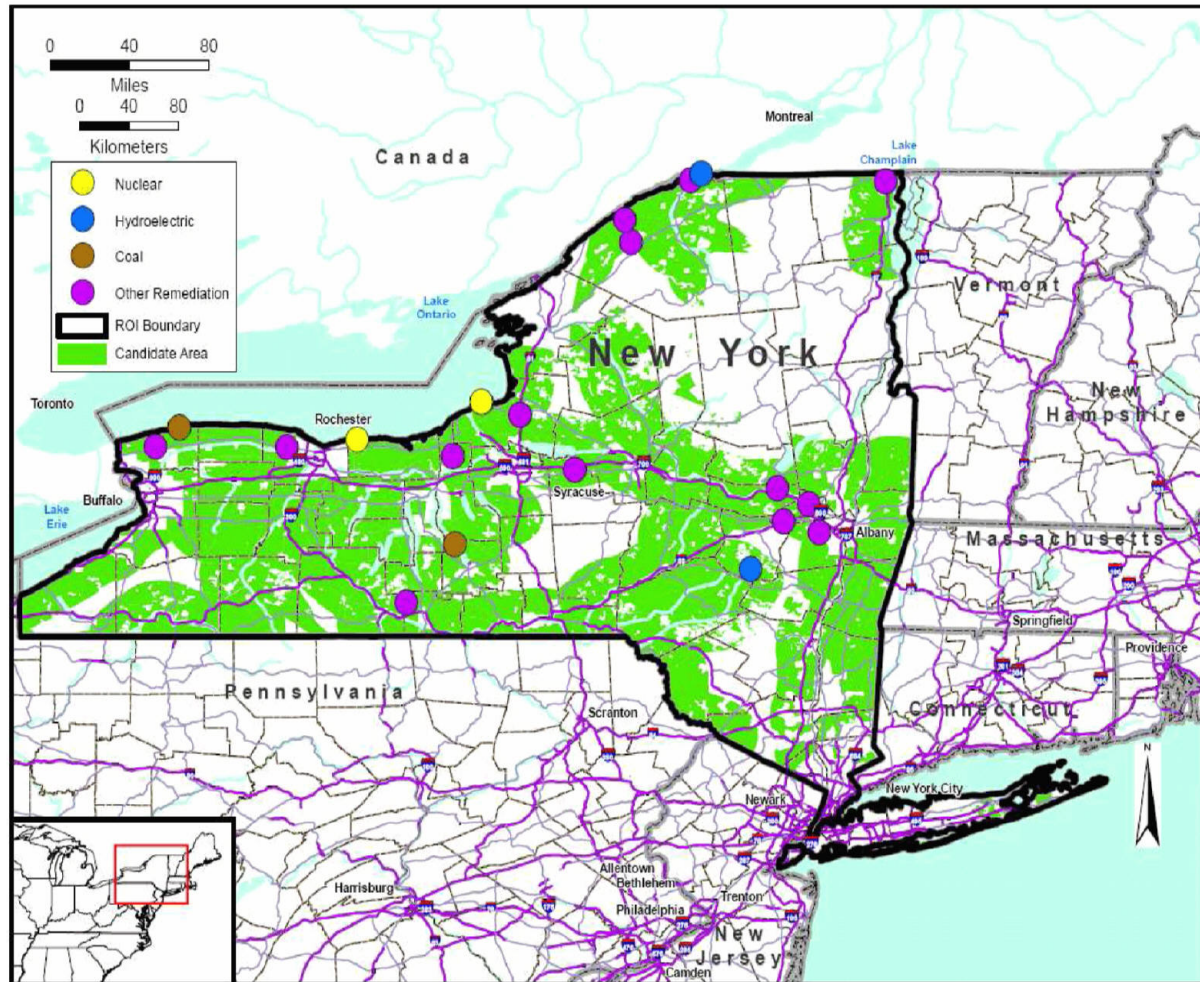
Environmental Discussion

- NRC Pre-submittal Environmental Review (C3 Meeting)
 - Staff provided feedback on Environmental Report status
 - Comments were addressed for COLA submittal
 - Major areas addressed:
 - Number of open items
 - Alternative sites, Need for Power, Socioeconomics
 - Land Use impacts
 - Wetlands
 - Cultural Resources

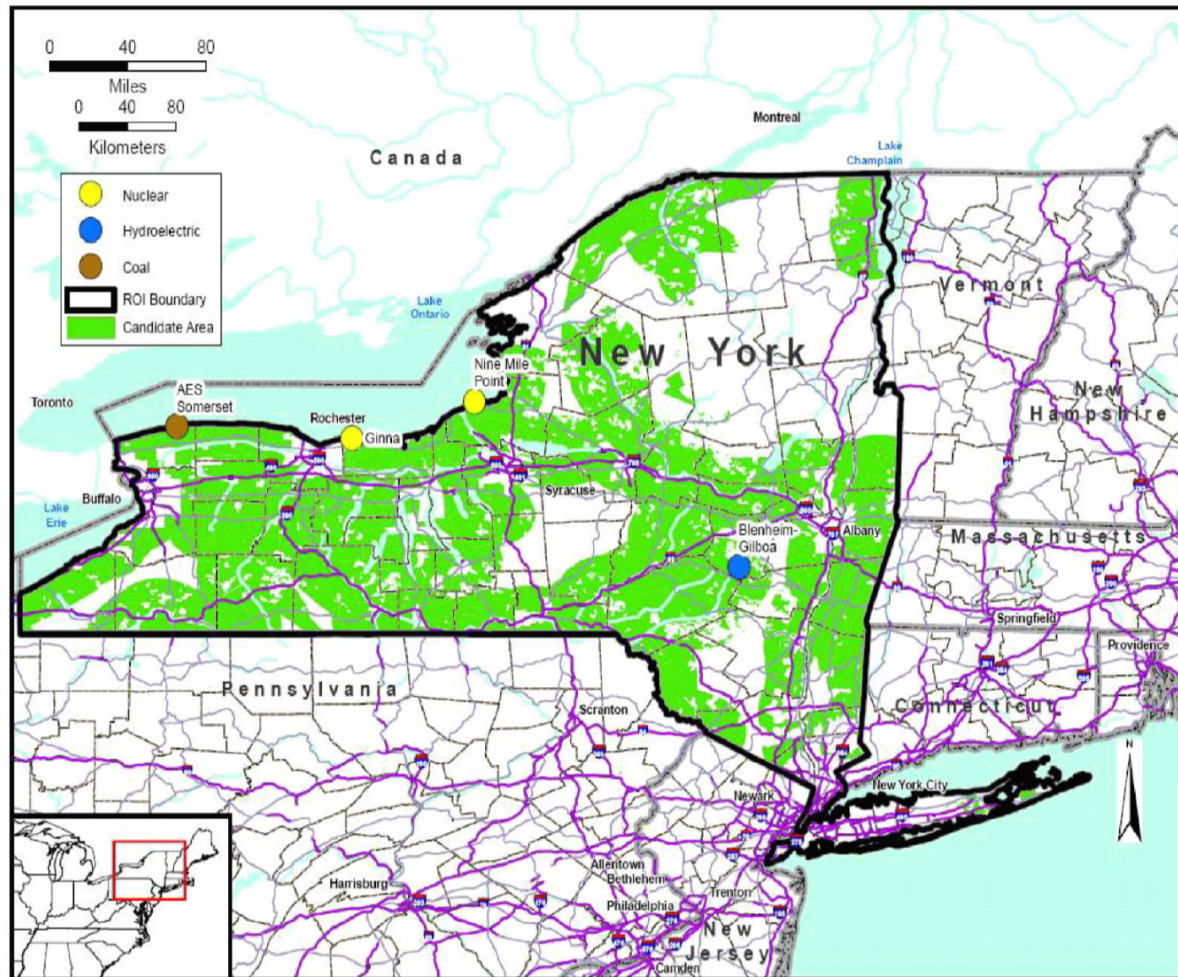
> *Alternative Sites – Region of Interest*



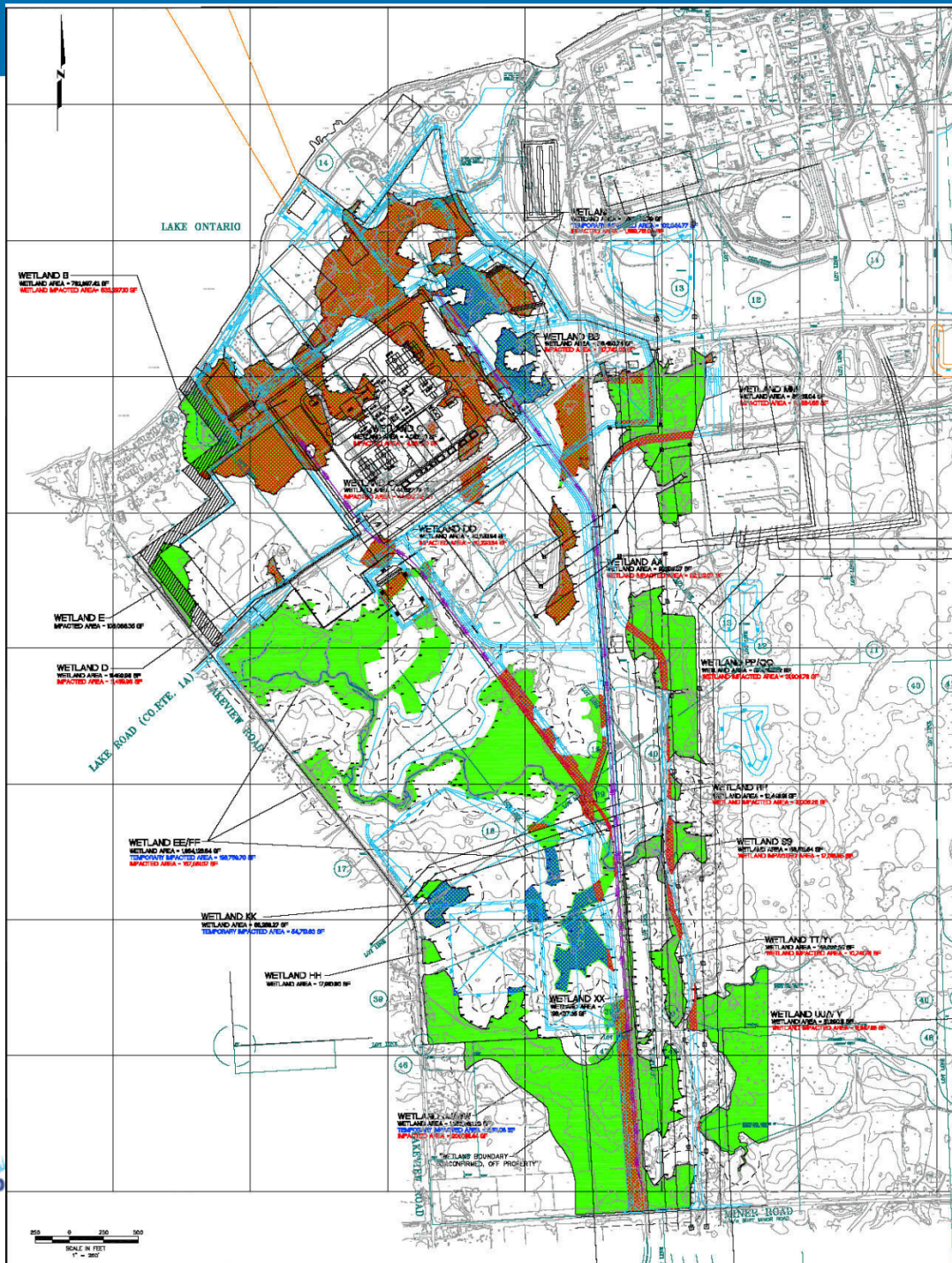
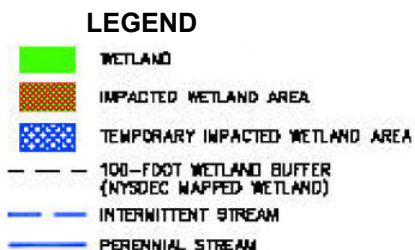
> Potential Alternative Sites



> Alternative Sites



Wetlands



Wetlands Avoidance Effort

- Plant layout developed to minimize impact to site wetlands
- 176 acres of on-site inland wetlands – 12 acres will be temporarily impacted and 59 acres will be permanently impacted
- On-site construction laydown land use reduced to less than 40 acres
- Additional construction laydown area will be obtained offsite
- Operational meteorological tower location chosen to minimize wetlands impact

Supplements

- NMP3NPP COLA submittal did not identify any planned supplements
- Supplement provided on October 24 to address comments on FSAR figures

Site Characterization Summary of Field Studies

- 108 holes, 16,418 feet drilled
 - 83 for land-based facilities
 - 25 in Lake Ontario for intake tunnel facilities
- 38 monitoring wells constructed
- 129 packer and rising or falling head tests conducted
- 15,380 feet of surface seismic refraction survey conducted
- 6 cross-hole seismic velocity surveys conducted
- 32,900 feet each of marine seismic refraction, reflection and bathymetry conducted (Lake Ontario)
- 108 soil tests and 135 rock tests conducted for geotechnical properties
- 1874 chemical analyses (analytical suites) conducted

Additional Site Characterization Field Studies

- Reconnaissance Geologic Studies Performed
 - Demster structural zone (within 5 mile plant radius)
 - No surface expression found
 - Plant area and shoreline bedrock exposures (immediate plant area and 1 mile plant radius)
 - No exposed faults or disturbed soil observed
 - Plant area and bedrock outcrops, with local geologist (Oswego, NY area – 5-10 mile radius)
 - No significant geologic structures
 - NMP drainage ditch fault (NMP Unit 2 site exposure)
 - Bedrock exposures of deep formations at more distant locations (25-40 miles, specific exposures at Nine Mile Point Park, Scriba, NY, Salmon River Falls, NY, and Lucerne, NY)

System, Structure and Component Differences

- Elevated makeup water intake structure and intake tunnels
- Circulating Water System
 - Non-plume abated mechanical draft cooling tower

Departures (Site-specific only)

- Maximum Annual Average Atmospheric Dispersion Factor (0.5 mile – Limiting Sector)
 - Affected sector is not densely populated
 - Increase is relatively small ($5.555\text{E-}06 \text{ sec/m}^3$ vs. $4.973\text{E-}06 \text{ sec/m}^3$)
 - Departure does not involve accident dispersion factors or dose
- Soil Density
 - Soil density greater than specified in U.S. EPR FSAR
 - Lateral earth pressures for Category 1 structures remain acceptable
- Short-Term Atmospheric Dispersion Estimates for the Control Room
 - X/Q values only slightly exceed U.S. EPR FSAR values (difference occurs in second digit after the decimal place)
 - Overall dose remains bounded by U.S. EPR FSAR

Exemptions (Site-specific only)

- Maximum Annual Average Atmospheric Dispersion Factor (0.5 mile – Limiting Sector)
- Soil Density
- Short-Term Accident Atmospheric Dispersion Factor for the Control Room
- 10 CFR 26 Fitness For Duty Program Implementation
- Use of 2004 Edition of the ASME Code

Industry COLA Experience

- Examples:
 - Admitted Contentions
 - Separation of “pre-construction” and “construction” impacts
 - Alternate Site analysis

EPR COLA Experience

- Examples:
 - Seismic characterizations and analysis
 - Wetlands impact avoidance
 - RAIs issued to RCOLA

SCOLA Impacts on RCOLA

- Licensing Basis Document Change Request (LBDCR) process used to identify differences between SCOLA and RCOLA
- Editorial corrections for generic text
 - Section references, section title names, table names
 - Bracket consistency



Bell Bend Nuclear Power Plant SCOL Application Overview

U.S. EPR DCWG Meeting
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Participants

Introduction: Terry Harpster

Vice President, Bell Bend Project - Development

Overview: Rocky Sgarro

Manager, Nuclear Regulatory Affairs

UniStar Support:

- Mike Cain - Project Manager
- Jim Freels - Licensing Project Manager

Bell Bend Project



Bell Bend Nuclear Power Plant SCOLA

- Plant name: Bell Bend Nuclear Power Plant (BBNPP)
- PPL announcement of intent: June 2007
- Initial NRC site evaluation: February 2008
- COLA submittal date: October 10, 2008
- Applicant, owner and operator: PPL Bell Bend, LLC
- U.S. EPR Reference COLA: Calvert Cliffs Unit 3 (Revision 3)
- Contacts for additional information:
 - Rocky Sgarro for PPL Bell Bend information
 - Jim Freels for UniStar information

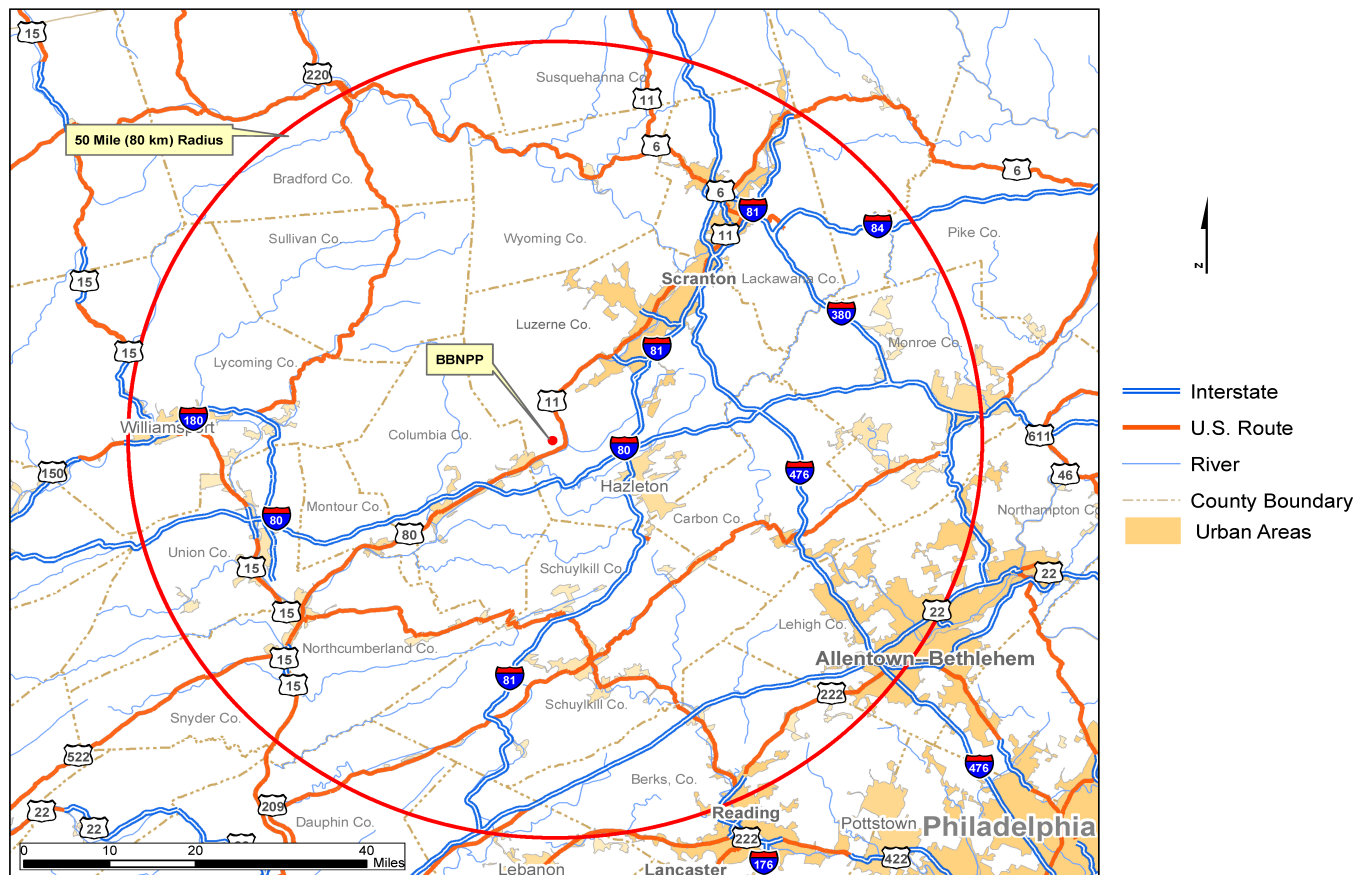
Overview Topics

- Plant Location
- General Plant Description
- Environmental Discussion (including Supplements)
- Site Specific Systems, Structures and Components
- Departures & Exemptions – Site Specific
- Industry COLA Experience
- EPR COLA Experience
- SCOLA Impacts on RCOLA

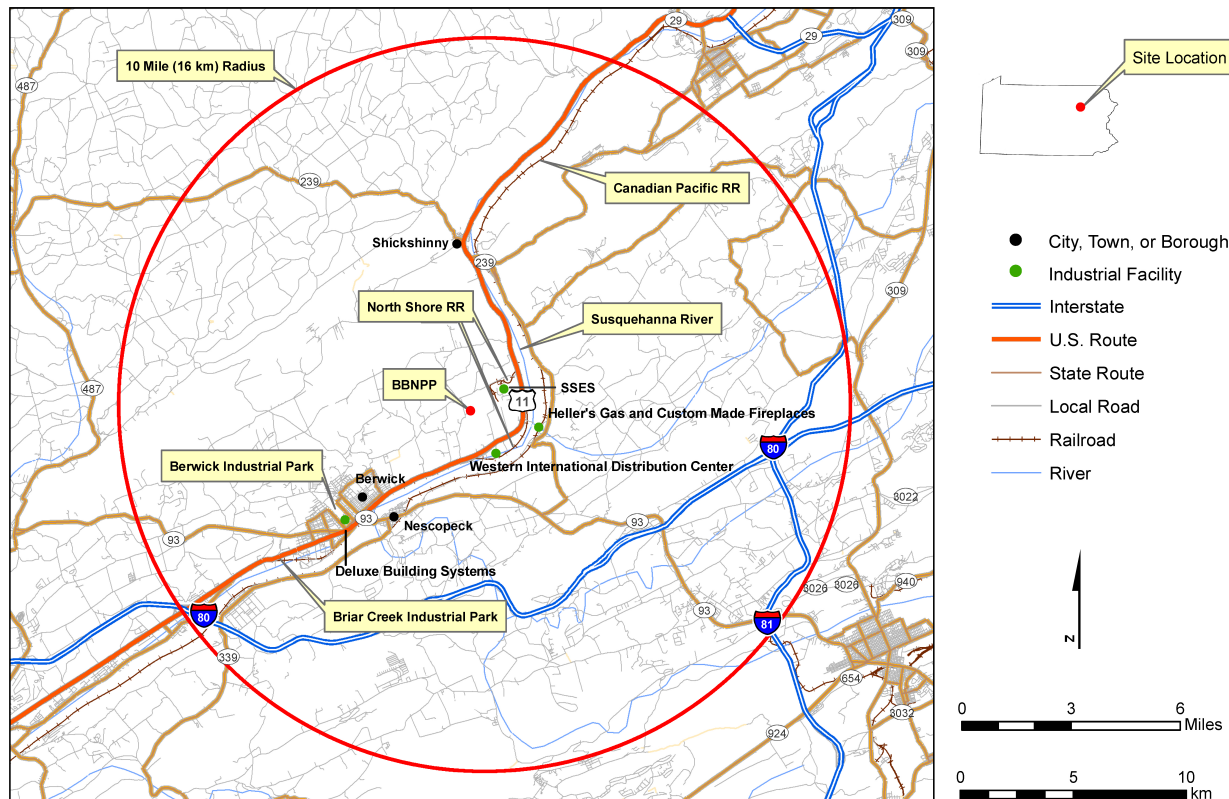
Plant Location

- Approximately 25 miles southwest of Wilkes-Barre; 5 miles northeast of the Borough of Berwick
- Susquehanna River is 1.5 miles south and east of the site
- Finished plant grade
 - ~ 674 feet msl
 - ~ 174 feet above nominal river elevation

Plant Location – 50 Mile Radius



Plant Location – 10 Mile Radius

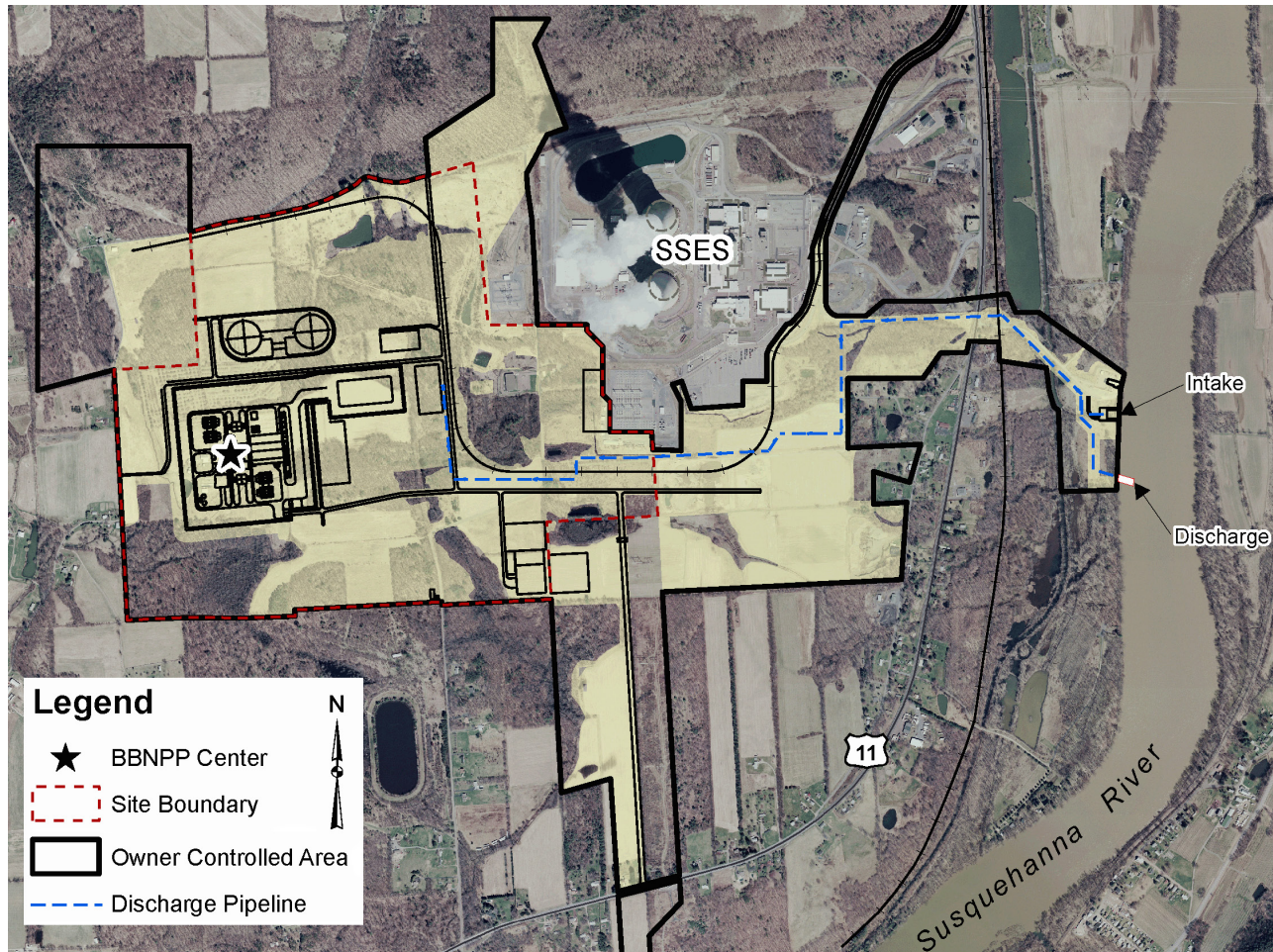


General Plant Description

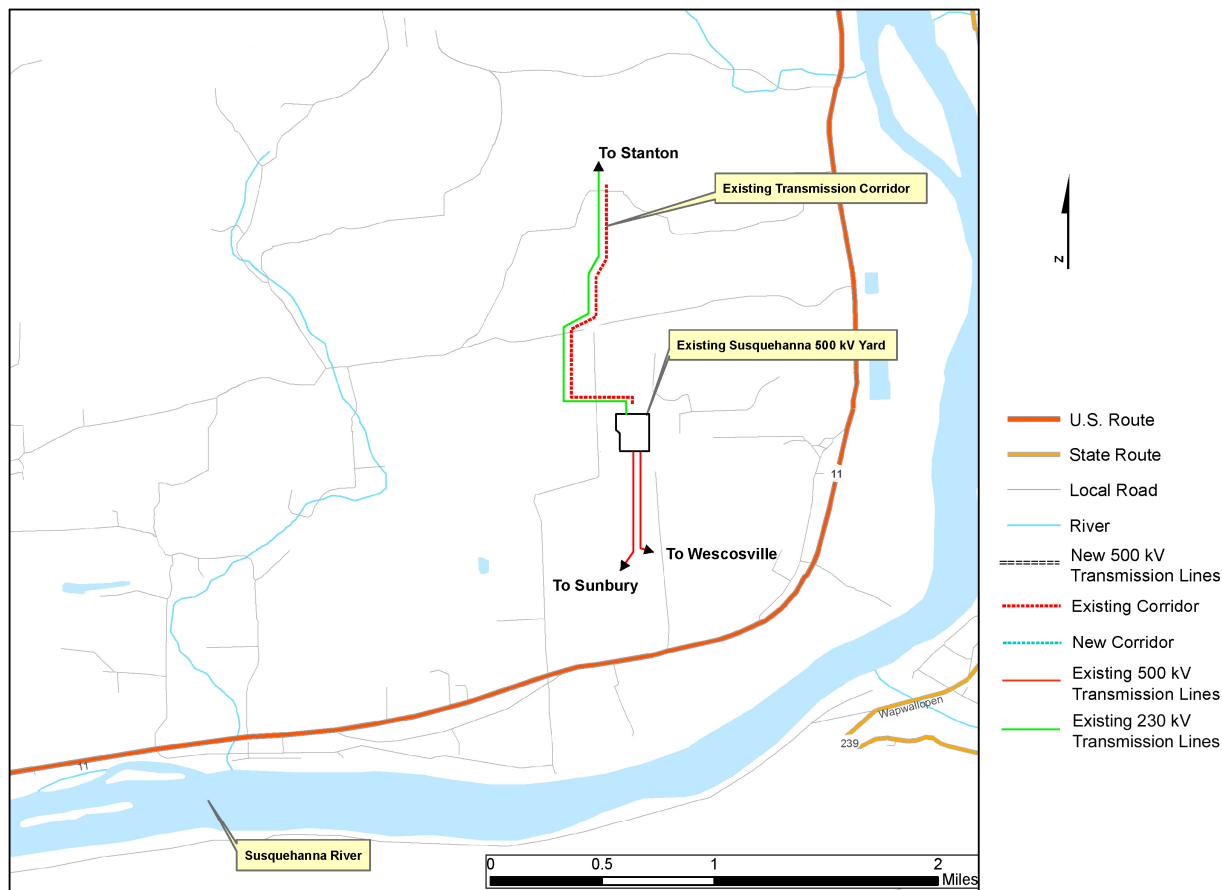
- BBNPP is a single unit U.S. EPR
 - Draft U.S. EPR Final Safety Analysis Report is in ADAMS
 - Net output: ~1600 MWe
- Owner Controlled Area: ~882 acres
 - BBNPP site: ~424 acres
- BBNPP is not part of an existing nuclear plant site
 - Separate from the nearby two-unit Susquehanna Steam Electric Station (SSES) site
 - BBNPP and SSES have individual Emergency and Security Plans



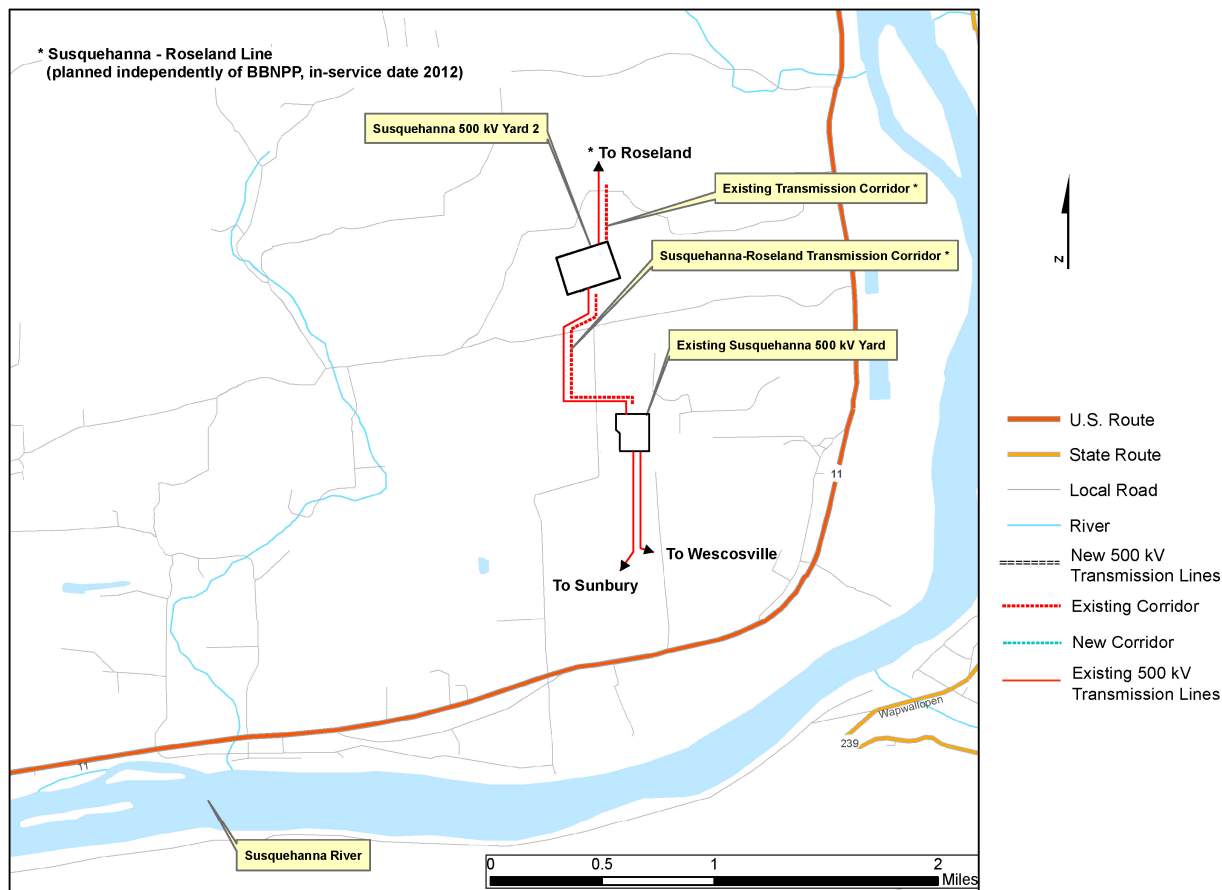
Site Map



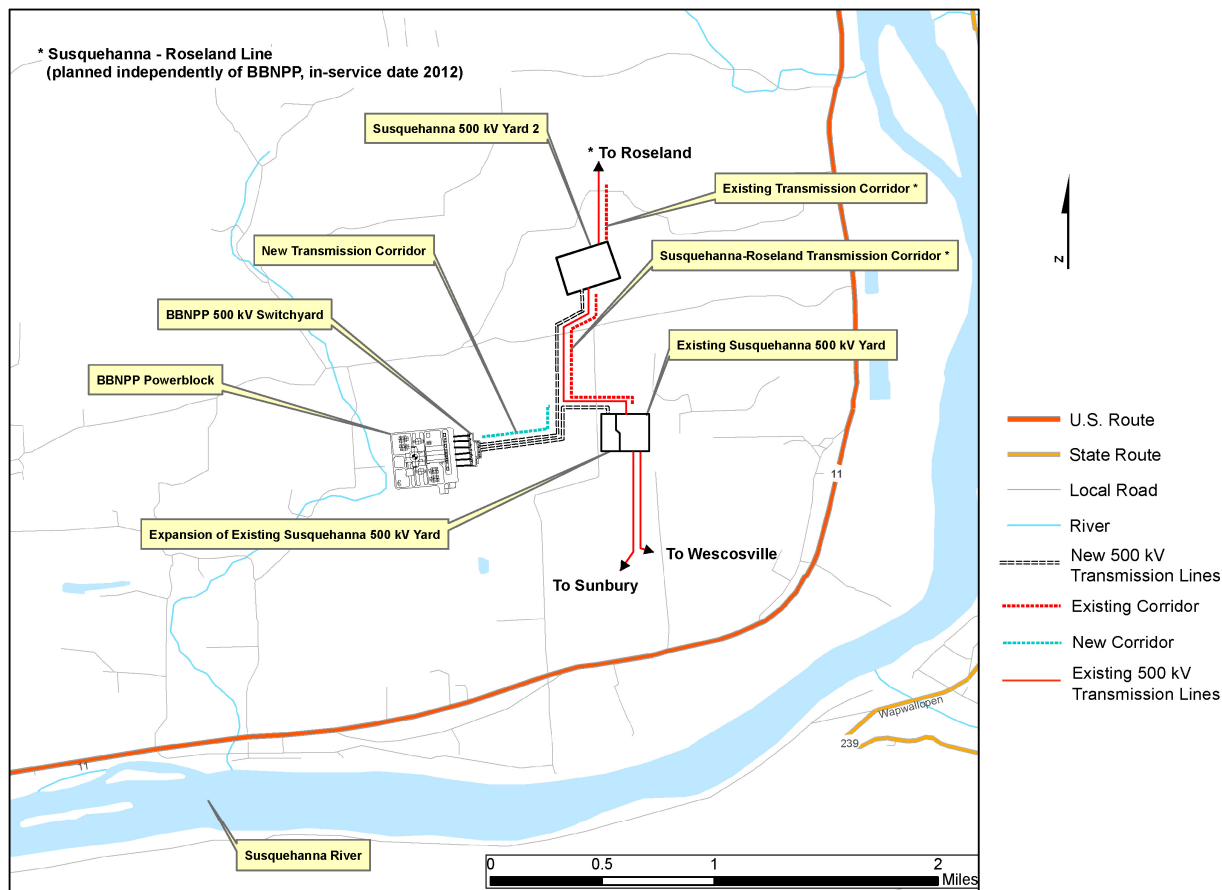
Transmission Lines - Existing



New Switchyard for RTEP



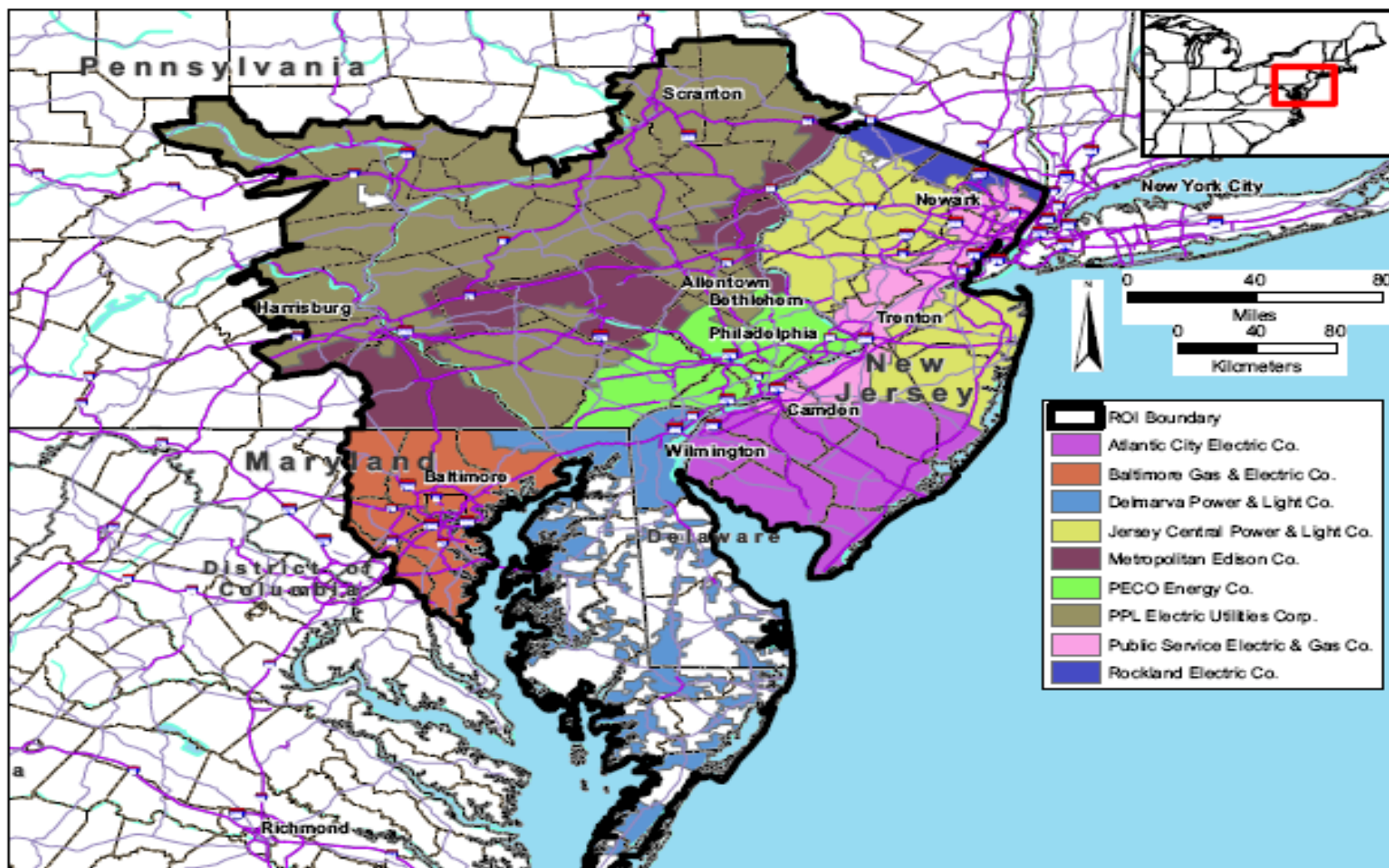
Transmission Lines- BBNPP



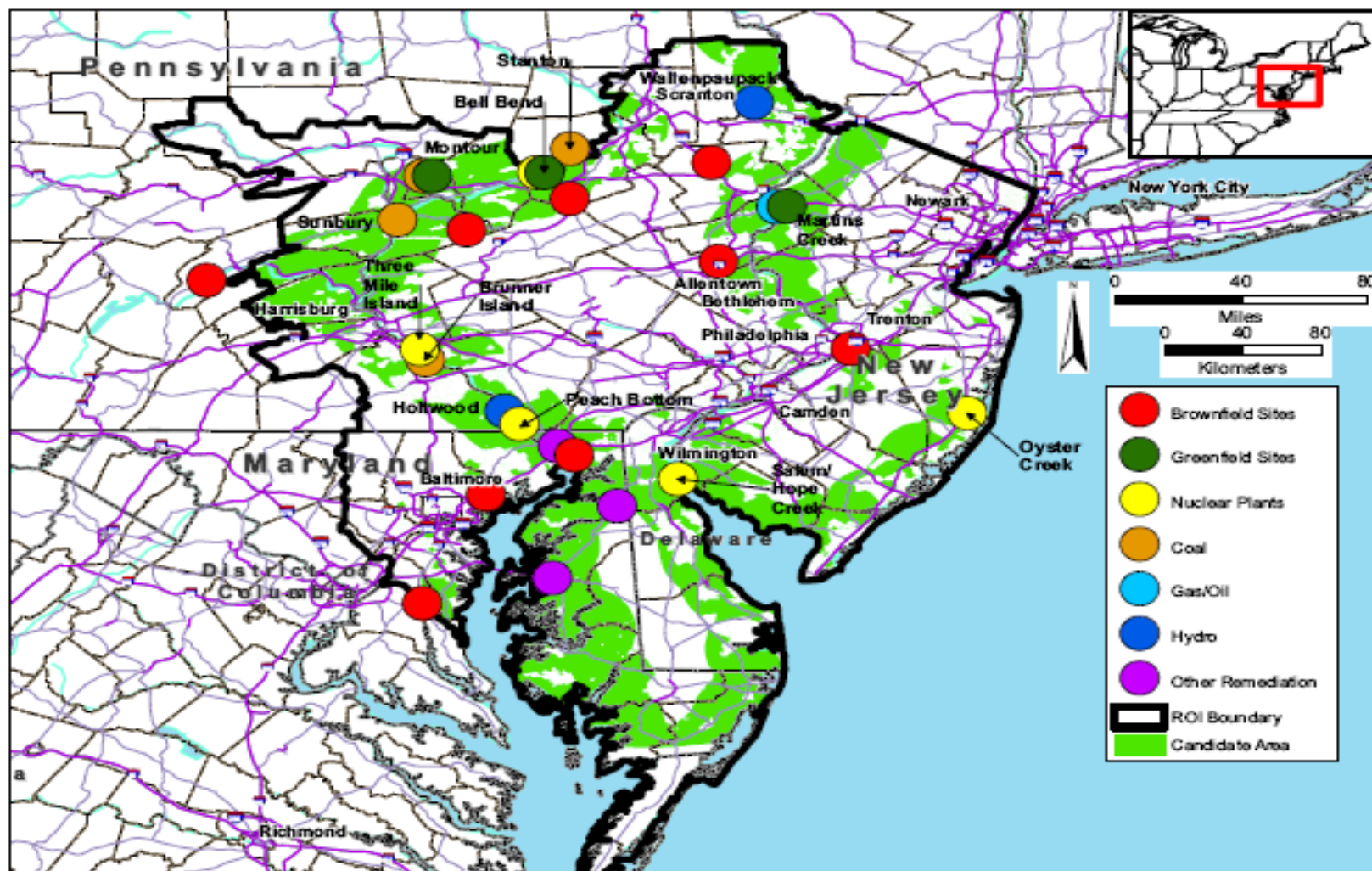
Environmental Discussion

- NRC Pre-submittal Environmental Review (“C3 Meeting”)
 - Staff provided feedback on Environmental Report status
 - Comments were addressed by significant effort in last 75 days prior to submittal
 - Major areas addressed:
 - Number of open items
 - Alternative sites and energy sources
 - Land Use impacts
 - Terrestrial Ecology
 - Wetlands
 - Cultural Resources

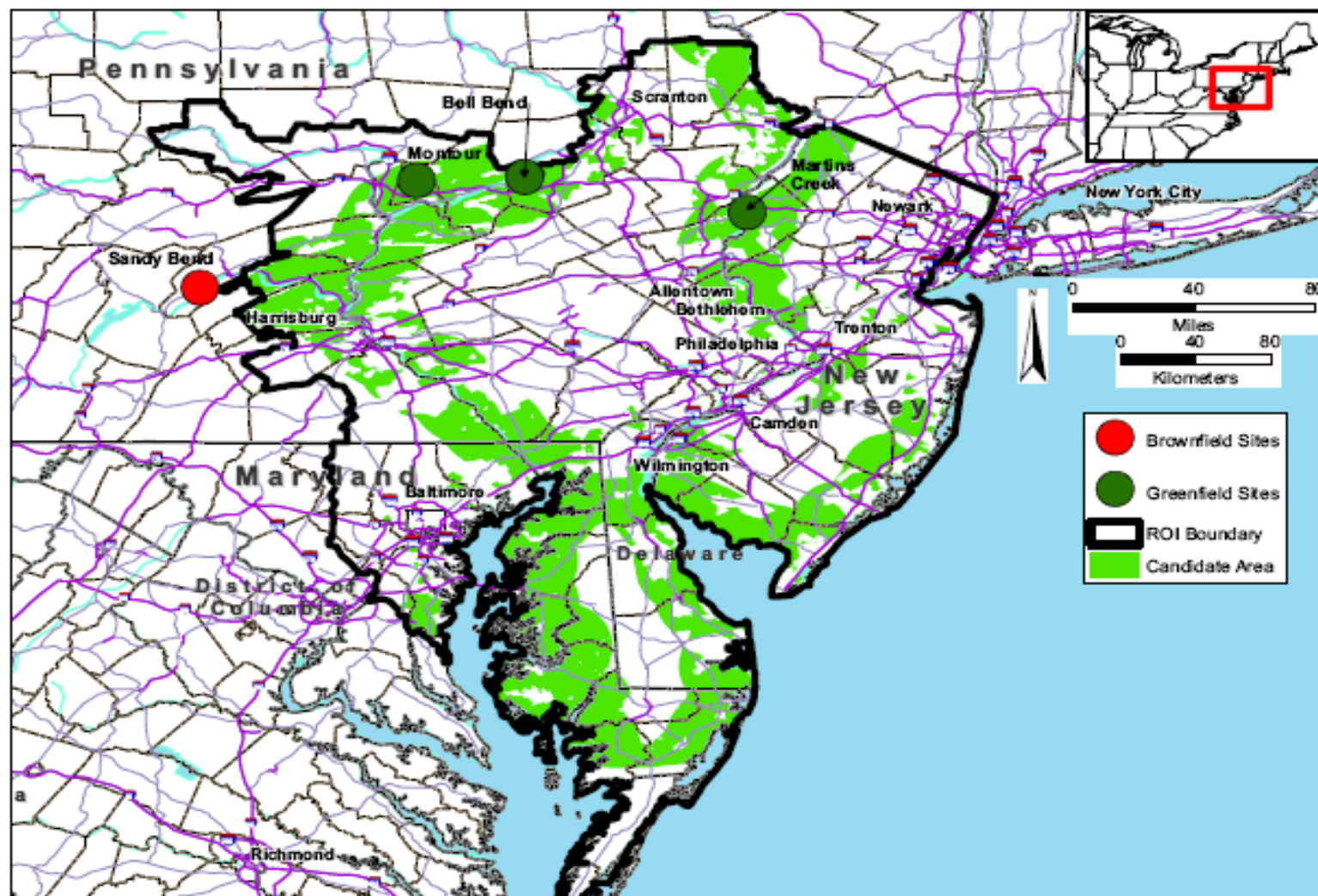
Region of Interest



Candidate Sites



Potential Sites



Wetlands Avoidance Effort

Before

Owner Controlled Area: 557 ac

Site Area: 424 ac

– **Total wetlands 107 ac**

• **Permanent 95 ac**

• **Temporary 2 ac**

After

Owner Controlled Area: 882 ac

Site Area: 424 ac

– **Total wetlands 107 ac**

• **Permanent 33 ac**

• **Temporary 2 ac**

Supplements

- Supplements to be submitted by November 20, 2008:
 - Fourth quarter of ground water analyses and flow data
 - Currently being finalized
 - Historical data from SSES and samples to date provide high confidence that no anomalies will be identified
 - Cultural Resources Phase 1b Report for newly acquired property
 - PPL purchased adjacent properties to avoid wetlands impacts. Phase 1a surveys complete and included in SCOLA.
 - Preliminary results identified no areas requiring additional measures.

Supplements (cont'd)

- Supplement to be submitted by June 1, 2009:
 - Impingement and Entrainment (I&E) study
 - On-going field studies to evaluate I&E near proposed intake
 - Data to date and historical SSES data provide high confidence that no anomalies will be identified

Site Specific Systems, Structures and Components

- Dedicated meteorological tower for operational data
 - Preoperational data from existing SSES met tower
- Essential Service Water Emergency Makeup System
 - Retention Pond
- Circulating Water System
 - Two non-plume abated natural draft cooling towers
- New 500 kV switchyard supports regional grid reliability
 - Expected on-line date is 2012; not driven by BBNPP
 - BBNPP output will go to new 500 kV yard and expanded SSES switchyard.

Departures – Site Specific

- Maximum Ground Water Level
- Exclusion Area Boundary
 - Maximum Annual Average Atmospheric Dispersion Factor (0.5 mile – Limiting Sector)
 - Accident Atmospheric Dispersion Factor
 - Estimated Annual Radioactive Liquid and Gaseous Releases (GALE code input changes)
- Response to Safe Shutdown Earthquake (SSE)
 - In-Structure Response Spectra (ISRS)
 - Idealized Site Soil Profiles

Exemptions – Site Specific

- Maximum Ground Water Level
- Exclusion Area Boundary
 - Maximum Annual Average Atmospheric Dispersion Factor (0.5 mile – Limiting Sector)
 - Accident Atmospheric Dispersion Factor
- Response to Safe Shutdown Earthquake (SSE)
- **10 CFR 26 Fitness For Duty Program Implementation**
- **Use of 2004 Edition of the ASME Code**

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