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

October 30, 2008

USNRC Offices - Rockville, MD

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

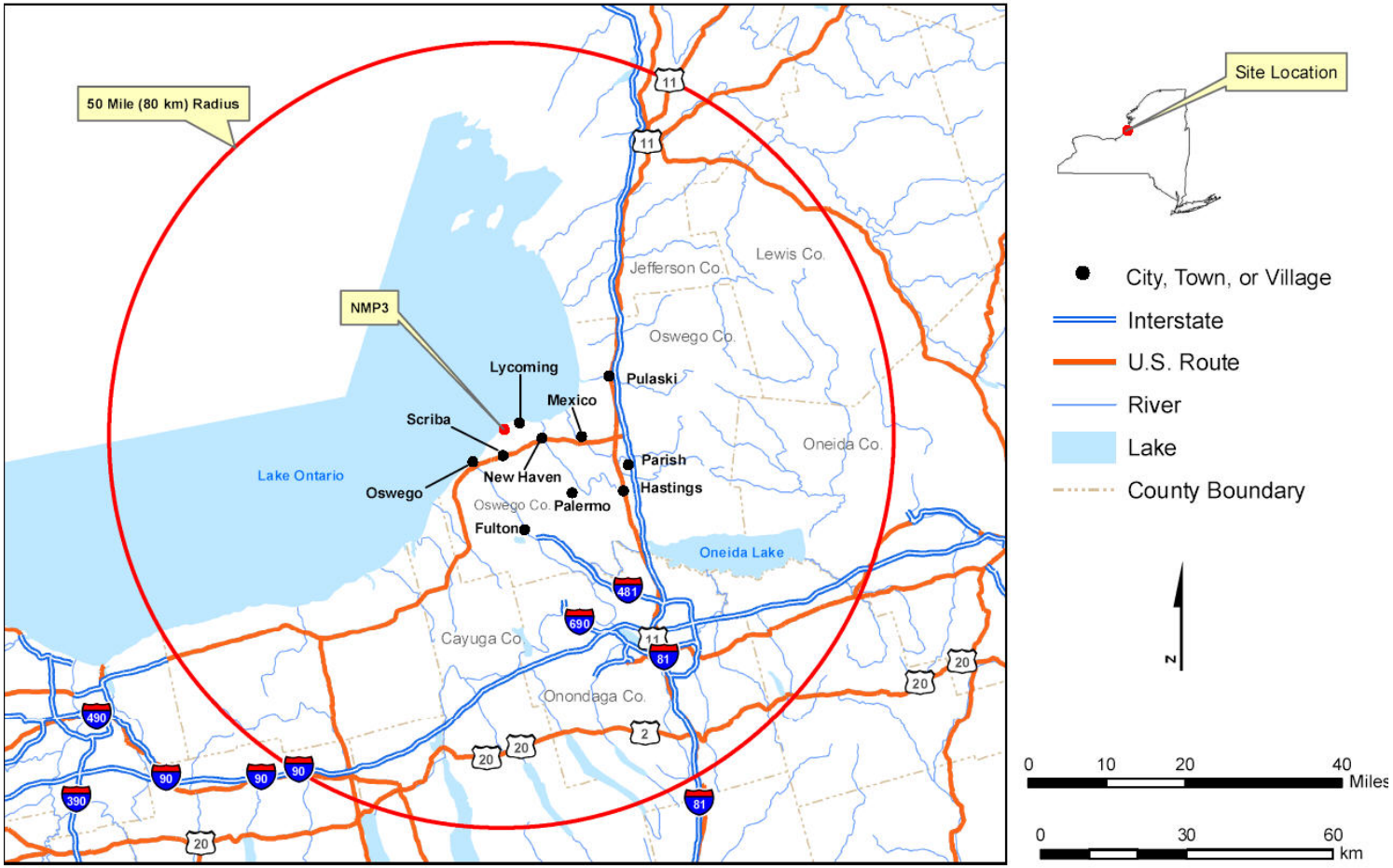
Overview Topics

- 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

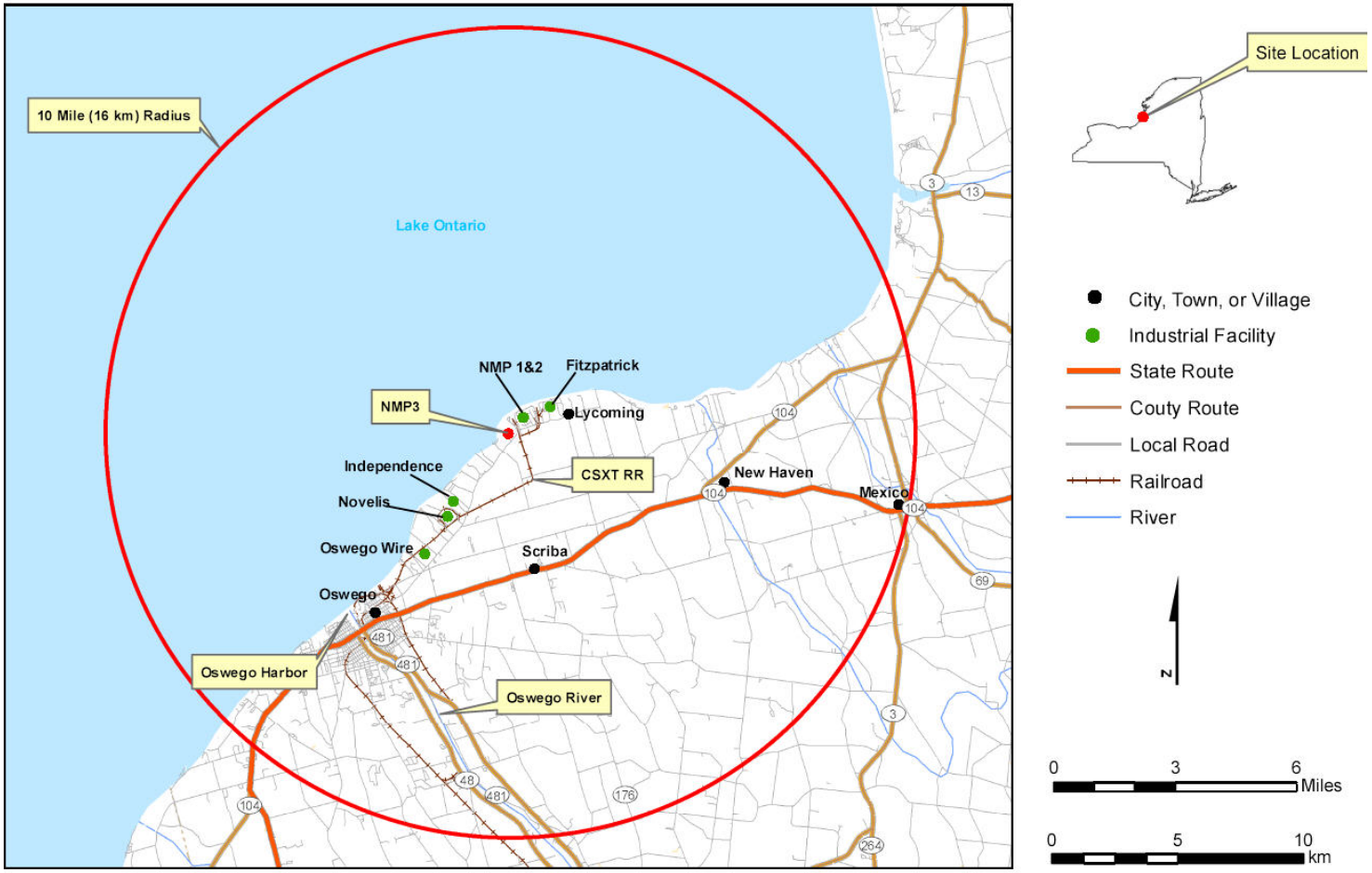
Plant Location

- 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



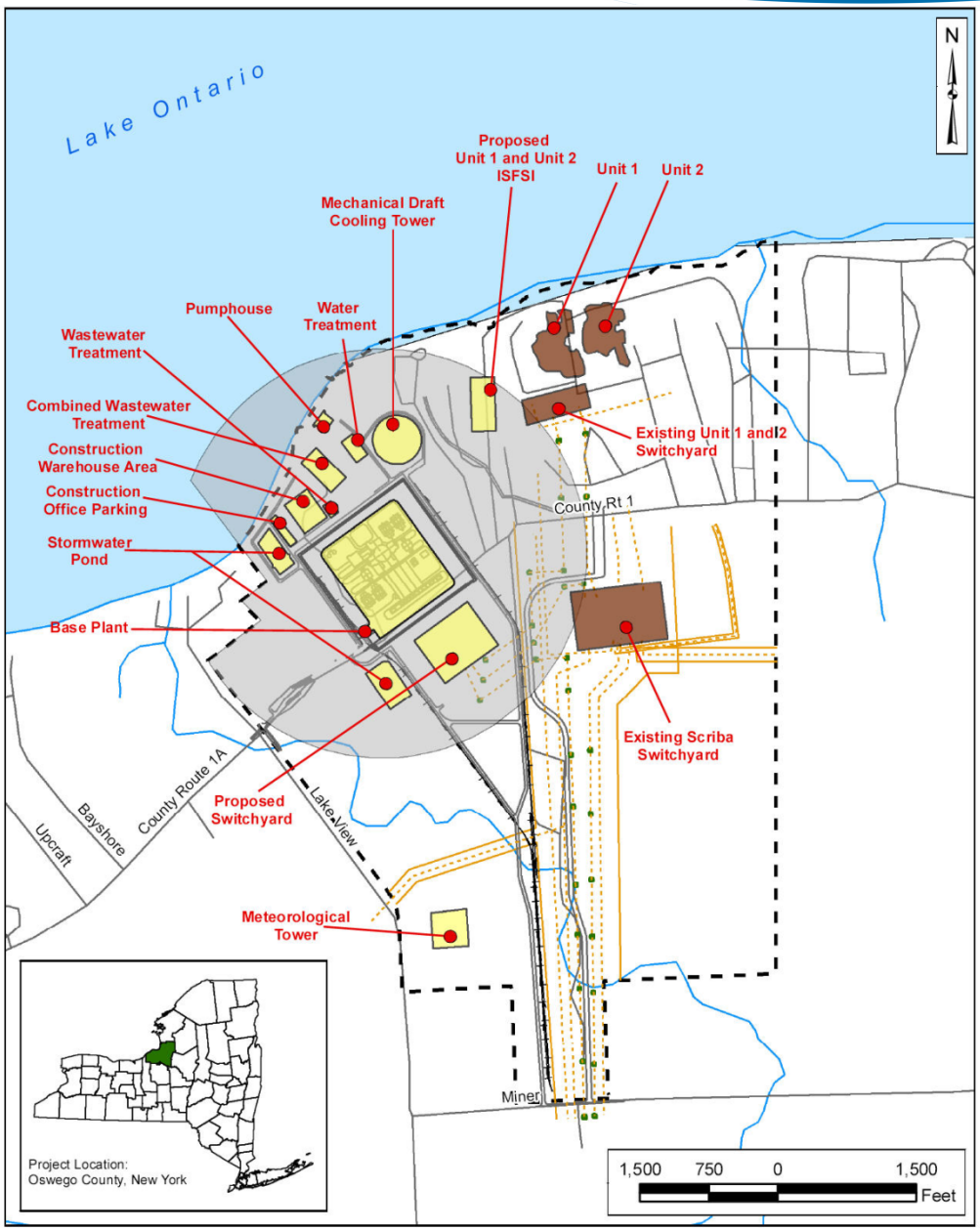
General Plant Description

- 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

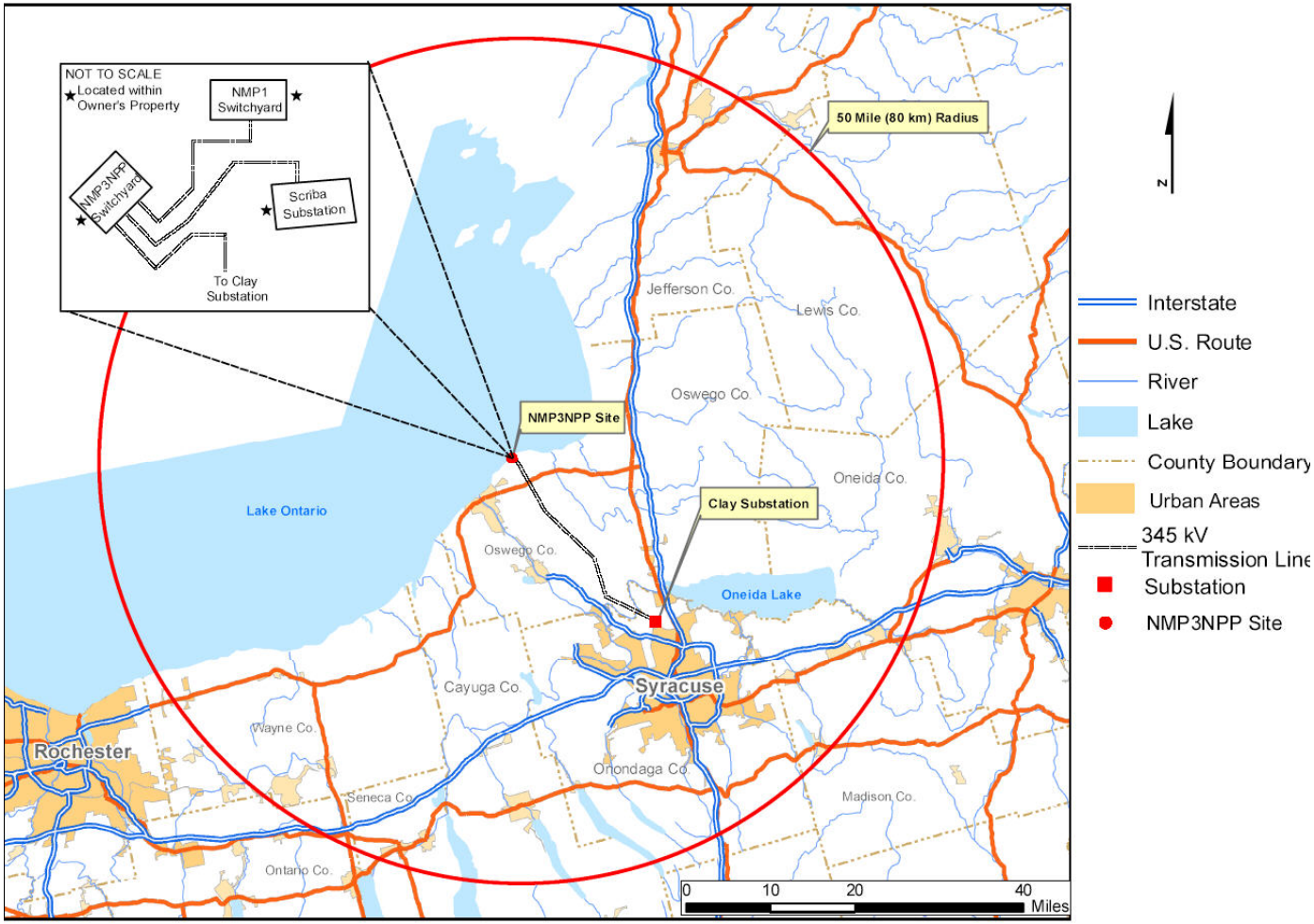
Site Map

Legend

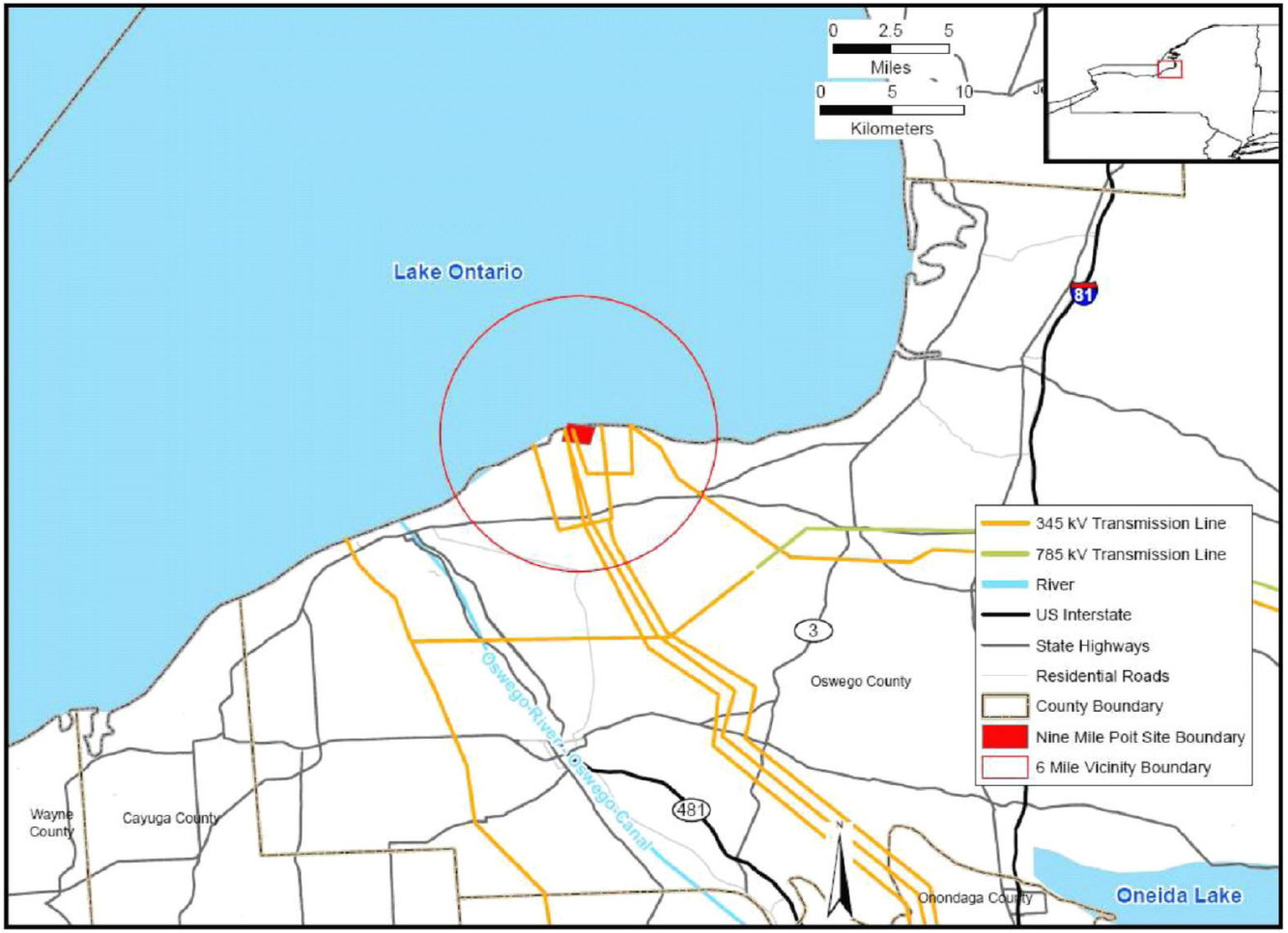
- Exclusion Area Boundary
- Proposed Facilities
- Existing Facilities
- Owner Controlled Area
- ROW Line
- Railroad
- Roads
- Transmission Lines
- Transmission Structures
- Streams



Switchyard Changes for NMP3NPP



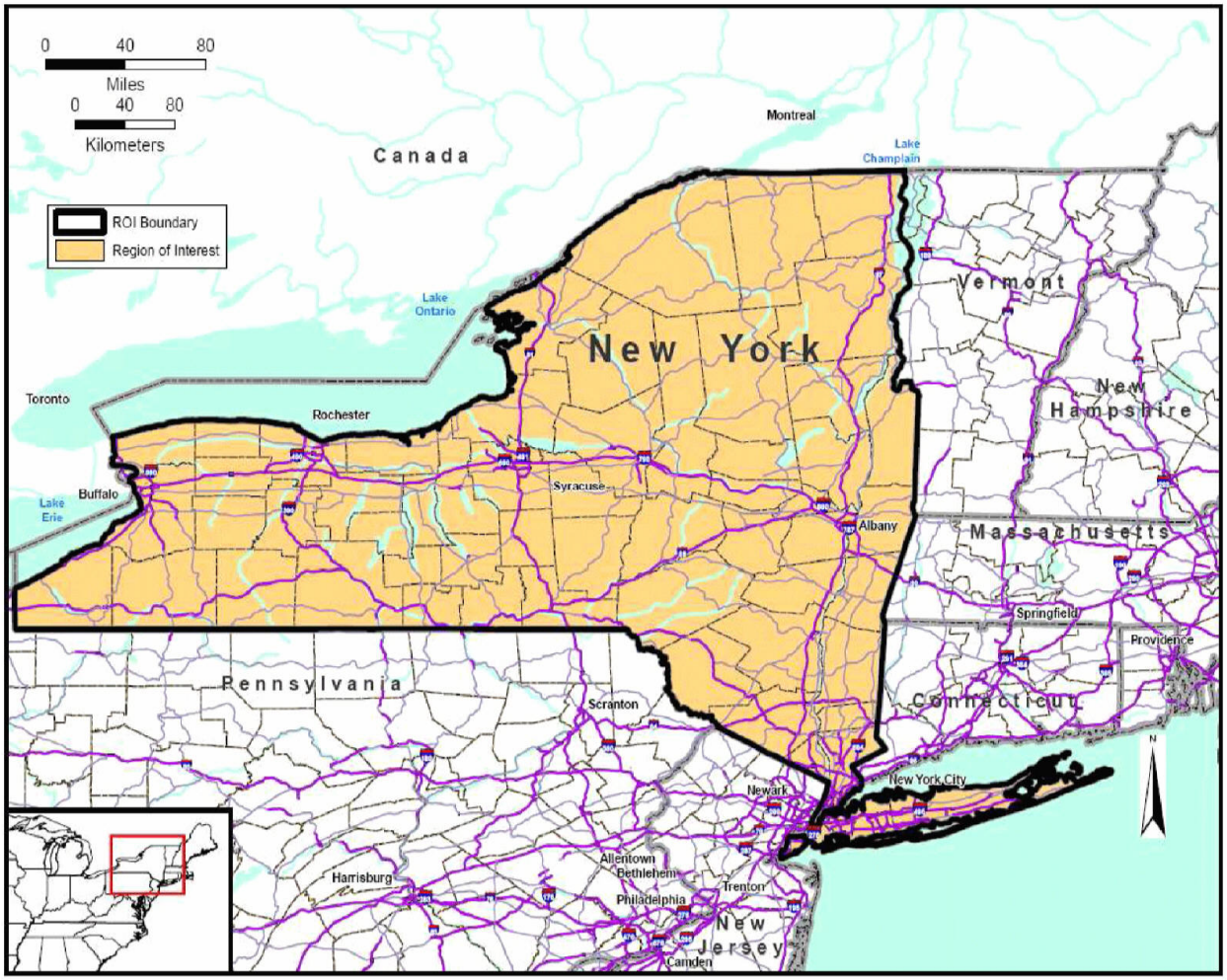
Existing Transmission Network



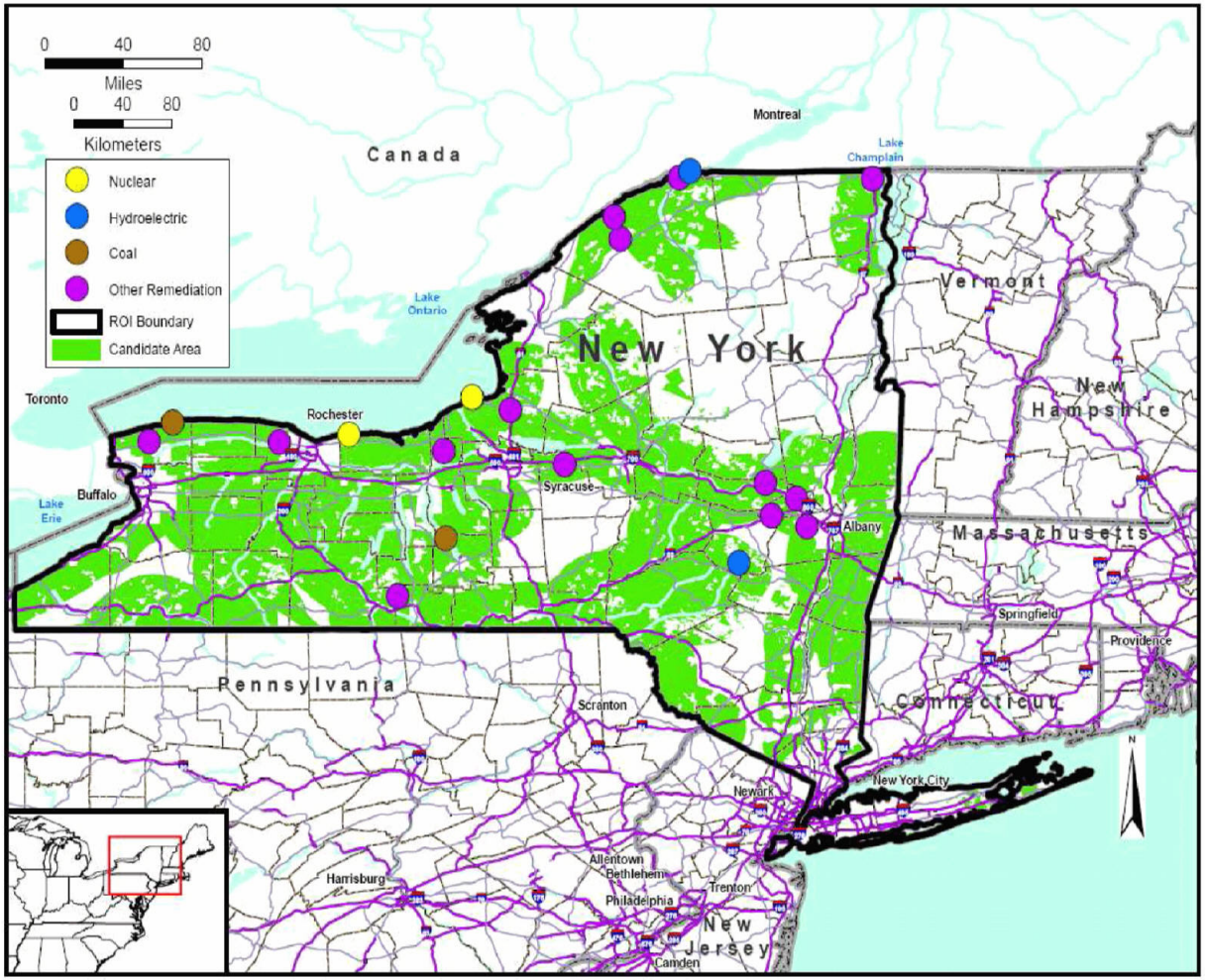
Environmental Discussion

- 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*



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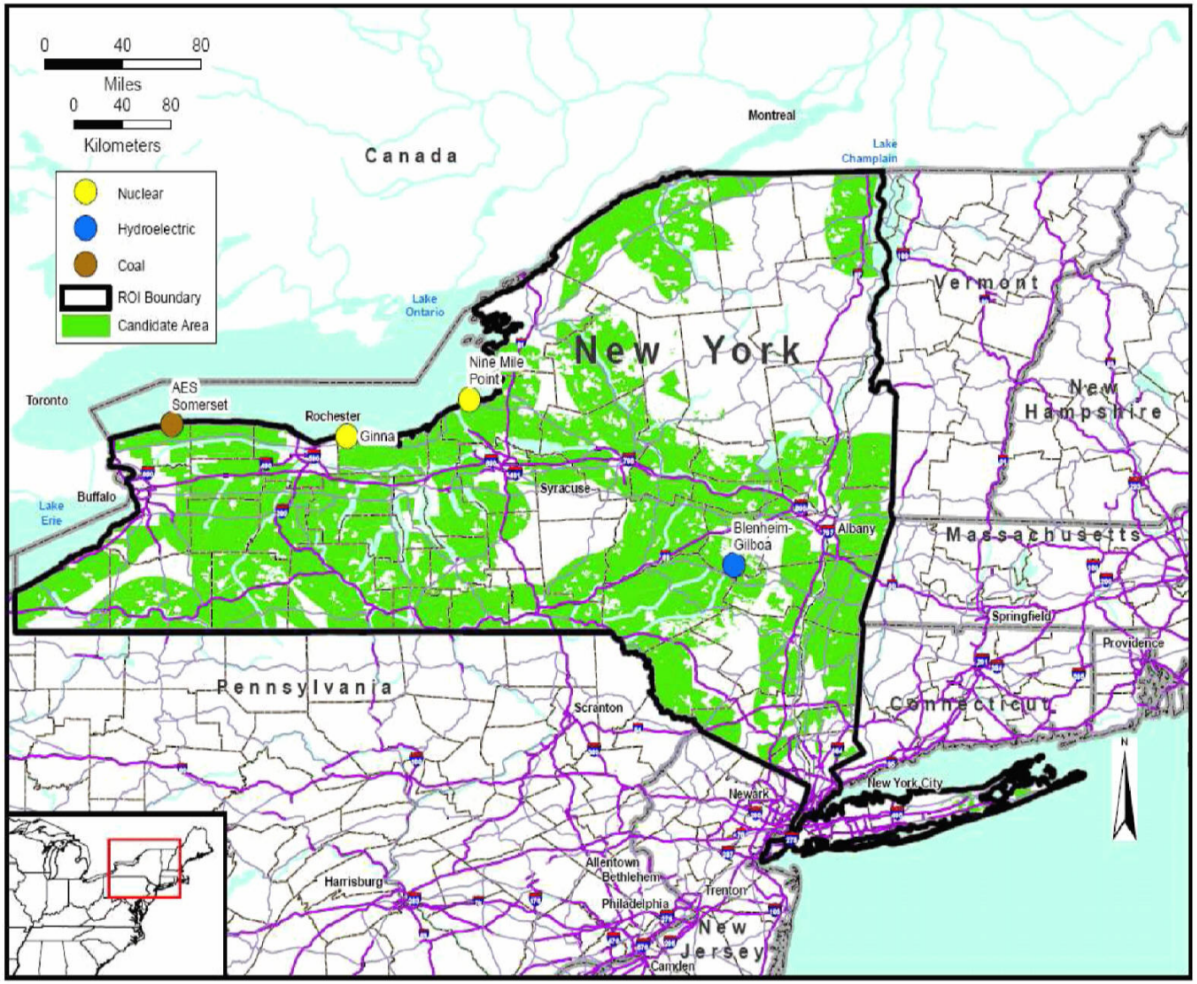
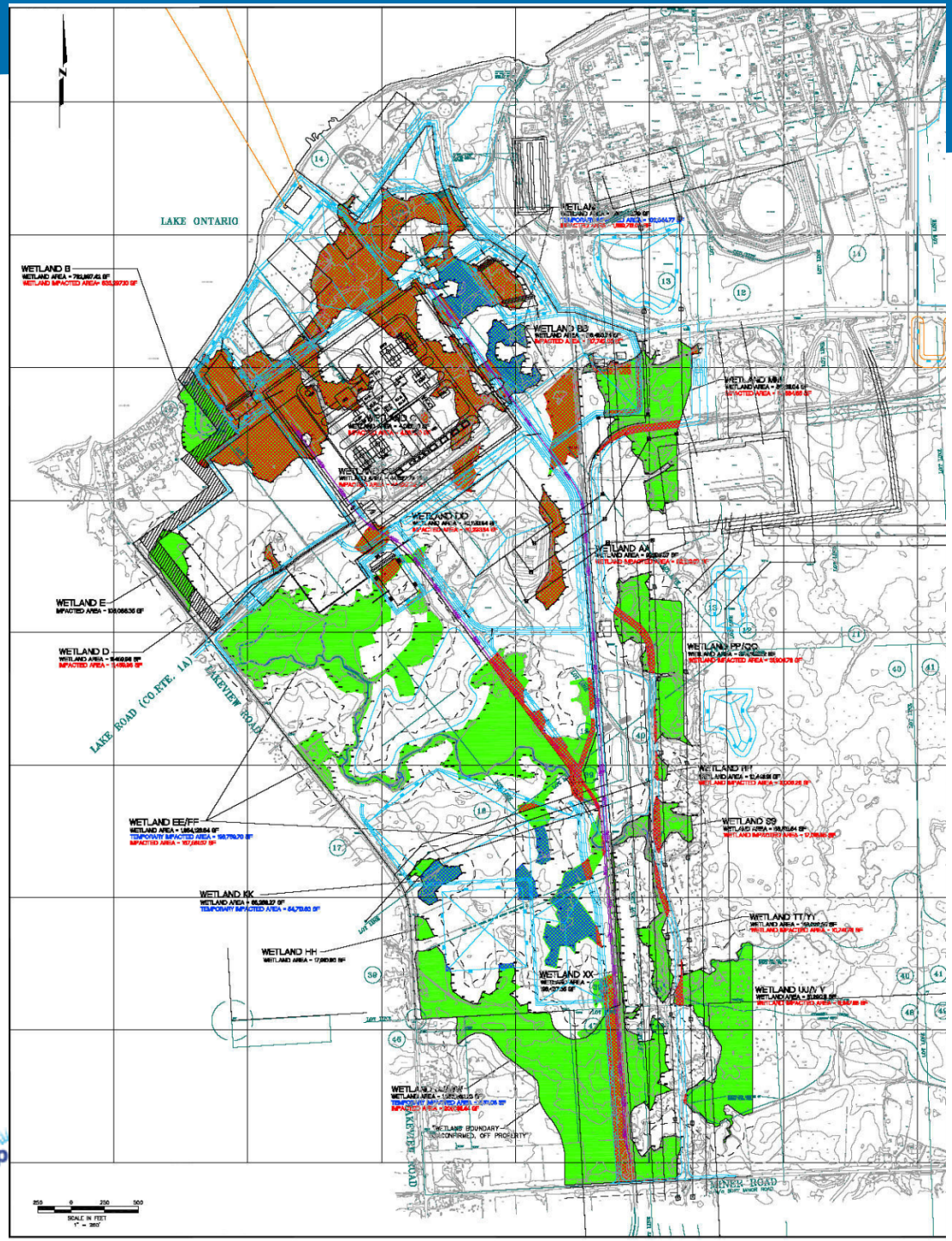


Wetlands



LEGEND

- WETLAND
- IMPACTED WETLAND AREA
- TEMPORARY IMPACTED WETLAND AREA
- 100-FOOT WETLAND BUFFER (NYSDEC MAPPED WETLAND)
- INTERMITTENT STREAM
- PERENNIAL STREAM

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 are 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 (5.555E-06 sec/m^3 vs. 4.973E-06 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

October 30, 2008

USNRC Offices - Rockville, MD

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

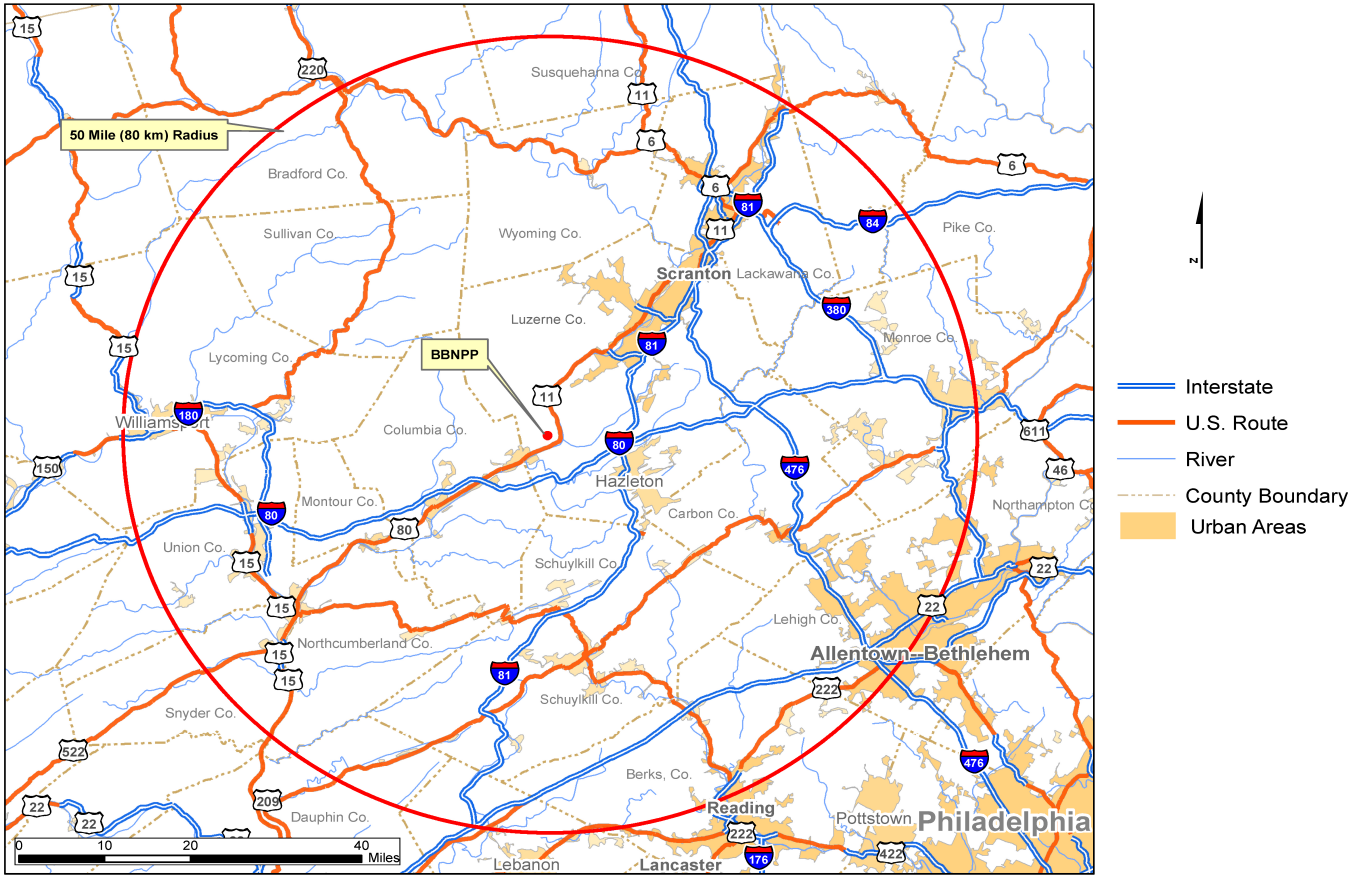
Plant Location

- 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

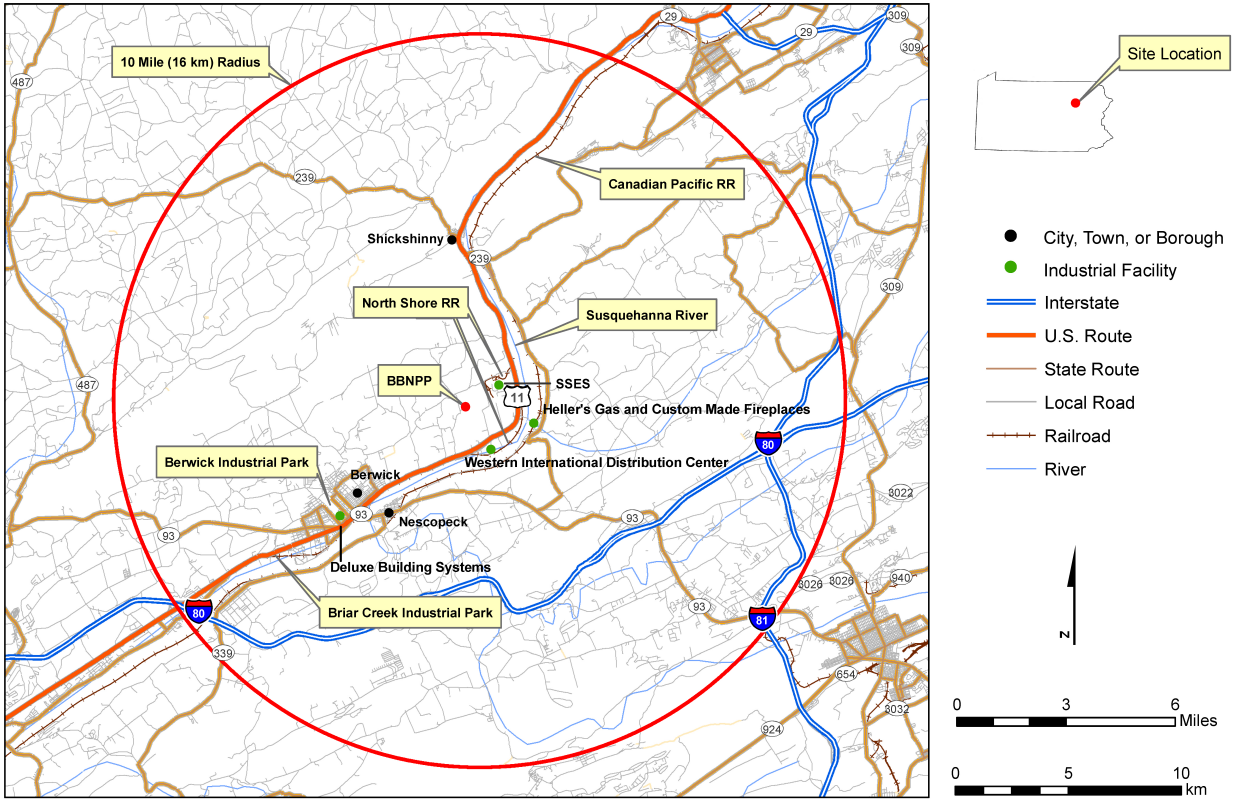
  ~ 674 feet msl

  ~ 174 feet above nominal river elevation

Plant Location – 50 Mile Radius



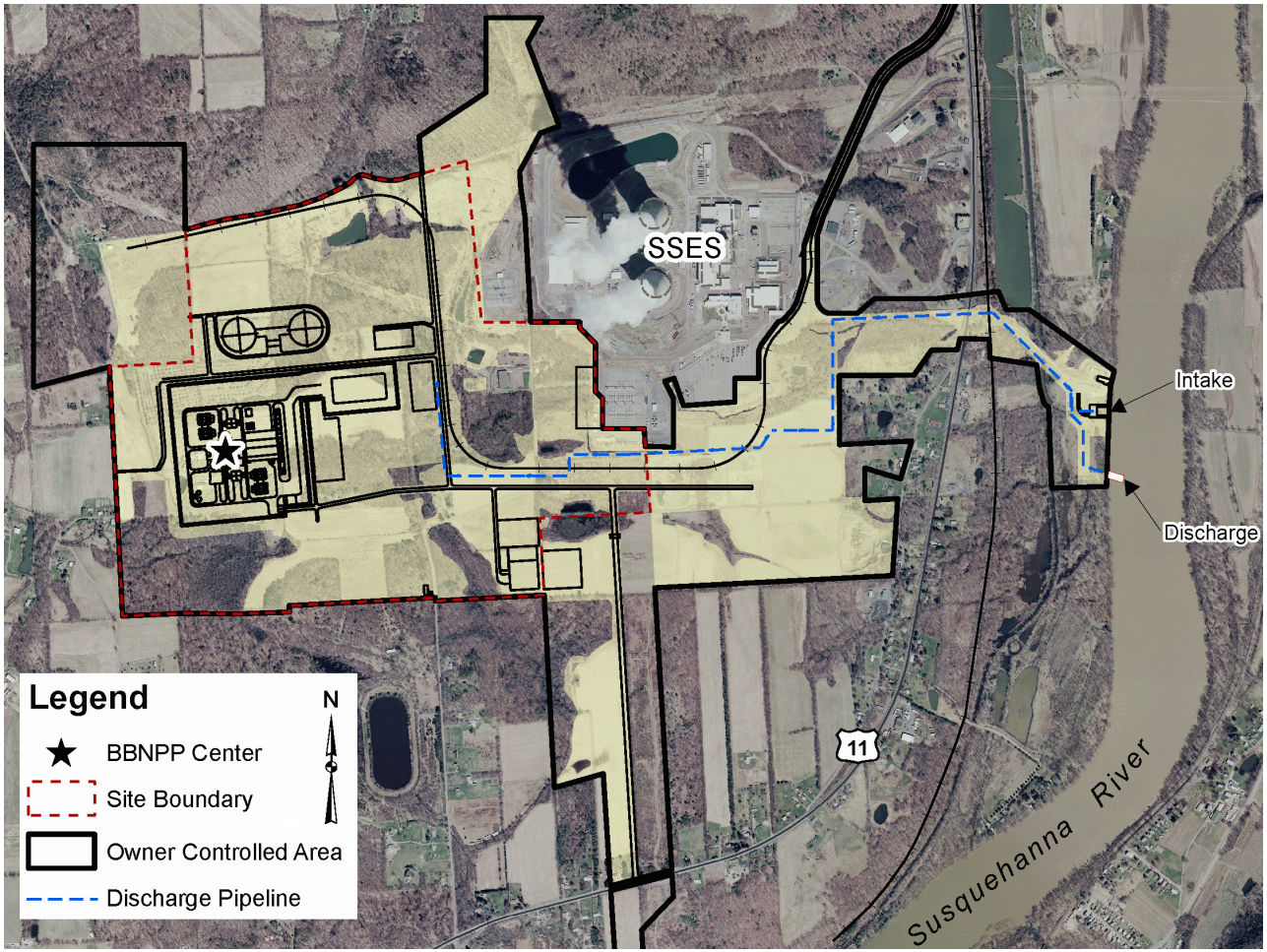
Plant Location – 10 Mile Radius



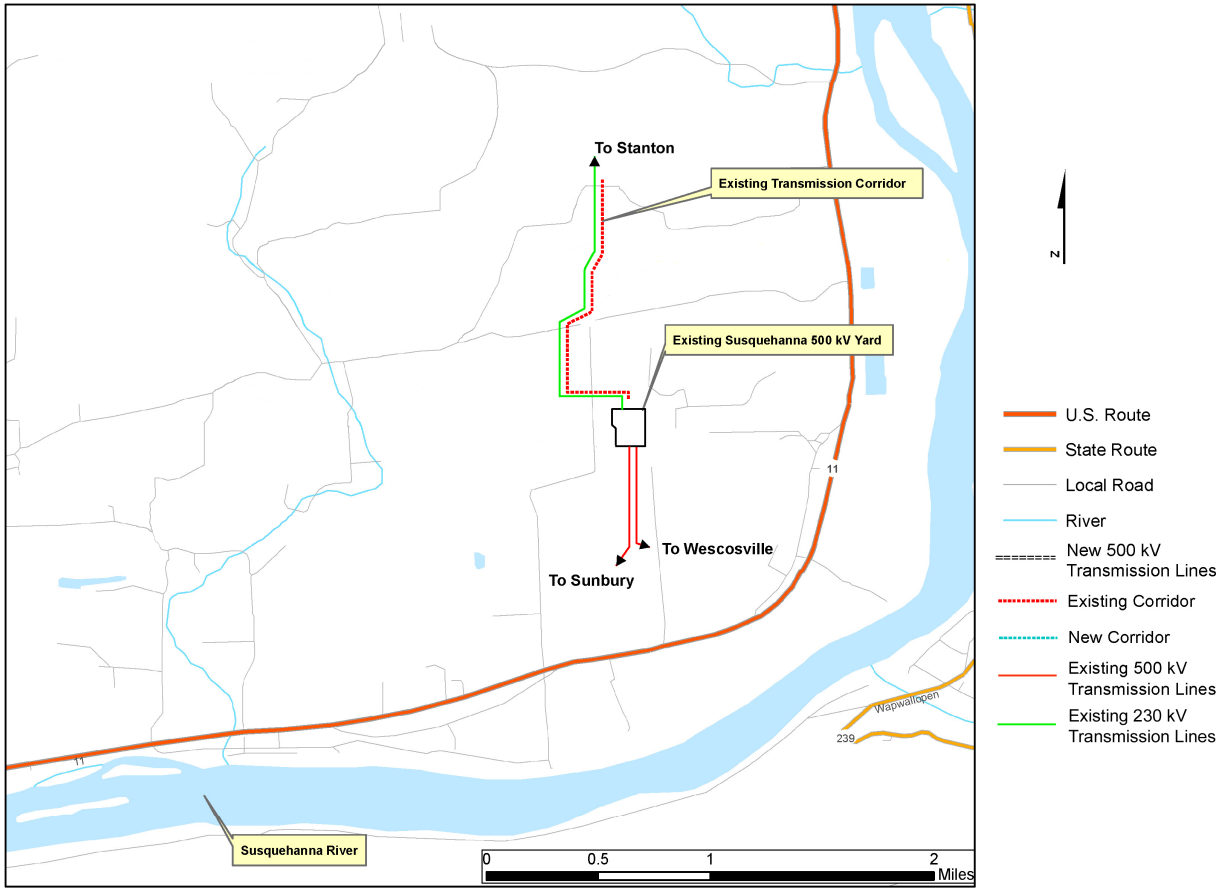
General Plant Description

- 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

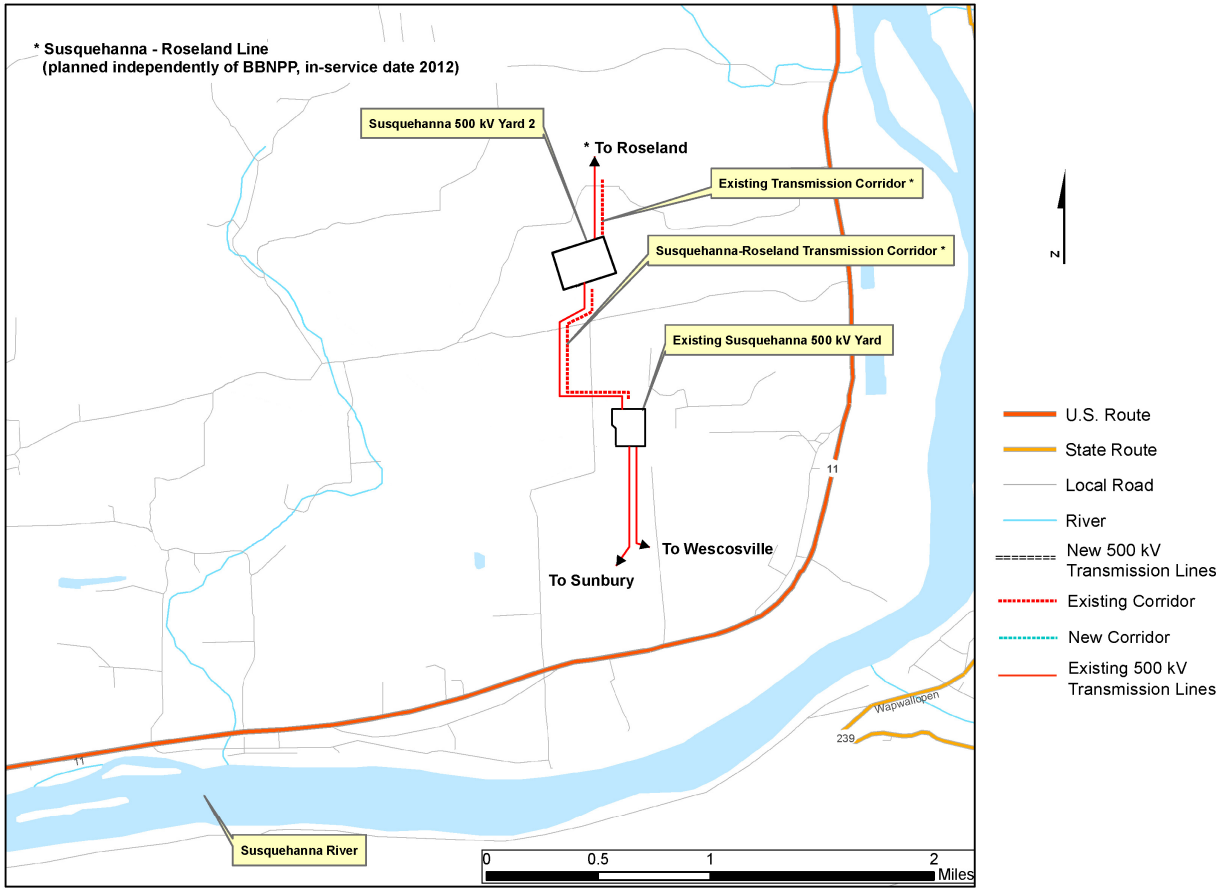
Site Map


SSES
Intake
Discharge
11
Susquehanna River
Legend
N
BBNPP Center
Site Boundary
Owner Controlled Area
Discharge Pipeline

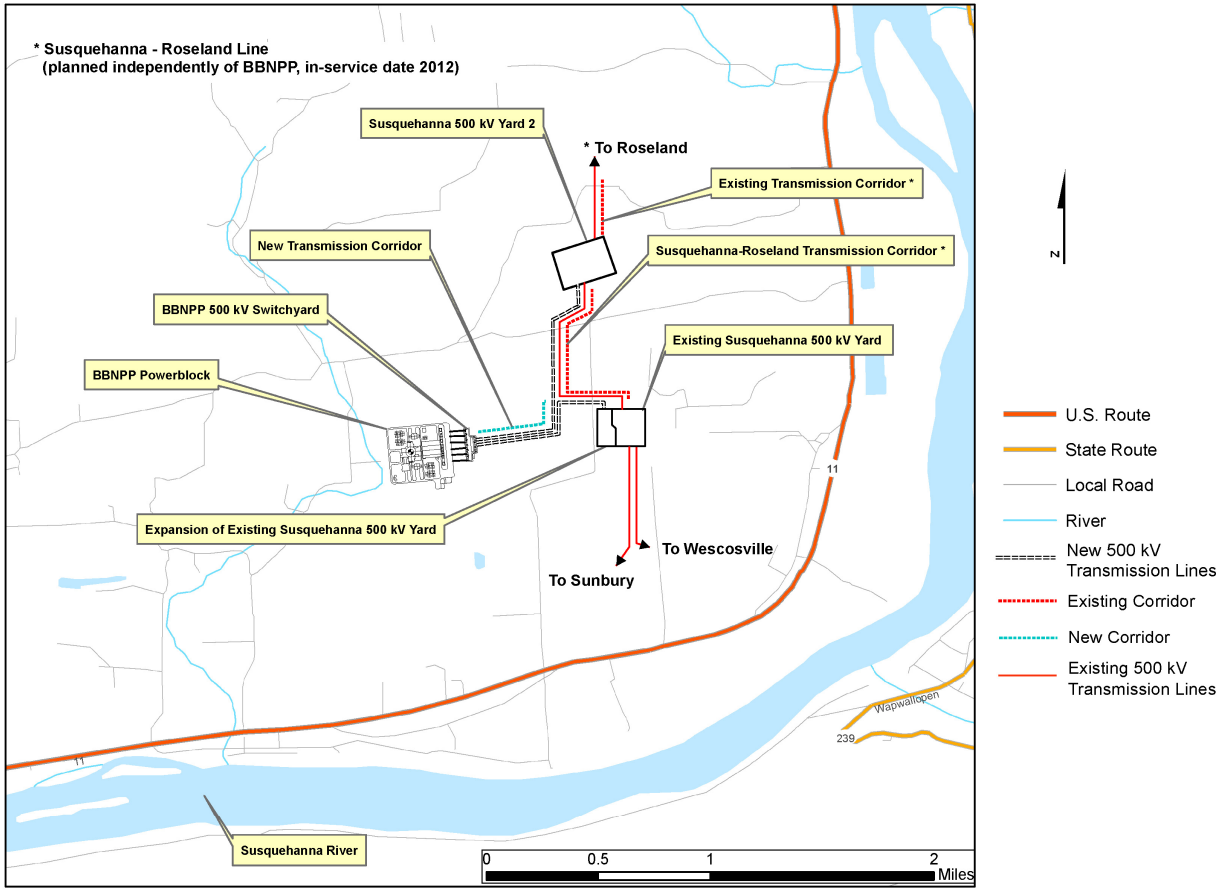
Transmission Lines - Existing



New Switchyard for RTEP



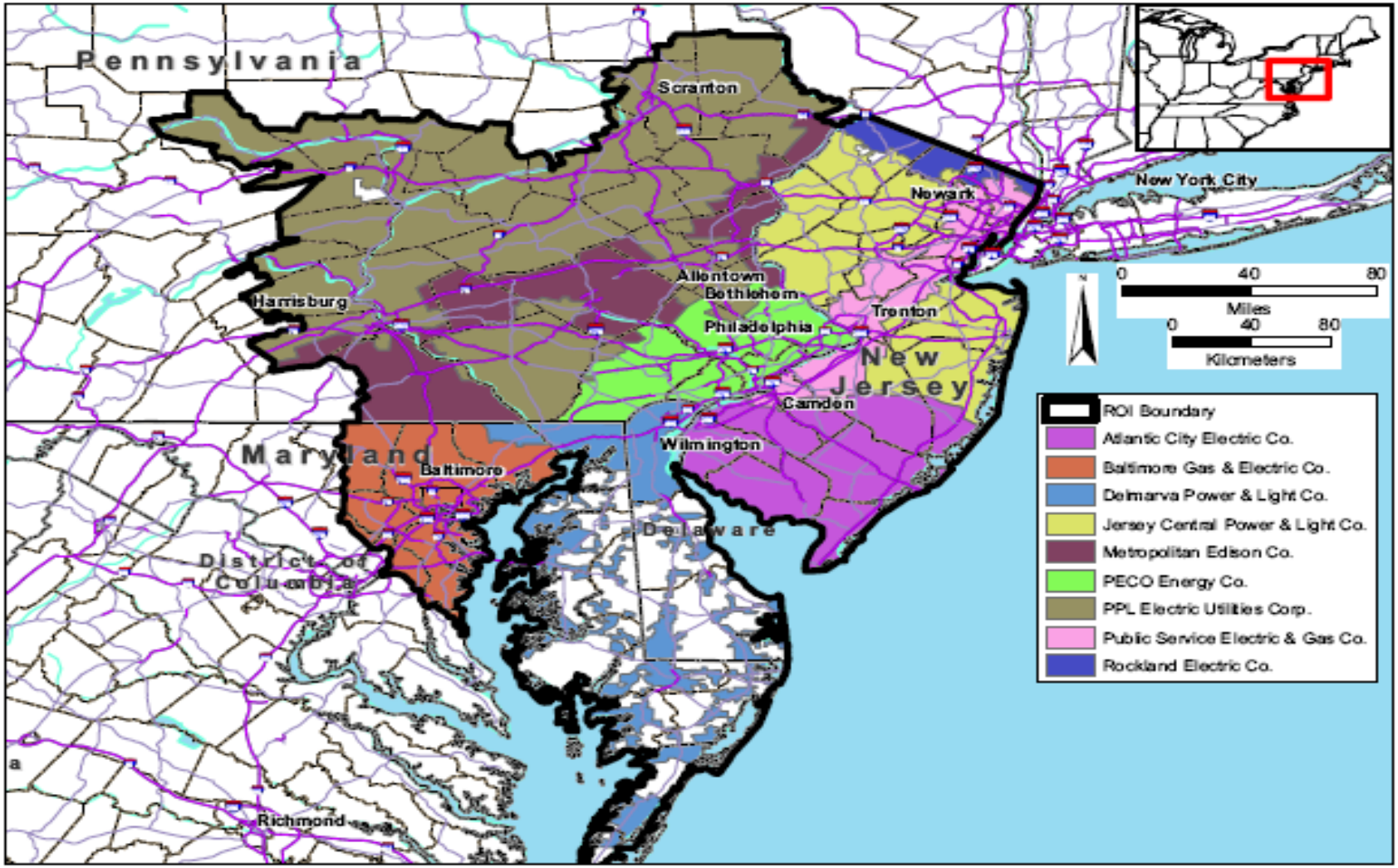
Transmission Lines- BBNPP



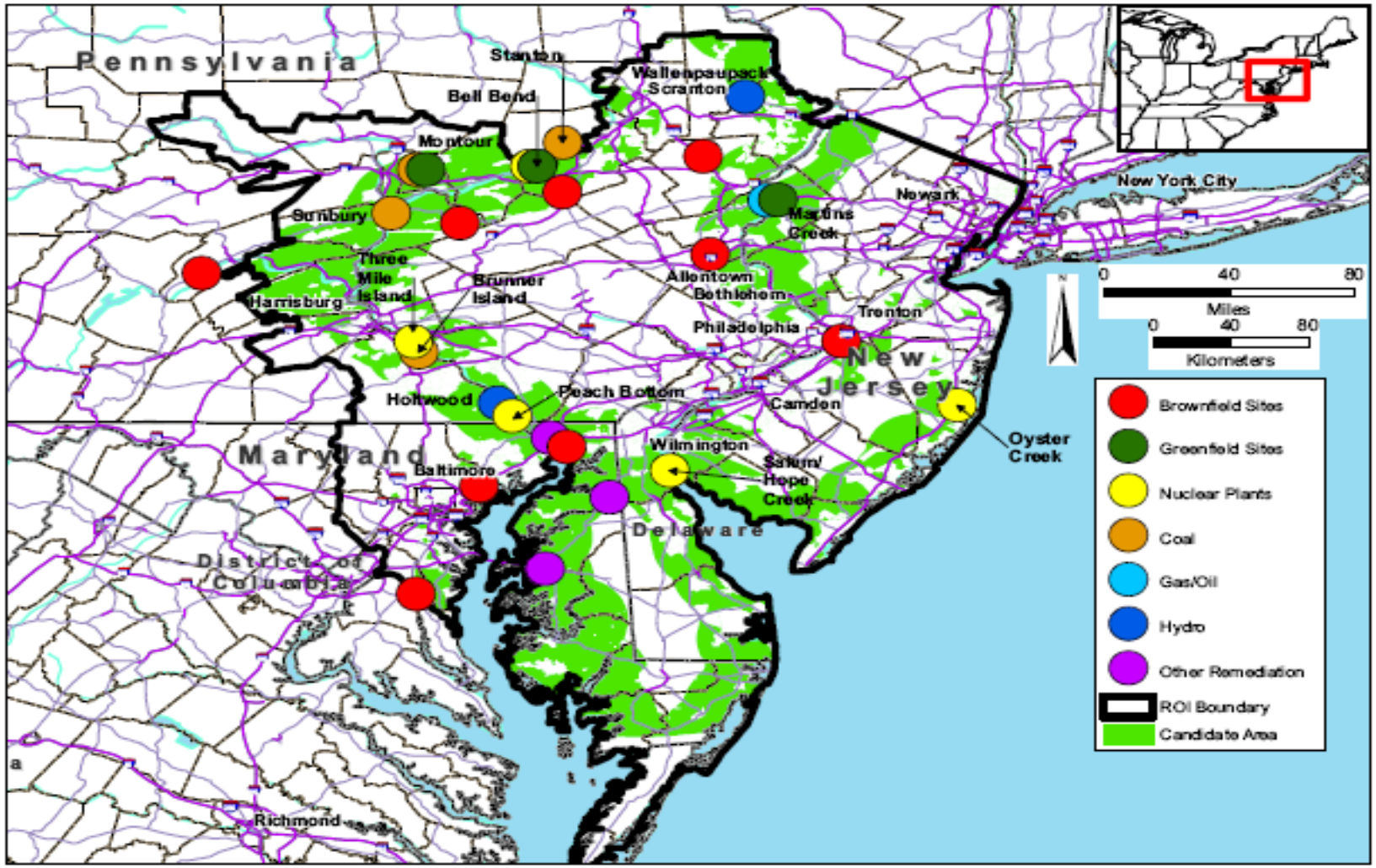
Environmental Discussion

- 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

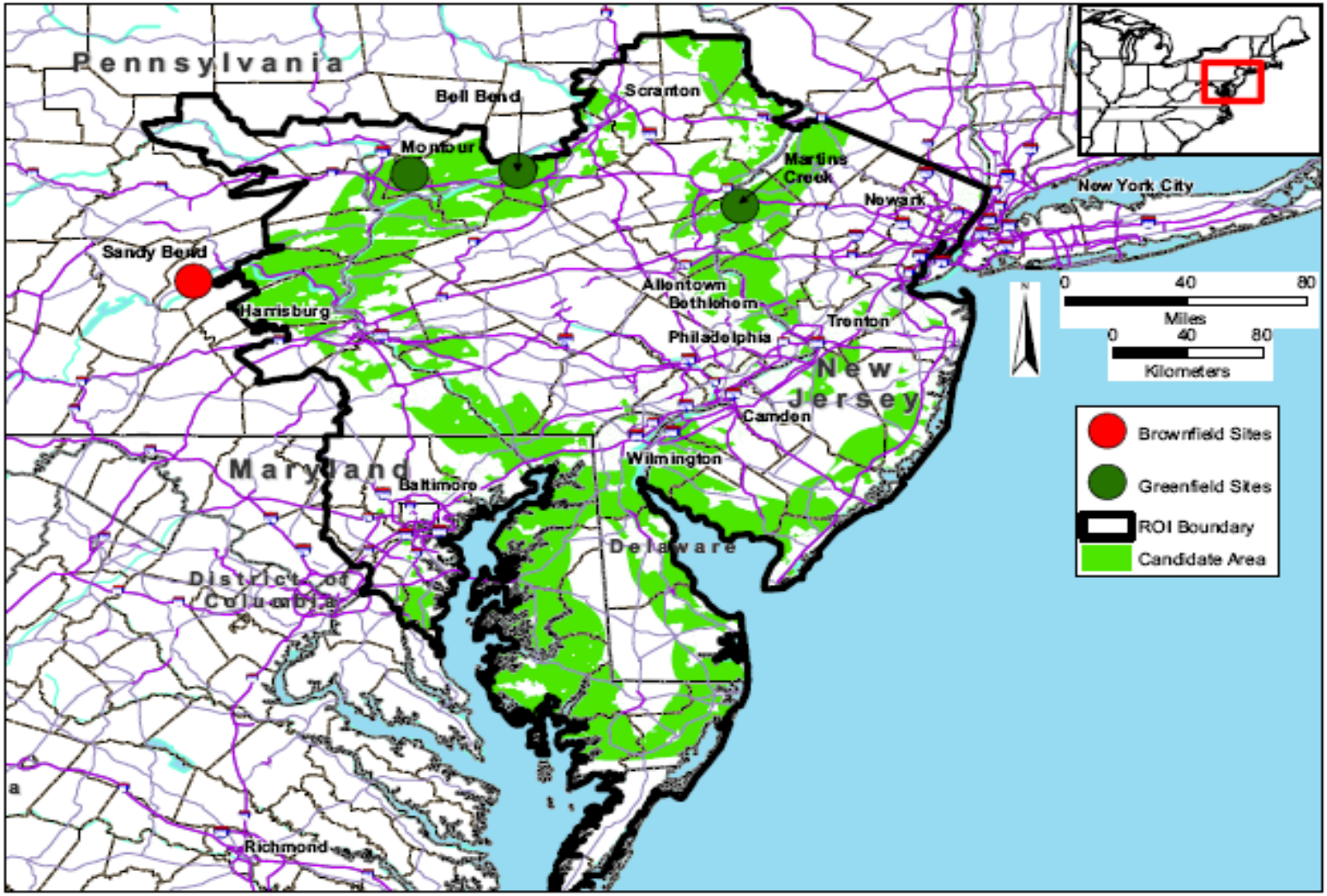
Region of Interest



Candidate Sites



Potential Sites



Wetlands Avoidance Effort

Before		After	
Owner Controlled Area:	557 ac	Owner Controlled Area:	882 ac
Site Area:	424 ac	Site Area:	424 ac
– Total wetlands	107 ac	– Total wetlands	107 ac
• Permanent	95 ac	• Permanent	33 ac
• Temporary	2 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**

Industry COLA Experience

- Examples:
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  - Impingement and Entrainment field study
  - Alternative Site analysis

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- Licensing Basis Document Change Requests (LBDCRs) generated for RCOLA and other SCOLAs
- Editorial corrections for generic text
  - Section references
  - Section title names
  - Table names