

Evolving the Regional Planning Process

Harvard Energy Policy Group

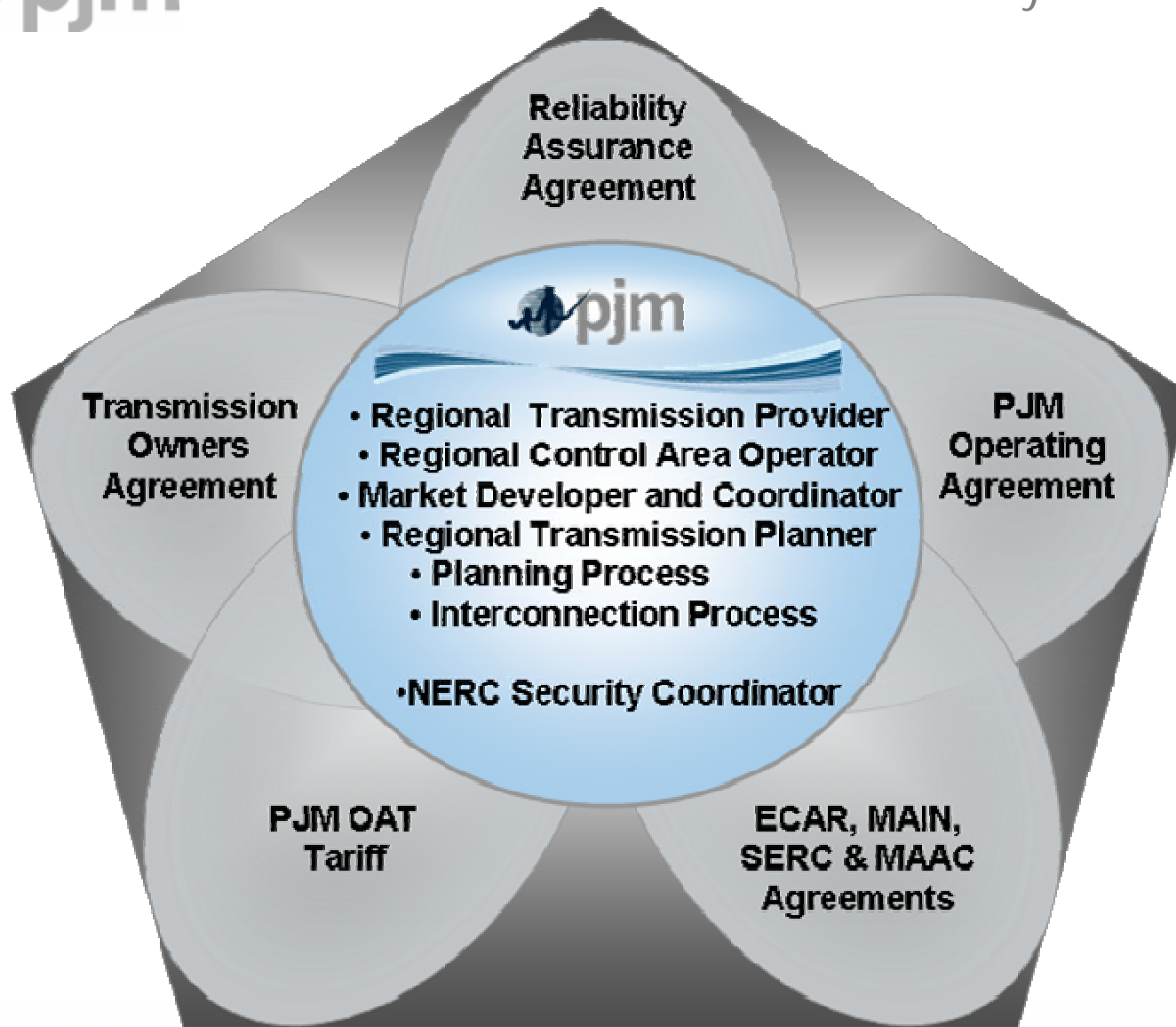
Atlanta, Georgia

December 9, 2005

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PJM Interconnection

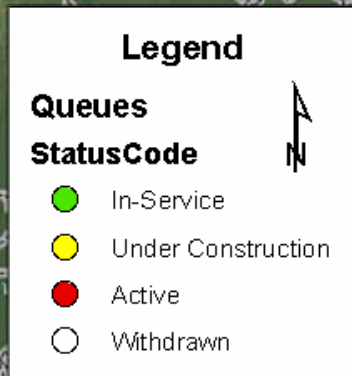


Balance
certainty
vs.
flexibility

- Holistic Integrated Regional Planning Process
 - Integrate all needs and all solutions
 - Stakeholder involvement
 - State focus
- Fully Integrated Planning, Markets, and Operations
- Infrastructure Management as an Integrated System – Single Entity Decision-Making
 - Well defined cost allocation / cost recovery
 - Risk assessment, aging infrastructure

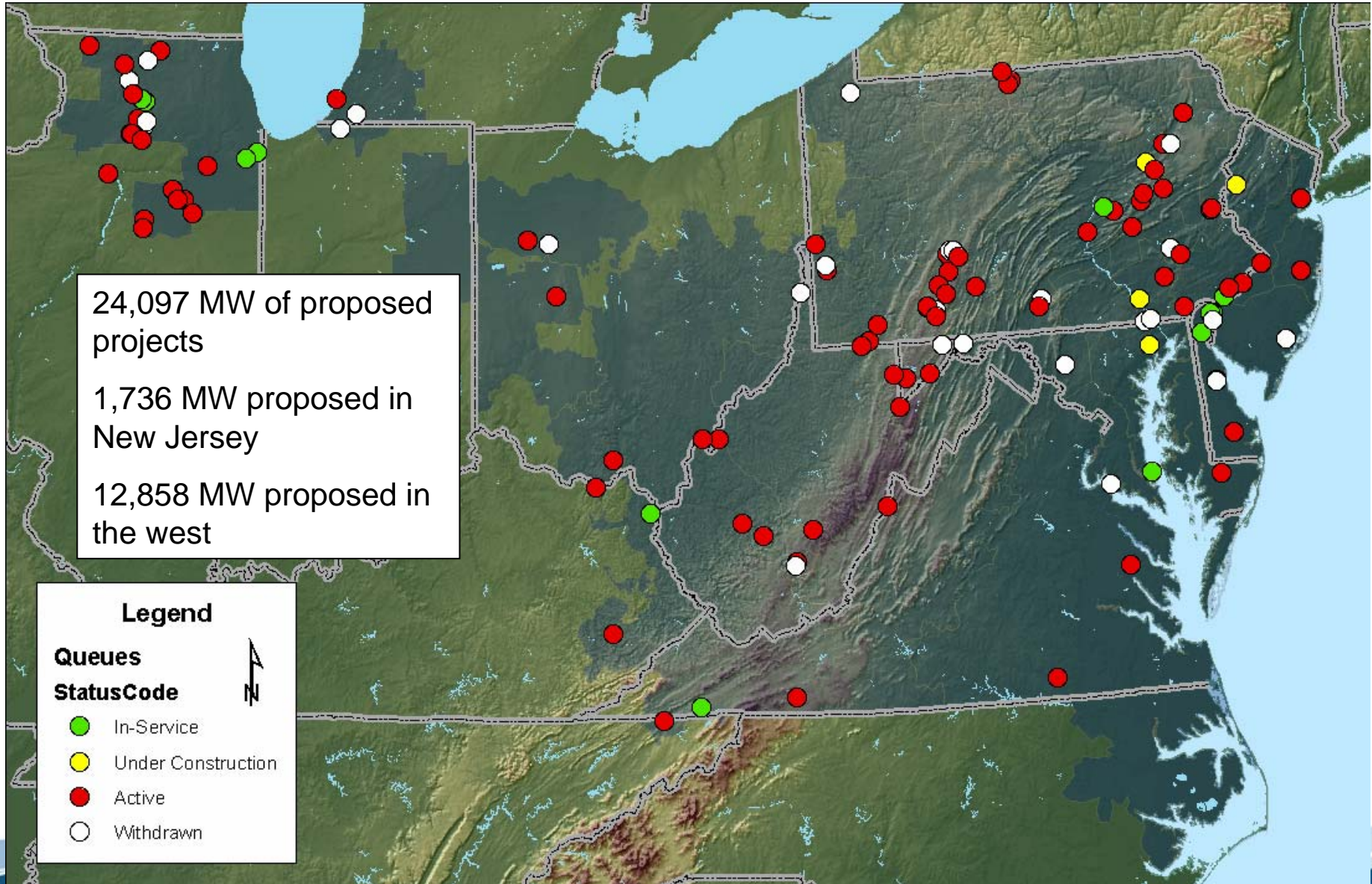
- Generation interconnection requests
 - Many large generators in New Jersey and eastern Pennsylvania
- Load deliverability criteria violations
 - A few limited problems, primarily on the Delmarva Peninsula

52,357 MW of proposed projects
11,436 MW proposed in New Jersey



- Approx. 2/3 of planned investment to support generation interconnection requests
 - Some eastern generation projects withdrawing from queue based on high cost of transmission to deliver energy from New Jersey
- Numerous upgrades to existing infrastructure to mitigate load deliverability criteria violations
 - Primarily additions of transformers, and upgraded conductors and station equipment

- Generation interconnection requests
 - Larger projects in west, many wind projects
- Transmission congestion
 - Significant west to east congestion costs based on access to western baseload resources
- Operational performance issues
 - Exacerbated by west to east transfers
- Load deliverability criteria violations
 - High load growth plus generation retirements plus few new generation projects in east

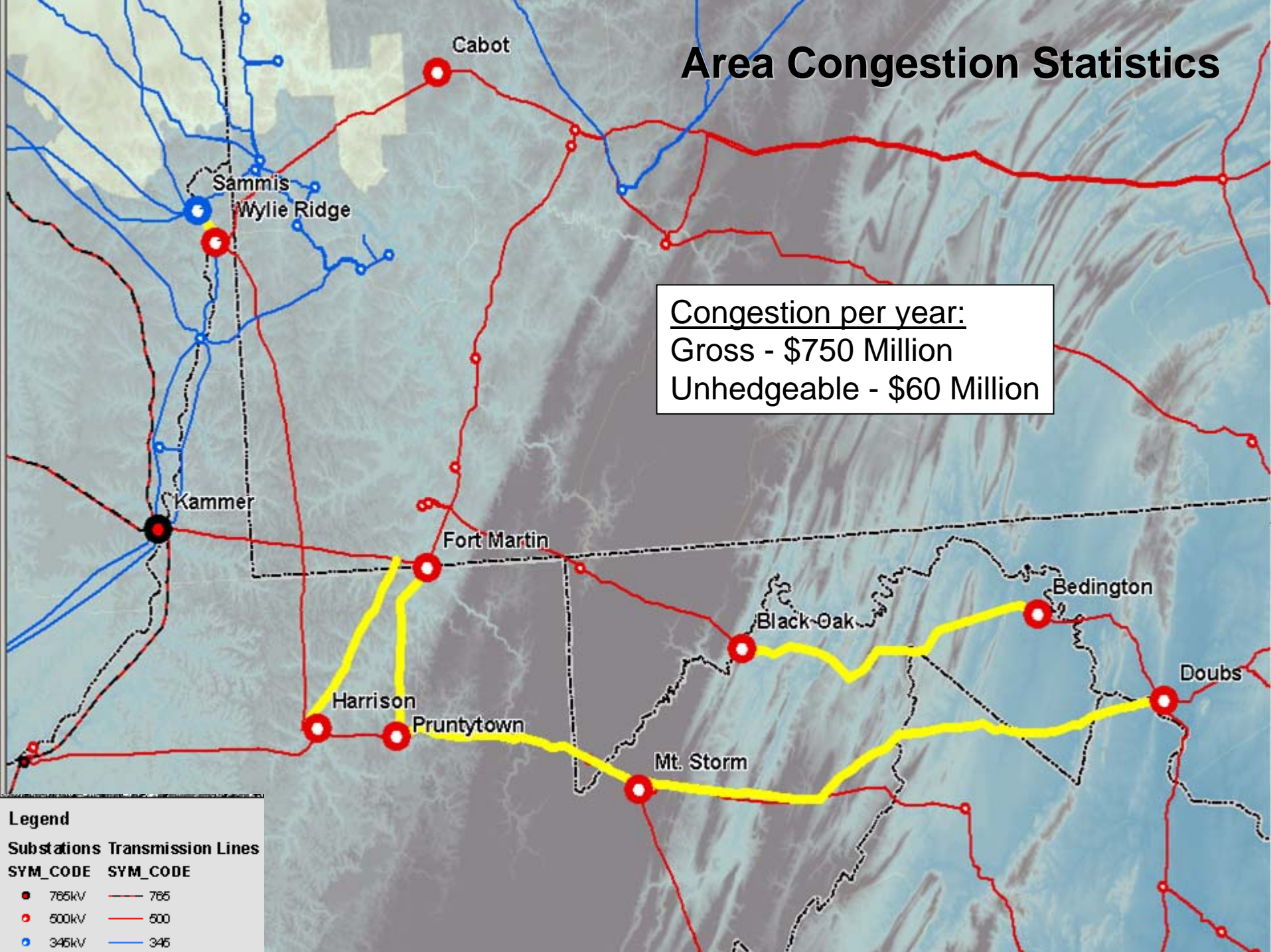


Area Congestion Statistics

Congestion per year:

Gross - \$750 Million

Unhedgeable - \$60 Million



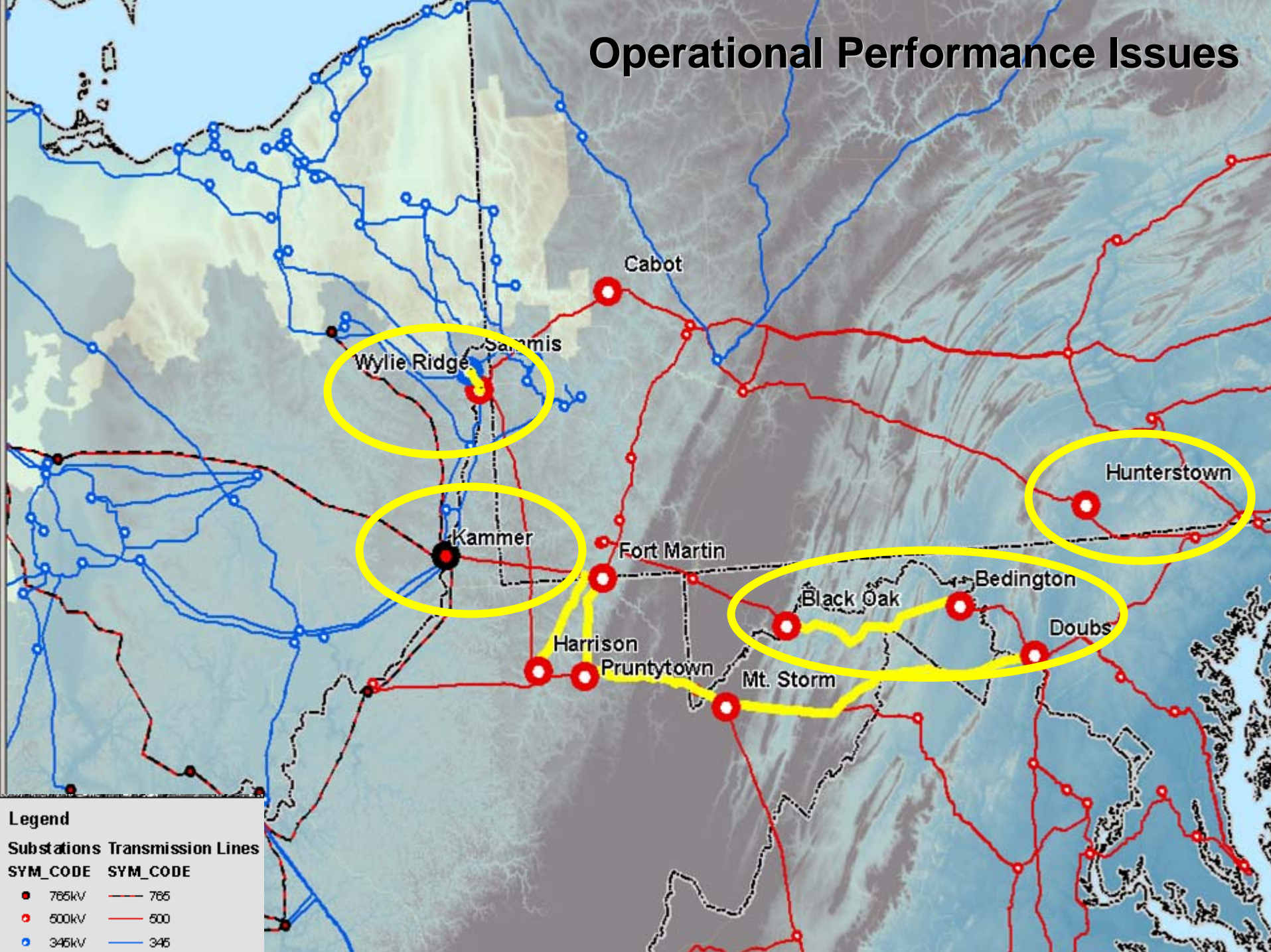
Legend

Substations Transmission Lines

SYM_CODE SYM_CODE

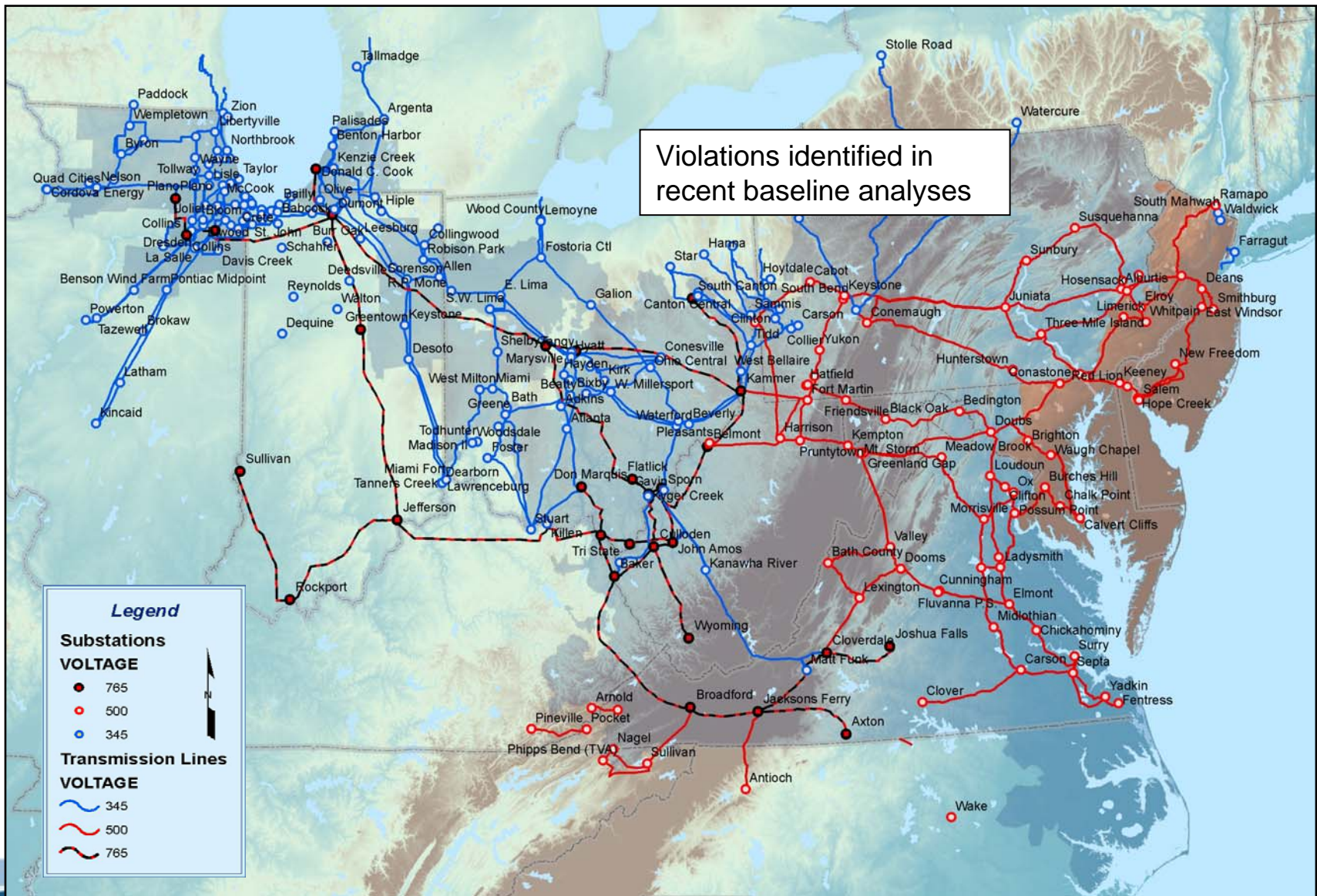
- 765kV 765
- 500kV 500
- 345kV 345

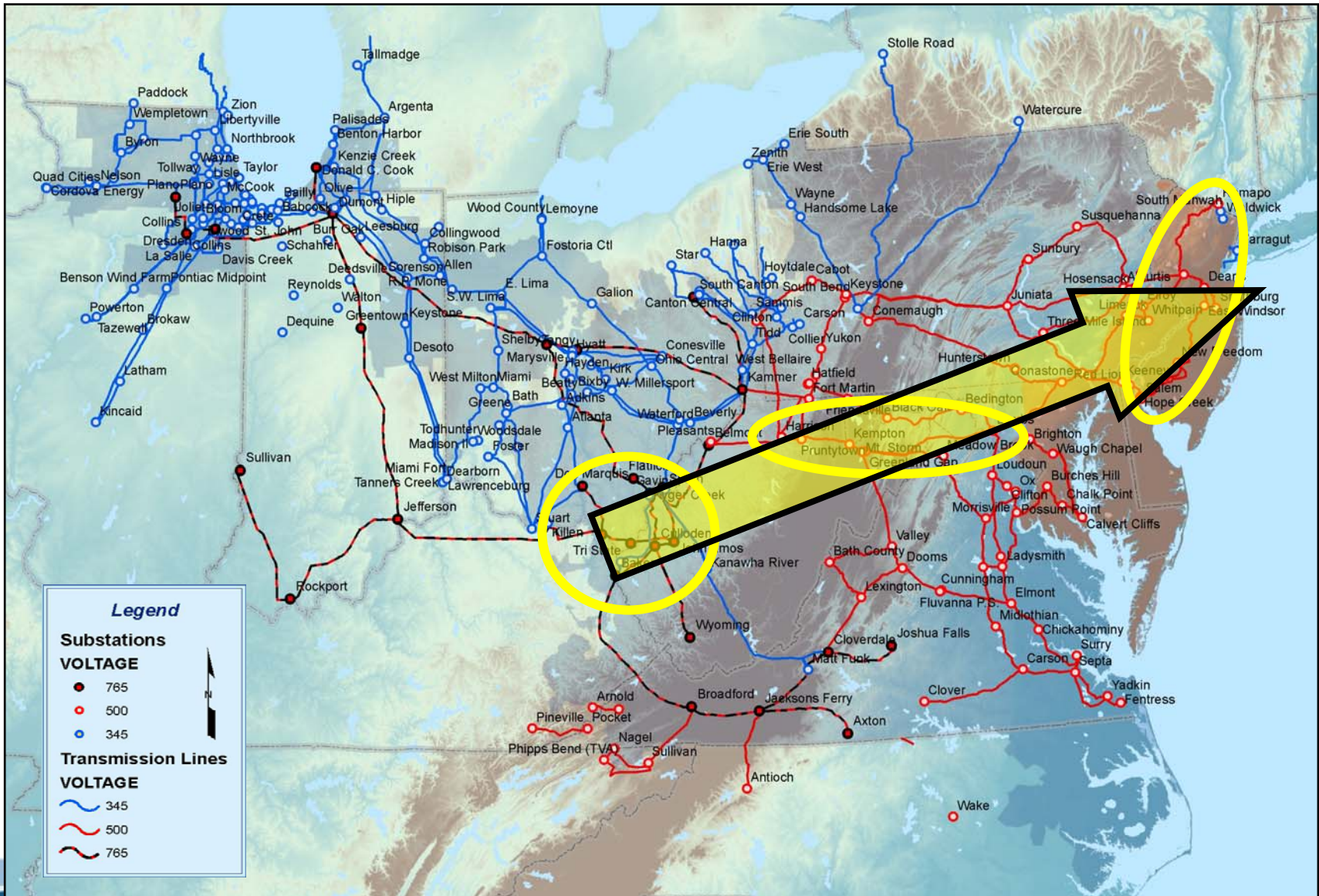
Operational Performance Issues



Legend

| Substations | Transmission Lines |
|-------------|--------------------|
| SYM_CODE | SYM_CODE |
| ● 765kV | — 765 |
| ● 500kV | — 500 |
| ● 345kV | — 345 |





- Approx. 2/3 of planned investment to mitigate baseline violations of reliability criteria
 - New construction and significant upgrades to existing infrastructure
 - RMR contracts required for retiring generators due to transmission construction times
- Required (reliability-based) upgrades for western generators may not ensure economic deliverability – congestion issues

- Extended Planning Horizon
- Reliability Criteria Establishes Baseline
- Sensitivity Analysis Around Reliability Criteria Assumptions
- Market Efficiency Analysis

- Extension of Planning Horizon
 - Impact of uncertainty
 - Integration with Interconnection Process, RPM, and other processes
- Expansion of Criteria Driving Planning Process
 - Scenario Planning, e.g. at-risk generation
 - Econometric Valuation of Projects
- Cost Allocation and Investment Recovery