5.9: Ohio RTEP Overview

PJM operates the electric transmission system shown on MAP 5.35 for American Electric Power (AEP) and Dayton Power & Light (DLCO).

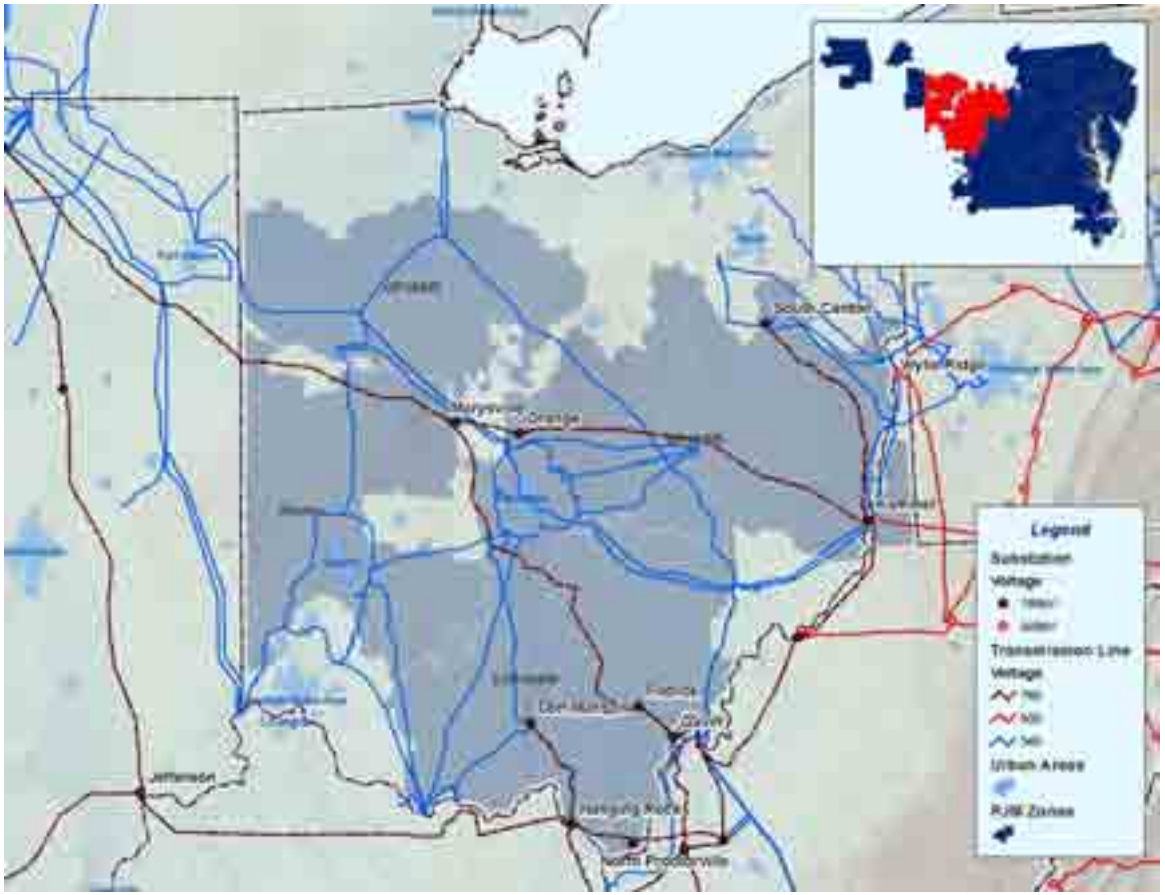
The transmission system in Ohio delivers power to customers from native generation resources and via power transfers across tie-line facilities with adjoining systems.

Critical RTEP Issues in Ohio

PJM continues to address a number of issues with a bearing on reliability in Ohio and the regional transmission expansion plans required to maintain reliability:

- PJM's body of analysis through December 31, 2006 has revealed several general conclusions that will help guide selection of a final package of backbone upgrades for submittal to and approval by the PJM Board in 2007. Those conclusions include: (1) The three proposed lines that terminate at South Canton, Kammer and Amos in western PJM each mitigate the reliability criteria violations along PJM's western and central interfaces as identified in the 15-year horizon; (2) from a market efficiency perspective, alternatives that connect back to the AEP 765 kV system provide the greatest opportunity for eastern load centers to access additional economical western generating resources.

MAP 5.35: PJM Service Area in Ohio



The table which follows summarizes key critical issues facing Ohio and identifies earlier sections of this report where additional discussion may be found.

5.9.1 – Load Growth and Existing Generation

Internal Load Growth

Load Growth for summer and winter periods in shown in FIGURE 5.3 in Section 5.0.2. Peak summer load growth rates for the AEP and DLCO Transmission Owner zones within PJM are expected to be 1.2% and 1.4%, respectively, on average over ten years through 2016. Peak winter load growth rates for AEP and DLCO are expected to be 1.1% and 1.6%, respectively, on average over ten years through 2015/16.

Forecasted loads are modeled in power flow studies used to develop PJM's RTEP through December 2006. PJM's RTEP includes baseline transmission upgrades in Ohio to meet expected 2016 peak load conditions. Beyond 2016, additional transmission system expansion will be needed to meet expected peak load supply requirements.

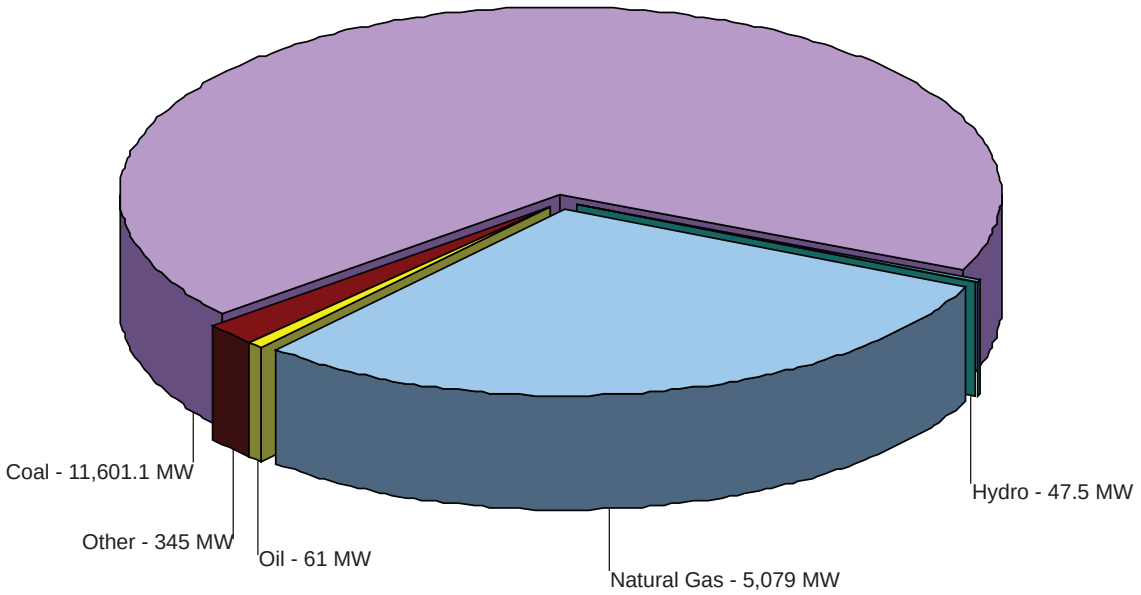
Existing Generating Capability

FIGURE 5.16 provides a snapshot of the existing installed capacity by fuel type in Ohio.

Ohio Critical Issues

RTEP Topic	Report References	Importance to Ohio
Generator Interconnection Requests	3.1, 3.3.3	New sources of electric power
Renewables	3.1.3	Potential for renewable generation sources in Ohio.
Wind Powered Generating Resources	3.2	Potential wind generation sites in Ohio.
Generator Deactivation	3.3.2	Impact of loss of generation.
DOE NIETC	3.3.5, 4.1, 4.6	Definition of corridors to facilitate development of transmission.
Aging Infrastructure	3.7	Spare transformer recommendations via probabilistic risk assessment.
Need for developing new backbone transmission	4.2, 4.5, 4.6, 4.7	New transmission to deliver generation and relieve congestion.
Market Efficiency	4.8	Evolving 15-year system analysis on econometric impacts of proposed backbone upgrades.
Reactive Planning	3.3.5, 4.9	Assessment of need for system upgrades for voltage support

FIGURE 5.16: Existing Installed Capacity in Ohio



5.9.2 – Generator Interconnection Requests

PJM has received interconnection requests for 28 new generating resources proposed for installation in Ohio. The current status is summarized below.

Status	# of Projects	MW
In-Service	4	50
Under Construction	1	165
Active (Under Study)	16	3,373
Withdrawn	7	4,288
TOTAL	28	7,876

TABLE 5.25 includes generating resource interconnection requests located in Ohio. PJM received these requests during the windows of time through Queue R (as of December 31, 2006). The generator interconnection projects in this table are either under construction or active in PJM's interconnection process. Only transmission system enhancements associated with generator interconnection requests in Queues A through O with completed System Impact Studies are currently included in PJM's regional transmission expansion plans. Interconnection requests in Queues P, Q and R are in the Feasibility Study and System Impact Study phases of interconnection analysis, as of December 31, 2006.

For the sake of reporting, generating resources that are fully in-service (designated "IS") are included in the summary tabulation above but are NOT separately enumerated in TABLE 5.25.

A status code of "IS-NC" (in-service, no capacity) indicates a generator that is in-service for energy only. Such units have not requested consideration for capacity status.

A status code of "ISP" (in-service, partial) denotes a generating resource that is only partially in-service and has not reached full capacity status.

TABLE 5.25: Queued Generation Interconnection Requests in Ohio

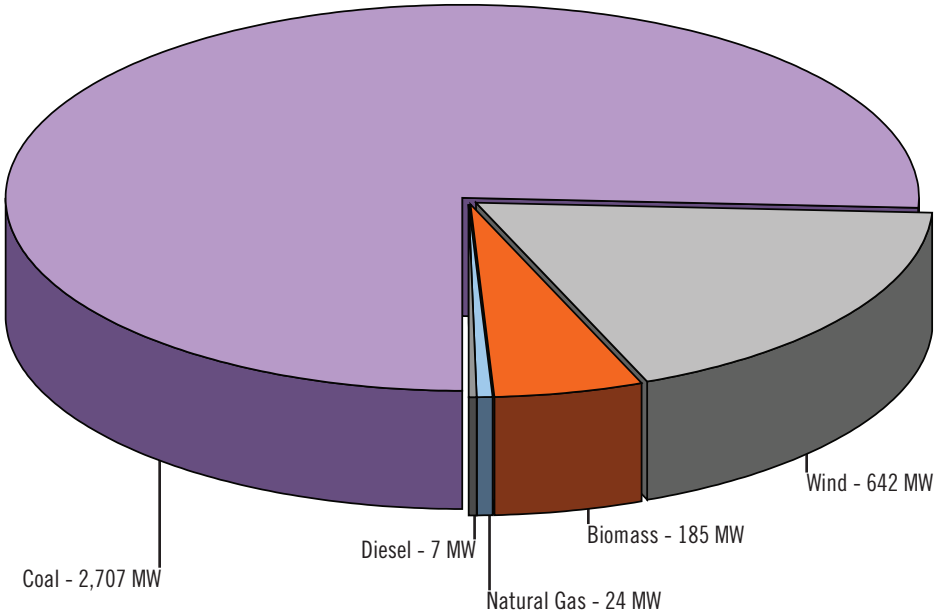
Queue	Project Name	MW	MWC	Status	Schedule	TO	Fuel Type
L01_AEP137	Bellefonte-N. Proctorville 138kV	165	165	UC	1/1/2008	AEP	Biomass
N12	North Haverhill 69 kV	75		ACTIVE	1/1/2008	AEP	Coal
N42	Mountaineer-Belmont 765kV	600	600	ACTIVE	5/1/2010	AEP	Coal
O21	Liberty 69kV	48	9.6	ACTIVE	9/30/2007	Dayton	Wind
P30	Bellefonte - N. Proctorville 138kV	20	20	ACTIVE	10/31/2007	AEP	Biomass
P44	City of Columbus	7	7	ACTIVE	12/31/2006	AEP	Diesel
P51	Stuart 345kV	7	7	IS-NC	6/1/2006	Dayton	Coal
P54	Sporn - Waterford 345kV	1035	1035	ACTIVE	5/1/2012	AEP	Coal
P55	West Lima 138kV	600	600	ACTIVE	10/1/2008	AEP	Coal
P61	Gavin #1 765kV	20	20	ISP	6/1/2007	AEP	Coal
P62	Gavin #2 765kV	20	20	ACTIVE	5/1/2007	AEP	Coal
R13	Tidd - Cantor Central 345kV	350	350	ACTIVE	9/30/2011	AEP	Coal
R14	Tait 69kV	15	15	ACTIVE	12/31/2006	Dayton	Natural Gas
R15	Adkins 345kV	9	9	ACTIVE	12/31/2006	Dayton	Natural Gas
R48	Antwerp - Payne 69kV	48	9.6	ACTIVE	12/15/2008	AEP	Wind
R49	Haviland - Milan 138kV	150	30	ACTIVE	11/15/2009	AEP	Wind
R50	Liberty - Blue Jacket 69kV	48	9.6	ACTIVE	2/15/2009	Dayton	Wind
R51	Kings Creek - Woodstock 69kV	48	9.6	ACTIVE	12/15/2010	Dayton	Wind
R52	Mechanicsburg - Darby	300	60	ACTIVE	10/1/2008	Dayton	Wind

A generating unit is ineligible for capacity status until all transmission upgrades needed to ensure deliverability are completed. Only then will PJM grant a capacity status designation which permits a unit thereafter to participate in PJM's capacity market.

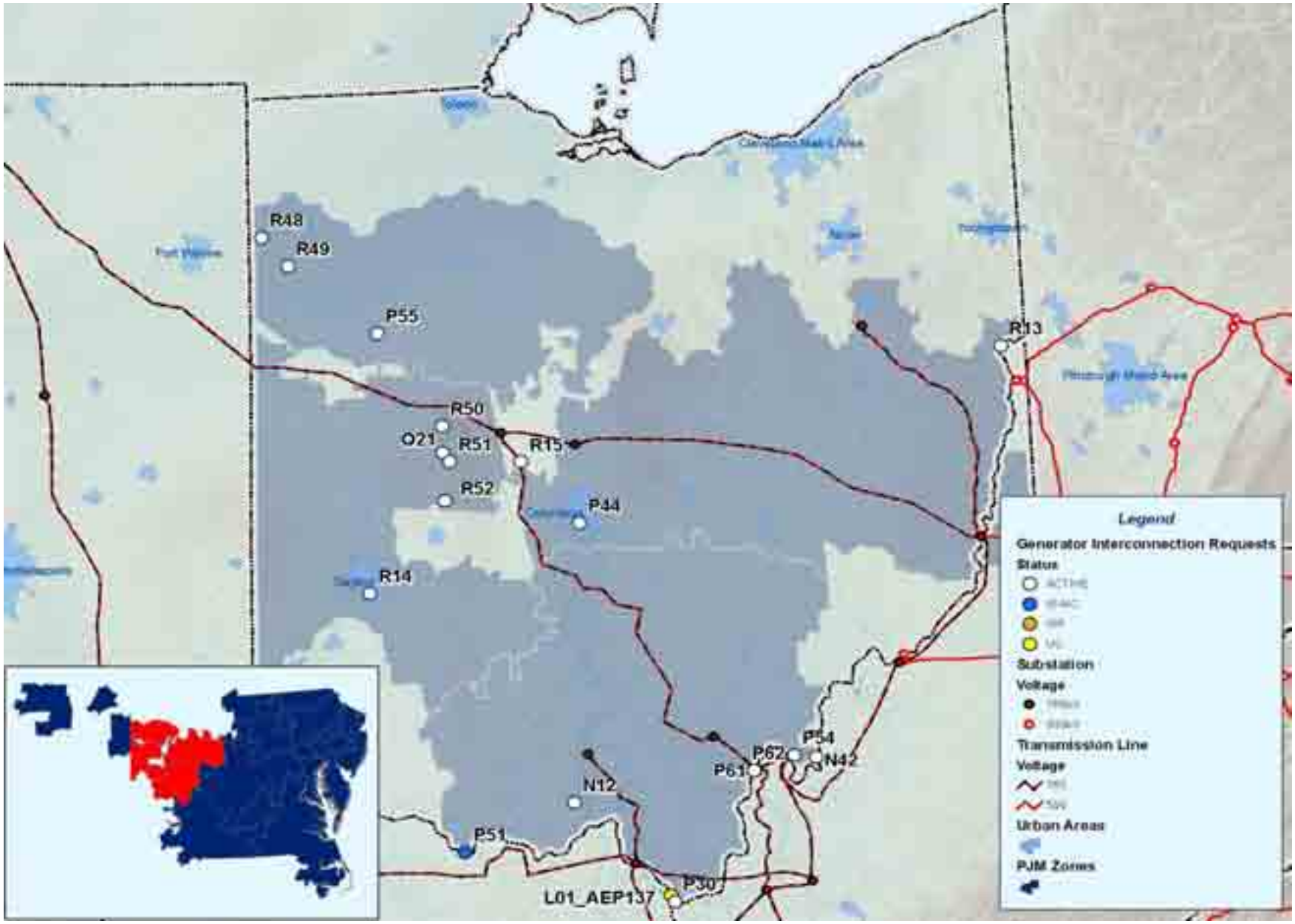
FIGURE 5.17 shows the capacity rights requested, by fuel type, for generator interconnection requests in Queues A through R that are located in Ohio and are in-service, under construction or are active in PJM's interconnection process.

MAP 5.36 shows the location of each generation interconnection request in Ohio.

FIGURE 5.17: Queued Capacity by Fuel Type in Ohio



MAP 5.36: Queued Generation Interconnection Requests in Ohio



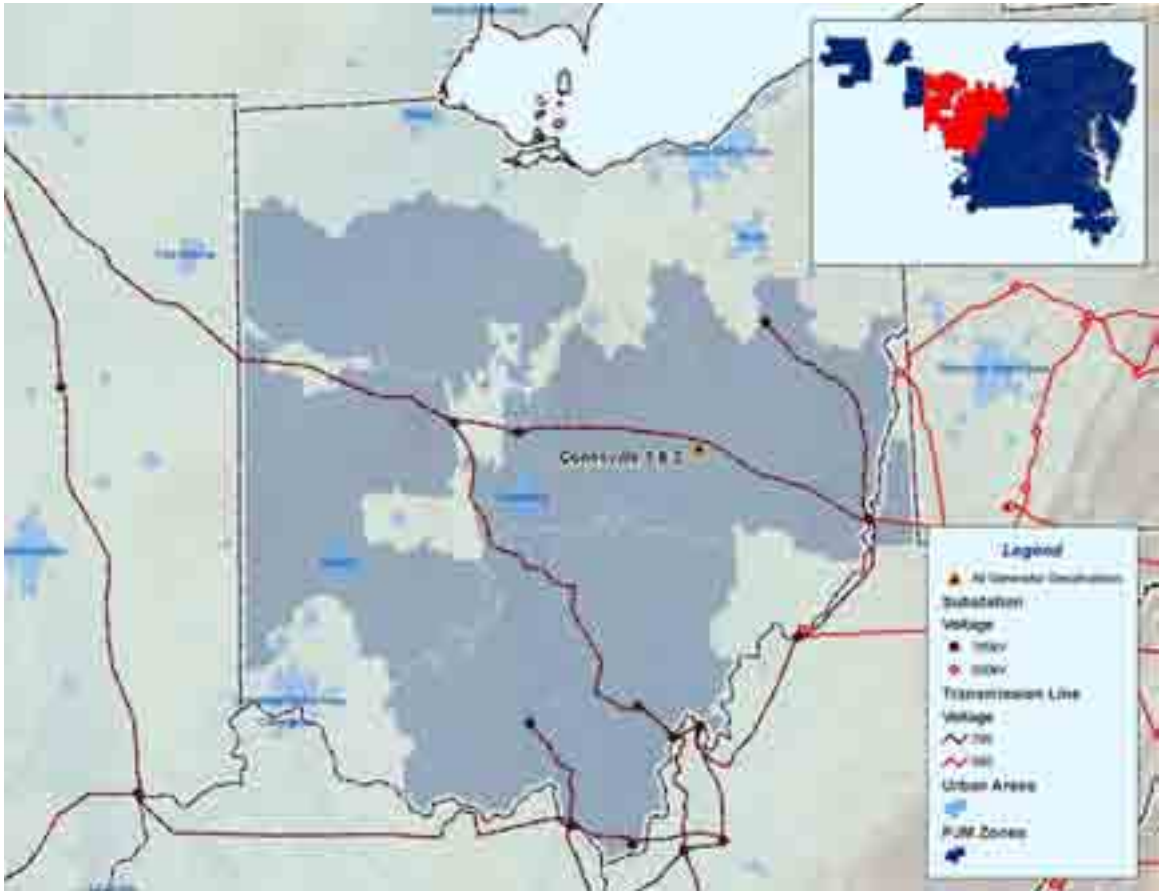
5.9.3 – Generation Deactivations

To date, only two generator unit have been deactivated since 2003: Conesville Units #1 and #2, each of 115 MW capacity. Identified reliability issues were resolved and the units were deactivated in January 2006. The location of these units is shown on MAP 5.37.

5.9.4 – Merchant Transmission Interconnection Requests

As of December 31, 2006, PJM's interconnection queues contained no requests for merchant transmission.

MAP 5.37: Generation Deactivations in Ohio



5.9.5 – Transmission Expansion Plans in Ohio

Maintaining Baseline Reliability – Upgrades Approved in 2006

Fundamentally, the principal objective of PJM's expansion planning protocol is to maintain a transmission system's compliance with applicable reliability standards. The baseline reliability upgrades approved by the PJM Board in 2006 for Ohio, greater than $10 million in scope, are summarized in TABLE 5.26 and shown on MAP 5.38. A complete listing of all system reinforcements approved by the PJM Board can be found on-line at: http://www.pjm.com/planning/rtep-baseline-reports/baseline-report.html

MAP 5.38: New Major PJM Transmission Upgrades in Ohio - approved during 2006

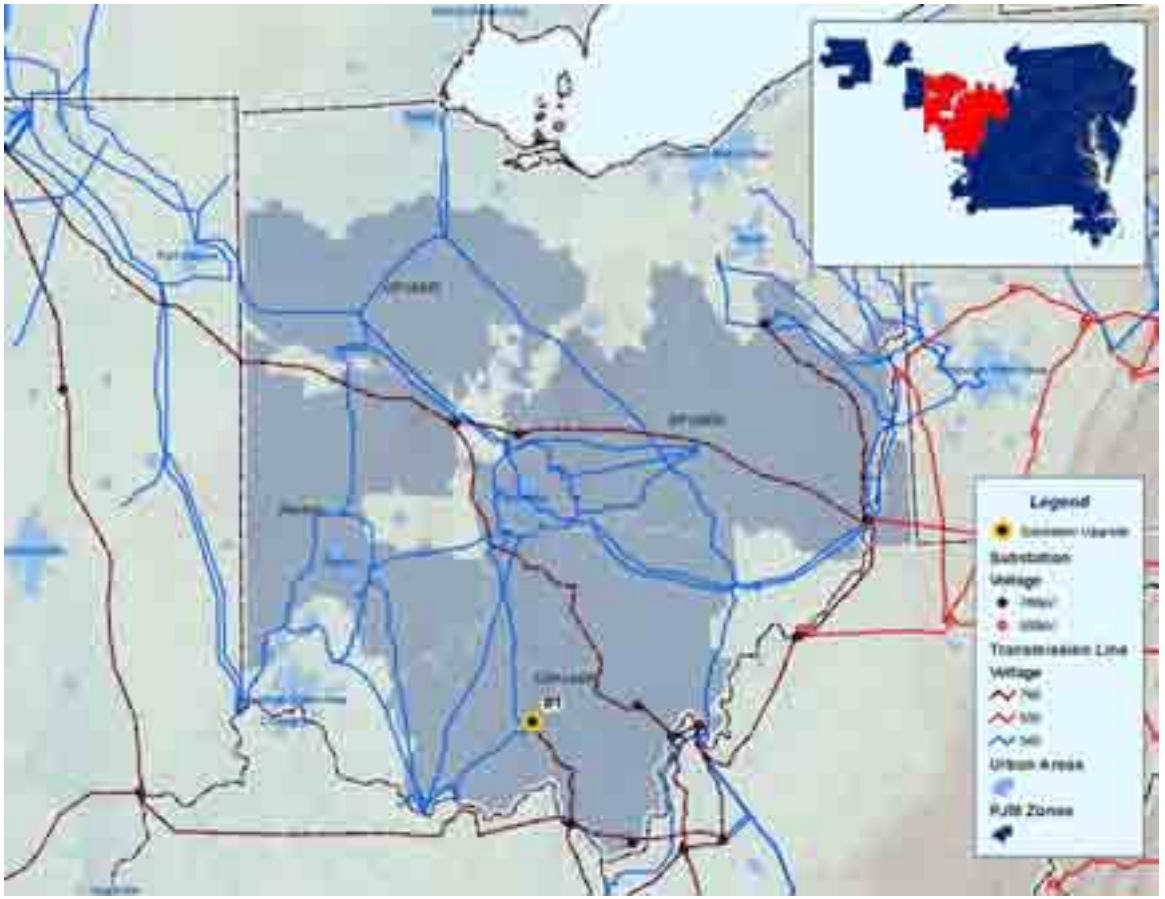


TABLE 5.26: New Major PJM Transmission Upgrades in Ohio - approved during 2006

		System Upgrade Drivers											
		Baseline Upgrades				Network Upgrades		TOI Upgrade	Transmission Service				
Map Ref.	**Limiting Facility** / Upgrade Description	Baseline Load Growth/ Deliverability & Reliability	Congestion Relief – Economic	Operational Performance	Generator Deactivation	Generation Interconnection	Merchant Transmission Interconnection	TO – Local Issue	Long-term Firm Transmission Service	Date / Status	Cost	TO Zones	States
1	**Waverly- Sargents 138kV Circuit**											AEP	OH
	Install new 345/138 kV transformer and reconfigure 138 kV system in Waverly-Sargents 138 kV area	▲								June 2009	$ 26.5 M	AEP	OH

Transmission Upgrades Approved Prior to 2006

Transmission expansion upgrades approved by the PJM Board prior to 2006 are summarized in TABLE 5.27 and located on MAP 5.39. Additional discussion of these upgrades can be found in the February 22, 2006 "PJM Regional Transmission Expansion Plan" which can be found on-line at: http://www.pjm.com/planning/reg-trans-exp-plan.html

A complete listing of all system reinforcements approved by the PJM Board can be found on-line at: http://www.pjm.com/planning/rtep-baseline-reports/baseline-report.html

MAP 5.39: Existing Major Transmission System Upgrade Plans in Ohio - approved prior to 12/31/05

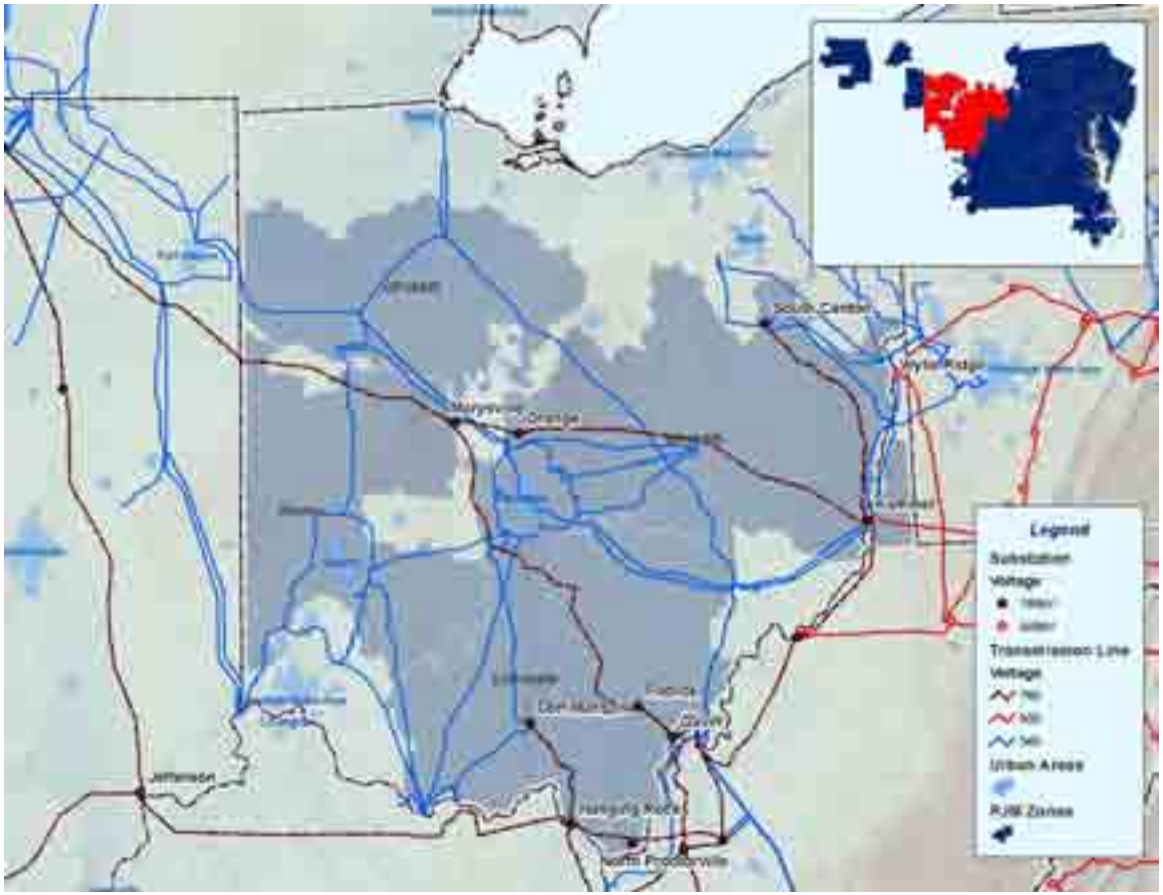


TABLE 5.27: Existing Major Upgrade Plans in Ohio - approved prior to 12/31/05

Map Ref.	**Limiting Facility** / Upgrade Description	System Upgrade Drivers: Baseline Upgrades: Baseline Load Growth/ Deliverability & Reliability	Baseline Upgrades: Congestion Relief – Economic	Baseline Upgrades: Operational Performance	Baseline Upgrades: Generator Deactivation	Network Upgrades: Generation Interconnection	Network Upgrades: Merchant Transmission Interconnection	TOI Upgrade: TO – Local Issue	Transmission Service: Long-term Firm Transmission Service	Date / Status	Cost	TO Zones	States
1	**Tidd 345 kV Circuit Breakers**											AEP, Buckeye Power	OH
	Replacement of AA and AA1 breakers at Tidd 345 kV substation	▲								November 2004	$ 1.3 M	AEP	OH
	Replace breakers FF1 and FF2 at Tidd 345 kV Station	▲								April 2006	$ 1.3 M	Buckeye Power	OH
2	**Roberts-Bixby 138 kV Circuit**											AEP	OH
	Install new 345/138 kV transformer at Roberts Station; Reconductor Bixby-LSII 138 kV line; Upgrade 138 kV breakers at Bixby Substation	▲								May 2006	$ 14.2 M	AEP	OH
3	**Waverly-Sargents 138 kV Circuit**											AEP	OH
	Install new 345/138 kV transformer and reconfigure 138 kV system in Waverly-Sargents 138 kV area	▲								June 2007	$ 26.5 M	AEP	OH
4	**New 138 kV Switching Station**											AEP	OH
	New 138 kV Switching Station for project L01_ AEP137					▲					$ 2.44 M	AEP	OH
5	**Bellefonte-North Proctorville 138 kV loop**											AEP	OH
	Construct approximately 0.9 miles of double-circuit 138 kV line to loop the Bellefonte-North Proctorville 138 kV circuit into the New 138 kV Switching Station for L01_AEP137					▲					$ 1.22 M	AEP	OH

5.9.6 – Interconnection Requests for Generation Powered by Renewable Fuel Sources

PJM's RTEP process offers a structure that assures consistent, equal opportunity across fuel types while flexible enough to adapt to specific technical realities and market challenges. Presently, PJM's queues include interconnection requests in Ohio for plants fueled by wind and biomass, as summarized in TABLE 5.28 and shown on MAP 5.40.

TABLE 5.28: Interconnection Requests by Renewable Fuel Type

Queue	Project Name	MW	MWC	Status	Schedule	TO	Fuel Type
L01_AEP137	Bellefonte-N. Proctorville 138kV	165	165	UC	1/1/2008	AEP	Biomass
O21	Liberty 69kV	48	9.6	ACTIVE	9/30/2007	Dayton	Wind
P30	Bellefonte - N. Proctorville 138kV	20	20	ACTIVE	10/31/2007	AEP	Biomass
R48	Antwerp - Payne 69kV	48	9.6	ACTIVE	12/15/2008	AEP	Wind
R49	Haviland - Milan 138kV	150	30	ACTIVE	11/15/2009	AEP	Wind
R50	Liberty - Blue Jacket 69kV	48	9.6	ACTIVE	2/15/2009	Dayton	Wind
R51	Kings Creek - Woodstock 69kV	48	9.6	ACTIVE	12/15/2010	Dayton	Wind
R52	Mechanicsburg - Darby	300	60	ACTIVE	10/1/2008	Dayton	Wind

Some renewable energy sources such as wind are recognized as intermittent resources. As such, their ability to generate power is directly and contemporaneously determined by their fuel. For example, wind turbines can generate electricity only when wind speed is within an established range. These characteristics present challenges with respect to real-time operational dispatch and specific capacity value. To address the latter issue, PJM recently established an entire set of rules unique to intermittent renewable resources that provide for the determination of credible capacity values robust enough to recognize the summer peaking requirements of the PJM system.

MAP 5.40: Interconnection Requests for Generation Powered by Renewable Fuel Sources