

PJM

DE

DC

IL

IN

KY

MD

MI

NJ

NC

OH

PA

TN

VA

WV

## 14.9: Ohio RTEP Overview

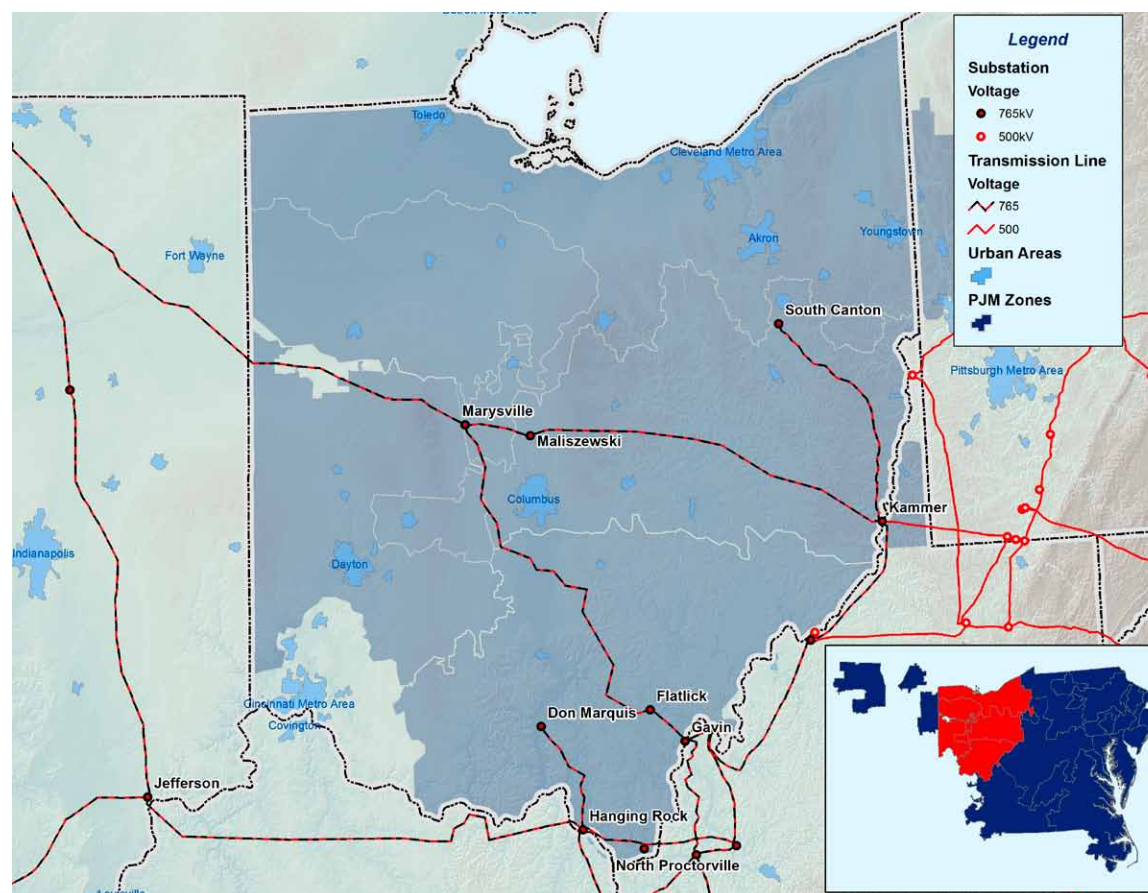
PJM operates Bulk Electric System (BES) transmission facilities (and others monitored at lower voltages) within Ohio as shown on Map 14.46, including those of American Electric Power (AEP) and Dayton Power & Light (Dayton) and American Transmission Systems, Inc. (ATSI). The transmission system in Ohio delivers power to customers from native generation resources and power transfers across tie-line facilities with adjoining systems.

### ATSI Integration

Based on FirstEnergy's integration filing submitted to FERC on August 17, 2009, ATSI transmission assets will be integrated into PJM effective June 1, 2011. ATSI is a wholly owned subsidiary of FirstEnergy and owns the transmission assets of its electric utility operating companies - The Toledo Edison Company (Toledo Edison), The Cleveland Electric Illuminating Company (The Illuminating Company), Ohio Edison Company (Ohio Edison), and Pennsylvania Power Company (Penn Power). PJM has completed all required studies to incorporate ATSI into the Regional Transmission Expansion Plan (RTEP) process beginning in 2011, as discussed in **Section 11**.

As part of the 2010 RTEP, a number of baseline upgrades were identified in the ATSI zone. Given the ATSI zone will not formally be integrated into PJM until June 1, 2011, these upgrades have not been approved by the PJM Board. The PJM Board will be requested to approve the upgrades following the June 1, 2011 integration of ATSI.

Map 14.46: PJM Service Area in Ohio



### Duke Integration

On June 25, 2010, Duke Energy Ohio, Inc. and Duke Energy Kentucky, Inc. subsidiaries of Duke Energy Corporation, filed with the Federal Energy Regulatory Commission (FERC) to withdraw their

transmission assets from Midwest Independent System Operator and to place them into PJM Interconnection as of January 1, 2012. In addition to the Duke Ohio and Duke Kentucky transmission assets, the filing includes the integration of Duke-owned and jointly-owned generation assets.

PJM began required analyses in 2010 to study Duke Energy integration. Initial deliverability studies necessary for May 2011 Reliability pricing Model (RPM) auction input were completed in December 2010 and transmitted to Duke for review. Remaining integration studies will be completed as part of PJM’s 2011 RTEP cycle of analysis.

**Critical RTEP Issues and Upgrades**

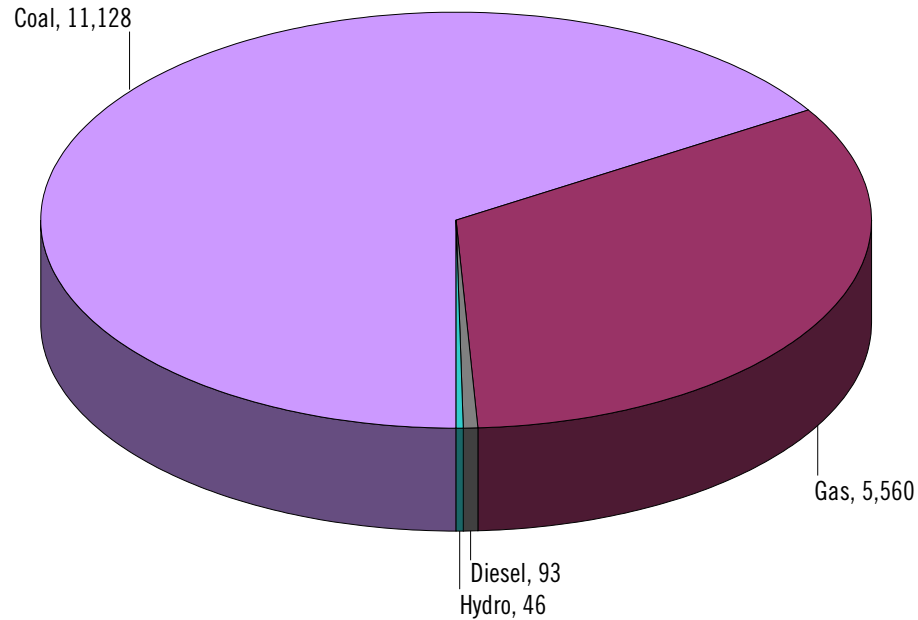
PJM’s annual RTEP process assesses transmission facilities in Ohio for compliance with NERC reliability criteria violations. In order to solve identified violations, PJM determines necessary baseline upgrades as well as network upgrades, necessary for the interconnection of new generation and merchant transmission facilities. **Section 16** provides a topical index of RTEP results, issues and challenges discussed in this report.

**14.9.1 – Load Growth and Existing Generation**

**Internal Load Growth**

Load growth for summer and winter periods is shown in **Section 14.0.2**. Peak summer load growth rates for the AEP, ATSI and Dayton Transmission Owner zones within Ohio are expected to range between 1.4 percent and 1.3 percent on average over ten years through 2020. Peak winter load growth rates are expected to range between 0.9 percent and 1.3 percent, respectively, on average over ten years through 2019/20.

**Figure 14.21: Existing Installed Capacity in Ohio (MW)**



Forecasted summer peak loads are modeled in power flow studies used in PJM’s 2010 RTEP studies. PJM’s RTEP includes baseline transmission upgrades in Ohio to meet expected near-term 2015 peak load conditions. RTEP also assess anticipated needs for transmission expansion plans to meet long-term load growth requirements out through 2025 as well.

**Existing Generating Capability**

Figure 14.21 provides a snapshot of the existing installed capacity by fuel type in Ohio as of December 31, 2010

### 14.9.2 – Generator Interconnection Requests

PJM has received 128 generator interconnection requests for new resources or incremental additions to existing resources in Ohio, since the integration of AP in 2002, AEP in 2004 and Dayton in 2004. The current status of these requests is summarized in the table below.

	MW	# of projects
Active	8,696	55
In Service	243	16
Suspended	185	2
Under Construction	1,177	12
Withdrawn	10,929	40
Total	21,869	128

Table 14.37 includes generating resource interconnection requests located in Ohio, received through the close of Queue W4 on January 31, 2011. **Section 2.3** of this report describes how generation interconnection requests are modeled in RTEP studies.

For the sake of reporting, generating resources that are fully in-service (designated “IS”) are included in the summary Table above but are NOT separately enumerated in Table 14.37.

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.

A generating unit is ineligible for full capacity status until all transmission upgrades needed to ensure deliverability are completed. Only then will PJM grant capacity status designation.

**Figure 14.22: Queued Capacity by Fuel Type in Ohio (MW)**

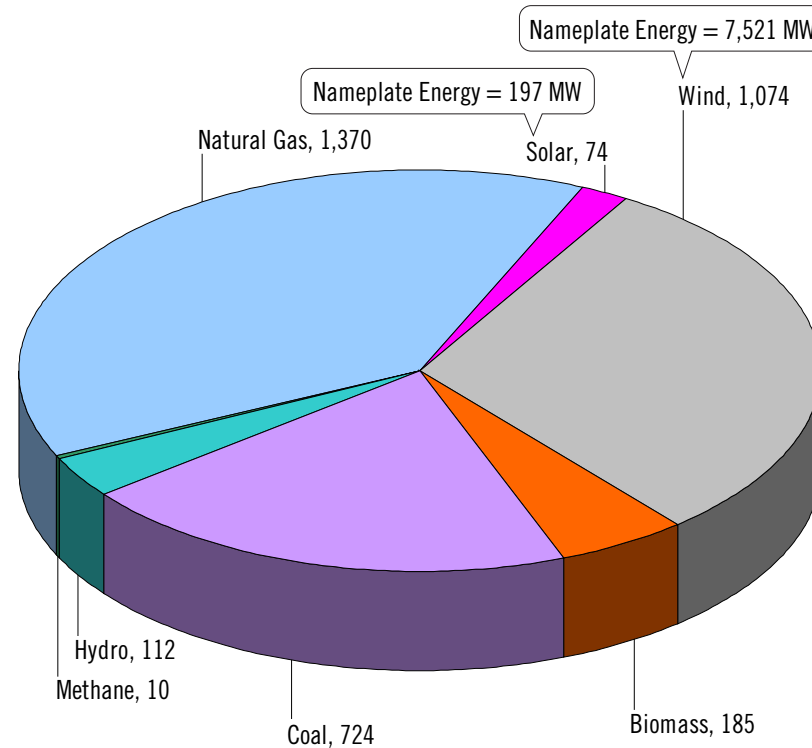
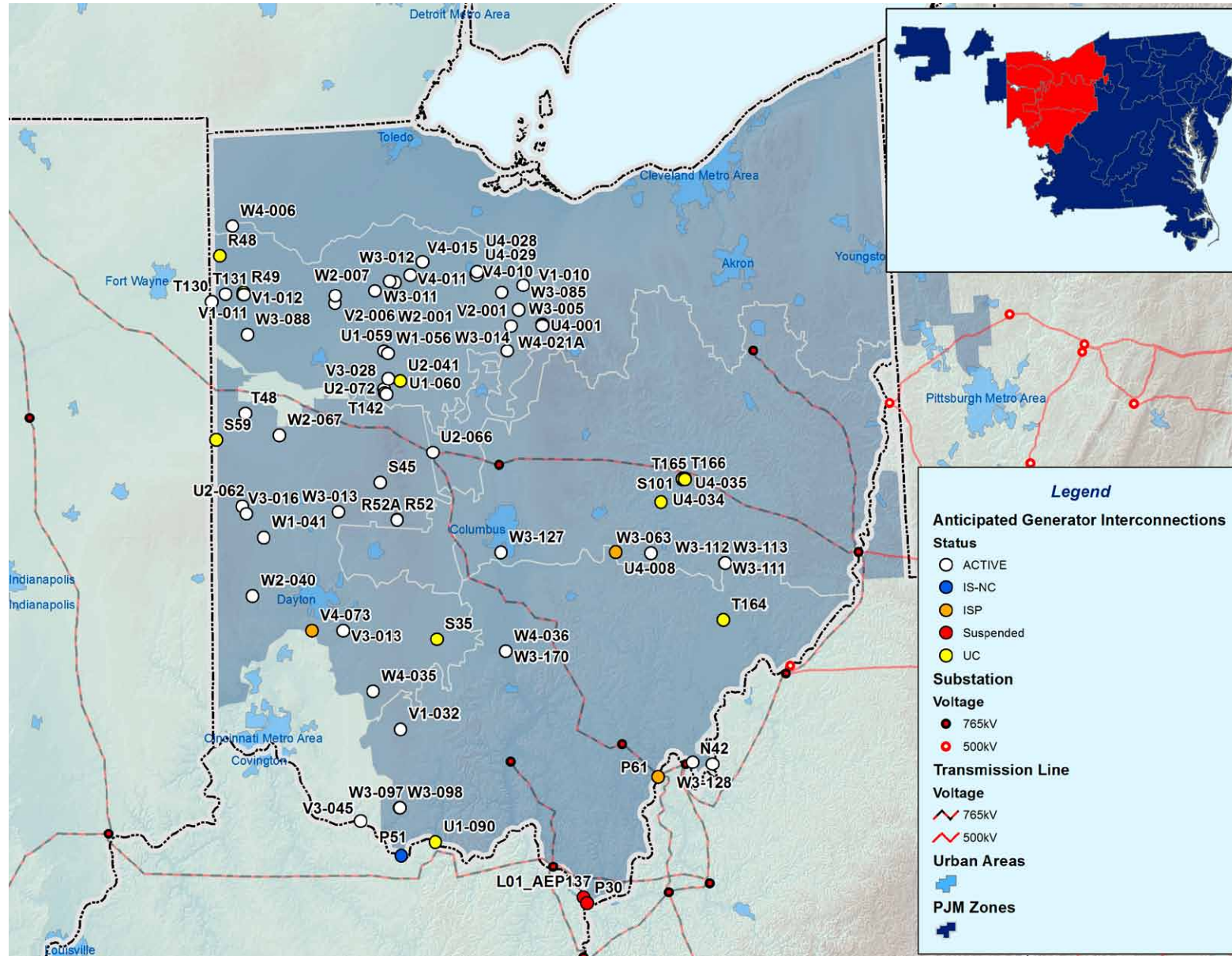


Figure 14.22 shows the fuel mix of queued generation interconnection requests in Ohio that have requested capacity injection rights through the close of Queue W4 on January 31, 2011, excluding projects that are in-service and those that have withdrawn. These projects are shown in Map 14.47.

Map 14.47: Queued Generation Interconnection Requests in Ohio



**Table 14.37:** Queued Generation Interconnection Requests in Ohio

Queue	Project Name	MW	MWC	Status	Schedule	TO	Fuel Type
S35	Beverly 345 kV	620	20	UC	6/27/2007	AEP	Coal
S45	Mechanicsburg North	100	20	Active	12/31/2009	Dayton	Wind
S59	Sharpsburg 12 kV	1.89	0	UC	11/1/2007	Dayton	Biomass
S101	Ohio Central 138 kV	580	580	UC	7/1/2014	AEP	Natural Gas
L01 AEP137	Bellefonte - N. Proctorville 138 kV	165	165	Suspended	12/31/2009	AEP	Biomass
N42	Mountaineer - Belmont 765 kV	1,200	600	Active	5/1/2010	AEP	Coal
P30	Bellefonte - N. Proctorville 138 kV	185	20	Suspended	12/31/2009	AEP	Biomass
P51	Stuart 345 kV	2,362	7	IS-NC	6/1/2006	Dayton	Coal
P61	Gavin #1 765 kV	1,320	20	ISP	1/1/2010	AEP	Coal
R48	Antwerp - Payne 69 kV	48.3	9.7	UC	8/1/2013	AEP	Wind
R49	Haviland - Milan 138 kV	150	30	UC	9/30/2011	AEP	Wind
R52	Mechanicsburg - Darby	200	40	Active	10/1/2008	Dayton	Wind
T48	Coldwater - Rossburg 69 kV	40	8	Active	11/30/2013	Dayton	Wind
T130	Convoy-East Lima 345 kV	300	60	Active	10/30/2010	AEP	Wind
T131	Lincoln - Sterling 138 kV	150	30	Active	10/30/2010	AEP	Wind
T142	Southwest Lima - Marysville 345 kV	300	60	Active	10/30/2010	AEP	Wind
T164	Muskingum River	600	15	UC	2/1/2008	AEP	Coal
T165	Conesville #5	395	20	UC	2/1/2008	AEP	Coal
T166	Conesville #6	395	20	UC	2/1/2008	AEP	Coal
U1-059	Ada - Dunkirk 69 kV	49.9	6.5	Active	4/1/2011	AEP	Wind
U1-060	East Lima - South Kenton 138 kV	151.8	19.7	Active	4/1/2011	AEP	Wind
U1-090	Killen 345 kV	612	12	UC	5/31/2008	Dayton	Coal
U2-041	East Lima-Marysville 345 kV	300	39	UC	12/1/2011	AEP	Wind
U2-066	Marysville-SW Lima 345 kV	200	26	Active	9/1/2012	AEP	Wind
U2-072	East Lima - Marysville 345 kV	300	39	Active	10/31/2010	AEP	Wind

**NOTE**

In this table the MW and MWC columns represent two different values:

The MW column represents the total site nameplate capacity of the generators including the existing generation as well as the requested up rate.

The MWC column represents the installed capacity portion of the upgrade. For renewable projects the installed capacity portion of the project varies as described in **Section 2**.

**Table 14.37:** Queued Generation Interconnection Requests in Ohio (Continued)

Queue	Project Name	MW	MWC	Status	Schedule	TO	Fuel Type
U4-001	Howard 138 kV	200	26	Active	2/1/2011	AEP	Wind
U4-008	South Central Power	6.4	6.4	ISP	1/7/2011	AEP	Methane
R52A	Kings Creek 69 kV	100	20	Active	10/1/2008	Dayton	Wind
U4-028	Melmore Tap 138 kV	100	13	Active	10/1/2010	AEP	Wind
U4-029	Melmore Tap 138 kV	100	13	Active	10/1/2011	AEP	Wind
U4-034	Conesville #5	400	5	UC	1/1/2010	AEP	Coal
U4-035	Conesville #6	400	5	UC	1/1/2010	AEP	Coal
V1-010	Howard - Fostoria Central 138 kV	260	33.8	Active	12/1/2013	AEP	Wind
V1-011	Haviland 138 kV	150	19.5	Active	2/1/2011	AEP	Wind
V1-012	Haviland 138 kV	150	19.5	Active	12/1/2010	AEP	Wind
V1-032	Highland 69 kV	5	1.9	Active	8/1/2010	AEP	Solar
V2-001	Bucyrus Center 138 kV	97.2	11.3	Active	12/30/2012	AEP	Wind
V2-006	East Leipsic 138 kV	150	19.5	Active	12/31/2013	AEP	Wind
V3-013	Wilmington 69 kV	20	7.6	Active	5/31/2010	Dayton	Solar
V3-016	Greenville - West Milton 138 kV	300	39	Active	8/1/2012	Dayton	Wind
V3-028	East Lima - Marysville 345 kV	20	7.6	Active	12/31/2011	AEP	Solar
V3-045	Zimmer - Spurlock 345 kV	112	112	Active	12/31/2013	Dayton	Hydro
V4-010	Tiffin Center 138 kV	200	26	Active	12/31/2013	AEP	Wind
V4-011	North Findlay 34.5 kV	3.2	3.2	Active	12/1/2010	AEP	Methane
V4-015	Fostoria Central 138 kV	66.6	8.6	Active	12/31/2012	AEP	Wind
V4-073	Yankee 12.5k v	2.5	0.95	ISP	5/28/2010	Dayton	Solar
W1-041	W. Milton - Greenville	50	6.5	Active	12/31/2012	Dayton	Wind
W1-056	Ada - Dunkirk 69 kV	18.4	2.4	Active	12/31/2011	AEP	Wind
W2-001	Fostoria Central 138 kV	66.6	8.6	Active	12/31/2013	AEP	Wind
W2-007	East Leipsic 138 kV	100	13	Active	12/31/2013	AEP	Wind



**NOTE**

In this table the MW and MWC columns represent two different values:

The MW column represents the total site nameplate capacity of the generators including the existing generation as well as the requested up rate.

The MWC column represents the installed capacity portion of the upgrade. For renewable projects the installed capacity portion of the project varies as described in **Section 2**.

**Table 14.37:** Queued Generation Interconnection Requests in Ohio (Continued)

Queue	Project Name	MW	MWC	Status	Schedule	TO	Fuel Type
W2-040	Camden 69 kV	20	7.6	Active	12/31/2011	Dayton	Solar
W2-067	Amsterdam 138 kV	50	6.5	Active	12/31/2011	Dayton	Wind
W3-005	Fostoria Central 345 kV	500	65	Active	11/30/2013	AEP	Wind
W3-011	North Findlay - Fostoria Central 138 kV	300	39	Active	12/31/2014	AEP	Wind
W3-012	East Lima - Fostoria Central 345 kV	300	39	Active	12/31/2014	AEP	Wind
W3-013	Miami	300	39	Active	12/31/2014	Dayton	Wind
W3-014	Galion - Fostoria Central 345 kV	300	39	Active	12/31/2013	AEP	Wind
W3-063	South Fultonham 4 kV	0.85	0	Active	10/2/2010	AEP	Methane
W3-085	Chatfield - South Tiffin 138 kV	185	24	Active	12/31/2012	AEP	Wind
W3-088	South West Lima 345 kV	200	26	Active	12/20/2013	AEP	Wind
W3-097	Russelville OH	5	1.9	Active	9/30/2012	AEP	Solar
W3-098	Russelville OH	20	7.6	Active	6/30/2013	AEP	Solar
W3-127	City of Columbus 14.4 kV	1	0	Active	12/1/2010	AEP	Biomass
W3-170	Buckskin 69 kV	12	0	Active	8/1/2011	AEP	Solar
W3-128	Sporn - Waterford 345 kV	790	790	Active	6/30/2014	AEP	Natural Gas
W3-111	S. Cumberland 69 kV	20	7.6	Active	11/1/2012	AEP	Solar
W3-112	S. Cumberland 69 kV	20	7.6	Active	12/31/2013	AEP	Solar
W3-113	S. Cumberland 69 kV	20	7.6	Active	12/31/2014	AEP	Solar
W4-006	S. Hicksville - Lockwood Road 138 kV	150	19.5	Active	12/31/2014	AEP	Wind
W4-021A	Richland & Crawford	200	26	Active	9/1/2012	AEP	Wind
W4-036	Buckskin 69 kV	12	0	Active	12/31/2011	AEP	Solar
W4-035	Martinsville	20	11.9	Active	5/31/2012	Dayton	Solar

**NOTE**

In this table the MW and MWC columns represent two different values:

The MW column represents the total site nameplate capacity of the generators including the existing generation as well as the requested up rate.

The MWC column represents the installed capacity portion of the upgrade. For renewable projects the installed capacity portion of the project varies as described in **Section 2**.

Map 14.48: Generation Deactivations in Ohio

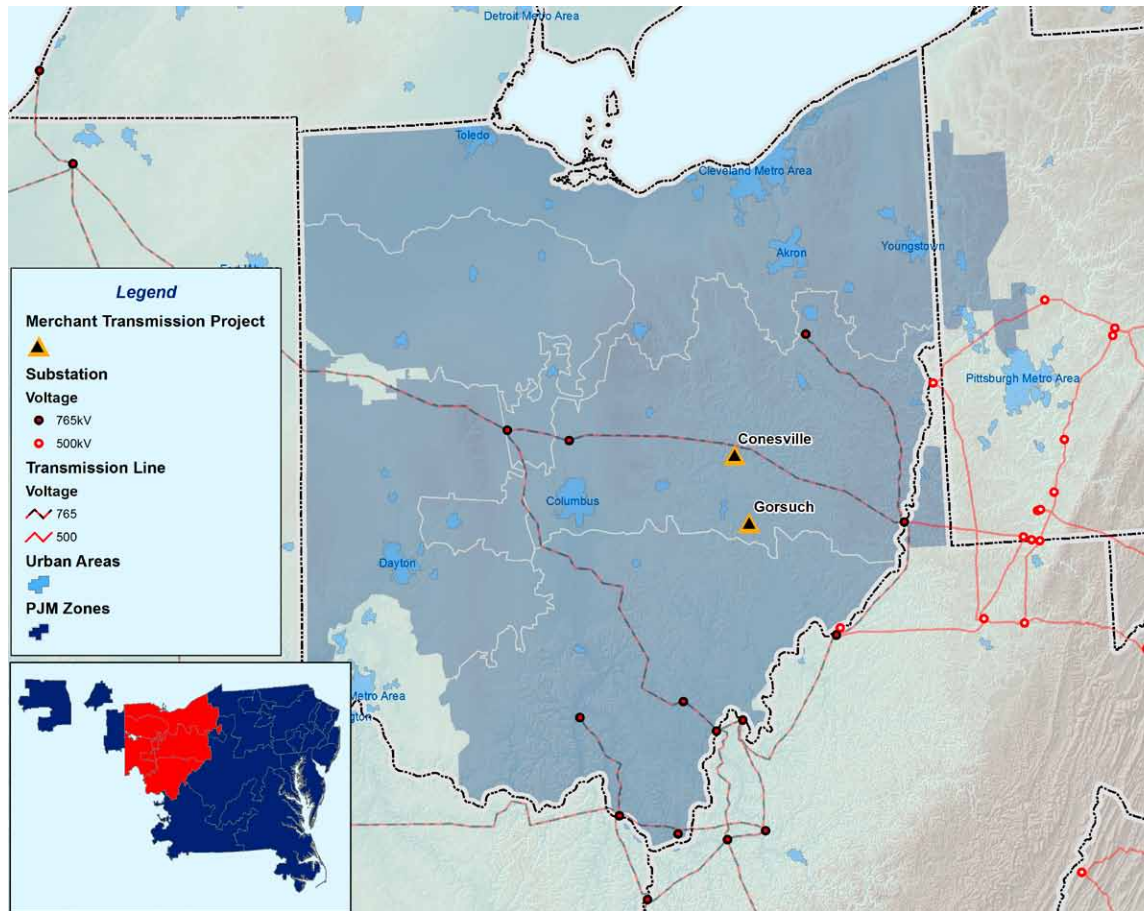
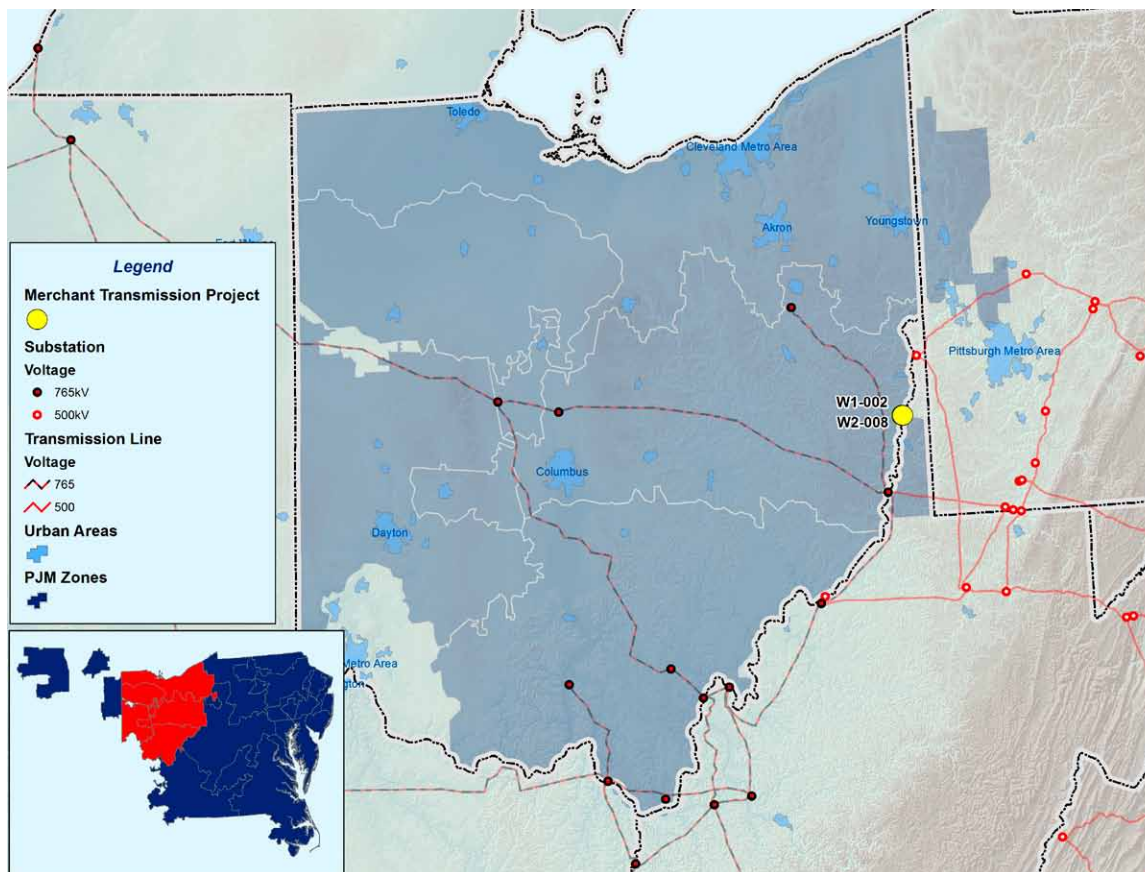


Table 14.38: Generation Deactivations in Ohio

Retirement Date	Generator	TO	Capacity (MW)	Status
Jan-06	Conesville 1	AEP	115	Reliability issue (black start) identified and resolved
Jan-06	Conesville 2	AEP	115	Reliability issue (black start) identified and resolved
Nov-10	Gorsuch (AMP Ohio)	AEP	189	Reliability analysis complete - impacts identified - generator has elected to deactivate as requested

### 14.9.3 – Generation Deactivations

Generating unit deactivation requests in Ohio are shown in Map 14.48 and Table 14.38. A full list of all generation deactivation information is accessible on PJM’s website at URL: <http://pjm.com/planning/generation-retirements/gr-summaries.aspx>.

**Map 14.49:** Merchant Transmission Interconnection Request Activity in Ohio**Table 14.39:** Queued Merchant Transmission Interconnection Requests in Ohio

Queue	Project Name	MW	Status Code	In-Service Date	RTO
W1-002	Tiltonville - Windsor 138 kV	98	Active	7/1/2010	AEP
W2-008	Tiltonville - Windsor 138 kV		Active	6/1/2011	AEP

#### 14.9.4 – Merchant Transmission Interconnection Requests

As of January 31, 2011, PJM's queue contained two requests for merchant transmission projects in Ohio. These are shown in Map 14.49 and Table 14.39.

#### 14.9.5 – Transmission Expansion Plans in Ohio

Table 14.40 summarizes new RTEP planned transmission upgrades in Ohio greater than \$5 million in Ohio as approved by the PJM Board during 2010. Map 14.50 shows the location of upgrades that appear in Table 14.40.

A complete listing and status of all system reinforcements approved by the PJM Board can be found on PJM's website via the following URL: <http://www.pjm.com/planning/rtep-upgrades-status.aspx>.

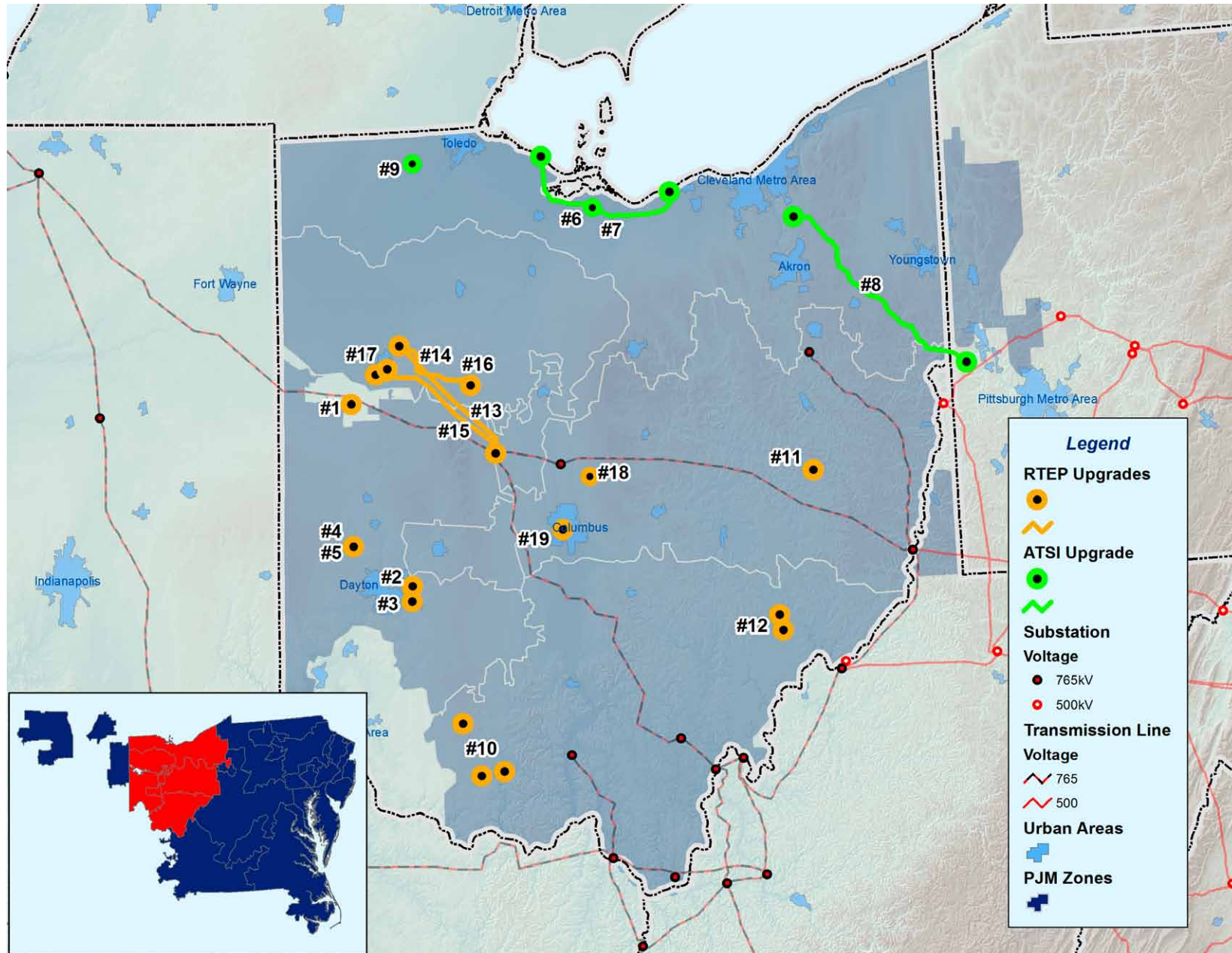
Table 14.40: Major 2010 RTEP Plans in Ohio

		System Upgrade Drivers										Date	Cost (M)	TO Zone(s)	2010 TEAC Review
Upgrade		Baseline Load Growth / Deliverability & Reliability	Congestion Relief - Economic	Baseline Upgrades			Network Upgrades			Supplemental Upgrade					
						Operational Performance	Generator Deactivation	TO Criteria Violation	Generation Interconnection		Merchant Transmission Interconnection	Long-term Firm Transmission Service	Criteria Compliance other than for Baseline		
1	Replace the existing 138/69-12 kV transformer at West Moulton Station and reconductor the Wapakoneta - West Moulton 69 kV line					▲					June 2012	11.9	AEP	8/24/2010	
2	Add 2nd Bath 345/138 kV Xfr	▲									June 2015	7	Dayton	8/24/2010	
3	Add 2nd Trebien 138/69 kV Xfr	▲									June 2015	5.3	Dayton	8/24/2010	
4	Add 2nd W. Milton 138/69 kV Xfr	▲									June 2015	8.8	Dayton	8/24/2010	
5	Add 2nd W. Milton 345/138 Xfr	▲									June 2015	5.5	Dayton	8/24/2010	
6	Build new Hayes 345/138 kV substation	▲									June 2015	33	ATSI	9/8/2010	
7	Build Beaver - Hayes - Davis - Besse #2 345 kV line	▲									June 2015	34.65	ATSI	9/8/2010	
8	Loop the Chamberlin - Mansfield 345 kV line into the Hanna 345 kV substation	▲									June 2015	9.075	ATSI	9/8/2010	
9	Install a new Fulton 345/138 kV substation	▲									June 2015	23	ATSI	9/8/2010	
10	Create an in and out loop at Adams Station, upgrade the Adams transformer, install a new 138 kV bus and two new 138 kV circuit breakers at Seaman Station, convert South Central Co-op's New Market 69 kV Station to 138 kV, increase the Seaman - Highland circuit to 138 kV, install a new 138 kV bus, three new 138 kV circuit breakers and a new 138/69 kV 90 MVA transformer at Highland Station, and build a 138 kV circuit from Hillsboro - Highland 138 kV	▲									June 2015	13.5	AEP	10/28/2010	
11	Conversion of the Newcomerstown - Cambridge 34.5 kV system to 69 kV operation, expansion of the Derwent 69 kV Station, and rebuild 69 kV line, and convert additional 34.5 kV stations to 69 kV operation	▲									December 2012	23	AEP	10/28/2010	
12	Reconductor Muskingum - Wolf Creek 138 kV line						T94				March 2010	6	AEP	7/14/2010	

Table 14.40: Major 2010 RTEP Plans in Ohio (Continued)

Upgrade	System Upgrade Drivers									Date	Cost (M)	TO Zone(s)	2010 TEAC Review
	Baseline Load Growth / Deliverability & Reliability	Congestion Relief - Economic	Operational Performance	Generator Deactivation	TO Criteria Violation	Generation Interconnection	Merchant Transmission Interconnection	Long-term Firm Transmission Service	Supplemental Upgrade				
13	Construct new switching station at East Lima - Marysville					U2-041				January 2010	8	AEP	7/14/2010
14	Add 3 breaker 345 kV ring bus to substation at Marysville - Southwest Lima					U2-066				September 2012	8	AEP	7/14/2010
15	Add 3 breaker 345 kV ring bus interconnection substation to the East Lima - Marysville 345 kV line					U2-072				October 2010	8	AEP	7/14/2010
16	Construct a new switching station connecting to the East Lima - South Kenton 138 kV line					U1-060				April 2011	5.1	AEP	7/14/2010
17	Construct a new U1-060 - Sterling 138 kV circuit					U1-060				April 2011	17.9	AEP	7/14/2010
18	Build a new "Vassell" 765/345/138 kV Station								▲	May 2014	181	AEP	10/28/2010
19	Install two 84 MVA transformers at West Campus. The Roberts – OSU underground 138 kV Line (presently approved, power sited and in the ROW acquisition stage) will be routed into West Campus								▲	September 2011	8.309	AEP	10/28/2010

Map 14.50: Major 2010 RTEP Plans in Ohio



### 14.9.6 – 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, hydro, methane and biomass, as listed in Table 14.41 and shown on Map 14.51.

#### **Intermittent Resources**

While some renewable resources can operate in a manner similar to the traditional fossil fueled power plants, other renewable energy sources, such as wind, are recognized as intermittent resources. Their ability to generate power is directly determined by the immediate availability and/or magnitude of their specific fuel. For example, wind turbines can generate electricity only when wind speed is within a range consistent with the physical specifications of the related turbines.



#### **NOTE**

In this table the MW and MWC columns represent two different values:

The MW column represents the total site nameplate capacity of the generators including the existing generation as well as the requested up rate.

The MWC column represents the installed capacity portion of the upgrade. For renewable projects the installed capacity portion of the project varies as described in **Section 2**.

**Table 14.41:** Interconnection Requests by Renewable Fuel Type in Ohio

Queue	Project Name	MW	MWC	Status	Schedule	TO	Fuel Type
S45	Mechanicsburg North	100	20	Active	12/31/2009	Dayton	Wind
S59	Sharpsburg 12 kV	1.89	0	UC	11/1/2007	Dayton	Biomass
L01_AEP137	Bellefonte - N. Proctorville 138 kV	165	165	Suspended	12/31/2009	AEP	Biomass
P30	Bellefonte - N. Proctorville 138 kV	185	20	Suspended	12/31/2009	AEP	Biomass
R48	Antwerp - Payne 69 kV	48.3	9.7	UC	8/1/2013	AEP	Wind
R49	Haviland - Milan 138 kV	150	30	UC	9/30/2011	AEP	Wind
R52	Mechanicsburg - Darby	200	40	Active	10/1/2008	Dayton	Wind
T48	Coldwater-Rossburg 69 kV	40	8	Active	11/30/2013	Dayton	Wind
T130	Convoy-East Lima 345 kV	300	60	Active	10/30/2010	AEP	Wind
T131	Lincoln-Sterling 138 kV	150	30	Active	10/30/2010	AEP	Wind
T142	Southwest Lima - Marysville 34 5 kV	300	60	Active	10/30/2010	AEP	Wind
U1-059	Ada - Dunkirk 69 kV	49.9	6.5	Active	4/1/2011	AEP	Wind
U1-060	East Lima - South Kenton 138 kV	151.8	19.7	Active	4/1/2011	AEP	Wind
U2-041	East Lima - Marysville 345 kV	300	39	UC	12/1/2011	AEP	Wind
U2-066	Marysville - SW Lima 345 V	200	26	Active	9/1/2012	AEP	Wind
U2-072	East Lima-Marysville 345 kV	300	39	Active	10/31/2010	AEP	Wind
U4-001	Howard 138 kV	200	26	Active	2/1/2011	AEP	Wind
U4-008	South Central Power	6.4	6.4	ISP	1/7/2011	AEP	Methane
R52A	Kings Creek 69 kV	100	20	Active	10/1/2008	Dayton	Wind
U4-028	Melmore Tap 138 kV	100	13	Active	10/1/2010	AEP	Wind
U4-029	Melmore Tap 138 kV	100	13	Active	10/1/2011	AEP	Wind
V1-010	Howard - Fostoria Central 138 kV	260	33.8	Active	12/1/2013	AEP	Wind
V1-011	Haviland 138 kV	150	19.5	Active	2/1/2011	AEP	Wind
V1-012	Haviland 138 kV	150	19.5	Active	12/1/2010	AEP	Wind
V1-032	Highland 69 kV	5	1.9	Active	8/1/2010	AEP	Solar
V2-001	Bucyrus Center 138 kV	97.2	11.3	Active	12/30/2012	AEP	Wind
V2-006	East Leipsic 138 kV	150	19.5	Active	12/31/2013	AEP	Wind
V3-013	Wilmington 69 kV	20	7.6	Active	5/31/2010	Dayton	Solar
V3-016	Greenville - West Milton 138 kV	300	39	Active	8/1/2012	Dayton	Wind
V3-028	East Lima - Marysville 345 kV	20	7.6	Active	12/31/2011	AEP	Solar

**Table 14.41: Interconnection Requests by Renewable Fuel Type in Ohio (Continued)**

Queue	Project Name	MW	MWC	Status	Schedule	TO	Fuel Type
V3-045	Zimmer - Spurlock 345 kV	112	112	Active	12/31/2013	Dayton	Hydro
V4-010	Tiffin Center 138 kV	200	26	Active	12/31/2013	AEP	Wind
V4-011	North Findlay 34.5 kV	3.2	3.2	Active	12/1/2010	AEP	Methane
V4-015	Fostoria Central 138 kV	66.6	8.6	Active	12/31/2012	AEP	Wind
V4-073	Yankee 12.5 kV	2.5	0.95	ISP	5/28/2010	Dayton	Solar
W1-041	W. Milton - Greenville	50	6.5	Active	12/31/2012	Dayton	Wind
W1-056	Ada - Dunkirk 69 kV	18.4	2.4	Active	12/31/2011	AEP	Wind
W2-001	Fostoria Central 138 kV	66.6	8.6	Active	12/31/2013	AEP	Wind
W2-007	East Leipsic 138 kV	100	13	Active	12/31/2013	AEP	Wind
W2-040	Camden 69 kV	20	7.6	Active	12/31/2011	Dayton	Solar
W2-067	Amsterdam 138 kV	50	6.5	Active	12/31/2011	Dayton	Wind
W3-005	Fostoria Central 345 kV	500	65	Active	11/30/2013	AEP	Wind
W3-011	North Findlay - Fostoria Central 138 kV	300	39	Active	12/31/2014	AEP	Wind
W3-012	East Lima - Fostoria Central 345 kV	300	39	Active	12/31/2014	AEP	Wind
W3-013	Miami	300	39	Active	12/31/2014	Dayton	Wind
W3-014	Galion - Fostoria Central 345 kV	300	39	Active	12/31/2013	AEP	Wind
W3-063	South Fultham 4 kV	0.85	0	Active	10/2/2010	AEP	Methane
W3-085	Chatfield - South Tiffin 138 kV	185	24	Active	12/31/2012	AEP	Wind
W3-088	South West Lima 345 kV	200	26	Active	12/20/2013	AEP	Wind
W3-097	Russelville OH	5	1.9	Active	9/30/2012	AEP	Solar
W3-098	Russelville OH	20	7.6	Active	6/30/2013	AEP	Solar
W3-127	City of Columbus 14.4 kV	1	0	Active	12/1/2010	AEP	Biomass
W3-170	Buckskin 69 kV	12	0	Active	8/1/2011	AEP	Solar
W3-111	S. Cumberland 69 kV	20	7.6	Active	11/1/2012	AEP	Solar
W3-112	S. Cumberland 69 kV	20	7.6	Active	12/31/2013	AEP	Solar
W3-113	S. Cumberland 69 kV	20	7.6	Active	12/31/2014	AEP	Solar
W4-006	S. Hicksville - Lockwood Road 138 kV	150	19.5	Active	12/31/2014	AEP	Wind
W4-021A	Richland & Crawford	200	26	Active	9/1/2012	AEP	Wind
W4-036	Buckskin 69 kV	12	0	Active	12/31/2011	AEP	Solar
W4-035	Martinsville	20	11.9	Active	5/31/2012	Dayton	Solar

This presents challenges with respect to real-time operational dispatch and specific capacity value. To address the latter issue, PJM has established a set of business rules unique to intermittent resources that provide for the determination of capacity values sufficiently credible to represent capacity during the PJM summer peak period. These are described in PJM Manuals M21 (<http://pjm.com/~media/documents/manuals/m21.ashx>) and M14A (<http://pjm.com/~media/documents/manuals/m14a.ashx>).

**NOTE**

In this table the MW and MWC columns represent two different values:

The MW column represents the total site nameplate capacity of the generators including the existing generation as well as the requested up rate.

The MWC column represents the installed capacity portion of the upgrade. For renewable projects the installed capacity portion of the project varies as described in **Section 2**.

Map 14.51: Interconnection Requests by Renewable Fuel Type in Ohio

