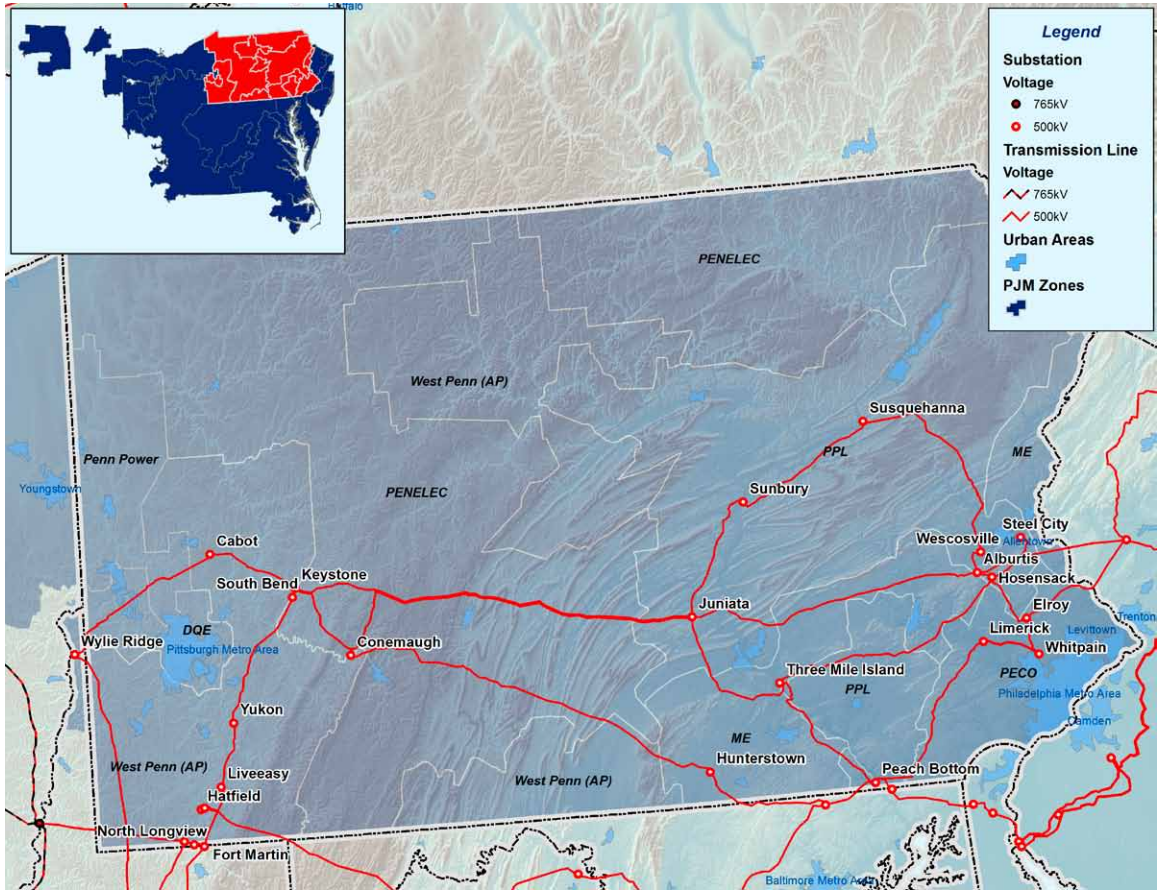
14.10: Pennsylvania RTEP Overview

PJM operates the Bulk Electric System (BES) transmission facilities (and others monitored at lower voltages), within Pennsylvania as shown on Map 14.52, including those of Allegheny Power (AP), Duquesne Light Company (DLCO), Metropolitan Edison Company (METED), Pennsylvania Electric Company (PENELEC), PECO Energy Company (PECO), PPL Electric Utilities Corporation (PPL), UGI Corporation (UGI) and American Transmission Systems, Inc. (ATSI).

The transmission system in Pennsylvania delivers power to customers from native generation resources and power transfers across tie-line facilities with adjoining states: Delaware, New Jersey, New York, Maryland, West Virginia and Ohio, all of whom are served in whole or in part by PJM.

Map 14.52: PJM Service Area in Pennsylvania



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

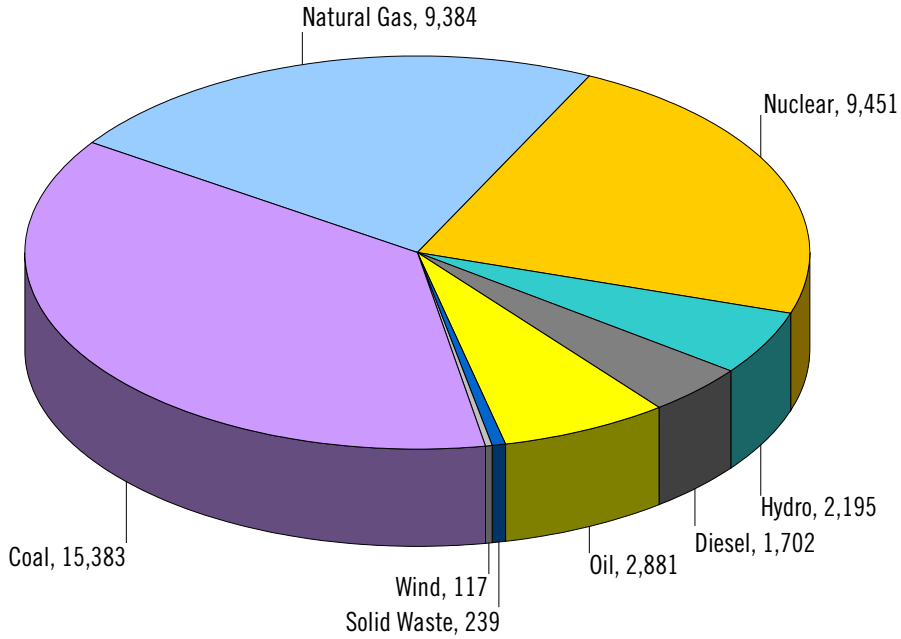
Critical Regional Transmission Expansion Plan (RTEP) Issues and Upgrades

PJM's annual RTEP process assesses transmission facilities in Pennsylvania 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.

PJM continues to address a number of critical issues in Pennsylvania having a bearing on reliability criteria violations identified by PJM RTEP studies in 2010 and driving the need for regional transmission expansion plans. The extent to which eastern Mid-Atlantic PJM continues to rely on transfers into the area to meet load-serving need negatively impacts reliability. **Section 16** provides a topical index of RTEP results, issues and challenges discussed in this report.

Major new backbone transmission facilities have been approved by the PJM Board to resolve NERC reliability criteria violations in the PJM Mid-Atlantic region, lines that are now a key part of PJM's transmission expansion plans.

Figure 14.23: Existing Installed Capacity in Pennsylvania (MW)



14.10.1 – 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 Transmission Owner zones within Pennsylvania are expected to range from 1.0 percent to 1.9 percent over the 10-year period through 2020. Peak winter load growth rates are expected to range between 0.8 percent and 1.9 percent over the 10-year period through 2019/20.

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 Pennsylvania to meet expected near-term 2015 peak load conditions. PJM's RTEP also assesses anticipated needs for additional transmission expansion plans to meet long-term load growth requirements out through 2025 as well.

Existing Generating Capability

Figure 14.23 provides a snapshot of the existing installed capacity by fuel type in Pennsylvania as of December 31, 2010.

14.10.2 – Generator Interconnection Requests

PJM has received 560 interconnection requests for new generating resources or incremental additions to existing resources in Pennsylvania since 1999, through the close of Queue W4 on January 31, 2011, as summarized in the table below.

	MW	# of projects
Active	7,063	102
In Service	13,782	112
Suspended	1,371	17
Under Construction	1,365	36
Withdrawn	81,322	293
Total	104,902	560

Table 14.42 includes generating resource interconnection requests located in Pennsylvania, received by, PJM 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 14.42.

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.

Table 14.42: Queued Generation Interconnection Requests in Pennsylvania

Queue	Project Name	MW	MWC	Status	Schedule	TO	Fuel Type
D01	Engleside 69 kV	1.6	1.6	IS-NC	5/31/2000	PPL	Natural Gas
G04	Brunner Island #2	749	14	IS-NC	1/1/2002	PPL	Coal
G05	Brunner Island #1	14	14	IS-NC	1/1/2002	PPL	Coal
G06	Martins Creek #4	850	30	UC	3/1/2012	PPL	Coal
G22	North Wales 34.5 kV	38	38	IS-NC	9/30/2002	PECO	Natural Gas
G30_W53	South Bend 500 kV	704	104	ISP	6/1/2003	APS	Natural Gas
G46	Peach Bottom 500 kV	2,256	70	ISP	10/1/2007	PECO	Nuclear
G51_W60	Hatfield Ferry 500 kV	525	525	UC	1/1/2013	APS	Coal
K02	East Towanda - Moshannon 230 kV	70	0	Suspended	5/31/2012	PENELEC	Wind
K13	Hooversville 115 kV	29.4	5.88	IS-NC	3/6/2008	PENELEC	Wind
K21	East Carbondale 69 kV	69	13	IS-NC	7/1/2004	PPL	Wind
L13	Rockwood	40	8	IS-NC	1/11/2008	PENELEC	Wind
M07	Peckville (Archbald)	50	6.3	IS-NC	3/15/2004	PPL	Natural Gas
M11	Susquehanna #1	2,520	111	ISP	5/6/2008	PPL	Nuclear
M12	Susquehanna #2	2,520	107	ISP	7/31/2011	PPL	Nuclear
M26	Champion	272	272	Suspended	11/30/2013	APS	Coal
N26	Daleville	1.74	1.7	ISP	11/1/2006	PECO	Methane
N32	Gans 138 kV	50.4	10.1	UC	12/31/2011	APS	Wind
N36	Gold - Sabinsville 115 kV	50	10	Suspended	4/1/2011	PENELEC	Wind
N39	Johnstown - Altoona 230 kV	80	16	IS-NC	3/15/2007	PENELEC	Wind
O18	Salix - Claysburg (Krayn) 115 kV	65	13	ISP	12/18/2008	PENELEC	Wind
O19	Somerset 115 kV	33	6.6	Suspended	5/31/2013	PENELEC	Wind

Table 14.42: Queued Generation Interconnection Requests in Pennsylvania (Continued)

Queue	Project Name	MW	MWC	Status	Schedule	TO	Fuel Type
O26	Pine Grove 69 kV	8	8	ISP	6/30/2008	PPL	Diesel
O36	Honey Brook 12 kV	1.6		UC	12/1/2008	PPL	Methane
O38	Johnstown - Altoona 230 kV	50	10	IS-NC	9/1/2009	PENELEC	Wind
O40	Pine Grove - Frailey 69 kV	28	5.6	Suspended	7/1/2012	PPL	Wind
O52	Gold - Potter Co 115 kV	50	10	Suspended	6/1/2011	PENELEC	Wind
O56	Osterburg East 115 kV	76	15.2	Suspended	3/1/2013	PENELEC	Wind
O60	Berlin 23 kV	5.4	1.08	UC	1/31/2012	PENELEC	Wind
O70	Susquehanna - Harwood 230 kV	124	24.8	Suspended	12/1/2011	PPL	Wind
O72	Hooversville - Central City	60	12	Suspended	12/31/2009	PENELEC	Wind
P01	Westover - Madera 115 kV	65	13	Suspended	12/31/2011	PENELEC	Wind
P03	Frackville - Hauto #3	27.3	1.3	IS-NC	12/31/2007	PPL	Wind
P04	Peach Bottom 500 kV	557	550	ISP	7/1/2011	PECO	Natural Gas
P28	Mehoopany 115 kV	150	30	Suspended	6/15/2012	PENELEC	Wind
P47	Mansfield - S. Troy 115 kV	100	20	IS-NC	12/16/2009	PENELEC	Wind
Q20	Holtwood	249	140	UC	7/1/2013	PPL	Hydro
Q25	Donegal - Iron City 138 kV	80	16	UC	3/1/2013	APS	Wind
Q28	Eldred - Frackville 230 kV	170	34	Suspended	8/1/2011	PPL	Wind
Q34	Garrett 115 kV	100	20	Suspended	4/1/2011	PENELEC	Wind
Q36	Philipsburg - Tyrone North 115 kV	50	10	Suspended	3/8/2011	PENELEC	Wind
Q46	Curwensville 34.5 kV	10	10	UC	3/1/2009	PENELEC	Coal
Q47	Peach Bottom	2,532	140	UC	4/1/2013	PECO	Nuclear
Q53	Summit - West Fall 115 kV	38	7.6	ISP	1/27/2011	PENELEC	Wind
R01	Susquehanna	800	800	Active	12/31/2018	PPL	Nuclear
R02	Susquehanna	800	800	Active	12/31/2018	PPL	Nuclear
R32	Salix - Claysburg 115 kV	75	15	Active	7/31/2011	PENELEC	Wind
R43	Frackville - Hauto #3	20	4	UC	6/1/2012	PPL	Wind
R92	DuBois 115 kV	70	14	Active	6/30/2009	PENELEC	Wind
S103	Warren 115 kV	57	57	UC	12/31/2011	PENELEC	Natural Gas
S20	Pine Grove - Fishbach 69 kV	50	10	Suspended	5/1/2013	PPL	Wind
S29B	Somerset 23 kV	6.75	5.7	UC	3/31/2011	PENELEC	Methane
S41	Eldred - Reed 69 kV	12.5	12.5	Suspended	6/1/2010	PPL	Biomass
S42	Eldred - Fairview	18	3.6	UC	10/31/2010	PPL	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 14.42: Queued Generation Interconnection Requests in Pennsylvania (Continued)

Queue	Project Name	MW	MWC	Status	Schedule	TO	Fuel Type
S64	York Inc. 115 kV	18	18	Active	1/1/2011	ME	Biomass
T109	Keystone 500 kV	918	20	UC	4/1/2009	PENELEC	Coal
T110	Keystone 500 kV	916	20	UC	11/1/2009	PENELEC	Coal
T117	Hunlock Creek 69 kV	126	126	UC	6/1/2012	UGI	Natural Gas
T121	Potter 115 kV	75	15	Active	12/1/2009	PENELEC	Wind
T129	Printz 230 kV	541	20	UC	6/1/2010	PECO	Natural Gas
T155	Belknap 25 kV	6	6	Active	6/1/2010	APS	Hydro
T156	Champion	292	20	Active	2/28/2011	APS	Coal
T174	Yukon - Browns Run 500 kV	930	900	Active	6/1/2011	APS	Natural Gas
T182	TMI 230 kV	845	24	Active	1/31/2008	ME	Nuclear
T20	Falls	3.3	1.1	IS-NC	12/23/2008	PECO	Solar
T85	Roxbury - Blain 23 kV	6.4	6	UC	12/31/2008	PENELEC	Methane
T86	Bradford 34.5 kV	1.6	1.5	UC	7/1/2008	PENELEC	Methane
U1-010	Peach Bottom	575	18	ISP	7/1/2011	PECO	Natural Gas
U1-051	Clearfield	130	16.9	Active	12/1/2011	PENELEC	Wind
U1-067	Honey Brook	3.2	1.6	UC	11/1/2009	PPL	Methane
U1-068	York 115 kV	51	10	Active	6/1/2008	ME	Natural Gas
U2-015	Harwood - E. Palmerton 230 kV	100	13	Active	11/1/2010	PPL	Wind
U2-016	Grover 230 kV	85	11.05	Active	10/1/2011	PENELEC	Wind
U2-029	Passyunk	1.3	0	Active	11/1/2015	PECO	Solar
U2-054	Weissport	2.6	2.6	UC	8/1/2011	PPL	Hydro
U2-055	Karthaus - Milesburg 230 kV	89.1	11.5	Active	7/1/2012	APS	Wind
U2-063	Croydon 230 kV	391	5	UC	7/1/2008	PECO	Natural Gas
U2-067	Eldred - Pine Grove 69 kV	33	3	UC	7/1/2008	PPL	Other
U2-073	Frostburg 138 kV II	200	26	Active	10/31/2010	APS	Wind
U2-074	Peach Bottom - Rock Springs 500 kV	650	650	Active	10/1/2012	PECO	Natural Gas
U2-076	Falls	10	10	Suspended	3/1/2011	PECO	Methane
U3-029	Beaver Valley #1	950	37	Active	10/31/2013	DL	Nuclear
U3-030	Beaver Valley #2	951	38	Active	11/1/2012	DL	Nuclear
U4-014	Siegfried - Hauto 69 kV	10	4	UC	4/1/2013	PPL	Solar
V1-026	Limerick	1,213	20	Active	12/1/2010	PECO	Nuclear
V1-027	Limerick	1,213	20	Active	4/1/2011	PECO	Nuclear

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 14.42: Queued Generation Interconnection Requests in Pennsylvania (Continued)

Queue	Project Name	MW	MWC	Status	Schedule	TO	Fuel Type
V1-028	North Wales	10	2	UC	5/31/2009	PECO	Diesel
V2-027	South Milton	2	2	UC	2/1/2011	PPL	Methane
V3-006	Linglestown	1	0	UC	12/31/2009	PPL	Solar
V3-030	St. Benedict - Patton 46 kV	31	4	Active	12/31/2012	PENELEC	Wind
V3-040	Siegfried - Hauto 69 kV	10	4	UC	4/1/2013	PPL	Solar
V3-041	Daleville	4	3	UC	11/1/2011	PECO	Methane
V3-042	Thompson 115 kV	84	11	Active	12/31/2012	PENELEC	Wind
V3-044	Glendon 34.5 kV	5	5	UC	6/30/2011	ME	Methane
V3-051	Letort	3	0	UC	7/1/2011	PPL	Wind
V3-057	Ironwood 230 kV	20	0	Active	3/31/2011	ME	Storage
V3-062	McConnellsburg - Guilford 138 kV	20	8	Active	10/1/2011	APS	Solar
V4-012	Morgantown	5	5	UC	3/1/2012	PPL	Methane
V4-020	North Temple 230 kV	650	650	Active	6/1/2014	ME	Natural Gas
V4-027	Quarryville	5	2	Active	12/1/2010	PPL	Solar
V4-045	Peach Bottom	2,722	320	Active	10/3/2015	PECO	Nuclear
V4-052	West Reading	6	6	Active	1/1/2011	ME	Natural Gas
V4-072	Blue Ridge Landfill	5	5	Active	1/31/2011	APS	Methane
V4-075	Warwick 12 kV	2	1	UC	3/1/2012	PPL	Solar
V4-076	Carlisle Pike 23 kV	5	2	UC	6/1/2011	PENELEC	Solar
V4-077	Montgomery Avenue 12.47 kV	13	5	UC	8/1/2011	PENELEC	Solar
W1-010	Cooper	20	8	Active	12/1/2011	PECO	Solar
W1-012	Millheim - Brush Jct 46 kV	50	7	Active	12/31/2013	APS	Wind
W1-013	Saint Thomas 34 kV I	20	8	Active	12/15/2011	APS	Solar
W1-014	Saint Thomas 34 kV II	20	8	Active	12/15/2011	APS	Solar
W1-015	Shade Gap 115 kV	70	9	Active	12/1/2013	PENELEC	Wind
W1-042	Hubar Road 1	20	8	Active	12/15/2011	APS	Solar
W1-043	Hubar Road 2	20	8	Active	12/15/2011	APS	Solar
W1-044	Mont Alto	20	8	Active	12/15/2011	APS	Solar
W1-045	Roxbury 23 kV	14	5	Active	7/1/2011	PENELEC	Solar
W1-046	Face Rock 69 kV	15	6	UC	3/1/2012	PPL	Solar
W1-050	Keller & Valley Camp Roads I	20	8	Active	12/31/2011	APS	Solar
W1-051	St. Thomas 34 kV III	130	49	Active	7/1/2012	APS	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**.

Table 14.42: Queued Generation Interconnection Requests in Pennsylvania (Continued)

Queue	Project Name	MW	MWC	Status	Schedule	TO	Fuel Type
W1-052	Keller & Valley Camp Roads II	20	8	Active	12/31/2011	APS	Solar
W1-054	South Akron - Prince	11	11	Active	12/31/2011	PPL	Methane
W1-064	Grand Point 12 kV	2	2	Active	1/31/2011	APS	Methane
W1-075	Hunterstown 115 kV	20	8	Active	12/31/2012	ME	Solar
W1-104	Bellefonte 12 kV	1	0	Active	10/1/2011	APS	Solar
W1-105	Reamstown	3	1	Active	10/1/2011	PPL	Solar
W1-106	West Carlisle	5	2	Active	10/1/2011	PPL	Solar
W1-107	Grove City Road 12 kV	2	1	Active	10/1/2011	APS	Solar
W1-108	Grays Ferry 230 kV	163	13	Active	6/1/2011	PECO	Natural Gas
W1-111	Harwood - Berwick 69 kV	20	0	Active	1/20/2012	PPL	Storage
W1-114	Port Carbon	3	1	Active	9/1/2010	PPL	Solar
W1-115	Tamanend	3	1	Active	9/28/2010	PPL	Solar
W2-010	Conemaugh Unit 1	870	20	Active	6/30/2013	PENELEC	Coal
W2-011	Conemaugh Unit 2	870	20	Active	6/30/2013	PENELEC	Coal
W2-014	Richmond	98	2	Active	11/25/2010	PECO	Oil
W2-018	Cumberland County Landfill	5	5	Active	9/30/2011	PENELEC	Methane
W2-028	Limerick #1	1,218	5	Active	4/15/2012	PECO	Nuclear
W2-029	Limerick #2	1,218	5	Active	4/15/2013	PECO	Nuclear
W2-053	West Waynesboro 34.5 kV I	20	8	Active	7/1/2012	APS	Solar
W2-054	West Waynesboro II 34.5 kV II	20	8	Active	7/1/2012	APS	Solar
W2-059	Strasburg 12 kV	2	1	Active	6/1/2011	PPL	Diesel
W2-069	Fishburn/Tanney 46 kV	10	4	Active	9/1/2011	APS	Solar
W2-075	Tolna Unit 2	1	1	Active	8/31/2010	ME	Oil
W2-081	Port Carbon 12 kV	3	1	Active	2/22/2011	PPL	Solar
W2-092	Hunterstown 115 kV II	20	8	Active	6/1/2013	ME	Solar
W2-093	Hunterstown 115 kV III	20	8	Active	6/1/2013	ME	Solar
W2-094	Straban 13.2 kV	5	2	Active	10/1/2011	ME	Solar
W2-095	Guilford 34.5 kV	10	4	Active	10/1/2011	APS	Solar
W2-096	West Carlisle - Newville 1 69 kV	20	8	Active	6/1/2012	PPL	Solar
W2-097	West Carlisle - Newville 2 69 kV	20	8	Active	6/1/2012	PPL	Solar
W2-098	Hunterstown 115 kV IV	20	8	Active	6/1/2013	ME	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**.

Table 14.42: Queued Generation Interconnection Requests in Pennsylvania (Continued)

Queue	Project Name	MW	MWC	Status	Schedule	TO	Fuel Type
W3-007	Reed 34.5 kV	20	8	Active	7/1/2012	APS	Solar
W3-008	Mercersburg 34.5 kV	20	8	Active	7/1/2012	APS	Solar
W3-021A	Corry East 115 kV	70	9	Active	12/31/2014	PENELEC	Wind
W3-022	Frackville - Eldred #1 230 kV	150	20	Active	12/31/2014	PPL	Wind
W3-023	Frackville - Eldred #2 230 kV	120	16	Active	12/31/2014	PPL	Wind
W3-040	Martinsburg	4	4	Active	1/30/2012	PENELEC	Methane
W3-042	Mercersburg 34.5 kV	16	6	Active	6/1/2012	APS	Solar
W3-064	Hunterstown 115 kV V	20	8	Active	12/31/2011	ME	Solar
W3-067	Gardners - Hunterstown 115 kV	20	8	Active	7/1/2012	ME	Solar
W3-068	Cumberland - W. Shore 3 #1 69 kV	20	8	Active	7/1/2012	PPL	Solar
W3-069	Cumberland - W. Shore 3 #2 69 kV	20	8	Active	7/1/2012	PPL	Solar
W3-072	St. Thomas - Guilford 34.5 kV	20	8	Active	7/1/2012	APS	Solar
W3-093	Lyon Station	3	0	Active	10/1/2011	ME	Storage
W3-096	Schwenksville	3	1	Active	4/1/2011	PECO	Solar
W3-099	Erie East 230 kV	100	13	Active	9/1/2014	PENELEC	Wind
W3-102	East Carbondale - Lackawanna 69 kV	15	6	Active	5/30/2011	PPL	Solar
W3-114	Venango I	2	1	Active	8/1/2011	PENELEC	Solar
W3-115	Venango II	2	1	Active	8/1/2011	PENELEC	Solar
W3-153	Horsham	3	1	Active	6/4/2011	PECO	Solar
W3-166	Nottingham I	15	6	Active	12/31/2011	PECO	Solar
W3-167	Nottingham II	10	4	Active	12/31/2011	PPL	Solar
W3-168	Germantown 13.2 kV	15	6	Active	6/1/2012	ME	Solar
W3-169	North Hanover 12.5 kV	12	5	Active	6/1/2012	ME	Solar
W4-012	Whetstone 115 kV	120	16	Active	12/31/2014	APS	Wind
W4-013	Frackville - Orwigsburg 69 kV	50	7	Active	12/31/2014	PPL	Wind
W4-022	Hunterstown 230 kV	100	38	Active	12/31/2014	ME	Solar
W4-042	Fulton County	20	7.6	Active	9/1/2012	APS	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**.

Figure 14.24: Queued Capacity by Fuel Type in Pennsylvania (MW)

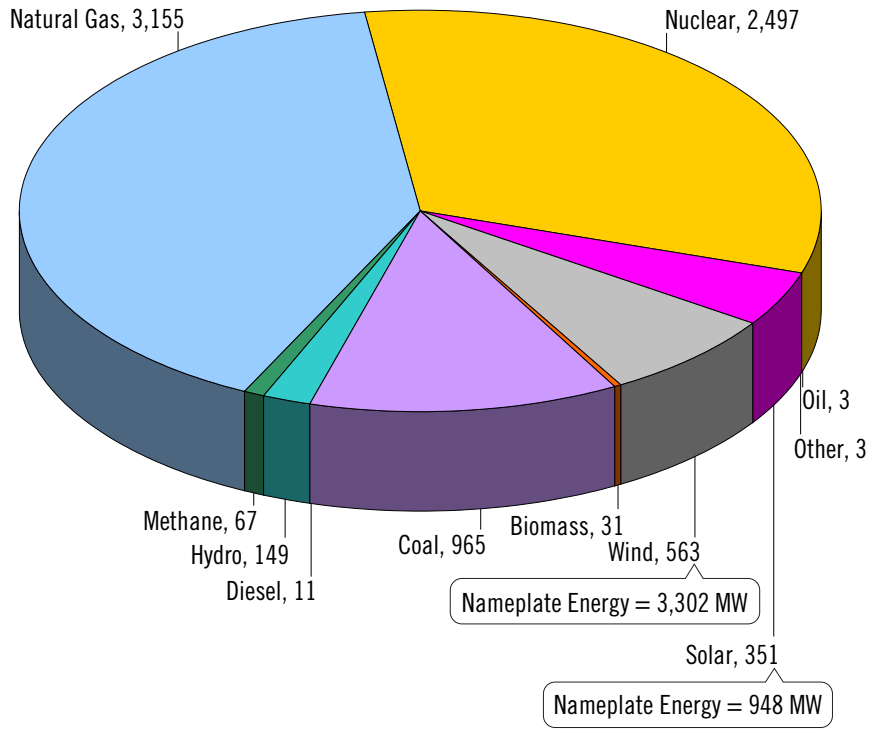
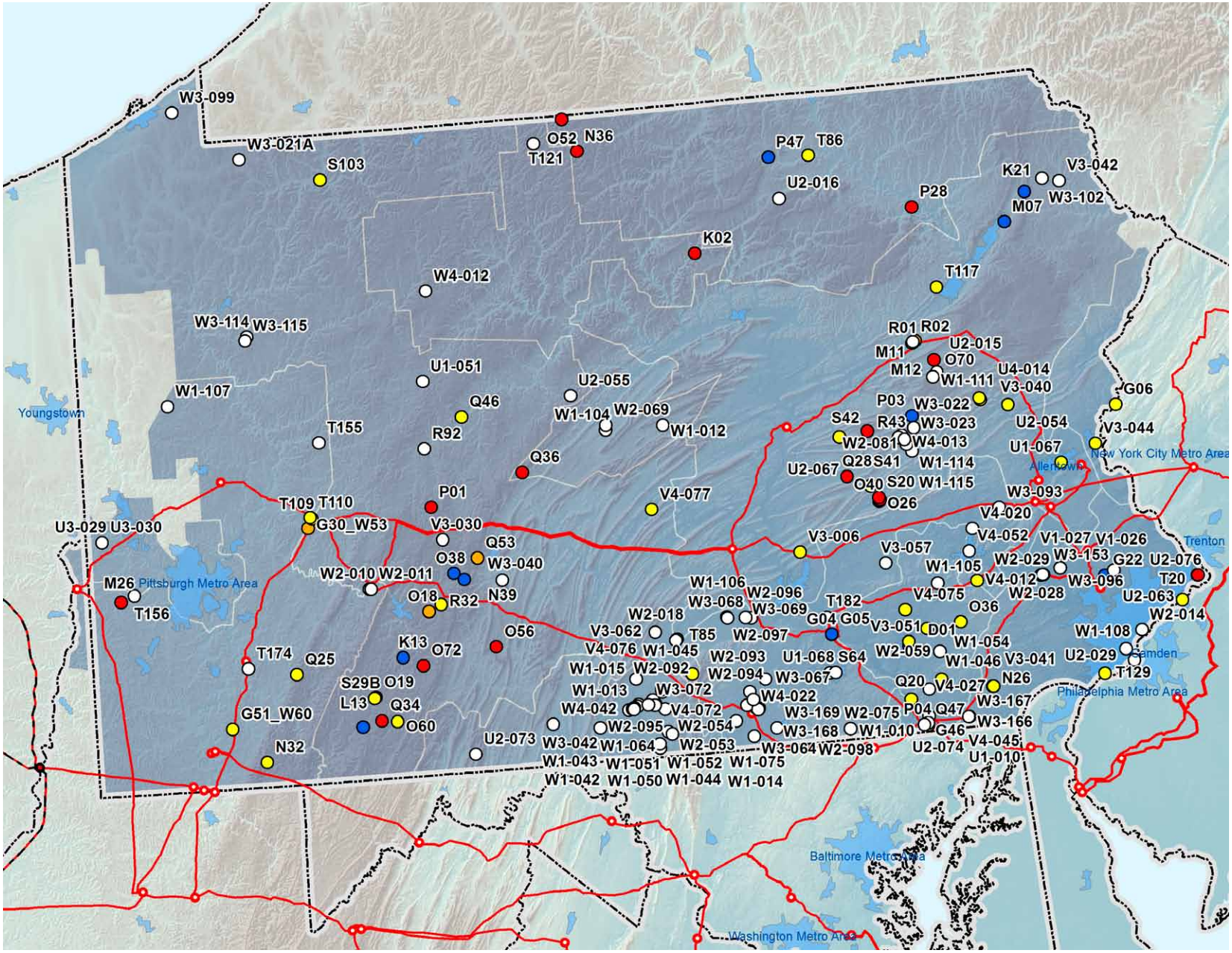


Figure 14.24 shows the fuel mix of queued generation interconnection requests in Pennsylvania that have requested capacity injection rights through the close of Queue W4 on January 31, 2011, excluding projects that are in-service and those that have withdrawn. These projects are shown in Map 14.53.

Map 14.53: Queued Generation Interconnection Requests in Pennsylvania



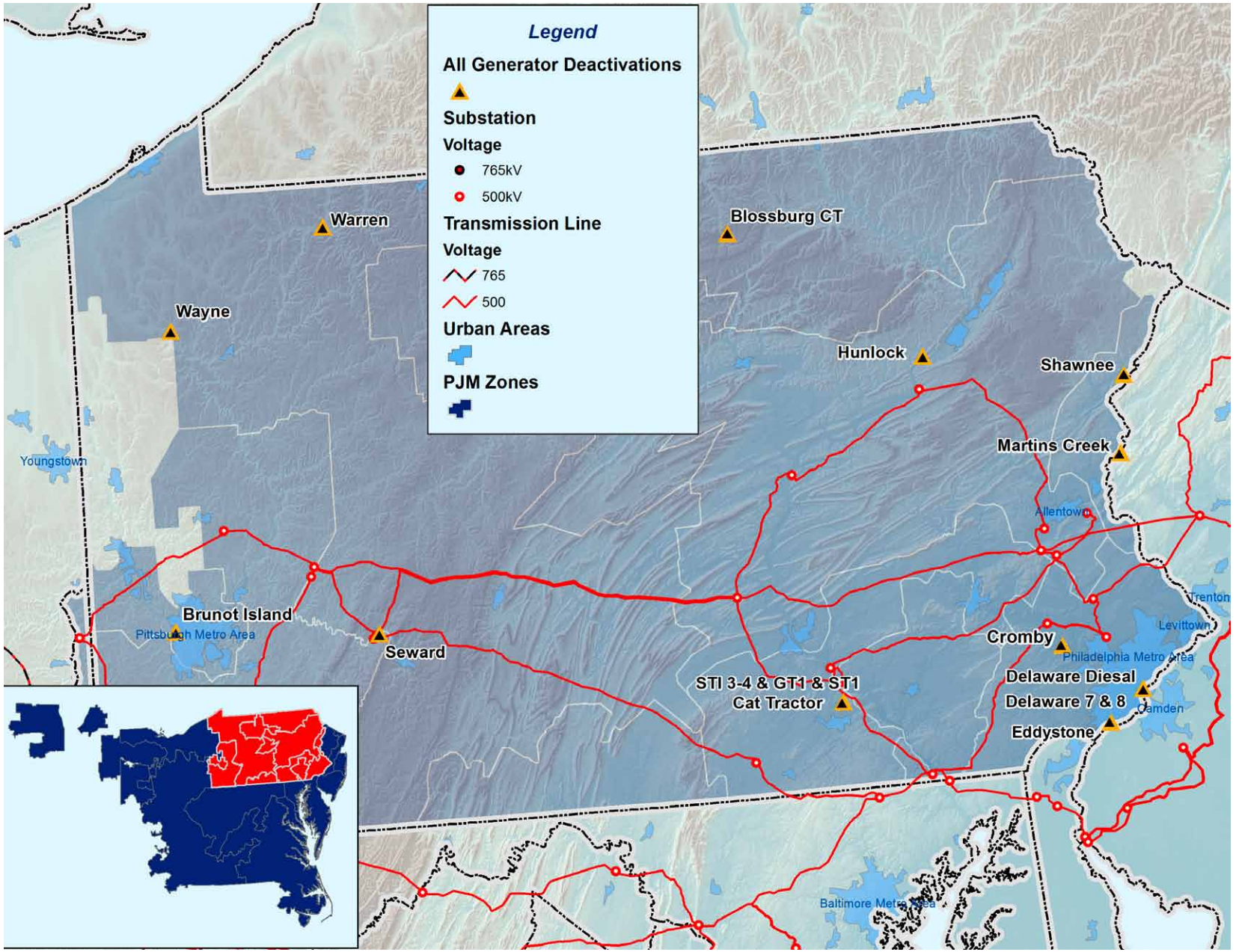
14.10.3 – Generation Deactivations

Known generator deactivations in Pennsylvania between September 2002 and December 2010 are summarized in Table 14.43 and shown on Map 14.54. 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.

Table 14.43: Generation Deactivations in Pennsylvania

Retirement Date	Generator	TO	Capacity (MW)	Status
Sep-02	Warren 1	PN	41	No Reliability Issues
Sep-02	Warren 2	PN	41	No Reliability Issues
Nov-03	Seward 4	PN	60	No Reliability Issues
Nov-03	Seward 5	PN	136	No Reliability Issues
Mar-04	Delaware 7	PE	126	No Reliability Issues
Mar-04	Delaware 8	PE	124	No Reliability Issues
May-04	Wayne CT	PN	56	No Reliability Issues
Oct-04	Warren 3 CT	PN	57	No Reliability Issues
Jan-05	"STI 3 & 4 (Cat Tractor)"	ME	20	No Reliability Issues
Oct-06	Delaware Diesel	PE	2.7	No Reliability Issues
Sep-07	Martins Creek 1	PPL	140	No Reliability Issues
Sep-07	Martins Creek 2	PPL	140	No Reliability Issues
Sep-07	Martins Creek D1-D2	PPL	5	Reliability Issues (Blackstart) identified and resolved
Deferred	Shawnee CT	ME	20	Reliability Issue - Blackstart
Deferred	Blossburg CT	PN	19	Reliability Issue - Blackstart
Withdrawn	"STI GT1 & ST1 (Cat Tractor)"	ME	13	No Reliability Issues
Withdrawn	Brunot Island 4CC	DUQ	244	Reliability Issues Identified and resolved, RMR payments terminated effective 7/5/2007.
Jun-10	Hunlock 3	UGI	45	No Reliability Issues
May-11	Cromby 1	PE	144	Reliability analysis complete - Reliability Impacts identified - Results posted
Dec-11	Cromby 2	PE	201	Reliability analysis complete - Reliability Impacts identified - Results posted
May-11	Eddystone 1	PE	279	Reliability analysis complete - Reliability Impacts identified - Results posted
Jun-12	Eddystone 2	PE	309	Reliability analysis complete - Reliability Impacts identified - Results posted
May-11	Cromby Diesel	PE	2.7	Reliability Analysis complete - No Impacts Identified

Map 14.54: Generation Deactivations in Pennsylvania



Map 14.55: Merchant Transmission Interconnection Request Activity in Pennsylvania

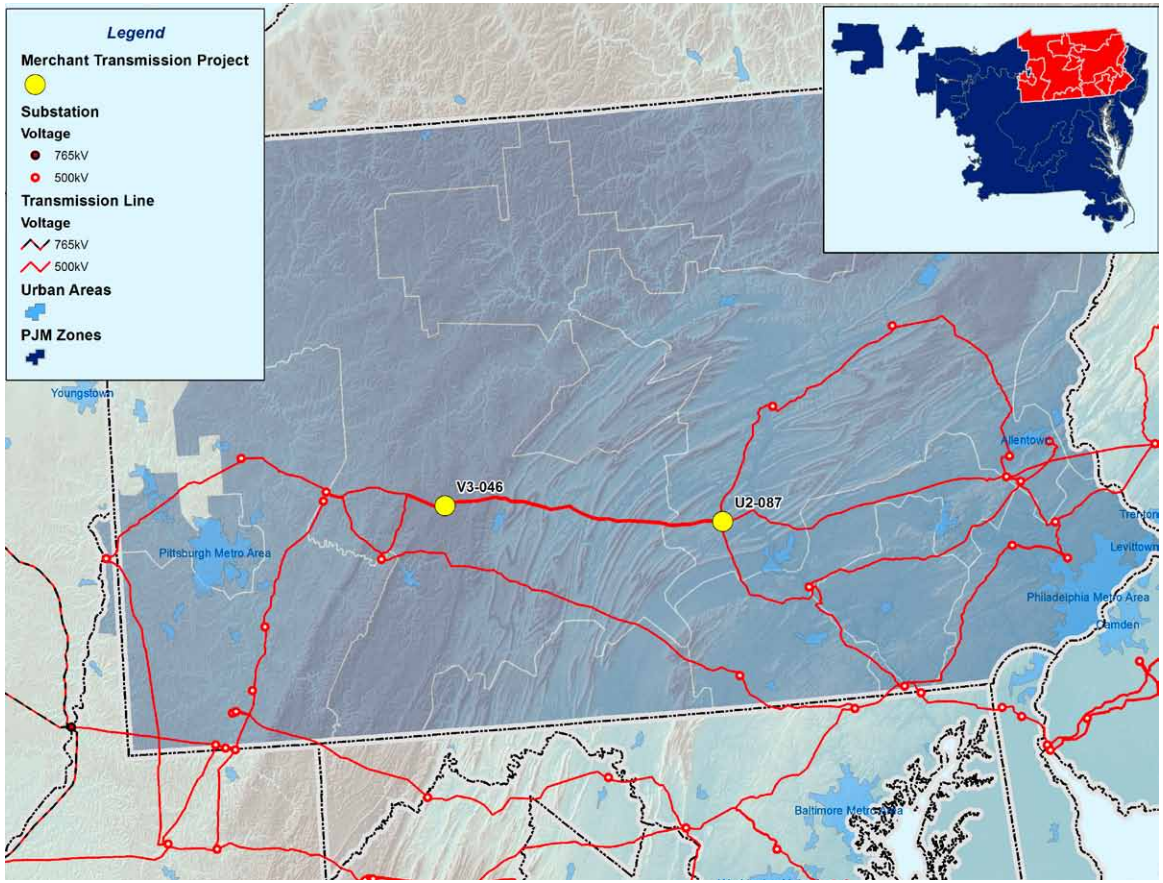


Table 14.44: Merchant Transmission Interconnection Requests in Pennsylvania

Queue	Project Name	MW	Status	In-Service Date	TO
U2-087	Juniata 500 MVar SVC	0	Active	1/1/2011	PPL
V3-046	Conemaugh-Juniata 500 kV		UC	7/1/2012	PENELEC

14.10.4 – Merchant Transmission Interconnection Requests

PJM's interconnection queues contained two requests for merchant transmission interconnection in Pennsylvania, through the close of Queue W4 on January 31, 2011. These are shown in Table 14.44 and shown on Map 14.55.

14.10.5 – Transmission Expansion Plans in Pennsylvania

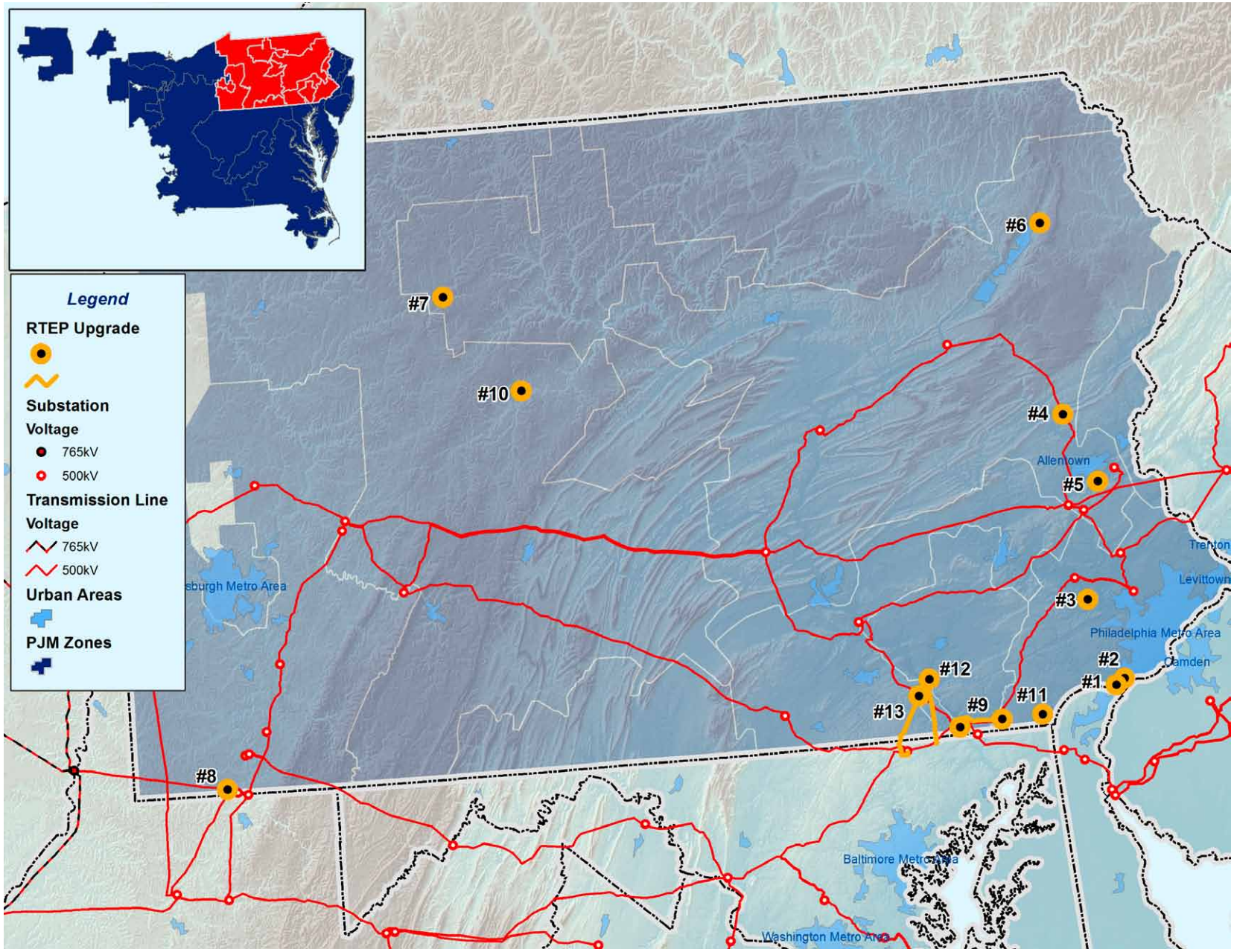
Table 14.45 summarizes new RTEP planned transmission upgrades in Pennsylvania greater than $5 million in Pennsylvania as approved by the PJM Board during 2010. Map 14.56 shows the location of upgrades enumerated in Table 14.45.

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 14.45: Major 2010 RTEP Plans in Pennsylvania

		System Upgrade Drivers												
		Baseline Upgrades					Network Upgrades			Supplemental Upgrade				
	Upgrade	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	Criteria Compliance other than for Baseline	Date	Cost (M)	TO Zone(s)	2010 TEAC Review
1	Add a second 230/138 kV transformer at Chichester				▲						December 2011	5.908	PECO	3/10/2010
2	Reconductor Chichester - Saville 138 kV line				▲						December 2013	8.5	PECO	3/10/2010
3	Replace 230/69 kV transformer #6 at Cromby				▲						May 2012	6.142	PECO	3/10/2010
4	Add the 2nd Circuit to the East Palmerton - Wagners - Lake Naomi 138/69 kV Tap					▲					November 2014	12.3	PPL	6/2/2010
5	Build new Breinigsville 230-69 kV Substation					▲					May 2015	34.65	PPL	6/2/2010
6	Reconductor and rebuild Peckville - Varden 69 kV line and Blooming Grove - Honesdale 69 kV line					▲					November 2014	22.4	PPL	6/2/2010
7	Construct Bear Run 230 kV substation	▲									June 2014	6	APS	8/11/2010
8	Install 2nd 500/138 kV transformer at 502 Junction	▲									June 2015	15	APS	10/6/2010
9	Reconductor the Nottingham - Peach Bottom 220-08 line						U2-074				October 2012	10	PECO	7/14/2010
10	Install new 3 breaker 230 kV ring bus and a new 3 breaker 115 kV ring bus and a 168 MVA transformer at Shawville						R92				June 2009	12.04	PENELEC	7/14/2010
11	Extend a second 230 kV transmission supply to Clay Substation									▲	June 2013	21	PECO	4/14/2010
12	Rebuild Manor - Graceton 230 kV line									▲	December 2012	33	PPL	6/2/2010
13	Rebuild Otter Creek - Conastone 230 kV line									▲	December 2012	20	PPL	6/2/2010

Map 14.56: Major 2010 RTEP Plans in Pennsylvania



Susquehanna - Roseland 500 kV line

The PJM Board approved the Susquehanna - Roseland 500 kV line in 2007 to resolve numerous overloads on critical 230 kV circuits across Eastern Pennsylvania and Northern New Jersey beginning in 2012.

A 2012 baseline retool study conducted as part of PJM's 2010 RTEP process identified 50 NERC reliability criteria violations, confirming the need for the Susquehanna – Roseland 500 kV line. Given the number of facilities experiencing violations and the extent to which they do so, incremental upgrades are not a practical solution.

Regulatory Approval Status

The Pennsylvania Public Utility Commission approved the line on February 12, 2010. The New Jersey Board of Public Utilities approved the line on February 11, 2010. However, transmission owners PPL and PSE&G, responsible for construction of the line, have indicated that the line won't be in service until June 1, 2014 or later, primarily due to delays in obtaining a permit from the National Park Service for the 1.65 mile line segment that crosses the Delaware Water Gap National Recreation Area, the Appalachian National Scenic Trail and the Middle Delaware National Scenic and Recreational River.

Impact of a Susquehanna - Roseland Construction Delay

As discussed further in **Section 4.3**, PJM has developed an operational solution to address the criteria violations that would otherwise be expected to occur in 2012 without the Susquehanna - Roseland line. The operational solution included extending the RMR for Hudson Unit #1 into 2012 and operating to the NERC category C double-circuit tower line contingencies that are driving the need for the line.

Operating to the double circuit towerline contingencies will provide PJM Operations staff the time needed to implement Demand Resources to manage flow on constrained facilities once other generation redispatch options have been exhausted.

Analysis shows the combination of retaining the Hudson Unit #1 on RMR along with implementing Demand Resources would be effective at controlling the thermal violations expected to occur in 2012 without the Susquehanna – Roseland line.

PJM also conducted a preliminary market efficiency analysis of 2012 and 2013 to determine the impact of operating to double-circuit tower line contingencies driving the need for the Susquehanna - Roseland 500 kV line. The market efficiency analysis assumed Hudson Unit #1 in-service in 2012 and 2013. The study results showed a net increase in gross congestion in each year, primarily in New Jersey: $160 million in 2012 and $280 million in 2013.

TrAIL Project

The TrAIL is currently expected to meet a required June 1, 2011 in-service date, specified by PJM to solve identified NERC reliability criteria violations. Several segments are likely to be in-service as much as two months ahead of that date. From a regulatory perspective, Virginia, West Virginia and Pennsylvania Commissions have issued CPCN approvals. Transmission line structure work and conductor stringing has either been completed or is underway. Additional information is available from PJM's website via the following URL link: http://pjm.com/planning/rtep-upgrades-status/backbone-status.aspx.

14.10.6 – 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 Pennsylvania for plants fueled by wind, hydro, biomass, methane and solar, as summarized in Table 14.46 and shown on Map 14.57.

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.

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).

Table 14.46: Interconnection Requests by Renewable Fuel Type in Pennsylvania

Queue	Project Name	MW	MWC	Status	Schedule	TO	Fuel Type
K13	Hooversville 115 kV	29.4	5.88	IS-NC	3/6/2008	PENELEC	Wind
K21	East Carbondale 69 kV	69	13	IS-NC	7/1/2004	PPL	Wind
L13	Rockwood	40	8	IS-NC	1/11/2008	PENELEC	Wind
N26	Daleville	1.74	1.7	ISP	11/1/2006	PECO	Methane
N32	Gans 138 kV	50.4	10.1	UC	12/31/2011	APS	Wind
N36	Gold - Sabinsville 115 kV	50	10	Suspended	4/1/2011	PENELEC	Wind
N39	Johnstown - Altoona 230 kV	80	16	IS-NC	3/15/2007	PENELEC	Wind
O18	Salix - Claysburg (Krayn) 115 kV	65	13	ISP	12/18/2008	PENELEC	Wind
O19	Somerset 115 kV	33	6.6	Suspended	5/31/2013	PENELEC	Wind
O36	Honey Brook 12 kV	1.6		UC	12/1/2008	PPL	Methane
O38	Johnstown - Altoona 230 kV	50	10	IS-NC	9/1/2009	PENELEC	Wind
O40	Pine Grove - Frailey 69 kV	28	5.6	Suspended	7/1/2012	PPL	Wind
O52	Gold-Potter Co 115 kV	50	10	Suspended	6/1/2011	PENELEC	Wind
O56	Osterburg East 115 kV	76	15.2	Suspended	3/1/2013	PENELEC	Wind
O60	Berlin 23 kV	5.4	1.08	UC	1/31/2012	PENELEC	Wind
O70	Susquehanna - Harwood 230 kV	124	24.8	Suspended	12/1/2011	PPL	Wind
O72	Hooversville - Central City	60	12	Suspended	12/31/2009	PENELEC	Wind
P01	Westover - Madera 115 kV	65	13	Suspended	12/31/2011	PENELEC	Wind
P03	Frackville - Hauto #3	27.3	1.3	IS-NC	12/31/2007	PPL	Wind
P28	Mehoopany 115 kV	150	30	Suspended	6/15/2012	PENELEC	Wind
P47	Mansfield - S. Troy 115 kV	100	20	IS-NC	12/16/2009	PENELEC	Wind
Q20	Holtwood	249	140	UC	7/1/2013	PPL	Hydro
Q25	Donegal - Iron City 138 kV	80	16	UC	3/1/2013	APS	Wind
Q28	Eldred - Frackville 230 kV	170	34	Suspended	8/1/2011	PPL	Wind
Q34	Garrett 115 kV	100	20	Suspended	4/1/2011	PENELEC	Wind
Q36	Philipsburg - Tyrone North 115 kV	50	10	Suspended	3/8/2011	PENELEC	Wind
Q53	Summit - West Fall 115 kV	38	7.6	ISP	1/27/2011	PENELEC	Wind
R32	Salix - Claysburg 115 kV	75	15	Active	7/31/2011	PENELEC	Wind
R43	Frackville - Hauto #3	20	4	UC	6/1/2012	PPL	Wind
R92	DuBois 115 kV	70	14	Active	6/30/2009	PENELEC	Wind
S20	Pine Grove - Fishbach 69 kV	50	10	Suspended	5/1/2013	PPL	Wind
S29B	Somerset 23 kV	6.75	5.7	UC	3/31/2011	PENELEC	Methane

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 14.46: Interconnection Requests by Renewable Fuel Type in Pennsylvania (Continued)

Queue	Project Name	MW	MWC	Status	Schedule	TO	Fuel Type
S41	Eldred - Reed 69 kV	12.5	12.5	Suspended	6/1/2010	PPL	Biomass
S42	Eldred - Fairview	18	3.6	UC	10/31/2010	PPL	Wind
S64	York Inc. 115 kV	18	18	Active	1/1/2011	ME	Biomass
T121	Potter 115 kV	75	15	Active	12/1/2009	PENELEC	Wind
T155	Belknap 25 kV	6	6	Active	6/1/2010	APS	Hydro
T20	Falls	3.3	1.1	IS-NC	12/23/2008	PECO	Solar
T85	Roxbury - Blain 23 kV	6.4	6	UC	12/31/2008	PENELEC	Methane
T86	Bradford 34.5 kV	1.6	1.5	UC	7/1/2008	PENELEC	Methane
U1-051	Clearfield	130	16.9	Active	12/1/2011	PENELEC	Wind
U1-067	Honey Brook	3.2	1.6	UC	11/1/2009	PPL	Methane
U2-015	Harwood - E. Palmerton 230 kV	100	13	Active	11/1/2010	PPL	Wind
U2-016	Grover 230 kV	85	11.05	Active	10/1/2011	PENELEC	Wind
U2-029	Passyunk	1.3	0	Active	11/1/2015	PECO	Solar
U2-054	Weissport	2.6	2.6	UC	8/1/2011	PPL	Hydro
U2-055	Karthaus - Milesburg 230 kV	89.1	11.5	Active	7/1/2012	APS	Wind
U2-073	Frostburg 138 kV II	200	26	Active	10/31/2010	APS	Wind
U2-076	Falls	10	10	Suspended	3/1/2011	PECO	Methane
U4-014	Siegfried - Hauto 69 kV	10	3.8	UC	4/1/2013	PPL	Solar
V2-027	South Milton	1.62	1.62	UC	2/1/2011	PPL	Methane
V3-006	Linglestown	1	0.38	UC	12/31/2009	PPL	Solar
V3-030	St. Benedict - Patton 46 kV	30.6	3.98	Active	12/31/2012	PENELEC	Wind
V3-040	Siegfried - Hauto 69 kV	10	3.8	UC	4/1/2013	PPL	Solar
V3-041	Daleville	4	3.2	UC	11/1/2011	PECO	Methane
V3-042	Thompson 115 kV	84	10.9	Active	12/31/2012	PENELEC	Wind
V3-044	Glendon 34.5 kV	4.8	4.8	UC	6/30/2011	ME	Methane
V3-051	Letort	3.2	0.4	UC	7/1/2011	PPL	Wind
V3-062	McConnellsburg - Guilford 138 kV	20	7.6	Active	10/1/2011	APS	Solar
V4-012	Morgantown	4.8	4.8	UC	3/1/2012	PPL	Methane
V4-027	Quarryville	5	1.9	Active	12/1/2010	PPL	Solar
V4-072	Blue Ridge Landfill	4.8	4.8	Active	1/31/2011	APS	Methane
V4-075	Warwick 12 kV	2	0.76	UC	3/1/2012	PPL	Solar

NOTE

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

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Table 14.46: Interconnection Requests by Renewable Fuel Type in Pennsylvania (Continued)

Queue	Project Name	MW	MWC	Status	Schedule	TO	Fuel Type
V4-076	Carlisle Pike 23 kV	5.3	2	UC	6/1/2011	PENELEC	Solar
V4-077	Montgomery Avenue 12.47 kV	13	4.9	UC	8/1/2011	PENELEC	Solar
W1-010	Cooper	20	7.6	Active	12/1/2011	PECO	Solar
W1-012	Millheim - Brush Jct 46 kV	50	6.5	Active	12/31/2013	APS	Wind
W1-013	Saint Thomas 34 kV I	20	7.6	Active	12/15/2011	APS	Solar
W1-014	Saint Thomas 34 kV II	20	7.6	Active	12/15/2011	APS	Solar
W1-015	Shade Gap 115 kV	70.2	9.1	Active	12/1/2013	PENELEC	Wind
W1-042	Hubar Road 1	20	7.6	Active	12/15/2011	APS	Solar
W1-043	Hubar Road 2	20	7.6	Active	12/15/2011	APS	Solar
W1-044	Mont Alto	20	7.6	Active	12/15/2011	APS	Solar
W1-045	Roxbury 23 kV	13.5	5.13	Active	7/1/2011	PENELEC	Solar
W1-046	Face Rock 69 kV	15	5.7	UC	3/1/2012	PPL	Solar
W1-050	Keller & Valley Camp Roads I	20	7.6	Active	12/31/2011	APS	Solar
W1-051	St. Thomas 34 kV III	130	49.4	Active	7/1/2012	APS	Solar
W1-052	Keller & Valley Camp Roads II	20	7.6	Active	12/31/2011	APS	Solar
W1-054	South Akron-Prince	11.4	11.4	Active	12/31/2011	PPL	Methane
W1-064	Grand Point 12 kV	1.6	1.6	Active	1/31/2011	APS	Methane
W1-075	Hunterstown 115 kV	20	7.6	Active	12/31/2012	ME	Solar
W1-104	Bellefonte 12 kV	0.65	0.25	Active	10/1/2011	APS	Solar
W1-105	Reamstown	3	1.14	Active	10/1/2011	PPL	Solar
W1-106	West Carlisle	5	1.9	Active	10/1/2011	PPL	Solar
W1-107	Grove City road 12 kV	2	0.74	Active	10/1/2011	APS	Solar
W1-114	Port Carbon	3	1.1	Active	9/1/2010	PPL	Solar
W1-115	Tamanend	3	1.1	Active	9/28/2010	PPL	Solar
W2-018	Cumberland County Landfill	4.8	4.8	Active	9/30/2011	PENELEC	Methane
W2-053	West Waynesboro 34.5 kV I	20	7.6	Active	7/1/2012	APS	Solar
W2-054	West Waynesboro II 34.5 kV II	20	7.6	Active	7/1/2012	APS	Solar
W2-069	Fishburn/Tanney 46 kV	10	3.8	Active	9/1/2011	APS	Solar
W2-081	Port Carbon 12 kV	3	1.14	Active	2/22/2011	PPL	Solar
W2-092	Hunterstown 115 kV II	20	7.6	Active	6/1/2013	ME	Solar
W2-093	Hunterstown 115 kV III	20	7.6	Active	6/1/2013	ME	Solar
W2-094	Straban 13.2 kV	5	1.9	Active	10/1/2011	ME	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**.

Table 14.46: Interconnection Requests by Renewable Fuel Type in Pennsylvania (Continued)

Queue	Project Name	MW	MWC	Status	Schedule	TO	Fuel Type
W2-095	Guilford 34.5 kV	10	3.8	Active	10/1/2011	APS	Solar
W2-096	West Carlisle - Newville 1 69 kV	20	7.6	Active	6/1/2012	PPL	Solar
W2-097	West Carlisle - Newville 2 69 kV	20	7.6	Active	6/1/2012	PPL	Solar
W2-098	Hunterstown 115 kV IV	20	7.6	Active	6/1/2013	ME	Solar
W3-007	Reed 34.5 kV	20	7.6	Active	7/1/2012	APS	Solar
W3-008	Mercersburg 34.5 kV	20	7.6	Active	7/1/2012	APS	Solar
W3-021A	Corry East 115 kV	70	9.1	Active	12/31/2014	PENELEC	Wind
W3-022	Frackville - Eldred #1 230 kV	150	19.5	Active	12/31/2014	PPL	Wind
W3-023	Frackville - Eldred #2 230 kV	120	15.6	Active	12/31/2014	PPL	Wind
W3-040	Martinsburg	3.8	3.8	Active	1/30/2012	PENELEC	Methane
W3-042	Mercersburg 34.5 kV	16	6.08	Active	6/1/2012	APS	Solar
W3-064	Hunterstown 115 kV V	20	7.6	Active	12/31/2011	ME	Solar
W3-067	Gardners - Hunterstown 115 kV	20	7.6	Active	7/1/2012	ME	Solar
W3-068	Cumberland - W. Shore 3 #1 69 kV	20	7.6	Active	7/1/2012	PPL	Solar
W3-069	Cumberland - W. Shore 3 #2 69 kV	20	7.6	Active	7/1/2012	PPL	Solar
W3-072	St. Thomas - Guilford 34.5 kV	20	7.6	Active	7/1/2012	APS	Solar
W3-096	Schwenksville	2.5	0.95	Active	4/1/2011	PECO	Solar
W3-099	Erie East 230 kV	100	13	Active	9/1/2014	PENELEC	Wind
W3-102	East Carbondale - Lackawanna 69 kV	15	5.7	Active	5/30/2011	PPL	Solar
W3-114	Venango I	2	0.76	Active	8/1/2011	PENELEC	Solar
W3-115	Venango II	2	0.76	Active	8/1/2011	PENELEC	Solar
W3-153	Horsham	2.6	1	Active	6/4/2011	PECO	Solar
W3-166	Nottingham I	15	5.7	Active	12/31/2011	PECO	Solar
W3-167	Nottingham II	10	3.8	Active	12/31/2011	PPL	Solar
W3-168	Germantown 13.2 kV	15	5.7	Active	6/1/2012	ME	Solar
W3-169	North Hanover 12.5 kV	12	4.56	Active	6/1/2012	ME	Solar
W4-012	Whetstone 115 kV	120	15.6	Active	12/31/2014	APS	Wind
W4-013	Frackville - Orwigsburg 69 kV	50	6.5	Active	12/31/2014	PPL	Wind
W4-022	Hunterstown 230 kV	100	38	Active	12/31/2014	ME	Solar
W4-042	Fulton County	20	7.6	Active	9/1/2012	APS	Solar
W4-069	Lycoming	3	3	Active	4/1/2012	PPL	Methane
W4-071	Garrett	2.25	0.29	Active	3/30/2012	PENELEC	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**.

Map 14.57: Interconnection Requests by Renewable Fuel Type in Pennsylvania