

$PM_{2.5}$ SIP

Appendix K

EGU Analysis

{This page left blank for printing purposes}

EGU Analysis

This appendix provides additional information on the electric generating unit (EGU) facilities and emissions used for the modeled SIP projections. Upwind and surrounding fossil fuel-fired power plant facilities are contributors of precursor emissions that can affect $PM_{2.5}$ in the Allegheny County, PA NAA. As mentioned throughout the SIP, emissions included the ERTAC 2.4L2 projections for future case 2021 were overestimations of SO₂ and NO_x.

Supporting information in this appendix includes the following:

- Maps of surrounding fossil fuel-fired EGU locations in upwind and surrounding states.
- HYSPLIT back-trajectories for the top 15 days of measured sulfate in southwestern PA in base case 2011.
- A comparison of ERTAC 2.4L2 emissions to current actual reported CAMD emissions for EGUs in the 4 km (d03) modeling domain.
- A listing of the current EGU deactivations since 2011 and announced future deactivations through 2021 for units in the PJM Interconnection territory.
- A summary of enforceability of EGU shutdowns and modifications in PA and surrounding states.

Surrounding EGUs

Figure K-1 shows the locations of several fossil fuel-fired power plants in Pennsylvania and surrounding states in operation since the base case 2011 for the SIP. Many of the largest coal-fired plants are located in western PA and the upwind Ohio River Valley region.



Figure K-1. Map of EGU locations in PA and Surrounding States

 SO_2 and NO_x precursor emissions can contribute to the formation of ammonium sulfate and ammonium nitrate in southwestern PA. The amount of sulfate and nitrate concentrations and potential source factor contributions can be seen in speciation and source apportionment analyses (see Appendix C of the SIP).

Back-trajectories from the NOAA HYSPLIT model¹ can indicate the potential contributions of upwind and surrounding areas on southwestern PA. Back-trajectories for 24-hour calendar-day periods for Allegheny County were generated for the highest 15 days of measured sulfate in 2011, based on the average of the available Pittsburgh MSA speciation² concentrations. The top 15 sulfate days in 2011 for the MSA are shown in Table K-1 below, ranked high to low by sulfate concentration.

Date	2011 MSA Average Sulfate (µg/m ³)
7/20/2011	11.95
8/19/2011	9.29
6/8/2011	8.62
6/20/2011	8.17
7/2/2011	7.54
7/23/2011	7.36
8/7/2011	7.01
7/8/2011	6.13
1/27/2011	5.44
8/13/2011	5.39
9/12/2011	5.22
4/9/2011	5.20
1/30/2011	4.91
8/1/2011	4.62
5/21/2011	4.51

Table K-1. Top 15 Sulfate Days (in µg/m³), Pittsburgh MSA, 2011

Back-trajectories are shown on the following pages in Figures K-2 through K-16. (Note: Due to airport upper air data stored in Coordinated Universal Time (UTC) time, the back-trajectories are computed for 24-hour periods ending at 5 hours ahead of Eastern Standard Time (EST).)

Sulfate formation depends on several atmospheric conditions (temperature, humidity, presence of ammonia, etc.), but potential transport from surrounding areas can be seen from the back-trajectories. Most days with high sulfate feature winds from the southwest with potential contributions from the Ohio Valley, but transport can occur from any direction and from several states away.

¹ <u>https://ready.arl.noaa.gov/HYSPLIT.php</u>

 $^{^{2}}$ Average sulfate for the MSA was calculated as the average of the Lawrenceville, Florence, and Greensburg sites. Lawrenceville has sampling frequency of 1-in-3 days, while Florence and Greensburg are 1-in-6 day sites. Liberty was not used in the averaging, since there can be excess primary sulfate at this location that is not representative of regional sulfate contributions.



Figure K-2. Back-Trajectory for July 20, 2011



Figure K-3. Back-Trajectory for Aug. 19, 2011



Figure K-4. Back-Trajectory for June 8, 2011



Figure K-5. Back-Trajectory for June 20, 2011



Figure K-6. Back-Trajectory for July 2, 2011



Figure K-7. Back-Trajectory for July 2, 2011



Figure K-8. Back-Trajectory for Aug. 7, 2011



Figure K-9. Back-Trajectory for July 8, 2011



Figure K-10. Back-Trajectory for Jan. 27, 2011



Figure K-11. Back-Trajectory for Aug. 13, 2011



Figure K-12. Back-Trajectory for Sep. 12, 2011



Figure K-13. Back-Trajectory for Apr. 9, 2011



Figure K-14. Back-Trajectory for Jan. 30, 2011



Figure K-15. Back-Trajectory for Aug. 1, 2011



Figure K-16. Back-Trajectory for May 21, 2011

Comparison of ERTAC 2.4L2 to CAMD Emissions

For an examination of the amount of overestimated emissions used for the model demonstration, ERTAC 2.4L2 inventories for 2021 were compared to recent reported emissions to the EPA Clean Air Markets Division (CAMD).³ SO₂ and NO_x emissions are available from CAMD at the unit and hourly levels for EGUs for current and past years; for this analysis, emissions were summarized by facility and by year.

Every EGU in the modeling demonstration was not examined for this analysis. The 4 km modeling domain (shown by the rectangle in Figure K-17) includes much of the area of possible transport from the HYSPLIT plots. The 4 km domain is also similar to the PJM Interconnection territory, for which detailed deactivation information is available (see next section). The 4 km modeling domain was therefore the focus for the comparison of the ERTAC 2.4L2 to CAMD emissions.



Figure K-17. CAMx 4 km Modeling Domain

Table K-2 shows a breakdown of base case (NEI 2011), recent reported (CAMD), and modeled (ERTAC 2.4L2) SO₂ and NO_x emissions for the largest EGU facilities within the 4 km modeling domain. Only facilities with greater than 100 tons of emissions of either SO₂ or NO_x are shown (modeled or reported emissions). The average of 2016-2018 reported annual emissions were used to represent recent reported emissions, with the facility status and remarks also given. (Note: Some facilities were lumped together if they were in the same 4 km model grid cell.) Facilities are shown alphabetically by state then by facility name. Totals for the 4 km domain are shown at the bottom of the table.

³ Clean Air Markets Program Data was downloaded from the following web site: <u>https://ampd.epa.gov/ampd/</u> As of Feb. 15, 2019, year 2018 has been submitted to CAMD but may not be fully validated.

State	Facility Name	SO ₂ NEI 2011	SO ₂ CAMD Avg. 16-'18	SO ₂ ERTAC 2021	NO _x NEI 2011	NO _x CAMD Avg. '16-'18	NO _x ERTAC 2021	Status/ Control Since 2011	Remarks
DE	Indian River	9194	459	1800	2352	167	519	Operating	ERTAC > than current
KY	H L Spurlock	6049	4047	6875	3605	3075	3791	Operating	ERTAC > than current
KY	Riverside Generating	0	2	0	23	171	13	Operating	
MD	AES Warrior Run	1709	987	2226	1220	434	1598	Operating	ERTAC > than current
MD	Brandon Shores	2829	2921	3686	4822	1874	3142	Operating	ERTAC > than current
MD	Brandywine	2	3	1	72	115	37	Operating	
MD	C P Crane	5682	914	7578	2498	629	3330	Operating	ERTAC > current and 2011; deactivated in 2018
MD	Chalk Point	5782	757	7333	4744	1479	4600	Operating	ERTAC > than current
MD	Dickerson	1142	264	1450	1906	598	2445	Operating	ERTAC > than current and 2011
MD	Herbert A Wagner	9113	4141	11510	1671	335	1885	Operating	ERTAC > current and 2011; future deactivation
MD	Morgantown	5190	1960	6610	1256	709	1575	Operating	ERTAC > than current and
MD	Perryman	11	2.9	11	131	131	118	Operating	2011
MD	R. Paul Smith	6/18	0	0	165	0	0	Deactivation	
MD	Vienna	166	57	120	36	11	26	Operating	
MI	Belle River/ DTE	25822	22471	28603	8704	7727	10720	Operating	ERTAC > than current and
MI	Dearborn	23833	22471	28003	8704	1131	10/30	Operating	2011
MI	Industrial	347	838	317	361	484	207	Operating	
MI	Monroe	41	3001	3547	15202	4917	7708	Operating	EPTAC > then current
MI	Dia	49071	3091	3347	15202	4917	1150	operating	ERTAC > than current and
MI	River Rouge	10650	2476	11756	3461	1575	4152	Operating	ERTAC > than current and
MI	St. Clair	34660	16013	38677	8375	5660	10453	Operating	2011 ERTAC > than current and
MI	Trenton Channel	22720	6412	26186	5203	1608	6624	Operating	2011
MI	Wyandotte	765	1	993	324	18	422	Operating	2011
NJ	Carneys Point	1152	919	1451	752	662	552	Operating	
	Generating								ERTAC > current and 2011;
NJ	Station Logan	987	10	1230	769	93	919	Operating	future deactivation
NJ	Generating Plant Mercer	1327	549	713	946	419	432	Operating	
NJ	Generating	572	4	764	428	26	569	Operating	ERTAC > current and 2011; future deactivation
NY	59th Street	0	0	0	435	245	1	Operating	
NY	74th Street	438	33	319	267	158	153	Operating	
NY	Arthur Kill	5	3	12	832	379	1604	Operating	ERTAC > than current and 2011
NY	Astoria/Poletti	113	84	74	1114	695	589	Operating	
	Athens Generating								
NY	Company	9	8	8	112	119	101	Operating	

Table K-2. EGU Emissions in the 4 km Modeling Domain (tons/year), 2011-2021

State	Facility Name	SO ₂ NEI 2011	SO ₂ CAMD Avg. 16-'18	SO ₂ ERTAC 2021	NO _x NEI 2011	NO _x CAMD Avg. '16-'18	NO _x ERTAC 2021	Status/ Control Since 2011	Remarks
NV	Bowline	1	71	0	160	622	26	Operating	
IN I	Brooklyn/	1	/1	0	100	022	20	Operating	
NY	Hudson/North 1st/East River	53	83	43	1031	828	854	Operating	
	Cayuga								
NY	Company	10492	671	0	1827	247	0	Operating	
NY	Dunkirk	5653	0	5734	1703	0	1292	Deactivation	Not deactivated in ERTAC
	Dynergy Roseton/								
NY	Danskammer	4902	400	5578	1396	334	719	Operating	ERTAC > than current
NY	Generation	80	1	0	134	257	0	Operating	
NY	Huntley Power	4316	753	2518	1230	143	548	Operating	ERTAC > than current
	Narrows Generating								
NY	Station	0	0	0	250	149	0	Operating	
NY	S A Carlson	664	1	857	158	93	98	Operating	
NY	Vernon/ Ravenswood	93	105	71	855	1085	1295	Operating	
ОН	Ashtabula	3454	0	4330	1160	0	1457	Deactivation	Not deactivated in ERTAC
ОН	Avon Lake Power Plant	32041	4882	42936	4659	1551	6219	Operating	ERTAC > current
ОН	Bay Shore	10998	2399	3150	6319	482	1011	Deactivation (partial)	3 units deactivated since 2011
ОН	Cardinal	25200	9575	8010	2235	3596	2598	Operating	
011	G ill	0.456	1506	6051	0005	51.54	10702	o vi	ERTAC > current; future
OH		9450	4596	0801	8885	5104	10/93	Operating	deactivation
OH	Darby Electric Dresden Energy	0	2	0	/	148	9	Operating	
OH	Facility Dynegy Hanging	0	8	0	0	147	0	Operating	
OH	Rock II, LLC	13	19	14	181	290	188	Operating	
	Dynegy Washington II,								
OH	LLC	6	10	6	87	162	87	Operating	5
ОН	Eastlake	48837	1	8	8450	2	20	(partial)	deactivation (1 unit) in 2021
ОН	Fremont Energy Center	0	7	8	45	121	107	Operating	
OU	Gen J M Gavin/	17(100	20002	40200	1.6295	12096	22052	FGD	
ОН	Kyger Creek	176190	28893	49290	16285	13086	22052	Controls	ERTAC > than current ERTAC > than current and
ОН	I M Stuart	8441	6002	11/25	7759	3406	7231	Operating	2011 (SO2 only); future
	5 Wi Stuart	0441	0002	11425	1157	5400	7231	operating	ERTAC > than current and
ОН	Killen Station	7721	7200	10749	3614	6577	1998	Operating	2011 (SO2 only); future deactivation
ОН	Lake Shore	1942	0	0	771	0	0	Deactivation	
ОН	Muskingum River	104097	0	0	8802	0	0	Deactivation	
		104077	U	0	0002	U	0	Deactivation	
OH	Niles	4861	0	6217	895	1	1167	(partial)	ERTAC > than current
OH	Picway Rolling Hills	1274	0	0	210	0	0	Deactivation	
OH	Generating LLC	1	2	1	33	132	48	Operating	
OH	W H Sammis	4202	3673	5542	7635	4001	8987	Operating	EKTAC > current and 2011; future deactivation

State	Facility Name	SO ₂ NEI 2011	SO ₂ CAMD Avg. 16-'18	SO ₂ ERTAC 2021	NO _x NEI 2011	NO _x CAMD Avg. '16-'18	NO _x ERTAC 2021	Status/ Control Since 2011	Remarks
ОН	Waterford Plant	5	13	2	110	209	36	Operating	
PA	AES Beaver Valley LLC	3086	0	0	2632	0	0	Deactivation	
PA	Armstrong Power Station	25738	0	0	3109	0	0	Deactivation	
РА	Armstrong Power, LLC	0	3	1	23	156	31	Operating	
РА	Bethlehem Power Plant	13	19	6	127	114	64	Operating	
PA	Bruce Mansfield	21196	10103	27739	11550	4619	8431	Operating	ERTAC > than current; future deactivation
РА	Brunner Island,	17656	3249	23460	16887	3808	22877	Operating	ERTAC > than current and 2011
PA	Cambria Cogen	1942	2492	2427	714	844	900	Operating	2011
РА	Cheswick	9290	2489	2339	3293	2112	1170	FGD Control	
DA	Colver Power	2881	2580	2271	708	781	924	Operating	ERTAC > current and 2011;
	Conomough	7190	1266	0211	17552	7549	12246	Operating	ERTAC > than current and $2011 (SO2 only)$
PA	Conemaugn	/189	4300	9211	17555	/348	15540	D	2011 (SO2 only)
PA	Ebensburg Power	820	0	0	487	0	0	Deactivation	ERTAC > than current and
PA	Company Edductore/	1937	1310	2265	308	225	364	Operating	2011
PA	Liberty/Panda	945	34	49	908	404	123	Operating	
PA	Elrama	428	0	0	561	0	0	Deactivation	
PA	Fairless/Fairless Hills	91	85	28	296	237	97	Operating	
PA	Gilberton Power Company	1314	707	1614	211	338	256	Operating	ERTAC > than current and 2011 (SO2 only)
PA	Handsome Lake Energy	0	1	0	14	173	14	Operating	
DA	Hatfield's Ferry	1021	0	0	26022	0	0	Depativation	
FA	Fower Station	1931	0	0	20033	0	0	Deactivation	ERTAC > than current (SO2
PA	Homer City	83596	10398	13242	9022	6999	4655	DSI Controls	only) ERTAC > than current and
PA	Keystone	46441	23201	59987	20759	8621	5362	Operating	2011 (SO2 only)
PA	Marcus Hook	9	11	4	313	232	102	Operating	
PA	Martins Creek, LLC	275	88	190	904	1925	552	Operating	
PA	Mitchell Power Station	862	0	0	1303	0	0	Deactivation	
PA	Montour, LLC	17764	6004	23577	12714	3881	4151	Operating	ERTAC > than current
PA	Mt. Carmel Cogeneration	403	467	557	313	159	438	Operating	
PA	New Castle	7510	551	9454	1310	401	1648	Operating	ERTAC > than current and 2011
PA	Northampton Generating Plant	556	150	649	450	123	525	Operating	
PA	Northeastern Power Company	821	183	1071	123	77	162	Operating	ERTAC > current and 2011; future deactivation
PA	Ontelaunee Energy Center	6	9	6	74	100	78	Operating	
РА	Panther Creek	583	98	679	568	95	661	Operating	ERTAC > than current and 2011
	Piney Creek		,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,	017	200	,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,	001	D	
PA	Power Plant	1476	0	0	270	0	0	Deactivation	
PA	Portland	15148	0	1	1971	10	4	Deactivation	

State	Facility Name	SO ₂ NEI 2011	SO ₂ CAMD Avg. 16-'18	SO ₂ ERTAC 2021	NO _x NEI 2011	NO _x CAMD Avg. '16-'18	NO _x ERTAC 2021	Status/ Control Since 2011	Remarks
DA	Schuykill/Grays	58	4	4	226	231	87	Operating	
PA	Scrubgrass Generating Plant	1858	1009	2354	702	503	896	Operating	ERTAC > than current and 2011
PA	Seward	7003	7511	9106	1769	1574	2336	Operating	ERTAC > than current and 2011
PA	Shawville	25198	5	0	3530	284	0	Operating	
PA	Springdale	1	9	2	41	161	55	Operating	
PA	St. Nicholas Cogeneration	1880	1083	2183	253	264	291	Operating	ERTAC > than current and 2011
PA	Sunbury	15883	0	12	1636	0	124	Deactivation	
PA	Titus	4086	0	0	681	0	0	Deactivation	
PA	Wheelabrator - Frackville	470	474	544	442	346	512	Operating	ERTAC > than current and 2011
PA	WPS Westwood Generation	268	143	361	220	104	304	Operating	ERTAC > than current and 2011
PA	York Energy Center	33	5	15	31	47	2537	Operating	
VA	Birchwood Power Facility	229	228	279	252	240	306	Operating	ERTAC > than current and 2011
	Bremo Power	<u> </u>			1000	107		Deactivation	
VA	Station	6481	1	2	1880	127	89	(partial)	2 units deactivated in 2018
VA	Doswell Limited	1	30	1	/8	101	86	Operating	
VA	Partnership Gordonsville/Lo	8	14	1	390	743	34	Operating	
VA	uisa	4	6	2	124	152	44	Operating	
VA	Ladysmith	2	8	2	68	133	73	Operating	
VA	Marsh Run/Remington	7	6	8	89	229	120	Operating	
VA	Panda Stonewall	0	1	4	0	61	134	Operating	ERTAC > than current
VA	Possum Point	280	234	301	279	255	192	Operating	
VA	Potomac River	499	0	0	558	0	0	Deactivation	
VA	Spruance Genco, LLC	917	301	938	2768	1257	2832	Operating	ERTAC > than current; future deactivation
VA	Tenaska Virginia	10	12	4	120	158	52	Operating	
VA	Warren County	0	18	7	0	173	238	Operating	
wv	Albright Power Station	6453	0	0	920	0	0	Deactivation	
wv	Big Sandy Peaker Plant	0	0	0	15	102	19	Operating	
wv	Fort Martin Power Station	3953	2980	5340	11134	9292	14987	Operating	ERTAC > than current and 2011
wv	Grant Town Power Plant	2060	1946	2591	1434	1478	1820	Operating	ERTAC > than current and 2011
wv	Harrison Power Station	8166	9622	10822	12992	9462	5426	Operating	
WW	John E. Amos	8610	5222	11117	2020	6107	5102	Operating	ERTAC > than current and 2011 (SO2 only)
WV	Kammer	16712	0	0	3590	0197	0	Deactivation	2011 (302 only)
wv	Kanawha River	10712	0	0	2494	0	0	Deactivation	
wv	Longview Power	2733	2114	2522	1791	1465	1706	Operating	ERTAC > than current
wv	Mitchell (WV)	4518	3111	6272	2285	3074	3163	Operating	ERTAC > than current and 2011 (SO2 only)

State	Facility Name	SO ₂ NEI 2011	SO ₂ CAMD Avg. 16-'18	SO ₂ ERTAC 2021	NO _x NEI 2011	NO _x CAMD Avg. '16-'18	NO _x ERTAC 2021	Status/ Control Since 2011	Remarks
	Mount Storm								ERTAC > than current and
WV	Power Station	3425	2786	3844	3629	2923	3759	Operating	2011
	Phil Sporn/							Deactivation	
WV	Mountaineer	13051	4240	2617	4424	3247	3052	(partial)	5 units deactivated since 2011
	Pleasants								
WV	Energy, LLC	2	2	3	38	105	70	Operating	
	Willow Island/								ERTAC > than current and
WV	Pleasants	14607	10541	18041	6153	6389	4229	Operating	2011 (SO2 only)
									ERTAC higher than current
ALL	TOTALS	1092909	261095	588459	365355	172587	258868		(both SO2 and NOx)

The totals for the 4 km domain show that ERTAC 2.4L2 emissions were overestimations of 125% of current SO_2 levels and 50% of current NO_x levels, with current emissions represented as the average of 2016-2018.

Figures K-18 and K-19 show the yearly totals for the 4 km domain EGUs for SO_2 and NO_x , respectively. Annual reported CAMD tons are shown by year through 2018, with projected ERTAC 2.4L2 emissions shown by the dotted line from 2011 to 2021.



Figure K-18. Projected and Reported SO₂ (tons/year), 4 km Modeling Domain, 2011-2021



Figure K-19. Projected and Reported NO_x (tons/year), 4 km Modeling Domain, 2011-2021

PJM Deactivations for 2011-2021

Below in Table K-3 is a detailed listing of deactivations by unit⁴ in the PJM Interconnection territory (shown in Figure K-20 by transmission zone) since the beginning of 2011 through the end of 2021. Most deactivations from 2011-2015 have been accounted for in the ERTAC 2.4 L2 inventory, used for the modeling demonstration, while deactivations since 2016 have not been included (as discussed in the Weight of Evidence section of the SIP). Units are shown by date of actual or projected deactivation, from oldest to newest.



Figure K-20. PJM Interconnection Territory

⁴ Deactivations from the PJM web site as of Feb. 15, 2019.

Unit Name	Capacity (MW)	Fuel Type	Status	State	Age	Transmission Owner Zone	Actual/Projected Deactivation Date
Chesapeake 10	16.9	Oil	Deactivated Generator	Virginia	42	Dominion	3/15/2011
Chesapeake 8	17.5	Oil	Deactivated Generator	Virginia	42	Dominion	3/15/2011
Chesapeake 9	16.9	Oil	Deactivated Generator	Virginia	42	Dominion	3/15/2011
Kitty Hawk GT1	18.0	Diesel	Deactivated Generator	North Carolina	40	Dominion	3/15/2011
Kitty Hawk GT2	16.0	Diesel	Deactivated Generator	North Carolina	40	Dominion	3/15/2011
Chesapeake 7 GT	16.0	Oil	Deactivated Generator	Virginia	41	Dominion	4/8/2011
Indian River 1	90.0	Coal	Deactivated Generator	Delaware	50	DPL	5/1/2011
Cromby 1	144.0	Coal	Deactivated Generator	Pennsylvania	55	PECO	5/31/2011
Cromby Diesel	2.7	Diesel	Deactivated Generator	Pennsylvania	43	PECO	5/31/2011
Eddystone 1	279.0	Coal	Deactivated Generator	Pennsylvania	49	PECO	5/31/2011
Brunot Island 1B	15.0	Diesel	Deactivated Generator	Pennsylvania	39	DL	7/19/2011
Brunot Island 1C	15.0	Diesel	Deactivated Generator	Pennsylvania	39	DL	7/19/2011
Burger 3	94.0	Coal	Deactivated Generator	Ohio	61	ATSI	9/1/2011
Hudson 1	383.0	Natural Gas	Deactivated Generator	New Jersey	40	PSEG	12/7/2011
Cromby 2	201.0	Oil	Deactivated Generator	Pennsylvania	54	PECO	12/31/2011
Sporn Unit 5	440.0	Coal	Deactivated Generator	West Virginia	50	AEP	2/13/2012
State Line 3	197.0	Coal	Deactivated Generator	Indiana	56	ComEd	3/25/2012
State Line 4	318.0	Coal	Deactivated Generator	Indiana	49	ComEd	3/25/2012
Walter C Beckjord 1	94.0	Coal	Deactivated Generator	Ohio	60	DEOK	5/1/2012
Buzzard Point East Banks 1, 2, 4-8	112.0	Diesel	Deactivated Generator	District Of Columbia	39	PEPCO	5/31/2012
Buzzard Point West Banks 1-8	128.0	Diesel	Deactivated Generator	District Of Columbia	39	PEPCO	5/31/2012
Eddystone 2	309.0	Coal	Deactivated Generator	Pennsylvania	49	PECO	5/31/2012
Elrama 1	93.0	Coal	Deactivated Generator	Pennsylvania	60	DL	6/1/2012
Elrama 2	93.0	Coal	Deactivated Generator	Pennsylvania	59	DL	6/1/2012
Elrama 3	103.0	Coal	Deactivated Generator	Pennsylvania	58	DL	6/1/2012
Kearny 10	122.0	Natural Gas	Deactivated Generator	New Jersey	39	PSEG	6/1/2012
Kearny 11	128.0	Natural Gas	Deactivated Generator	New Jersey	40	PSEG	6/1/2012
Niles 2	108.0	Coal	Deactivated Generator	Ohio	58	ATSI	6/1/2012
Benning 15	275.0	Diesel	Deactivated Generator	District Of Columbia	39	PEPCO	7/17/2012
Benning 16	275.0	Diesel	Deactivated Generator	District Of Columbia	35	PEPCO	7/17/2012
Crawford 8	319.0	Coal	Deactivated Generator	Illinois	51	ComEd	8/24/2012

Table K-3. PJM Deactivations, 2011-2021

Unit Name	Capacity (MW)	Fuel Type	Status	State	Age	Transmission Owner Zone	Actual/Projected Deactivation Date
0 6 17	212.0	G 1	Deactivated	T11'	5.4	C El	9/29/2012
Crawford /	213.0	Coal	Deactivated	Illinois	54	ComEd	8/28/2012
Fisk Street 19	326.0	Coal	Generator	Illinois	53	ComEd	8/30/2012
Albright 1	73.0	Coal	Deactivated	West Virginia	60	ADS	9/1/2012
Alongin	75.0	Coar	Deactivated	west virginia	00	AIS	9/1/2012
Albright 2	73.0	Coal	Generator	West Virginia	60	APS	9/1/2012
Albright 3	137.0	Coal	Deactivated Generator	West Virginia	58	APS	9/1/2012
	157.0	Cour	Deactivated	West Virginiu	50	TH D	<i>9/1/2012</i>
Armstrong 1	172.0	Coal	Generator	Pennsylvania	54	AP	9/1/2012
Armstrong 2	171.0	Coal	Generator	Pennsvlvania	53	AP	9/1/2012
			Deactivated	2			
Bay Shore 2	138.0	Coal	Generator	Ohio	53	ATSI	9/1/2012
Bay Shore 3	142.0	Coal	Generator	Ohio	49	ATSI	9/1/2012
D (1) 4	215.0	G 1	Deactivated			ATTOL	0/1/2012
Bay Shore 4	215.0	Coal	Deactivated	Ohio	44	AISI	9/1/2012
Eastlake 4	240.0	Coal	Generator	Ohio	56	ATSI	9/1/2012
Footlelro 5	507.0	Coal	Deactivated	Ohio	40	A TO I	0/1/2012
Howard M. Down	397.0	Coal	Deactivated	Unio	40	AISI	9/1/2012
(Vineland) Unit 10	23.0	Coal	Generator	New Jersey	41	AEC	9/1/2012
R Paul Smith 3	28.0	Coal	Deactivated	Maryland	65	ΔP	9/1/2012
it i dui Siinti 5	20.0	Cour	Deactivated	Wildi yiland	05	711	9/1/2012
R Paul Smith 4	87.0	Coal	Generator	Maryland	54	AP	9/1/2012
Rivesville 5	35.0	Coal	Generator	West Virginia	69	APS	9/1/2012
			Deactivated				,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,
Rivesville 6	86.0	Coal	Generator	West Virginia	61	APS	9/1/2012
Willow Island 1	51.0	Coal	Generator	West Virginia	63	APS	9/1/2012
	120.0	G 1	Deactivated	*** . ***		1.00	0/1/2012
willow Island 2	138.0	Coal	Deactivated	west virginia	52	APS	9/1/2012
Elrama 4	171.0	Coal	Generator	Pennsylvania	52	DL	10/1/2012
Niles 1	109.0	Coal	Deactivated	Ohio	58	ATSI	10/1/2012
	107.0	Coar	Deactivated	Onio	50	AISI	10/1/2012
Potomac River 1-5	482.0	Coal	Generator	Virginia	62	PEPCO	10/1/2012
SMART Paper	25.0	Coal	Generator	Ohio	3	DEOK	10/8/2012
			Deactivated				
Conesville 3	165.0	Coal	Generator	Ohio	50	AEP	12/31/2012
Schuylkill 1	166.0	Oil	Generator	Pennsylvania	54	PECO	1/1/2013
	2.0	D' 1	Deactivated		45	DEGO	1/1/2012
Schuylkill Diesel	3.0	Diesel	Deactivated	Pennsylvania	45	PECO	1/1/2013
Warren County Landfill	1.9	Methane	Generator	New Jersey	7	JCPL	1/9/2013
Dinov Crook NLIC	21.0	Coal	Deactivated	Donneylyania	20	DENELEC	4/12/2012
Ingenco Petersburg	51.0	Cuai	Deactivated	i cinisyivailla	20	TENELEC	4/12/2013
Plant	2.9	Diesel	Generator	Virginia	21	Dominion	5/31/2013
Hutchings 4	62.0	Coal	Deactivated Generator	Ohio	61	Davton	6/1/2013
	52.0	Cour	Deactivated		01	Sugion	5/1/2013
Titus 1	81.0	Coal	Generator	Pennsylvania	61	ME	9/1/2013
Titus 2	81.0	Coal	Generator	Pennsylvania	61	ME	9/1/2013
		~ .	Deactivated				
Titus 3	81.0	Coal	Generator	Pennsylvania	59	ME	9/1/2013

Unit Name	Capacity (MW)	Fuel Type	Status	State	Age	Transmission Owner Zone	Actual/Projected Deactivation Date
Walter C Beckjord 2	94.0	Coal	Deactivated Generator	Ohio	59	DEOK	10/1/2013
Walter C Beckjord 3	128.0	Coal	Deactivated Generator	Ohio	58	DEOK	10/1/2013
Hatfield's Ferry 1	530.0	Coal	Deactivated Generator	Pennsylvania	44	AP	10/9/2013
Hatfield's Ferry 2	530.0	Coal	Deactivated Generator	Pennsylvania	43	AP	10/9/2013
Hatfield's Ferry 3	530.0	Coal	Deactivated Generator	Pennsylvania	42	AP	10/9/2013
Mitchell 2	82.0	Diesel	Deactivated Generator	Pennsylvania	64	AP	10/9/2013
Mitchell 3	277.0	Coal	Deactivated Generator	Pennsylvania	50	AP	10/9/2013
Indian River Unit 3	169.7	Coal	Deactivated Generator	Delaware	40	DPL	12/31/2013
Mad River CTs A & B	0.0	Diesel	Deactivated Generator	Ohio	41	ATSI	1/9/2014
Modern Power Landfill NUG	0.0	Methane	Deactivated Generator	Pennsylvania	16	ME	2/3/2014
Walter C Beckjord 4	150.0	Coal	Generator	Ohio	54	DEOK	2/17/2014
BL England 1	129.0	Coal	Generator	New Jersey	51	AEC	5/1/2014
Deepwater 1	78.0	Natural Gas	Generator	New Jersey	54	AEC	5/31/2014
Deepwater 6	80.0	Coal	Generator	New Jersey	58	AEC	5/31/2014
Burlington 9 GT	184.0	Oil	Generator	New Jersey	40	PSEG	6/1/2014
Portland 1	158.0	Coal	Generator	Pennsylvania	54	ME	6/1/2014
Portland 2	243.0	Coal	Generator	Pennsylvania	50	ME	6/1/2014
Riverside 6	118.0	Oil	Generator	Maryland	42	BGE	6/1/2014
Sunbury 1	80.0	Coal	Generator	Pennsylvania	64	PPL	7/18/2014
Sunbury 2	80.0	Coal	Generator	Pennsylvania	64	PPL	7/18/2014
Sunbury 3	94.0	Coal	Generator	Pennsylvania	62	PPL	7/18/2014
Sunbury 4	128.0	Coal	Generator	Pennsylvania	60	PPL	7/18/2014
Kearny 9	21.0	Natural Gas	Generator	New Jersey	44	PSEG	8/4/2014
Walter C Beckjord 5	238.0	Coal	Generator	Ohio	50	DEOK	10/1/2014
Walter C Beckjord 6	414.0	Coal	Generator	Ohio	43	DEOK	10/1/2014
Winnebago Landfill	6.4	Methane	Generator	Illinois	7	ComEd	11/1/2014
Chesapeake 1	111.0	Coal	Generator	Virginia	58	Dominion	12/23/2014
Chesapeake 2	111.0	Coal	Generator	Virginia	57	Dominion	12/23/2014
Chesapeake 3	147.0	Coal	Deactivated Generator	Virginia	52	Dominion	12/23/2014
Chesapeake 4	207.0	Coal	Generator	Virginia	49	Dominion	12/23/2014
Kinsley Landfill	1.4	Methane	Generator	New Jersey	26	PSEG	12/31/2014
Walter C Beckjord GT1	47.0	Diesel	Deactivated Generator	Ohio	42	DEOK	12/31/2014
Walter C Beckjord GT2	47.0	Diesel	Generator	Ohio	42	DEOK	12/31/2014

Unit Name	Capacity (MW)	Fuel Type	Status	State	Age	Transmission Owner Zone	Actual/Projected Deactivation Date
Walten C Dealstand CT2	47.0	Direct	Deactivated	Ohie	40	DEOK	12/21/2014
walter C Beckjord G13	47.0	Diesei	Deactivated	Onio	42	DEOK	12/31/2014
Walter C Beckjord GT4	47.0	Diesel	Generator	Ohio	42	DEOK	12/31/2014
Cedar 1	44.0	Oil	Deactivated Generator	New Jersey	40	AEC	1/28/2015
			Deactivated				
Eastlake 2	132.0	Coal	Generator	Ohio	59	ATSI	4/6/2015
Eastlake 1	132.0	Coal	Generator	Ohio	59	ATSI	4/9/2015
F (11 2	122.0	0.1	Deactivated	01.	50		4/10/2015
Eastiake 5	132.0	Coal	Deactivated	Unio	58	AISI	4/10/2015
Ashtabula 5	244.0	Coal	Generator	Ohio	54	ATSI	4/11/2015
Lake Shore 18	245.0	Coal	Deactivated Generator	Ohio	50	ATSI	4/13/2015
			Deactivated				
Lake Shore EMD	0.0	Diesel	Generator	Ohio	49	ATSI	4/15/2015
Will County 3	251.0	Coal	Generator	Illinois	57	ComEd	4/15/2015
Dale 1	23.0	Coal	Deactivated	Kentucky	60	FKDC	4/16/2015
	23.0	Coar	Deactivated	Kentucky	00	EKIC	4/10/2015
Dale 2	23.0	Coal	Generator	Kentucky	60	EKPC	4/16/2015
Cedar 2	22.0	Oil	Generator	New Jersey	40	AEC	5/1/2015
		N . 16	Deactivated		10	1 CD1	5/4/2015
Gilbert CT CI	23.0	Natural Gas	Deactivated	New Jersey	43	JCPL	5/1/2015
Gilbert CT C2	25.0	Natural Gas	Generator	New Jersey	43	JCPL	5/1/2015
Gilbert CT_C3	25.0	Natural Gas	Deactivated Generator	New Jersey	43	ICPI	5/1/2015
	23.0	Haturai Gas	Deactivated	itew sensey	-15	JCIL	5/1/2015
Gilbert CT C4	25.0	Natural Gas	Generator	New Jersey	43	JCPL	5/1/2015
Glen Gardner CT 1	20.0	Natural Gas	Generator	New Jersey	41	JCPL	5/1/2015
Class Candrass CT 2	20.0	Natural Car	Deactivated	Norra Ionara	41	ICDI	5/1/2015
Gien Gardner CT 2	20.0	Natural Gas	Deactivated	INEW JEISEY	41	JCPL	5/1/2015
Glen Gardner CT 3	20.0	Natural Gas	Generator	New Jersey	41	JCPL	5/1/2015
Glen Gardner CT 4	20.0	Natural Gas	Generator	New Jersev	41	JCPL	5/1/2015
			Deactivated				- // /= 0.1 -
Glen Gardner CT 5	20.0	Natural Gas	Generator Deactivated	New Jersey	41	JCPL	5/1/2015
Glen Gardner CT 6	20.0	Natural Gas	Generator	New Jersey	41	JCPL	5/1/2015
Glen Gardner CT 7	20.0	Natural Gas	Deactivated Generator	New Jersey	41	ICPI	5/1/2015
	20.0	Haturai Gas	Deactivated	itew sensey	71	JCIL	5/1/2015
Glen Gardner CT 8	20.0	Natural Gas	Generator	New Jersey	41	JCPL	5/1/2015
Middle Energy Center 1	19.0	Oil	Generator	New Jersey	43	AEC	5/1/2015
Middle Engrand Conton 2	20.0	01	Deactivated	Norra Ionara	42	AEC	5/1/2015
Middle Energy Center 2	20.0	Ull	Deactivated	New Jersey	43	AEC	5/1/2015
Middle Energy Center 3	36.0	Oil	Generator	New Jersey	42	AEC	5/1/2015
Missouri Ave CT B	20.0	Oil	Deactivated Generator	New Jersev	43	AEC	5/1/2015
		0.11	Deactivated				F 14 1004 -
Missouri Ave CT C	20.0	Oil	Generator Deactivated	New Jersey	43	AEC	5/1/2015
Missouri Ave CT D	20.0	Oil	Generator	New Jersey	43	AEC	5/1/2015
Werner CT_C1	53.0	Diesel	Deactivated Generator	New Jersey	41	ICPI	5/1/2015
	55.0	210001	Deactivated	The wide servery		JUL	5,1,2015
Werner CT C2	53.0	Diesel	Generator	New Jersey	41	JCPL	5/1/2015

Unit Name	Capacity (MW)	Fuel Type	Status	State	Age	Transmission Owner Zone	Actual/Projected Deactivation Date
Werner CT C3	53.0	Diesel	Deactivated Generator	New Jersey	41	JCPL	5/1/2015
Werner CT C4	53.0	Diesel	Generator	New Jersey	41	JCPL	5/1/2015
Bergen 3	21.0	Natural Gas	Generator	New Jersey	44	PSEG	6/1/2015
Big Sandy 2	800.0	Coal	Generator	Kentucky	45	AEP	6/1/2015
Burlington 11 #111	46.0	Oil	Generator	New Jersey	41	PSEG	6/1/2015
Burlington 11 #112	46.0	Oil	Generator	New Jersey	41	PSEG	6/1/2015
Burlington 11 #113	46.0	Oil	Generator	New Jersey	41	PSEG	6/1/2015
Burlington 11 #114	46.0	Oil	Generator	New Jersey	41	PSEG	6/1/2015
Burlington 8	21.0	Oil	Generator	New Jersey	44	PSEG	6/1/2015
Clinch River 3	230.0	Coal	Generator	Virginia	51	AEP	6/1/2015
Edison 1 #14	42.0	Natural Gas	Generator	New Jersey	42	PSEG	6/1/2015
Edison 1 #11	42.0	Natural Gas	Generator	New Jersey	42	PSEG	6/1/2015
Edison 1 #12	42.0	Natural Gas	Generator	New Jersey	42	PSEG	6/1/2015
Edison 1 #13	42.0	Natural Gas	Generator	New Jersey	42	PSEG	6/1/2015
Edison 2 #24	42.0	Natural Gas	Generator	New Jersey	42	PSEG	6/1/2015
Edison 2 #21	42.0	Natural Gas	Generator	New Jersey	42	PSEG	6/1/2015
Edison 2 #22	42.0	Natural Gas	Deactivated Generator	New Jersey	42	PSEG	6/1/2015
Edison 2 #23	42.0	Natural Gas	Generator	New Jersey	42	PSEG	6/1/2015
Edison 3 #31	42.0	Natural Gas	Deactivated Generator	New Jersey	42	PSEG	6/1/2015
Edison 3 #32	42.0	Natural Gas	Deactivated Generator	New Jersey	42	PSEG	6/1/2015
Edison 3 #33	42.0	Natural Gas	Deactivated Generator	New Jersey	42	PSEG	6/1/2015
Edison 3 #34	42.0	Natural Gas	Deactivated Generator	New Jersey	42	PSEG	6/1/2015
Essex 10 #104	42.0	Natural Gas	Deactivated Generator	New Jersey	42	PSEG	6/1/2015
Essex 10 #101	42.0	Natural Gas	Deactivated Generator	New Jersey	42	PSEG	6/1/2015
Essex 10 #102	42.0	Natural Gas	Deactivated Generator	New Jersey	42	PSEG	6/1/2015
Essex 10 #103	42.0	Natural Gas	Deactivated Generator	New Jersey	42	PSEG	6/1/2015
Essex 11 #113	46.0	Natural Gas	Deactivated Generator	New Jersey	42	PSEG	6/1/2015
Essex 11 #114	46.0	Natural Gas	Deactivated Generator	New Jersey	42	PSEG	6/1/2015
Essex 11 #111	46.0	Natural Gas	Deactivated Generator	New Jersey	42	PSEG	6/1/2015
Essex 11 #112	46.0	Natural Gas	Deactivated Generator	New Jersey	42	PSEG	6/1/2015
Essex 12 #121	46.0	Natural Gas	Deactivated Generator	New Jersey	41	PSEG	6/1/2015
Essex 12 #122	46.0	Natural Gas	Deactivated Generator	New Jersey	41	PSEG	6/1/2015
Essex 12 #123	46.0	Natural Gas	Deactivated Generator	New Jersey	41	PSEG	6/1/2015

Unit Name	Capacity (MW)	Fuel Type	Status	State	Age	Transmission Owner Zone	Actual/Projected Deactivation Date
Essex 12 #124	46.0	Natural Gas	Deactivated Generator	New Jersey	41	PSEG	6/1/2015
Glen Lyn 5	90.0	Coal	Deactivated Generator	Virginia	68	AEP	6/1/2015
Glen Lyn 6	235.0	Coal	Deactivated Generator	Virginia	55	AEP	6/1/2015
Hutchings 1	53.0	Coal	Deactivated Generator	Ohio	64	Dayton	6/1/2015
Hutchings 2	50.0	Coal	Deactivated Generator	Ohio	63	Davton	6/1/2015
Hutchings 3	59.0	Coal	Deactivated	Ohio	63	Davton	6/1/2015
Hutchings 5	58.0	Coal	Deactivated	Ohio	61	Dayton	6/1/2015
Hutchings 6	57.0	Coal	Deactivated	Ohio	60	Dayton	6/1/2015
Hutchings 6	200.0	Coal	Deactivated		54	Dayton	6/1/2015
Kammer I	200.0	Coal	Deactivated	West Virginia	54	AEP	6/1/2015
Kammer 2	200.0	Coal	Generator Deactivated	West Virginia	54	AEP	6/1/2015
Kammer 3	200.0	Coal	Generator Deactivated	West Virginia	53	AEP	6/1/2015
Kanawha River 1	200.0	Coal	Generator	West Virginia	59	AEP	6/1/2015
Kanawha River 2	200.0	Coal	Generator	West Virginia	59	AEP	6/1/2015
Mercer 3	115.0	Oil	Generator	New Jersey	44	PSEG	6/1/2015
Miami Fort U6	163.0	Coal	Deactivated Generator	Ohio	54	DEOK	6/1/2015
Muskingum River 1	190.0	Coal	Deactivated Generator	Ohio	59	AEP	6/1/2015
Muskingum River 2	190.0	Coal	Deactivated Generator	Ohio	58	AEP	6/1/2015
Muskingum River 3	205.0	Coal	Deactivated Generator	Ohio	55	AEP	6/1/2015
Muskingum River 4	205.0	Coal	Deactivated	Ohio	54	AFP	6/1/2015
Muskingum River 5	600.0	Coal	Deactivated	Ohio	45	ΔED	6/1/2015
	000.0	Coar	Deactivated		40	ALI	0/1/2015
National Park 1	21.0	Oil	Deactivated	New Jersey	42	PSEG	6/1/2015
Picway 5	95.0	Coal	Generator Deactivated	Ohio	57	AEP	6/1/2015
Sewaren 6	111.0	Oil	Generator Deactivated	New Jersey	46	PSEG	6/1/2015
Sporn 1	145.0	Coal	Generator Deactivated	West Virginia	62	AEP	6/1/2015
Sporn 2	145.0	Coal	Generator	West Virginia	62	AEP	6/1/2015
Sporn 3	145.0	Coal	Generator	West Virginia	61	AEP	6/1/2015
Sporn 4	145.0	Coal	Generator	West Virginia	60	AEP	6/1/2015
Tanner Creek 1	145.0	Coal	Deactivated Generator	Indiana	61	AEP	6/1/2015
Tanner Creek 2	145.0	Coal	Deactivated Generator	Indiana	60	AEP	6/1/2015
Tanner Creek 3	198.0	Coal	Deactivated Generator	Indiana	58	AEP	6/1/2015
Tanners Creek 4	500.0	Coal	Deactivated Generator	Indiana	49	AEP	6/1/2015
Lake Kingman	115.0	Coal	Deactivated Generator	Virginia	27	Dominion	6/19/2015
AES Beaver Valley	125.0	Coal	Deactivated Generator	Pennsylvania	26	DL	9/1/2015

Unit Name	Capacity (MW)	Fuel Type	Status	State	Age	Transmission Owner Zone	Actual/Projected Deactivation Date
Burger EMD	7.0	Diesel	Deactivated Generator	Ohio	42	ATSI	9/18/2015
Pottstown LF (aka			Deactivated				,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,
Moser LF or Stowe)	2.0	Methane	Generator	Pennsylvania	26	PECO	12/7/2015
Landfill	0.0	Methane	Generator	Virginia	11	Dominion	1/31/2016
Perryman 2	51.0	Diesel	Deactivated Generator	Maryland	43	BGE	2/1/2016
		~ .	Deactivated				
Avon Lake 7	94.6	Coal	Generator Deactivated	Ohio	66	ATSI	4/16/2016
Dale 3	74.0	Coal	Generator	Kentucky	57	EKPC	4/16/2016
Dale 4	73.0	Coal	Deactivated Generator	Kentucky	54	EKPC	4/16/2016
	8.0	Direct	Deactivated	Norre Longon	50	AEC	5/21/2016
BL Eligiand Diesei(s)	8.0	Diesei	Deactivated	New Jersey	32	AEC	3/31/2010
Riverside 4	76.0	Natural Gas	Generator	Maryland	54	BGE	6/1/2016
2 Warren County Landfill	1.5	Methane	Generator	New Jersey	11	JCPL	6/1/2016
Hamishan 4 CT	14.0	01	Deactivated	Demonstration	40	זמת	11/17/2017
Rolling Hills Landfill	14.0	UII	Deactivated	Pennsylvania	49	PPL	11/17/2010
Generator	0.0	Methane	Generator	Pennsylvania	11	ME	12/7/2016
Landfill	0.0	Methane	Generator	Maryland	8	DPL	12/23/2016
Roonoko Vollov 1	165.0	Cost	Deactivated	North Carolina	22	Dominion	2/1/2017
Koanoke vaney i	105.0	Coar	Deactivated	North Carolina	22	Dominion	3/1/2017
Roanoke Valley 2	44.0	Coal	Generator	North Carolina	21	Dominion	3/1/2017
McKee 1	17.0	Oil	Generator	Delaware	52	DPL	5/31/2017
McKee 2	17.0	Oil	Deactivated Generator	Delaware	52	IPPI	5/31/2017
	17.0	011	Deactivated	Dolumite	52		5/51/2017
Hudson 2	617.9	Coal	Generator	New Jersey	48	PSEG	6/1/2017
Mercer 1	321.0	Coal	Generator	New Jersey	56	PSEG	6/1/2017
Mercer 2	320.3	Coal	Deactivated Generator	New Jersev	55	PSEG	6/1/2017
			Deactivated				
GUDE Landfill Stuart 1 (joint owned	0.8	Methane	Generator Deactivated	Maryland	11	PEPCO	8/24/2017
unit)	580.6	Coal	Generator	Ohio	46	Dayton	9/30/2017
Dixon Lee Landfill Generator	3.7	Methane	Deactivated Generator	Illinois	18	ComEd	1/10/2018
DI England 2	149.0	0:1	Deactivated	Norra Ionana	42	ACE	1/24/2019
BL England 5	148.9	Ull	Deactivated	New Jersey	42	ACE	1/24/2018
Brunner Island Diesels	8.1	Oil	Generator	Pennsylvania	50	PPL	2/25/2018
(Mecklenberg)	69.0	Coal	Generator	Virginia	26	Dominion	4/9/2018
Buggs Island 2 (Maaklanharg)	60.0	Cost	Deactivated	Virginio	26	Dominion	4/0/2018
(Meckienberg)	09.0	Coar	Deactivated	virginia	20	Dominion	4/9/2018
Bellemeade	265.7	Natural Gas	Generator	Virginia	21	Dominion	4/16/2018
Bremo 3	71.0	Natural Gas	Generator	Virginia	68	Dominion	4/16/2018
Bremo 4	156.0	Natural Gas	Deactivated Generator	Virginia	60	Dominion	4/16/2018
Morris Landfill	100.0		Deactivated				
Generator Reichs Ford Road	1.9	Methane	Generator Deactivated	Illinois	17	ComEd	5/31/2018
Landfill Generator	1.7	Methane	Generator	Maryland	9	APS	5/31/2018
Bayonne Cogen Plant (CC)	163.0	Natural Gas	Deactivated Generator	New Jersey	12	PSEG	6/1/2018

Unit Name	Capacity (MW)	Fuel Type	Status	State	Age	Transmission Owner Zone	Actual/Projected Deactivation Date
Crane 1	190.0	Coal	Deactivated Generator	Maryland	55	BGE	6/1/2018
Crane 2	195.0	Coal	Deactivated Generator	Maryland	53	BGE	6/1/2018
Crane GT1	14.0	Oil	Deactivated Generator	Maryland	49	BGE	6/1/2018
Killen 2	600.0	Coal	Deactivated Generator	Ohio	35	Dayton	6/1/2018
Killen GT1	18.0	Oil	Deactivated Generator	Ohio	35	Dayton	6/1/2018
Stuart 2 (joint owned unit)	580.0	Coal	Generator	Ohio	47	Dayton	6/1/2018
Stuart 3 (joint owned unit)	580.4	Coal	Deactivated Generator	Ohio	45	Dayton	6/1/2018
Stuart 4 (joint owned unit)	577.0	Coal	Deactivated Generator	Ohio	43	Dayton	6/1/2018
Stuart Diesels 1-4	9.2	Oil	Deactivated Generator	Ohio	48	Dayton	6/1/2018
Sewaren 1	102.8	Natural Gas	Deactivated Generator	New Jersey	67	PSEG	6/6/2018
Sewaren 2	118.0	Natural Gas	Generator	New Jersey	67	PSEG	6/6/2018
Sewaren 3	106.2	Natural Gas	Generator	New Jersey	66	PSEG	6/6/2018
Sewaren 4	123.6	Natural Gas	Deactivated Generator	New Jersey	64	PSEG	6/6/2018
Spruance NUG 2	86.0	Coal	Deactivated Generator	Virginia	25	Dominion	7/5/2018
Zanesville Landfill	0.0	Methane	Generator	Ohio	8	AEP	9/8/2018
Northeastern Power NEPCO	51.0	Coal	Deactivated Generator	Pennsylvania	29	PPL	10/24/2018
Chesterfield 3	100.0	Coal	Deactivated Generator	Virginia	66	Dominion	12/13/2018
Chesterfield 4	162.1	Coal	Deactivated Generator	Virginia	58	Dominion	12/13/2018
Possum Point 3	96.7	Natural Gas	Deactivated Generator	Virginia	63	Dominion	12/13/2018
Possum Point 4	221.0	Natural Gas	Deactivated Generator	Virginia	56	Dominion	12/13/2018
Mansfield 1	830.0	Coal	Deactivated Generator	Pennsylvania	42	ATSI	2/5/2019
Mansfield 2	830.0	Coal	Deactivated Generator	Pennsylvania	41	ATSI	2/5/2019
Montour ATG	11.4	Oil	Future Deactivation	Pennsylvania	45	PPL	2/18/2019
Yorktown 1	159.0	Coal	Future Deactivation	Virginia	54	Dominion	3/8/2019
Yorktown 2	165.0	Coal	Future Deactivation	Virginia	53	Dominion	3/8/2019
Riverside 7	20.0	Oil	Future Deactivation	Maryland	48	BGE	3/14/2019
Cogeneration	92.0	Coal	Future Deactivation	Virginia	28	Dominion	3/31/2019
Bellefontaine Landfill Generating Station	5.0	Methane	Future Deactivation	Ohio	10	Dayton	4/7/2019
BL England 2	155.0	Coal	Future Deactivation	New Jersey	52	ACE	4/30/2019
Monmouth NUG landfill	6.7	Methane	Future Deactivation	New Jersey	20	JCPL	5/31/2019
Conesville 5	405.0	Coal	Deactivation	Ohio	42	AEP	6/1/2019
Conesville 6	405.0	Coal	Future Deactivation	Ohio	40	AEP	6/1/2019
Elmer Smith Unit 1	52.0	Coal	Future Deactivation	Kentucky	51	External	6/1/2019

Unit Name	Capacity (MW)	Fuel Type	Status	State	Age	Transmission Owner Zone	Actual/Projected Deactivation Date
Marcus Hook Refinery Co-gen	49.6	Natural Gas	Future Deactivation	Pennsylvania	28	PECO	6/1/2019
Kimberly Clark Generator	9.4	Coal	Future Deactivation	Pennsylvania	32	PECO	9/24/2019
Spruance NUG 1	116.0	Coal	Future Deactivation	Virginia	25	Dominion	1/12/2020
W H Sammis 2	160.0	Coal	Future Deactivation	Ohio	56	ATSI	5/31/2020
W H Sammis 3	176.0	Coal	Future Deactivation	Ohio	55	ATSI	5/31/2020
W H Sammis 4	172.6	Coal	Future Deactivation	Ohio	54	ATSI	5/31/2020
W M Sammis 1	160.0	Coal	Future Deactivation	Ohio	57	ATSI	5/31/2020
Bethlehem Renewable Energy	3.7	Methane	Future Deactivation	Pennsylvania	10	PPL	6/1/2020
Conesville 4	780.0	Coal	Future Deactivation	Ohio	46	AEP	6/1/2020
Eastern Landfill Gas Generator	4.0	Methane	Future Deactivation	Maryland	12	BGE	6/1/2020
Elmer Smith Unit 2	48.0	Coal	Future Deactivation	Kentucky	44	External	6/1/2020
Fairless Hills Landfill A	30.0	Methane	Future Deactivation	Pennsylvania	22	PECO	6/1/2020
Fairless Hills Landfill B	30.0	Methane	Future Deactivation	Pennsylvania	22	PECO	6/1/2020
Gould Street Generation Station	98.0	Natural Gas	Future Deactivation	Maryland	66	BGE	6/1/2020
Notch Cliff GT1	16.0	Natural Gas	Future Deactivation	Maryland	49	BGE	6/1/2020
Notch Cliff GT2	16.0	Natural Gas	Future Deactivation	Maryland	49	BGE	6/1/2020
Notch Cliff GT3	16.0	Natural Gas	Future Deactivation	Maryland	49	BGE	6/1/2020
Notch Cliff GT4	16.0	Natural Gas	Deactivation	Maryland	49	BGE	6/1/2020
Notch Cliff GT5	16.0	Natural Gas	Future Deactivation	Maryland	49	BGE	6/1/2020
Notch Cliff GT6	16.0	Natural Gas	Future Deactivation	Maryland	49	BGE	6/1/2020
Notch Cliff GT7	16.0	Natural Gas	Future Deactivation	Maryland	49	BGE	6/1/2020
Notch Cliff GT8	16.0	Natural Gas	Future Deactivation	Maryland	49	BGE	6/1/2020
Pennsbury Generator Landfill 1	3.0	Methane	Future Deactivation	Pennsylvania	22	PECO	6/1/2020
Pennsbury Generator Landfill 2	3.0	Methane	Future Deactivation	Pennsylvania	22	PECO	6/1/2020
Riverside 8	20.0	Oil	Future Deactivation	Maryland	48	BGE	6/1/2020
Southeast Chicago CT11	38.0	Natural Gas	Future Deactivation	Illinois	16	ComEd	6/1/2020
Southeast Chicago CT12	38.0	Natural Gas	Future Deactivation	Illinois	16	ComEd	6/1/2020
Southeast Chicago CT5	38.0	Natural Gas	Deactivation	Illinois	16	ComEd	6/1/2020
Southeast Chicago CT6	38.0	Natural Gas	Future Deactivation	Illinois	16	ComEd	6/1/2020
Southeast Chicago CT7	38.0	Natural Gas	Future Deactivation	Illinois	16	ComEd	6/1/2020
Southeast Chicago CT8	38.0	Natural Gas	Future Deactivation	Illinois	16	ComEd	6/1/2020
Southeast Chicago GT10	38.0	Natural Gas	Future Deactivation	Illinois	16	ComEd	6/1/2020
Southeast Chicago GT9	38.0	Natural Gas	Future Deactivation	Illinois	16	ComEd	6/1/2020

Unit Name	Capacity (MW)	Fuel Type	Status	State	Age	Transmission Owner Zone	Actual/Projected Deactivation Date
			Future				
Wagner 2	135.0	Coal	Deactivation	Maryland	56	BGE	6/1/2020
			Future				
Westport 5	116.0	Natural Gas	Deactivation	Maryland	49	BGE	6/1/2020
			Future				
Colver NUG	110.0	Coal	Deactivation	Pennsylvania	22	PENELEC	9/1/2020
			Future				
Edgecomb NUG	116.0	Coal	Deactivation	North Carolina	27	Dominion	10/31/2020
			Future				
Eastlake 6	24.0	Oil	Deactivation	Ohio	45	ATSI	6/1/2021
			Future				
Mansfield 3	830.0	Coal	Deactivation	Pennsylvania	38	ATSI	6/1/2021
			Future				
Sammis Diesel	13.0	Oil	Deactivation	Ohio	46	ATSI	6/1/2021

Enforceability of EGU Deactivations/Modifications

For plants with shutdowns or modifications, installations go through state permitting processes, representing federally enforceable controls. For example, in the state of PA, facilities that are deactivated coincide with a termination of the facility's operating permit as well as annual notifications of continued shutdown (if emissions reductions credits are requested). Note that deactivations do not necessarily constitute permanent retirement for PJM Interconnection; however, it is rare for a deactivated unit to restart with their original configuration or fuel.

Additionally, many plants in PA and surrounding states are subject to state/local or federal consent decrees and agreements. Table K-4 provides a summary of federal consent decrees that are applicable to plants in the PJM territory and surrounding states, ⁵ with specific actions and limits for SO₂ also shown.

Company	Date of Consent Decree	State(s)	Plant	Action Required	System-Wide SO ₂ Limits
American	October	Ohio/ West	Amos	Install FGD by 2011	2014: 340,000
(AEP) Corp.	2007	Virginia/ Indiana/ Kentucky/ Virginia	Big Sandy	Install FGD by 2016 (1 unit), meet coal sulfur content limit (1 unit)	tons/year
			Cardinal	Install FGD by 2009 (2 units) and 2013 (1 unit)	2019 (continuing in perpetuity): 174,000
			Conesville	Install/upgrade FGD by 2011 (3 units), retire/repower/retrofit by 2013 (3 units)	tons/year
			Gavin	Install FGD by 2008	
			Glen Lyn	Meet coal sulfur content limit by 2008	
			Kanawha	Meet coal sulfur content limit by 2008	
			Mitchell	Install FGD by 2008	
			Mountaineer	Install FGD by by 2008	
			Muskingum	Retire/repower/retrofit by 2016 (4 units), install FGD by 2016 (1 unit)	
			Rockport	Install FGD by 2018 (1 unit) and 2020 (1 unit)	
			Sporn	Retire/repower/retrofit by 2014 (1 unit)	
			Tanners Creek	Meet coal sulfur content limit by 2008	
			Various (for total of 600 MW)	Retire/repower/retrofit by 2019 (for 600 MW reduction from 13 units)	
American Municipal Power	May 2010	Ohio	Gorsuch	Retire by 2013	n/a
Consumers Energy	September 2014	Michigan	Campbell	Install FGD by 2018 (1 unit) and DSI by mid-2017 (2 units)	n/a
			Cobb	Retire/repower by mid-2016 (2 units)	
			Karn	Install FGD by mid-2016 (2 units)	
			Weadock	Retire (2 units) by mid-2016	
			Whiting	Retire (3 units) by mid-2016	
Dominion Energy	April 2013	Illinois/ Indiana	State Line	Retire (2 units) by mid-2012, retire (2 units) by mid-2013	2014: 8,500 tons/year
			Brayton Point	Meet emission rates for existing FGD by mid-2013	
			Kincaid	Install DSI by 2014	

Table K-4. Federal Consent Decrees for EGUs in PA and Surrounding States

⁵ EPA civil cases and settlements are available at the following web site: <u>https://cfpub.epa.gov/enforcement/cases/index.cfm</u>

Company	Date of Consent Decree	State(s)	Plant	Action Required	System-Wide SO ₂ Limits	
Duke Energy	December 2009	Indiana	Gallagher	Retire/repower by 2013 (2 units), install DSI by 2011 (2 units)	n/a	
Dynegy March 2005		March Illinois/ Indiana 2005	Baldwin Havana	Install FGD by 2013	2013 (continuing in perpetuity): 29,000 tons/year	
			Hennepin	Reduce SO ₂ emissions by 2006		
			Vermillion			
			Wood River	7		
East Kentucky	July 2007	Kentucky	Cooper	Retire by 2013, repower by 2014, or install EGD by mid 2018	2013: 28,000 tons/year	
Cooperative	2007		Dale			
			Spurlock	Install FGD by 2009 (1 unit) and 2011 (1 unit)		
Hoosier Energy July Rural Electric 2010		uly Indiana 2010	Merom	Upgrade FGD by mid-2012 (1 unit) and mid-2013 (1 unit)	2014: 26,000 tons/year	
Cooperative			Ratts	Retire/repower by 2017 or meet emission rates by 2016		
Kentucky Utilities	February 2009	Kentucky	Brown	Install FGD by 2011	2011: 2,300 tons/year	
Northern IndianaJanuaryPublic Service2011		January Indiana 2011	Bailly	Upgrade existing FGD by 2014	2019: 11,600 tons/year (if Michigan City unit	
Company			Dean Mitchell	Retire by 2010	gets FGD) or 10,200	
			Michigan City	Retire or install FGD by 2019	City unit gets retired)	
			Schahfer	Install FGD (2 units) by 2014/2016 and upgrade FGD (2 units) by 2011	City unit gets fetted)	
Ohio Edison/ FirstEnergy	August 2009	Ohio/ Pennsylvania	Burger	Retire by 2011 or repower by 2013	2011: 29,900 tons/year (only for Sammis	
Corporation	2007		Sammis	Install FGD, Flash Dry Absorber or ECO, Induct Scrubber at various units by 2011	Plant)	
			Bruce Mansfield	Upgrade FGD by 2008		
Tennessee Valley Authority	April 2011	Kentucky	Paradise	Upgrade FGD (2 units) and Install Wet FGD (1 unit)	2019: 110,000 tons/year	
			Shawnee	Install FGD, repower to renewable biomass, or retire		

{This page left blank for printing purposes}