



***Net-Metering &  
Interconnection Report  
2017 - 2019***

***Bureau of Technical Utility Services***

***Policy & Planning Section***

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## ***I. Background and Observations***

The Alternative Energy Portfolio Standards (AEPS) Act of 2004 (Act) requires electric distribution companies (EDCs) and electric generation suppliers (EGSs) to supply 18 percent of electricity using alternative energy resources by 2021.<sup>1</sup> The percentage of Tier I, Tier II and solar alternative energy credits that must be included in sales to retail customers gradually increases over this period. To facilitate achievement of this standard, the AEPS required the PUC to develop technical and net metering interconnection rules for customer-generators.<sup>2</sup> The regulations subsequently established by the PUC require EDCs and EGSs to submit annual reports to the Commission.<sup>3</sup>

This report contains the number of customer-generators interconnected to the EDCs' distribution systems as well as the status of interconnection requests processed by the EDCs within the past year; it summarizes and provides access to the data submitted by each EDC for the previous three years. All reported data is by energy year, which runs from June 1 through May 31. Table 1 summarizes the cumulative number of interconnected customers to date, arranged by AEPS resource Tier. Section IV reflects the number of customer-generators in each EDC service territory. Section V shows the estimated generation capacity interconnected, by AEPS resource Tier, by year and by EDC. Section VI illustrates the number of annual interconnection requests received by year, by level of interconnection and by EDC. Section VII shows the number of approved interconnection requests by year, by level of interconnection and by EDC.

For the 2019 reporting year, 5,820 interconnection requests were received in the EDC service territories. This represents an increase in the number of interconnection requests, 201 more than in 2018. Level I interconnection requests increased by 5%; Level II interconnection requests decreased by 1%. In comparison, 2018 saw a significant decrease in interconnection requests from 2017, as noted in Figure 3d. Associated generating capacity increased to a cumulative 403,927 kW, a 16% increase from 2018.

In addition to the number of interconnection requests received in reporting year 2019, at least two unauthorized and/or illegal interconnections were made, both in the PECO service territory.<sup>4</sup> This represents a serious safety concern not only for the installer but also for any utility staff that might be performing service work and who are unaware of any back-feeding or change in voltage to the distribution grid. This is an issue that the Commission will be further investigating.

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<sup>1</sup> See generally 73 P.S. § 1648.1 *et seq.* and also [52 Pa Code §75](#)

<sup>2</sup> See [52 Pa Code §75.1](#)

<sup>3</sup> See [52 Pa Code §75.13\(g\)](#)

<sup>4</sup> Unauthorized interconnections are completed without proper or final EDC approval, meaning that some notification or application has been filed with the EDC, but the interconnection was not yet approved. Illegal interconnections are completed without any notification to or awareness of the EDC.

## **II. Interconnection Levels**

EDCs are required to review interconnection requests using one or more of the following four review procedures.<sup>5</sup>

**Level 1** is used for inverter-based small generator facilities with a nameplate capacity of 10 kilowatts (kW) or less and the customer's interconnection equipment is certified.<sup>6</sup>

**Level 2** is used for small generation facilities with a nameplate capacity of 5 megawatts (MW) or less when the following conditions exist:

- The small generator facility uses an inverter for interconnection and the interconnection equipment is certified.
- The proposed interconnection is to a radial distribution circuit, or a spot network limited to serving one customer.
- The small generator facility was reviewed under Level 1 review procedures but was not approved for interconnection at that level.

**Level 3** is used for evaluating interconnection requests to connect small generation facilities with an electric nameplate capacity of 5 MW or less which do not qualify under Level 1 or Level 2 or that were reviewed under Level 1 or Level 2 but were not approved for interconnection at those levels.

**Level 4** is used for interconnection customers that do not qualify for Level 1 or Level 2 and do not export power beyond the point of common coupling. Customers may request to be evaluated under Level 4 review procedures, which provide for a potentially expedited review.

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<sup>5</sup> See [52 Pa. Code § 75.34](#)

<sup>6</sup> See [52 Pa Code §75.22](#)

### III. Summary of Customers Interconnected: 2017 - 2019

TABLE 1: SUMMARY OF CUSTOMERS INTERCONNECTED 2017 - 2019

	Data as of May 31, 2017				Data as of May 31, 2018				Data as of May 31, 2019			
	Tier I		Tier II	Total	Tier I		Tier II	Total	Tier I		Tier II	Total
	Total	Solar PV			Total	Solar PV			Total	Solar PV		
Number of Customer Generators	16,137	15,846	16	16,153	21,430	21,133	13	21,443	26,016	25,685	15	26,031
Estimated Generation Nameplate Capacity in kW	290,473	254,424	7,144	297,617	343,463	302,190	3,494	346,957	381,574	338,970	22,353	403,927

\*Solar PV is a Tier I resource. The Solar PV column separately identifies the Solar PV component of Tier I.

#### Number of Customer-Generators by EDC Service Territory: 2017 - 2019

TABLE 2A: NUMBER OF CUSTOMER-GENERATORS BY EDC SERVICE TERRITORY 2019

Resource	Citizens	DQE	Met-Ed	PECO	Penelec	Penn Power	Pike	PPL	UGI	Wellsboro	West Penn	Total
Tier I	34	2,689	4,052	9,128	757	172	6	8,034	90	9	1,045	26,016
Solar PV	34	2,670	4,021	9,115	699	162	6	7,885	84	4	1,005	25,685
Tier II	0	2	2	6	5	0	0	0	0	0	0	15
Total	34	2,691	4,054	9,134	762	172	6	8,034	90	9	1,045	26,031

\*Solar PV is a Tier I resource. The Solar PV column separately identifies the Solar PV component of Tier I.

TABLE 2B: NUMBER OF CUSTOMER-GENERATORS BY EDC SERVICE TERRITORY 2018

Resource	Citizens	DQE	Met-Ed	PECO	Penelec	Penn Power	Pike	PPL	UGI	Wellsboro	West Penn	Total
Tier I	32	2,228	3,136	7,763	623	116	5	6,622	89	9	807	21,430
Solar PV	32	2,209	3,106	7,751	597	106	5	6,473	83	4	767	21,133
Tier II	0	0	2	7	4	0	0	0	0	0	0	13
Total	32	2,228	3,138	7,770	627	116	5	6,622	89	9	807	21,443

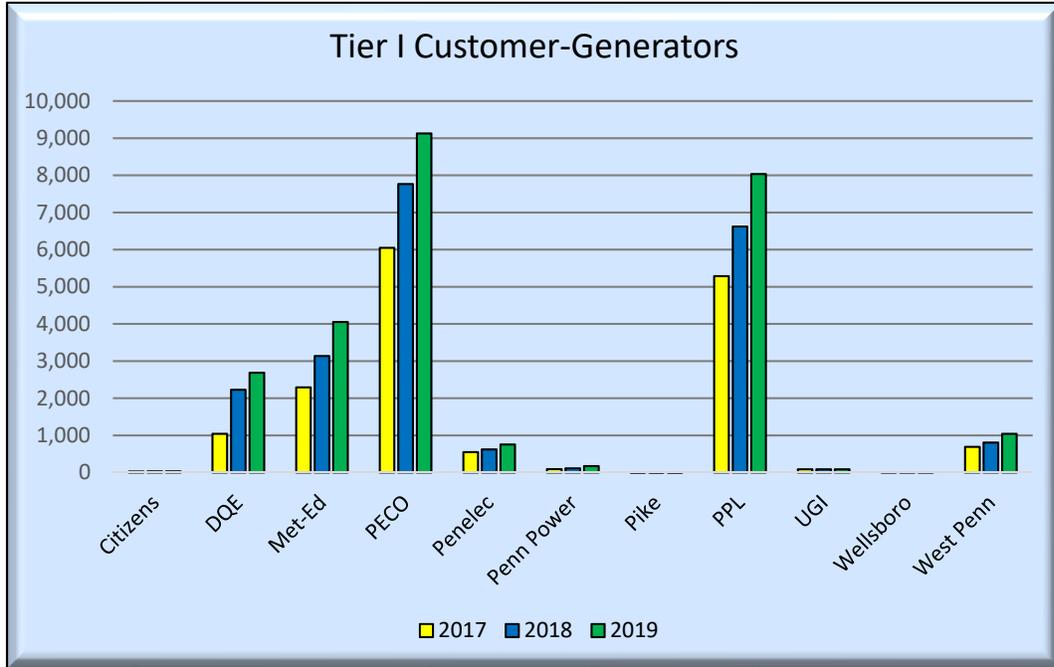
\*Solar PV is a Tier I resource. The Solar PV column separately identifies the Solar PV component of Tier I.

TABLE 2C: NUMBER OF CUSTOMER-GENERATORS BY EDC SERVICE TERRITORY 2017

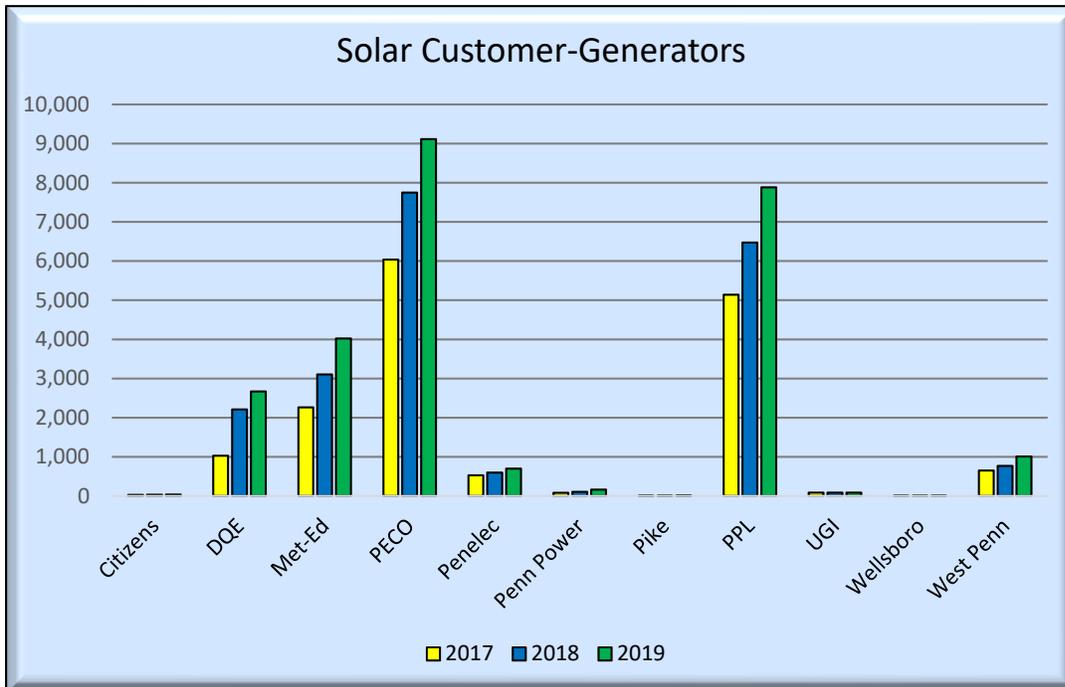
Resource	Citizens	DQE	Met-Ed	PECO	Penelec	Penn Power	Pike	PPL	UGI	Wellsboro	West Penn	Total
Tier I	29	1,045	2,292	6,049	551	92	5	5,286	89	9	690	16,137
Solar PV	29	1,026	2,263	6,038	527	82	5	5,140	83	3	650	15,846
Tier II	0	0	2	10	4	0	0	0	0	0	0	16
Total	29	1,045	2,294	6,059	555	92	5	5,286	89	9	690	16,153

\*Solar PV is a Tier I resource. The Solar PV column separately identifies the Solar PV component of Tier I.

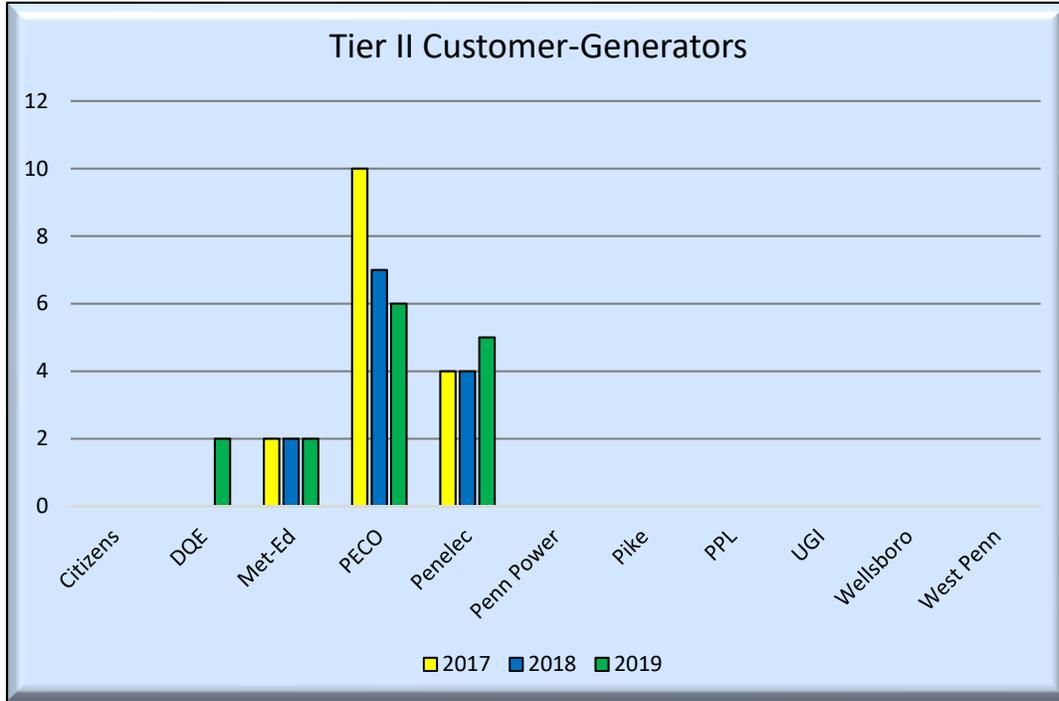
**Figure 1A: Number of Tier I Customer-Generators by EDC Service Territory**



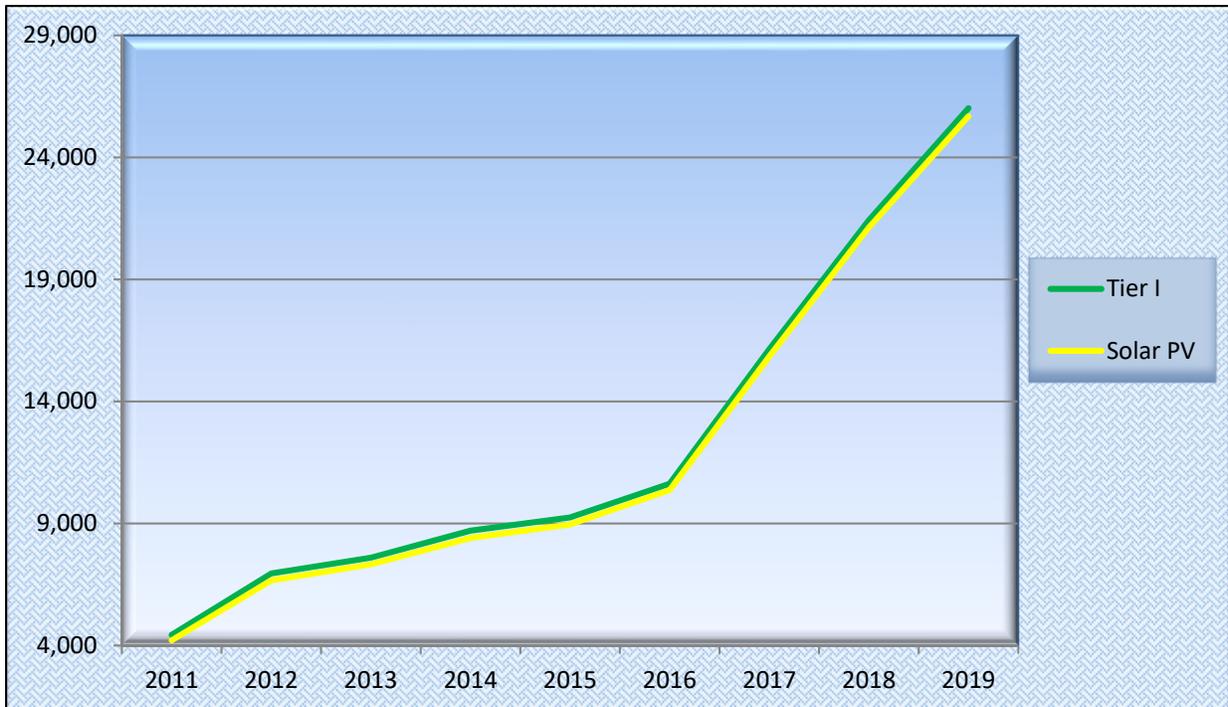
**Figure 1B: Number of Solar Customer-Generators by EDC Service Territory**



**Figure 1C: Number of Tier II Customer-Generators by EDC Service Territory**



**Figure 1D: Trends - Number of Net Metered Solar & Tier I Customers 2011 - 2019**



**IV. Net-metered Generation Capacity (kW) by EDC Service Territory:  
2017 - 2019**

TABLE 3A: NET-METERED GENERATION NAMEPLATE CAPACITY (kW) BY EDC SERVICE TERRITORY: 2019

Resource	Citizens	DQE	Met-Ed	PECO	Penelec	Penn Power	Pike	PPL	UGI	Wellsboro	West Penn	Total
Tier I	886	24	72,499	105,103	9,119	3,660	53	169,617	1,025	42	19,546	381,574
Solar PV	886	23	65,631	104,239	7,892	2,322	53	137,557	1,006	23	19,338	338,970
Tier II	0	0	3	45	22,305	0	0	0	0	0	0	22,353
<b>Total</b>	<b>886</b>	<b>24</b>	<b>72,502</b>	<b>105,148</b>	<b>31,424</b>	<b>3,660</b>	<b>53</b>	<b>169,617</b>	<b>1,025</b>	<b>42</b>	<b>19,546</b>	<b>403,927</b>

\*Solar PV is a Tier I resource. The Solar PV column separately identifies the Solar PV component of Tier I.

TABLE 3B: NET-METERED GENERATION NAMEPLATE CAPACITY (kW) BY EDC SERVICE TERRITORY: 2018

Resource	Citizens	DQE	Met-Ed	PECO	Penelec	Penn Power	Pike	PPL	UGI	Wellsboro	West Penn	Total
Tier I	870	19,469	60,933	93,693	7,952	3,166	50	146,368	1,012	42	9,908	343,463
Solar PV	870	19,183	55,315	92,833	7,083	1,828	50	114,308	997	23	9,700	302,190
Tier II	0	0	3	501	2,990	0	0	0	0	0	0	3,494
<b>Total</b>	<b>870</b>	<b>19,469</b>	<b>60,936</b>	<b>94,194</b>	<b>10,942</b>	<b>3,166</b>	<b>50</b>	<b>146,368</b>	<b>1,012</b>	<b>42</b>	<b>9,908</b>	<b>346,957</b>

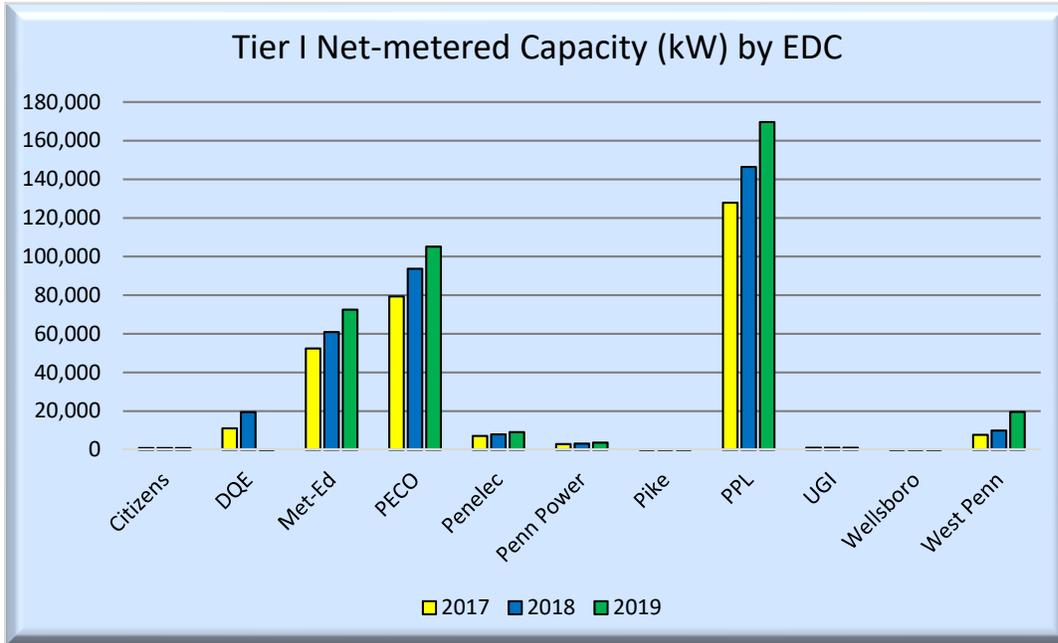
\*Solar PV is a Tier I resource. The Solar PV column separately identifies the Solar PV component of Tier I.

TABLE 3C: NET-METERED GENERATION NAMEPLATE CAPACITY (kW) BY EDC SERVICE TERRITORY: 2017

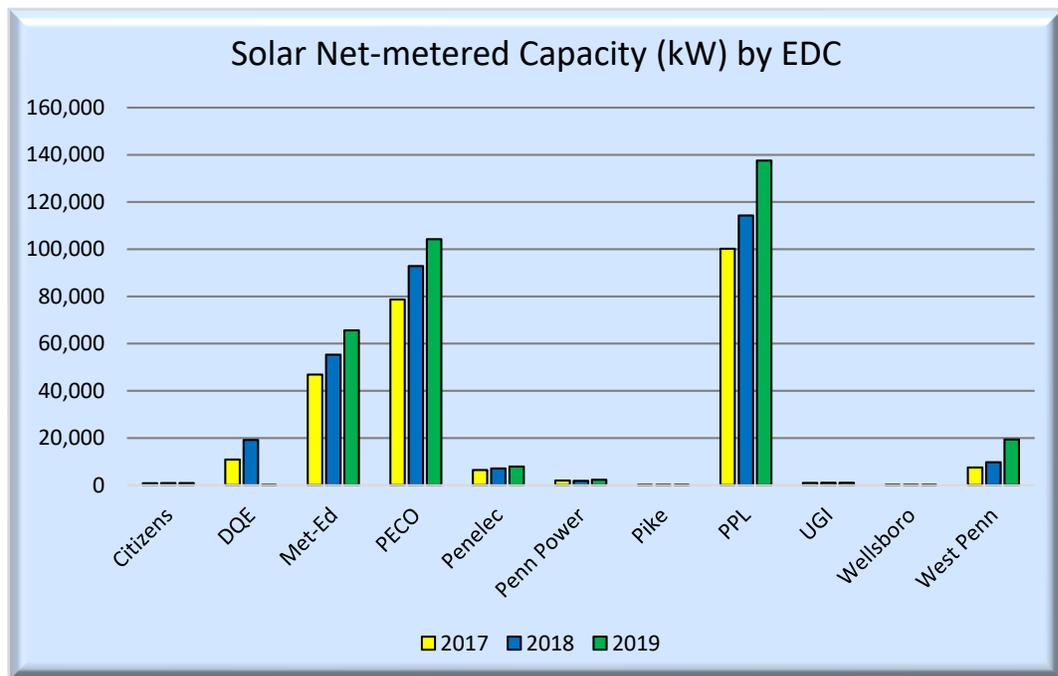
Resource	Citizens	DQE	Met-Ed	PECO	Penelec	Penn Power	Pike	PPL	UGI	Wellsboro	West Penn	Total
Tier I	850	11,049	52,468	79,397	7,145	2,929	50	127,854	1,011	38	7,682	290,473
Solar PV	850	10,882	46,881	78,669	6,445	1,991	50	100,174	991	17	7,474	254,424
Tier II	0	0	3	4,151	2,990	0	0	0	0	0	0	7,144
<b>Total</b>	<b>850</b>	<b>11,049</b>	<b>52,471</b>	<b>83,548</b>	<b>10,135</b>	<b>2,929</b>	<b>50</b>	<b>127,854</b>	<b>1,011</b>	<b>38</b>	<b>7,682</b>	<b>297,617</b>

\*Solar PV is a Tier I resource. The Solar PV column separately identifies the Solar PV component of Tier I.

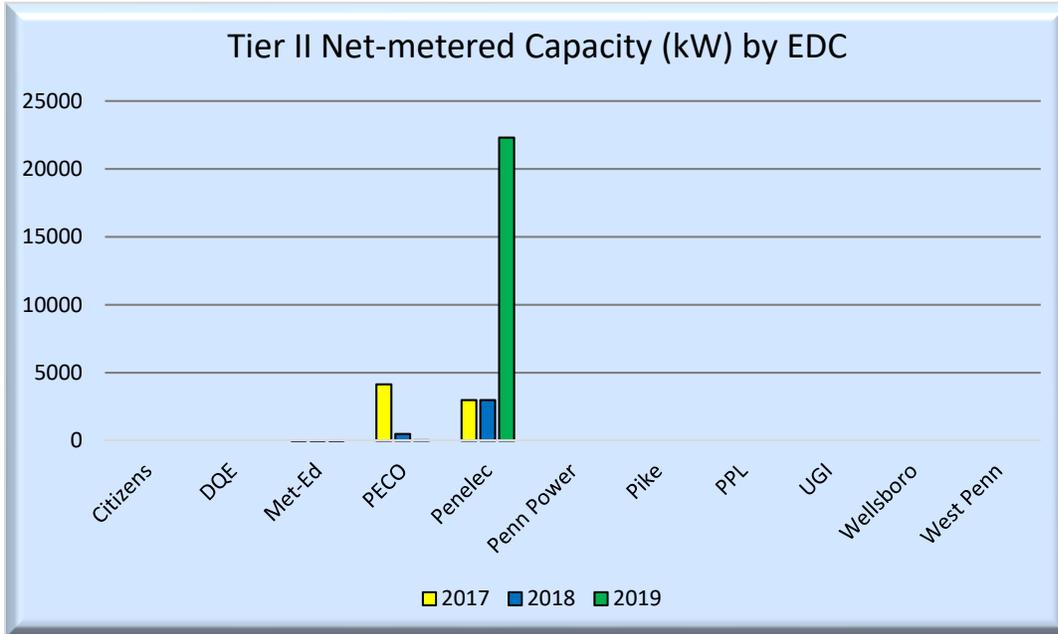
**Figure 2A: Tier I Net-metered Generation Capacity (kW) by EDC Service Territory 2017 - 2019**



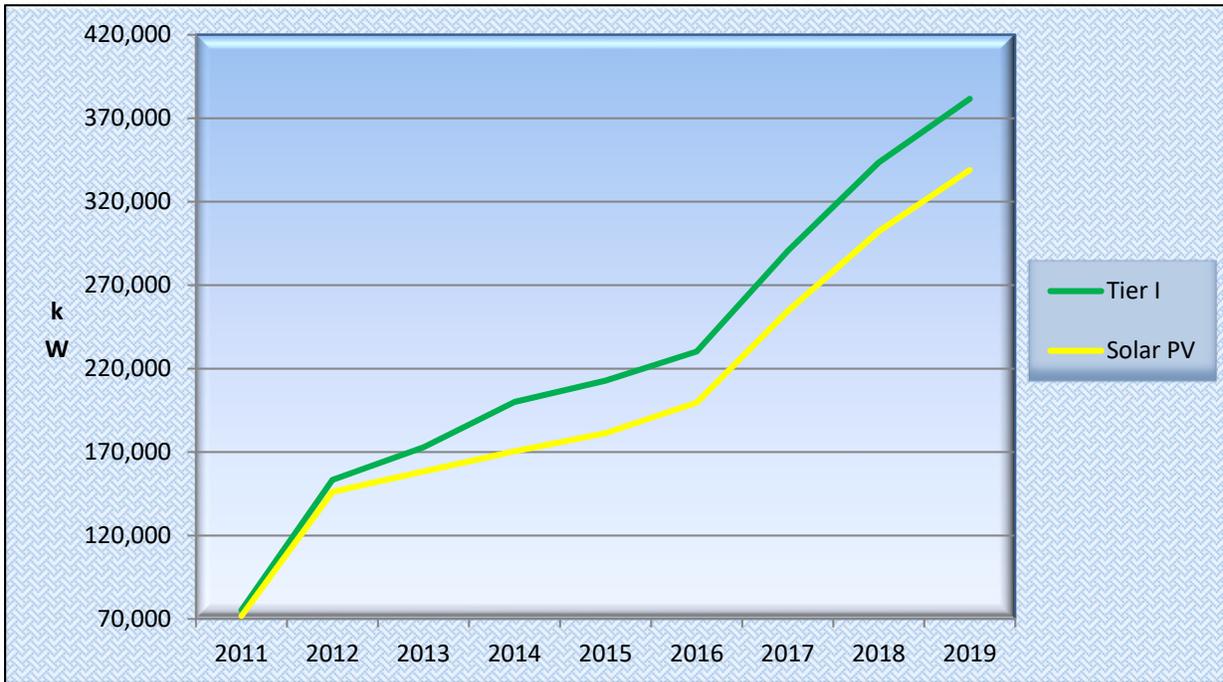
**Figure 2B: Solar Generation Capacity (kW) by EDC Service Territory 2017 - 2019**



**Figure 2C: Tier II Generation Capacity (kW) by EDC Service Territory 2017 - 2019**



**Figure 2D: Trends—Net Metered Capacity (kW) Solar & Tier I 2011 - 2019**



## V. Interconnection Requests by EDC Service Territory: 2017 - 2019

TABLE 4A: NUMBER OF INTERCONNECTION REQUESTS BY EDC SERVICE TERRITORY 2019

Resource	Citizens	DQE	Met-Ed	PECO	Penelec	Penn Power	Pike	PPL	UGI	Wellsboro	West Penn	Total
Level 1	3	299	757	1,920	187	50	0	970	2	0	150	4,338
Level 2	0	110	343	422	47	25	0	440	0	0	87	1,474
Level 3	0	0	2	3	0	0	0	2	0	0	0	7
Level 4	0	0	0	0	0	0	0	0	0	0	1	1
<b>Total</b>	<b>3</b>	<b>409</b>	<b>1,102</b>	<b>2,345</b>	<b>234</b>	<b>75</b>	<b>0</b>	<b>1,412</b>	<b>2</b>	<b>0</b>	<b>238</b>	<b>5,820</b>

TABLE 4B: NUMBER OF INTERCONNECTION REQUESTS BY EDC SERVICE TERRITORY 2018

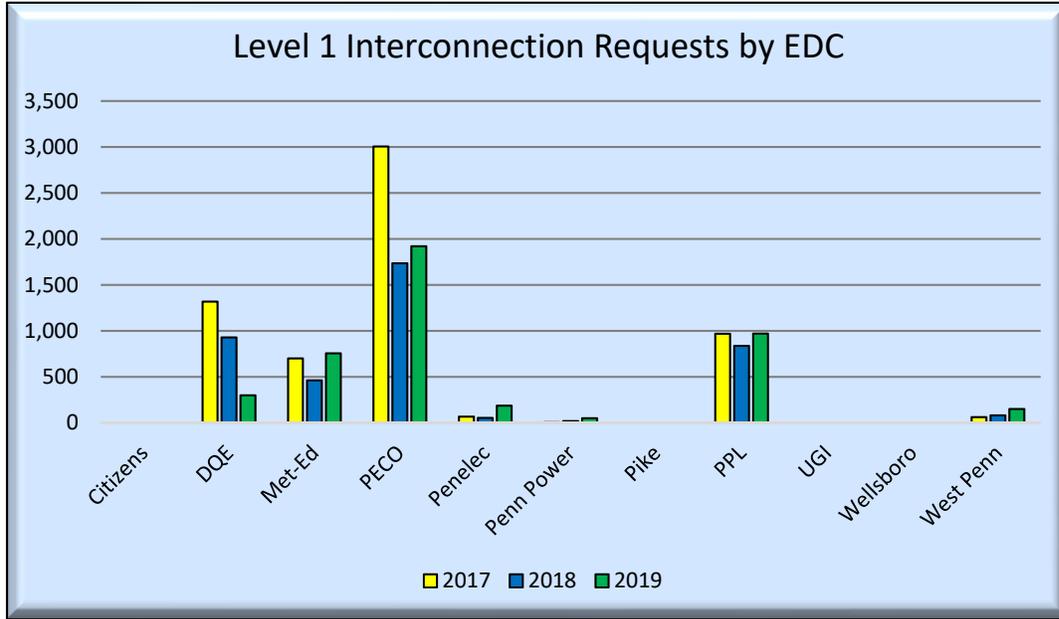
Resource	Citizens	DQE	Met-Ed	PECO	Penelec	Penn Power	Pike	PPL	UGI	Wellsboro	West Penn	Total
Level 1	3	929	462	1,736	54	19	0	838	0	1	81	4,123
Level 2	0	217	305	403	17	11	0	495	0	0	36	1,484
Level 3	0	0	2	3	1	0	0	3	0	0	0	9
Level 4	0	0	0	3	0	0	0	0	0	0	0	3
<b>Total</b>	<b>3</b>	<b>1,146</b>	<b>769</b>	<b>2,145</b>	<b>72</b>	<b>30</b>	<b>0</b>	<b>1,336</b>	<b>0</b>	<b>1</b>	<b>117</b>	<b>5,619</b>

TABLE 4C: NUMBER OF INTERCONNECTION REQUESTS BY EDC SERVICE TERRITORY 2017

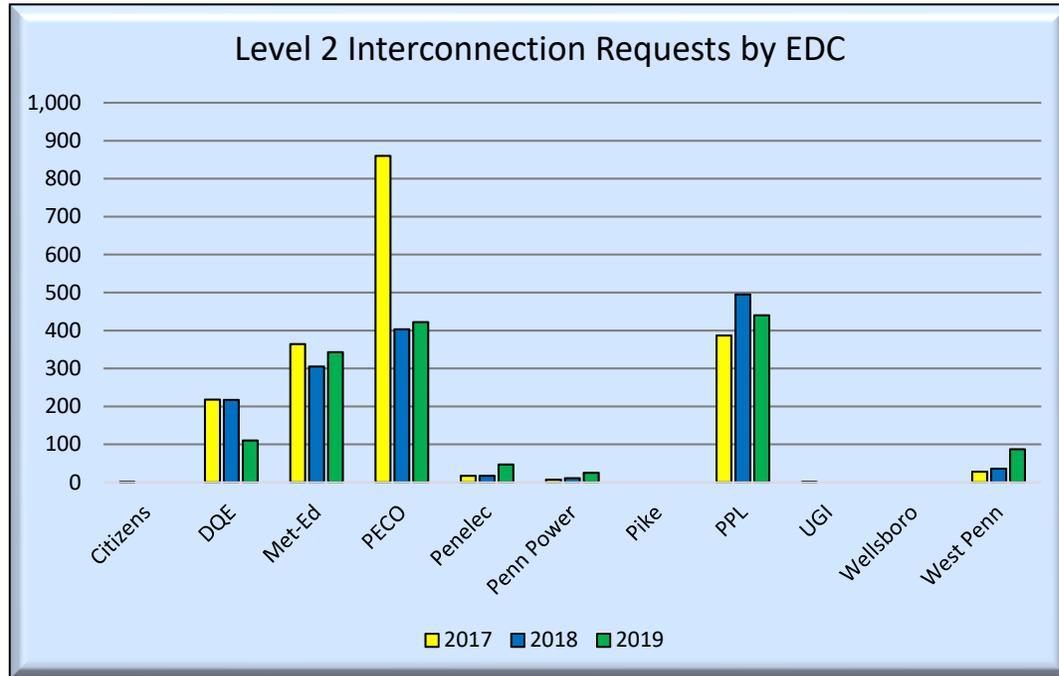
Resource	Citizens	DQE	Met-Ed	PECO	Penelec	Penn Power	Pike	PPL	UGI	Wellsboro	West Penn	Total
Level 1	3	1,318	700	3,005	68	7	0	969	2	0	62	6,134
Level 2	1	218	364	860	17	7	0	387	1	0	28	1,883
Level 3	1	0	3	16	0	0	0	5	0	0	0	25
Level 4	0	0	0	0	0	0	0	0	0	0	0	0
<b>Total</b>	<b>5</b>	<b>1,536</b>	<b>1,067</b>	<b>3,881</b>	<b>85</b>	<b>14</b>	<b>0</b>	<b>1,361</b>	<b>3</b>	<b>0</b>	<b>90</b>	<b>8,042</b>

\*Value reflects sharp increase in solar applications.

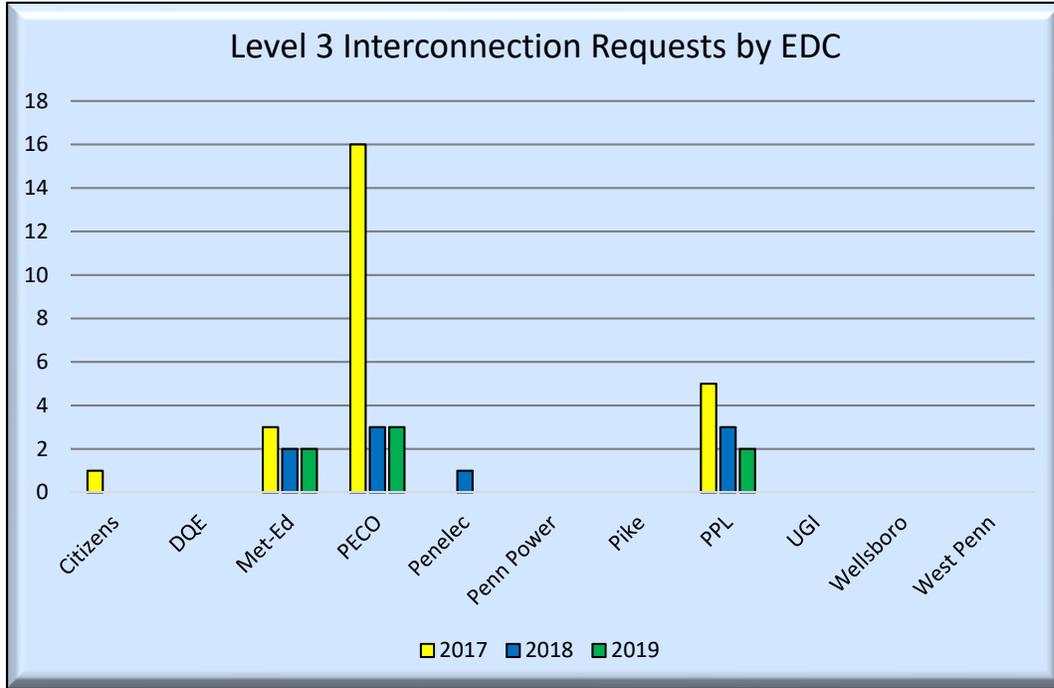
**Figure 3A: Level 1 Interconnection Requests by EDC Service Territory**



**Figure 3B: Level 2 Interconnection Requests by EDC Service Territory**



**Figure 3C: Level 3 Interconnection Requests by EDC Service Territory**



**Figure 3D: Level 4 Interconnection Requests by EDC Service Territory**

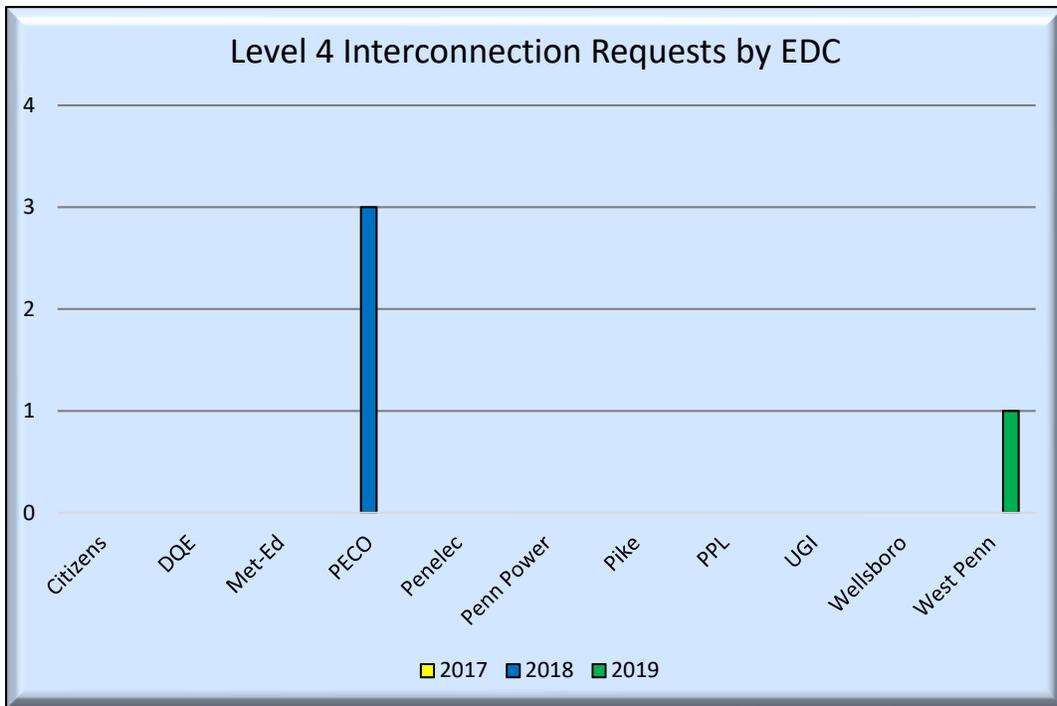
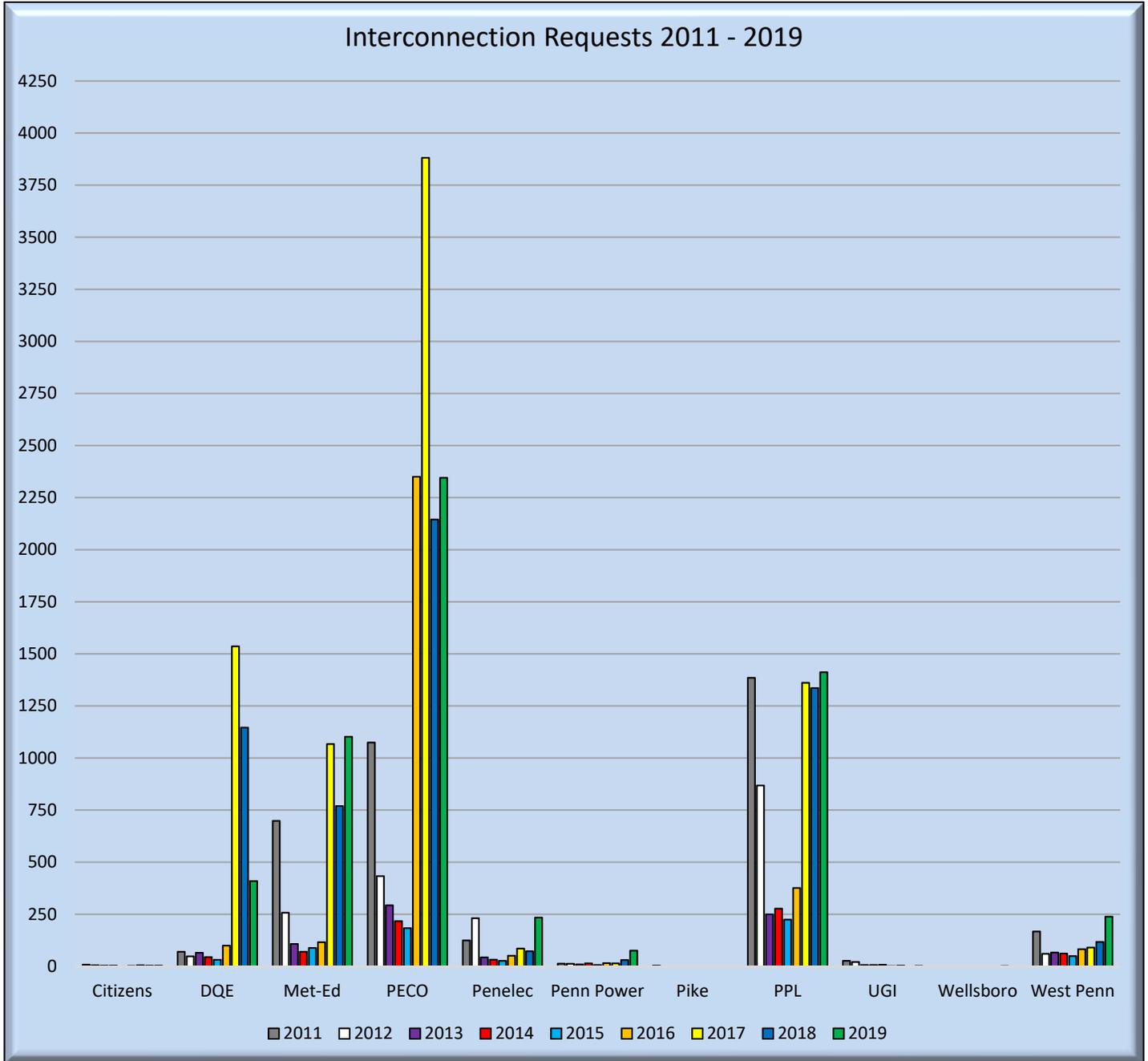


Figure 3E: Trends-- Number of Interconnection Requests by EDC Service Territory 2011 - 2019



**VI. Mean Number of Days to Complete Interconnection Request Approvals:  
2017 - 2019**

TABLE 5A: MEAN NUMBER OF DAYS TO COMPLETE INTERCONNECTION REQUEST APPROVALS  
BY EDC SERVICE TERRITORY 2019

Resource	Citizens	DQE	Met-Ed	PECO	Penelec	Penn Power	Pike	PPL	UGI	Wellsboro	West Penn	Mean
Level 1	11	20	9	10	10	2	0	7	1	0	18	8
Level 2	0	21	12	11	10	2	0	7	0	0	18	7
Level 3	0	0	17	0	0	0	0	7	0	0	0	2
Level 4	0	0	0	0	0	0	0	0	0	0	53	53

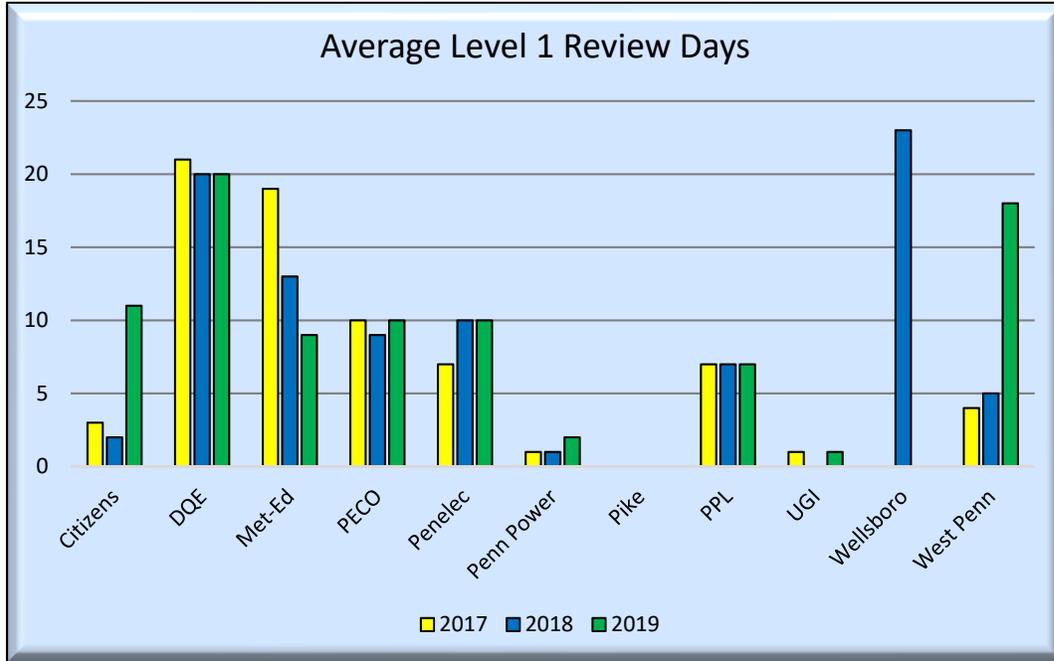
TABLE 5B: MEAN NUMBER OF DAYS TO COMPLETE INTERCONNECTION REQUEST APPROVALS  
BY EDC SERVICE TERRITORY 2018

Resource	Citizens	DQE	Met-Ed	PECO	Penelec	Penn Power	Pike	PPL	UGI	Wellsboro	West Penn	Mean
Level 1	2	20	13	9	10	1	0	7	0	23	5	8
Level 2	0	21	17	10	10	2	0	7	0	0	5	7
Level 3	0	0	13	10	0	0	0	7	0	0	0	3
Level 4	0	0	0	9	0	0	0	0	0	0	0	9

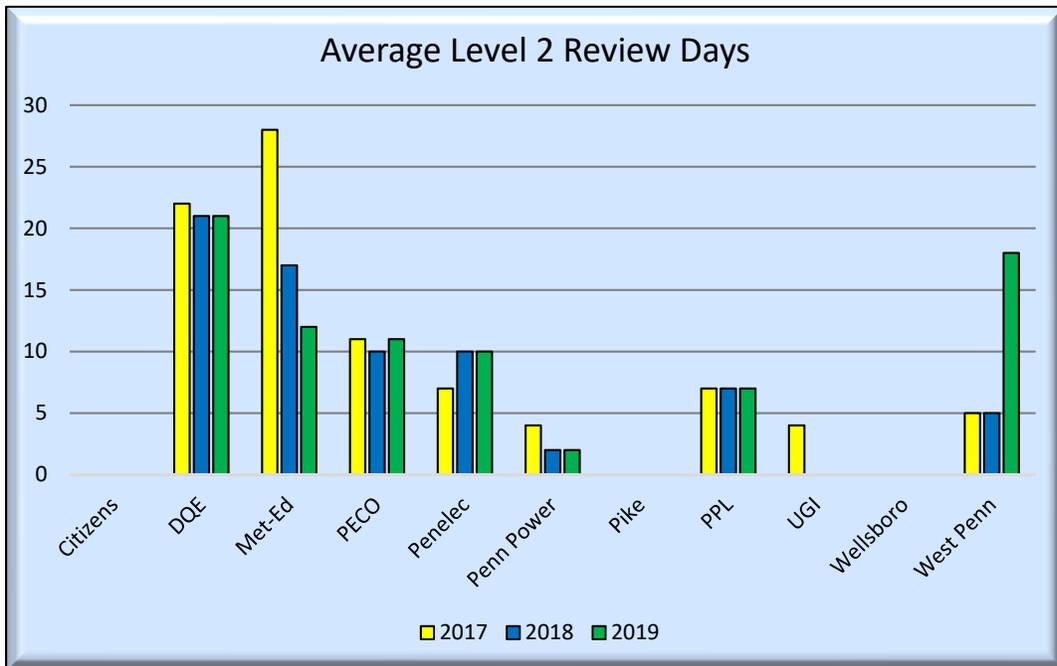
TABLE 5C: MEAN NUMBER OF DAYS TO COMPLETE INTERCONNECTION REQUEST APPROVALS  
BY EDC SERVICE TERRITORY 2017

Resource	Citizens	DQE	Met-Ed	PECO	Penelec	Penn Power	Pike	PPL	UGI	Wellsboro	West Penn	Mean
Level 1	3	21	19	10	7	1	0	7	1	0	4	7
Level 2	0	22	28	11	7	4	0	7	4	0	5	8
Level 3	90	0	133	87	0	0	0	7	0	0	0	29
Level 4	0	0	0	0	0	0	0	0	0	0	0	0

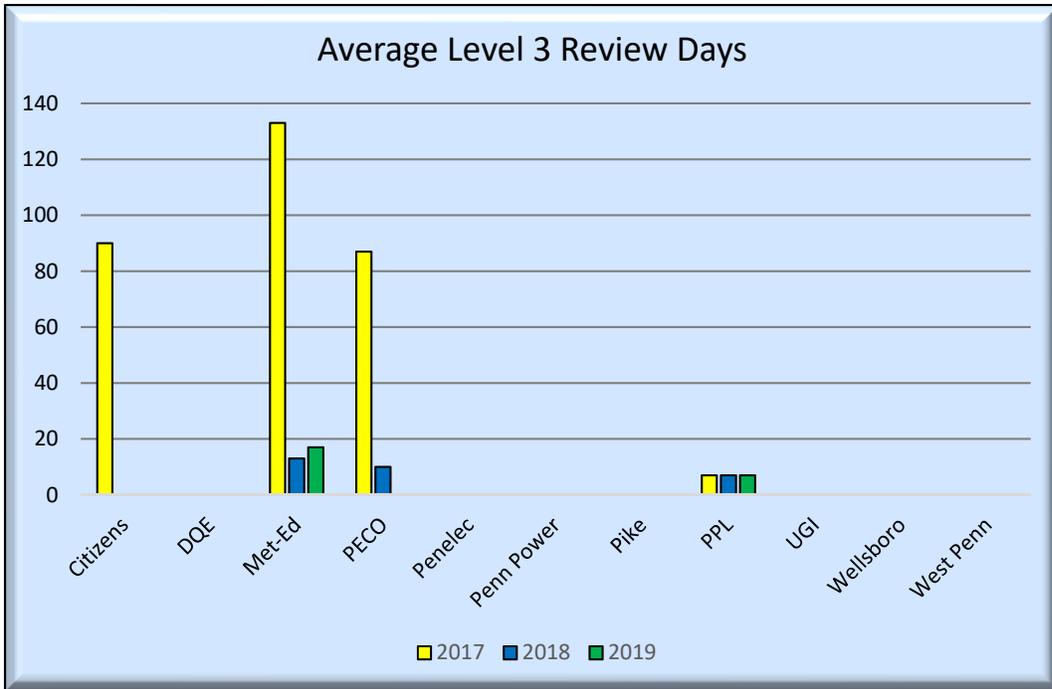
**Figure 4A: Mean Number of Days to Approve Level 1 Interconnection Requests**



**Figure 4B: Mean Number of Days to Approve Level 2 Interconnection Requests**



**Figure 4C: Mean Number of Days to Approve Level 3 Interconnection Requests**



**Figure 4D: Mean Number of Days to Approve Level 4 Interconnection Requests**

