2020 Delaware State Infrastructure Report

(January 1, 2020 – December 31, 2020)

April 2021

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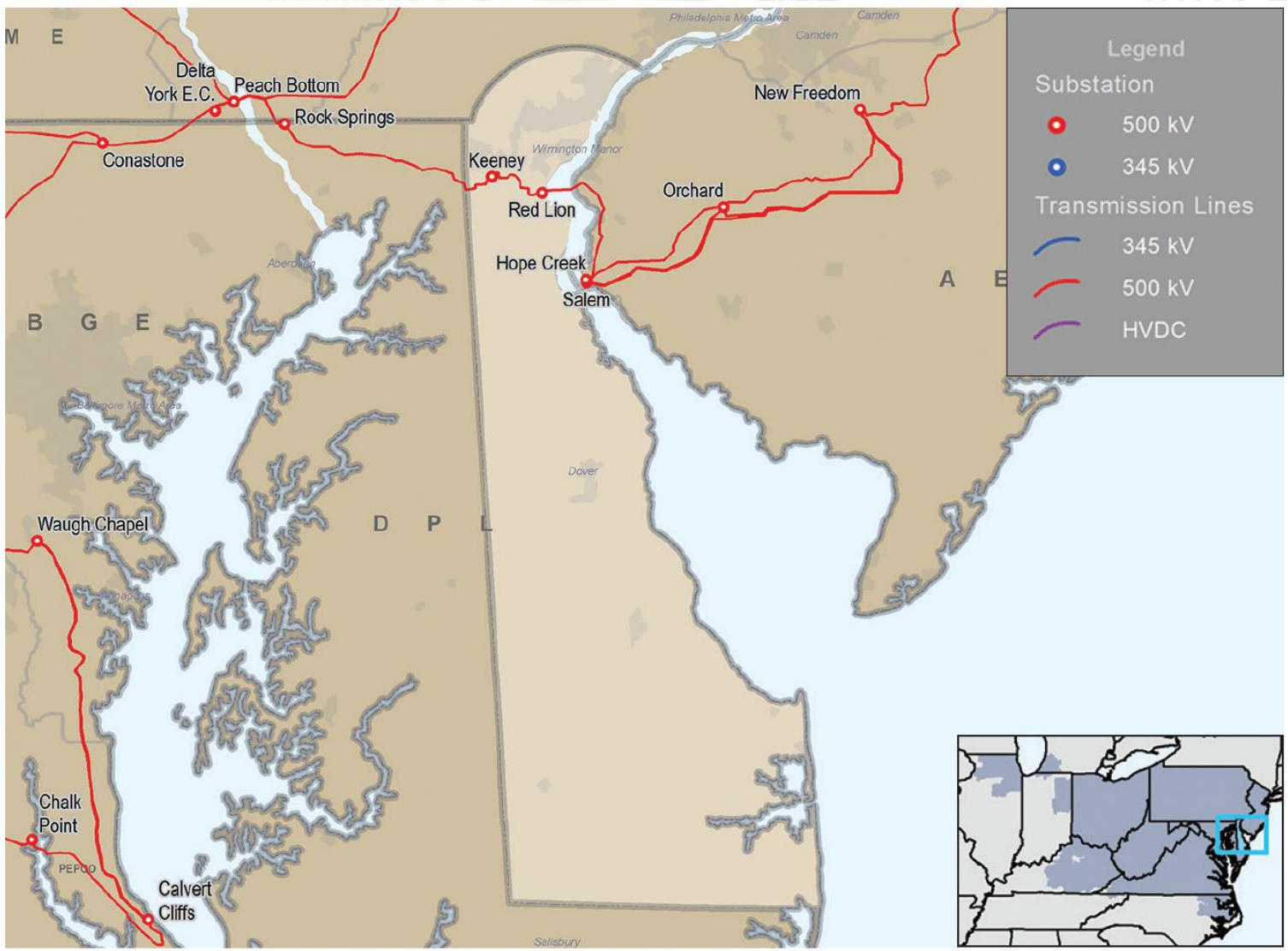
- **Existing Capacity:** Natural gas represents approximately 63.1 percent of the total installed capacity in the Delaware service territory while oil represents approximately 24.2 percent and coal 12.7 percent. Comparatively across PJM, natural gas and oil are at 43.4 and 4.7 percent of total installed capacity, while coal represents 27.5 percent.

- **Interconnection Requests:** Wind represents 35.5 percent of new interconnection requests in Delaware, while natural gas represents approximately 31.6 percent of new requests and solar 30.1 percent. Wind generation listed in the queue for Delaware includes offshore wind projects that are Maryland public policy projects but are physically located in Delaware.

- **Deactivations:** No generation in Delaware gave a notice of deactivation in 2020.

- **RTEP 2020:** Delaware's 2020 RTEP project total represents $5.5 million in investment from one baseline upgrade. Project totals include only RTEP projects that cost at least $5 million.
- **Load Forecast:** Delaware's summer peak load is projected to increase by 0.2 percent annually over the next ten years.
- **2022/23 Capacity Market:** No Base Residual Auction was conducted in 2020. For the most recent auction results, please see the 2018 Delaware State Infrastructure Report.
- **1/1/20 – 12/31/20 Market Performance:** Delaware's average hourly LMPs were generally lower than the PJM average hourly LMP, except during peak hours.
- **Emissions:** Carbon dioxide emissions are slightly up from 2019 levels. Sulfur dioxide and nitrogen oxide emissions remain flat from 2019 levels.

PJM Service Area – Delaware

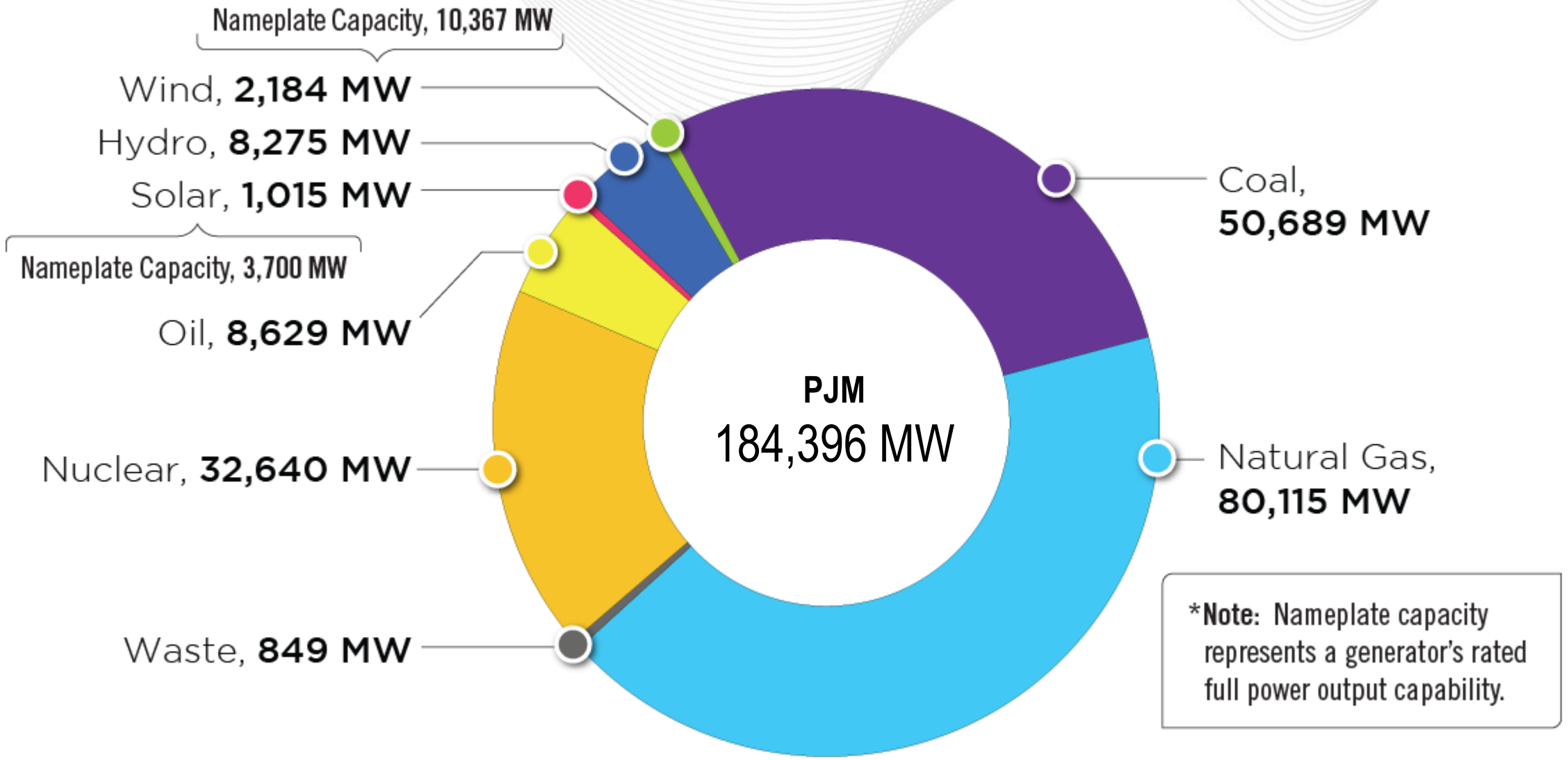


Planning

Generation Portfolio Analysis

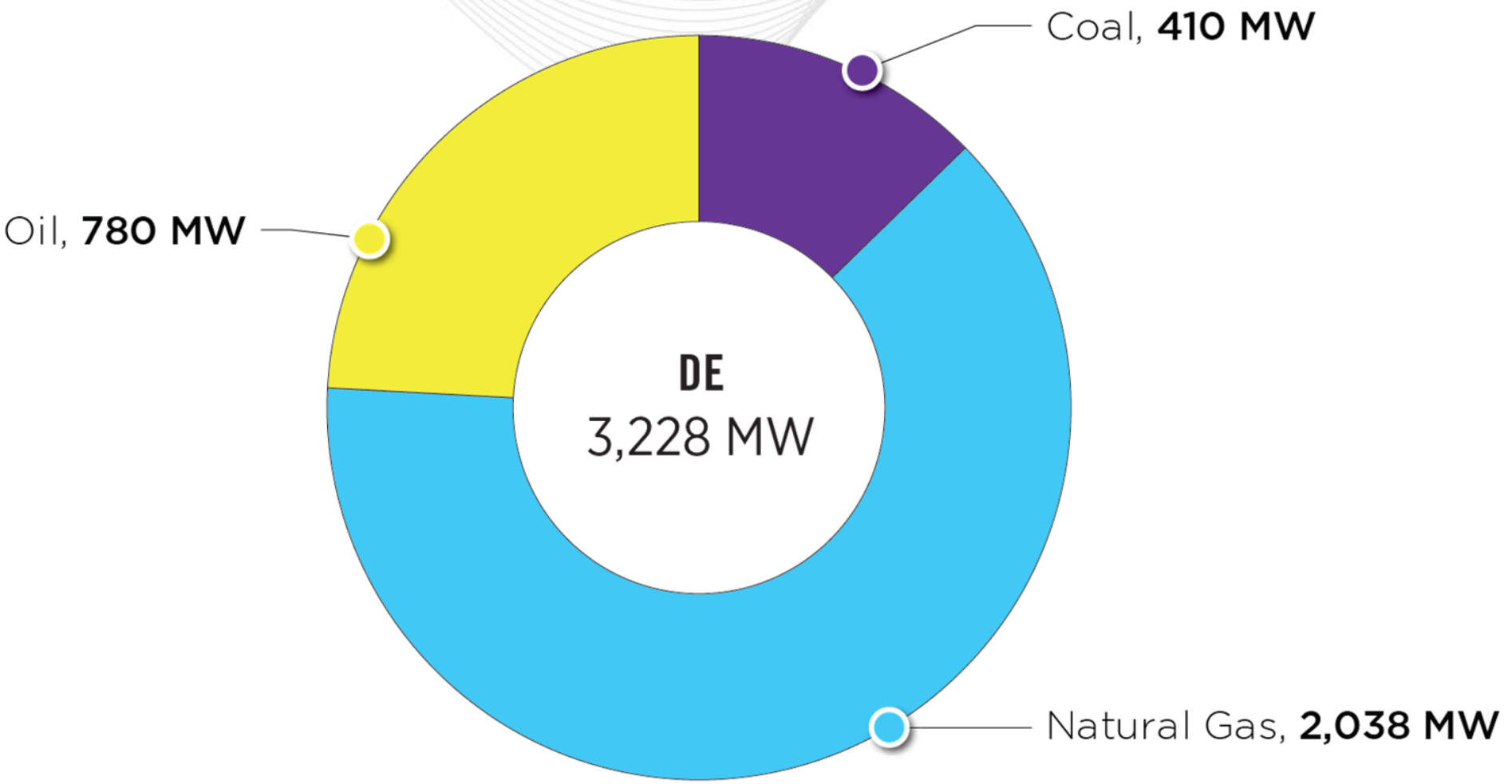
PJM – Existing Installed Capacity

(CIRs – as of Dec. 31, 2020)



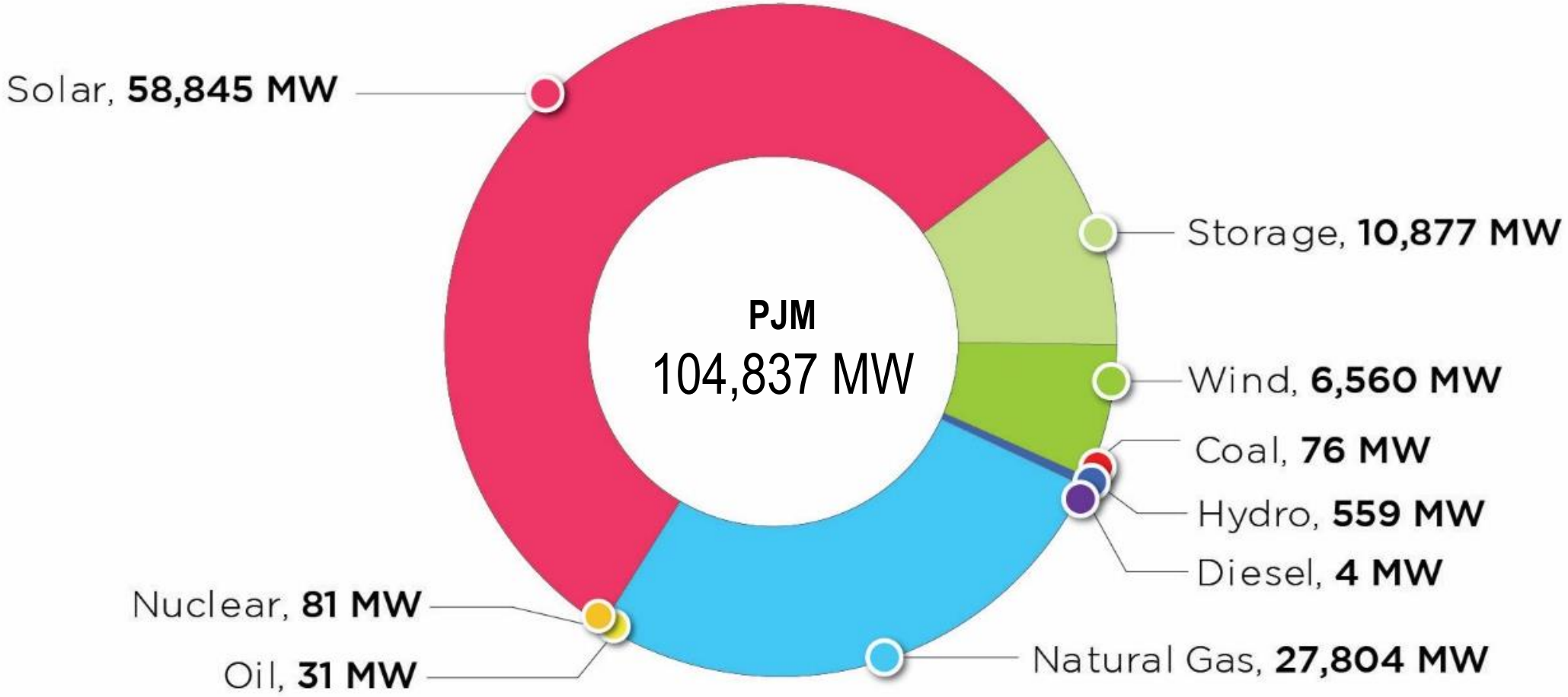
Delaware – Existing Installed Capacity

(CIRs – as of Dec. 31, 2020)



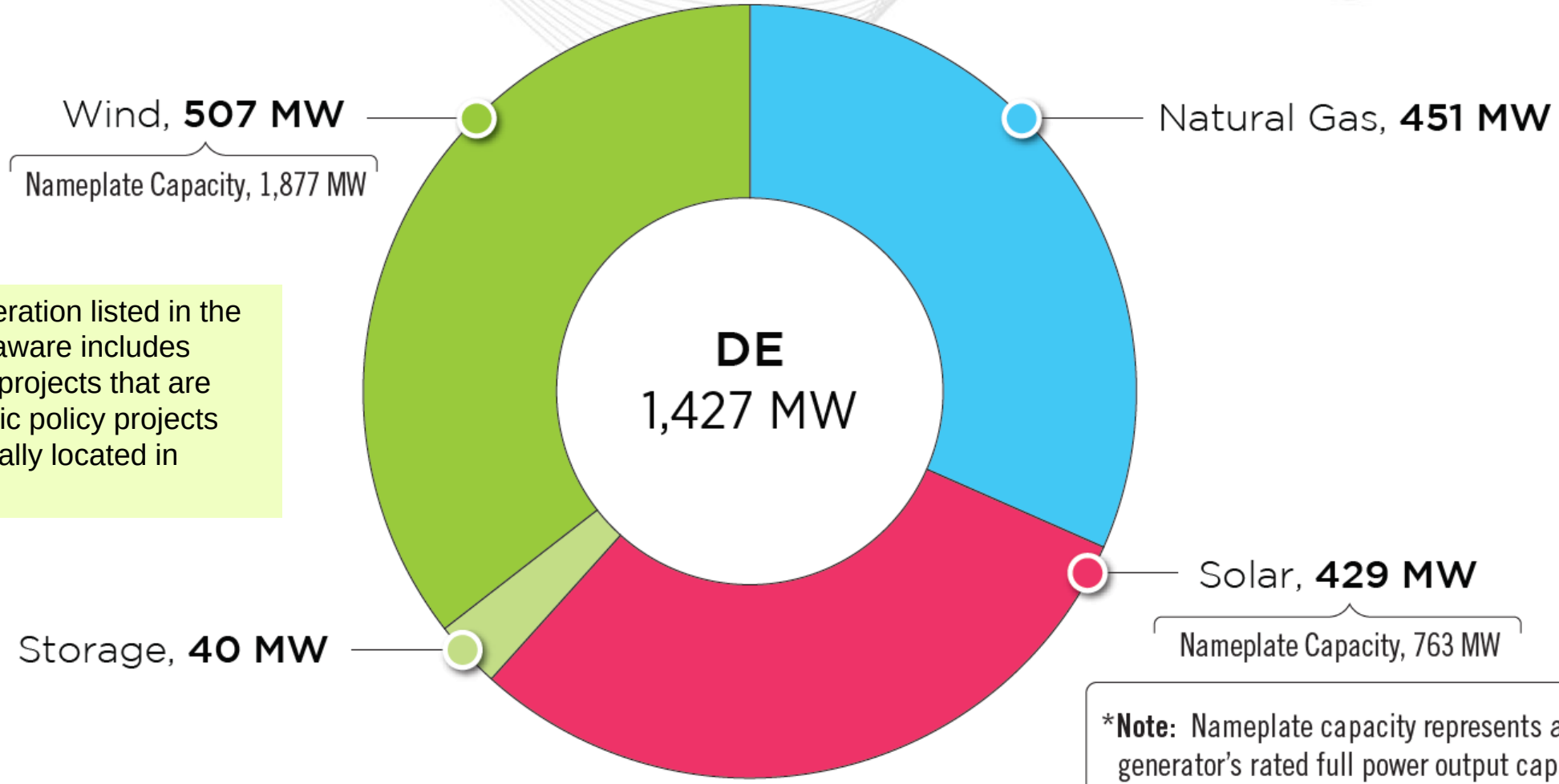
PJM – Queued Capacity (MW) by Fuel Type

(Requested CIRs – as of Dec. 31, 2020)



Delaware – Queued Capacity (MW) by Fuel Type

(Requested CIRs – as of Dec. 31, 2020)



The wind generation listed in the queue for Delaware includes offshore wind projects that are Maryland public policy projects but are physically located in Delaware.

Delaware – Interconnection Requests by Fuel Type

(Unforced Capacity – as of Dec. 31, 2020)

		In Queue						Complete					
		Active		Suspended		Under Construction		In Service		Withdrawn		Grand Total	
		Projects	Capacity (MW)	Projects	Capacity (MW)	Projects	Capacity (MW)	Projects	Capacity (MW)	Projects	Capacity (MW)	Projects	Capacity (MW)
Non-Renewable	Coal	0	0.0	0	0.0	0	0.0	2	23.0	1	630.0	3	653.0
	Natural Gas	0	0.0	1	451.0	0	0.0	19	1,097.1	19	5,556.4	39	7,104.5
	Oil	0	0.0	0	0.0	0	0.0	5	168.2	1	1.0	6	169.2
	Other	0	0.0	0	0.0	0	0.0	2	30.0	0	0.0	2	30.0
	Storage	3	40.4	0	0.0	0	0.0	0	0.0	4	45.0	7	85.4
Renewable	Biomass	0	0.0	0	0.0	0	0.0	1	0.0	4	24.0	5	24.0
	Methane	0	0.0	0	0.0	0	0.0	4	9.0	3	28.8	7	37.8
	Solar	17	391.4	0	0.0	1	37.6	0	0.0	22	231.5	40	660.4
	Wind	7	442.4	0	0.0	1	64.4	0	0.0	5	396.9	13	903.7
	Grand Total	27	874.2	1	451.0	2	102.0	33	1,327.3	59	6,913.6	122	9,668.0

Note: The ”Under Construction” column includes both “Engineering and Procurement” and “Under Construction” project statuses.

Delaware – Progression History of Interconnection Requests

Projects withdrawn after final agreement			Nameplate Capacity
3	Interconnection Service Agreements	420 MW	780 MW
5	Wholesale Market Participation Agreements	18 MW	53 MW

Percentage of planned capacity and projects that have reached commercial operation	15% Requested capacity megawatts	34% Requested projects

This graphic shows the final state of generation submitted to the PJM queue that completed the study phase as of Dec. 31, 2020, meaning the generation reached in-service operation, began construction, or was suspended or withdrawn. It does not include projects considered active in the queue as of Dec. 31, 2020.

Delaware – Generation Deactivation Notifications Received in 2020

Delaware had no generation deactivation notifications in 2020.

Planning

Transmission Infrastructure Analysis

Please note that PJM historically used $5 million as the threshold for listing projects in the RTEP report. Beginning in 2018, it was decided to increase this cutoff to $10 million. All RTEP projects with costs totaling at least $5 million are included in this state report. However, only projects that are $10 million and above are displayed on the project maps.

For a complete list of all RTEP projects, please visit the “RTEP Upgrades & Status – Transmission Construction Status” page on pjm.com.

https://www.pjm.com/planning/project-construction

Delaware – RTEP Baseline Projects

(Greater than $5 million)

Map ID	Project	Description	Required In-Service Date	Project Cost ($M)	TO Zone	TEAC Date
	b3143	Reconductor the Silverside – Darley 69 kV circuit	6/1/2024	$5.50	DPL	10/21/2019
		Reconductor the Darley – Naamans 69 kV circuit				
		Replace three (3) existing 1200 A disconnect switches with 2000 A disconnect switches and install three (3) new 2000 A disconnect switches at Silverside 69 kV station				
		Replace two (2) 1200 A disconnect switches with 2000 A disconnect switches, replace existing 954 ACSR and 500 SDCU stranded bus with (2) 954 ACSR stranded bus. Reconfigure four (4) CTs from 1200 A to 2000 A and install two (2) new 2000 A disconnect switches, new (2) 954 ACSR stranded bus at Naamans 69 kV station				
		Replace four (4) 1200 A disconnect switches with 2000 A disconnect switces. Replace existing 954 ACSR and 1272 MCM AL stranded bus with (2) 954 ACSR stranded bus. Reconfigure eight (8) CTs from 1200 A to 2000 A and install Four (4) new 2000 A (310 MVA SE / 351 MVA WE) disconnect switches, new (2) 954 ACSR (331 MVA SE / 369 MVA WE) stranded bus at Darley 69 kV station.				

Note: Baseline upgrades are those that resolve a system reliability criteria violation.

Delaware – RTEP Network Projects

(Greater than $5 million)

Delaware had no network project upgrades in 2020.

Note: Network upgrades are new or upgraded facilities required primarily to eliminate reliability criteria violations caused by proposed generation, merchant transmission or long term firm transmission service requests, as well as certain direct connection facilities required to interconnect proposed generation projects.

Delaware – TO Supplemental Projects

(Greater than $5 million)

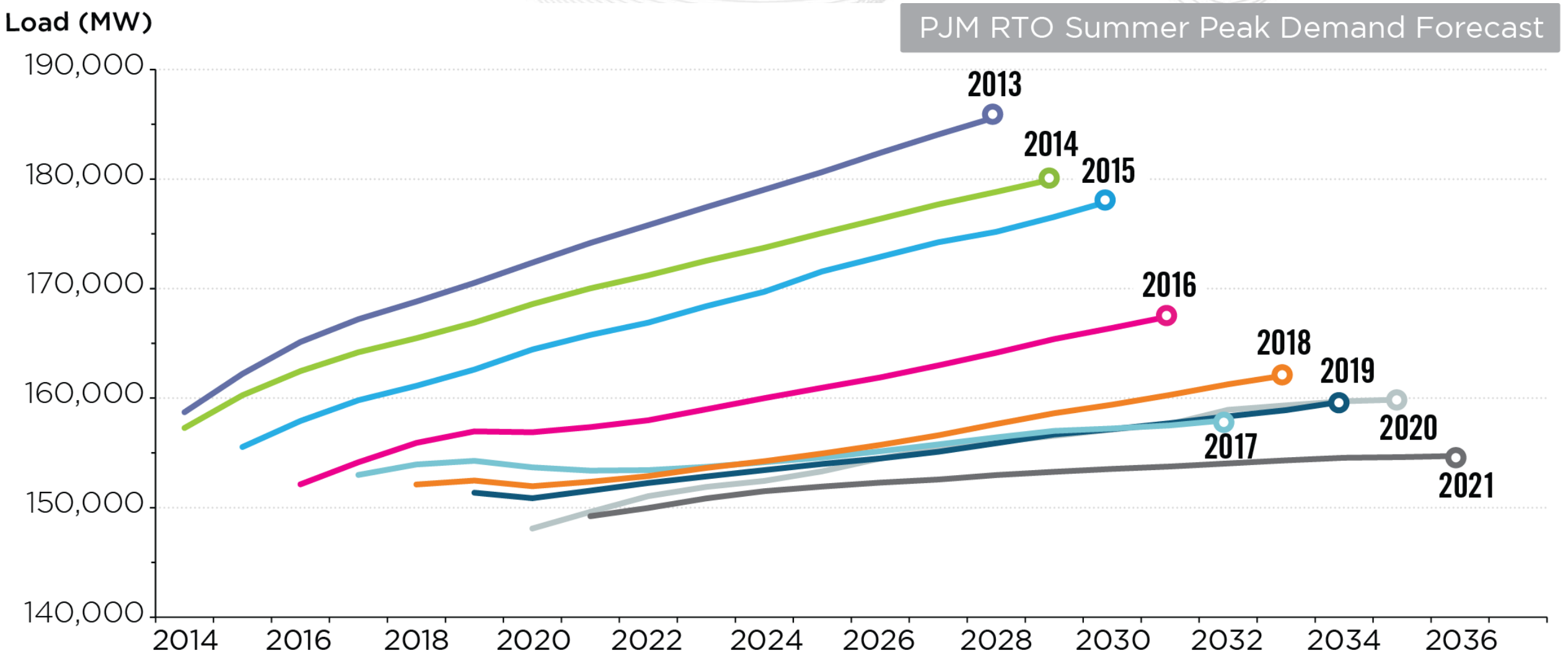
Delaware had no supplemental project upgrades in 2020.

Note: Supplemental projects are transmission expansions or enhancements that are not required for compliance with PJM criteria and are not state public policy projects according to the PJM Operating Agreement. These projects are used as inputs to RTEP models, but are not required for reliability, economic efficiency or operational performance criteria, as determined by PJM.

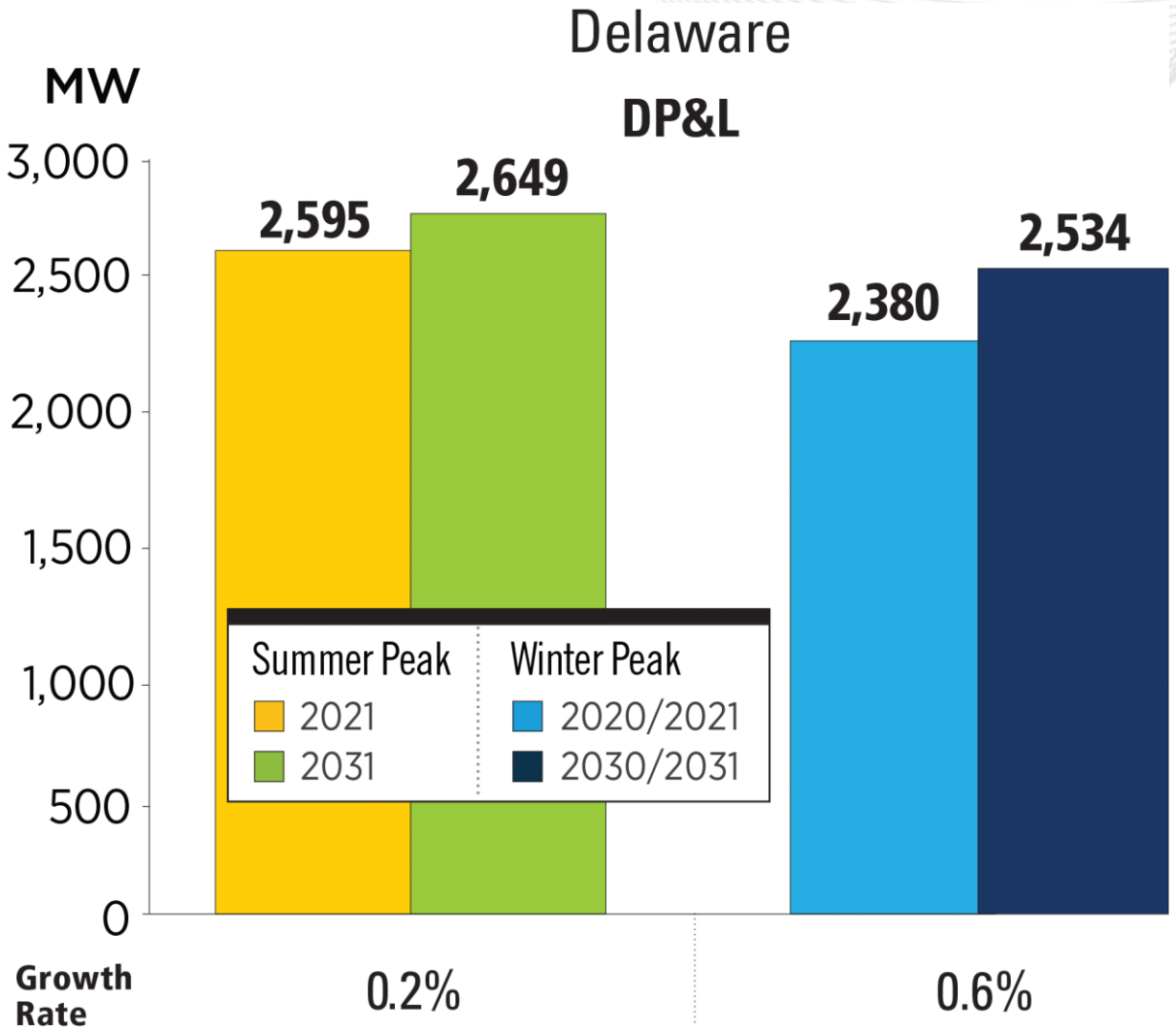
Planning
Load Forecast

PJM Annual Load Forecasts

(Jan. 2021)



Delaware – 2021 Load Forecast Report



PJM RTO Summer Peak		PJM RTO Winter Peak	
2021	2031	2020/2021	2030/2031
149,223 MW	153,759 MW	132,027 MW	135,568 MW
Growth Rate 0.3%		Growth Rate 0.2%	

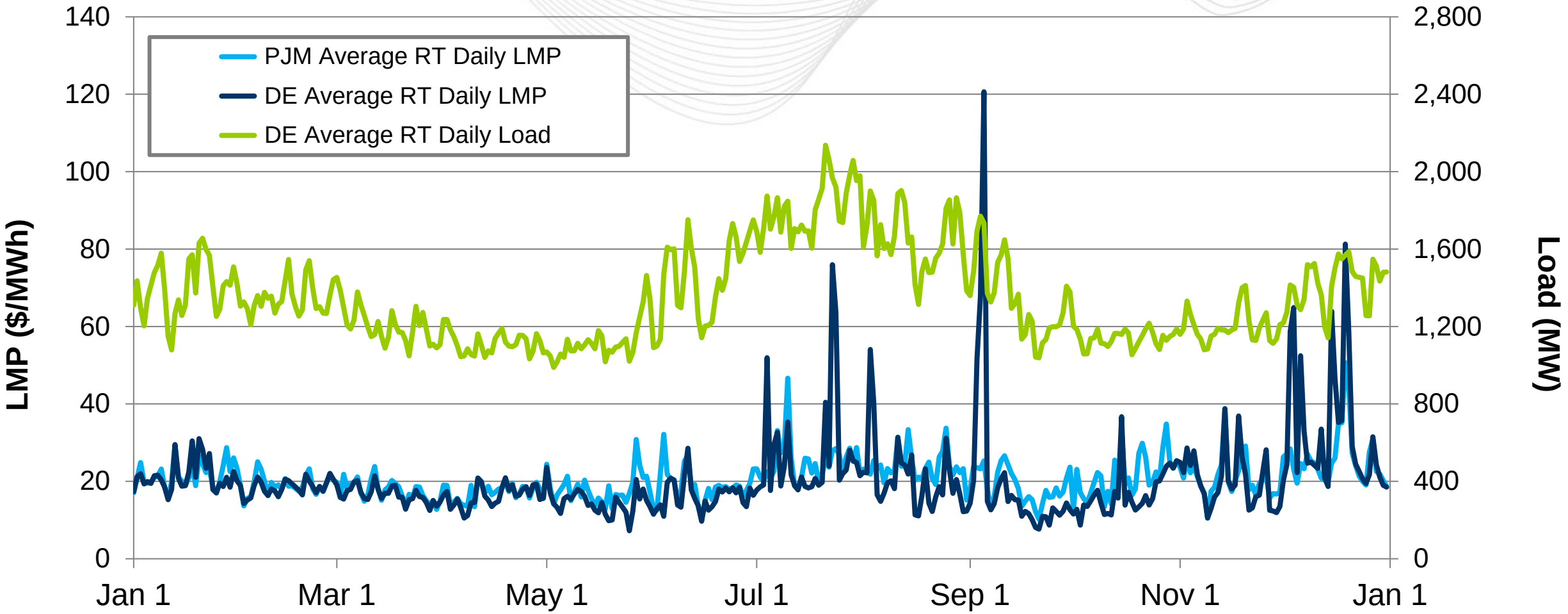
The summer and winter peak megawatt values reflect the estimated amount of forecasted load to be served by each transmission owner in the noted state/district. Estimated amounts were calculated based on the average share of each transmission owner's real-time summer and winter peak load in those areas over the past five years.

Markets

Market Analysis

Delaware – Average Daily LMP and Load

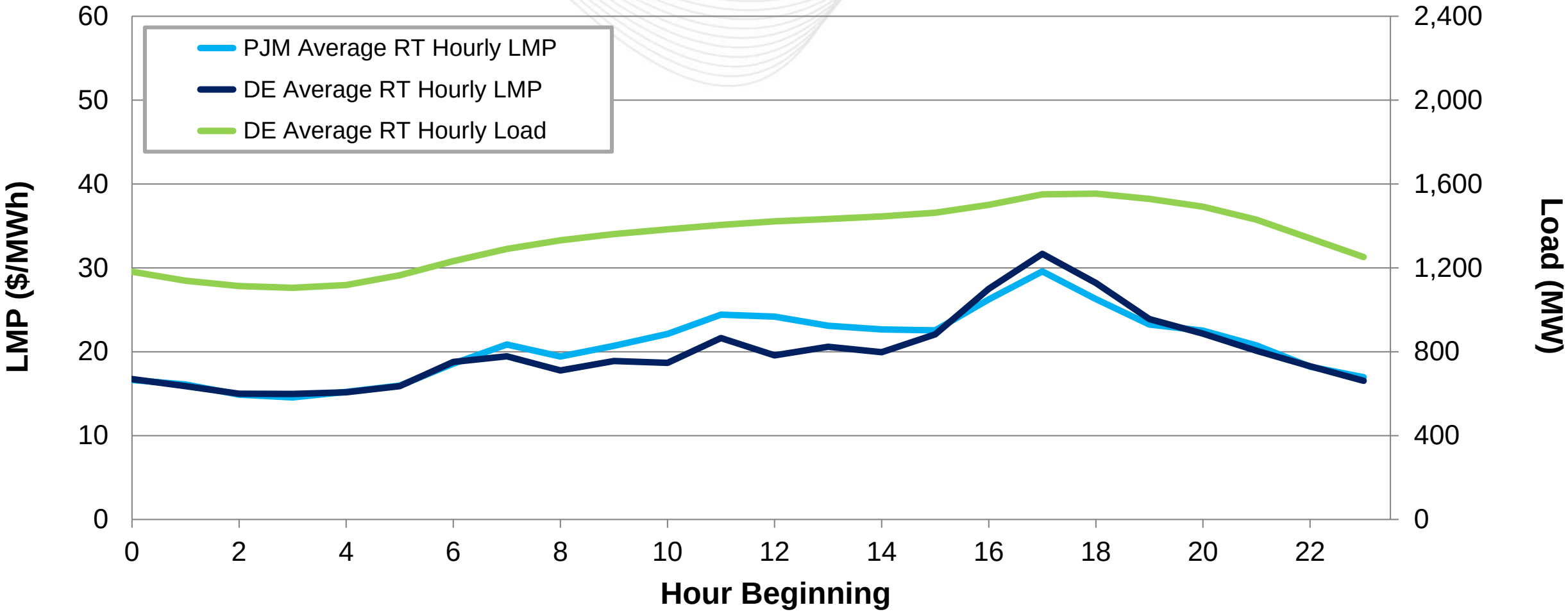
(Jan. 1, 2020 – Dec. 31, 2020)



Delaware – Average Hourly LMP and Load

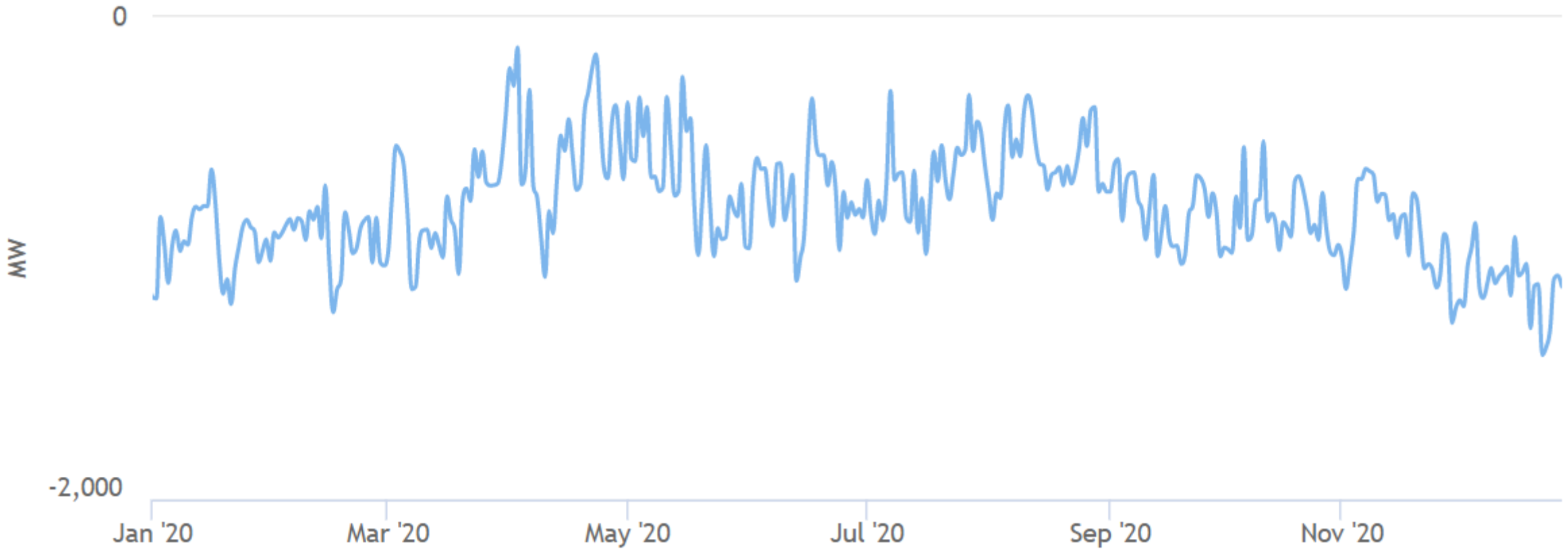
(Jan. 1, 2020 – Dec. 31, 2020)

Delaware's average hourly LMPs were generally lower than the PJM average hourly LMP, except during peak hours.



Delaware – Net Energy Import/Export Trend

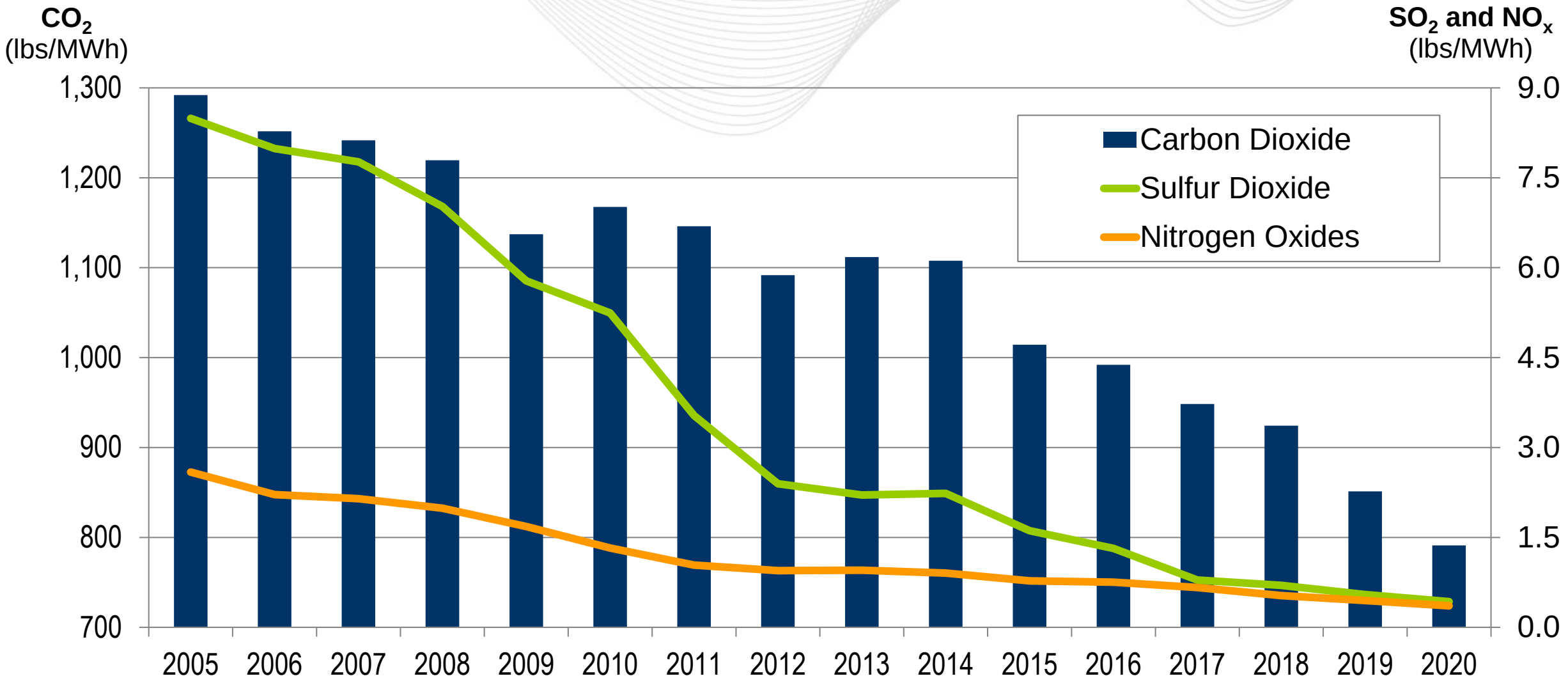
(Jan. 2020 – Dec. 2020)



Positive values represent exports and negative values represent imports.

Operations
Emissions Data

2005 – 2020 PJM Average Emissions



Delaware – Average Emissions (lbs/MWh)

(Feb. 2021)