

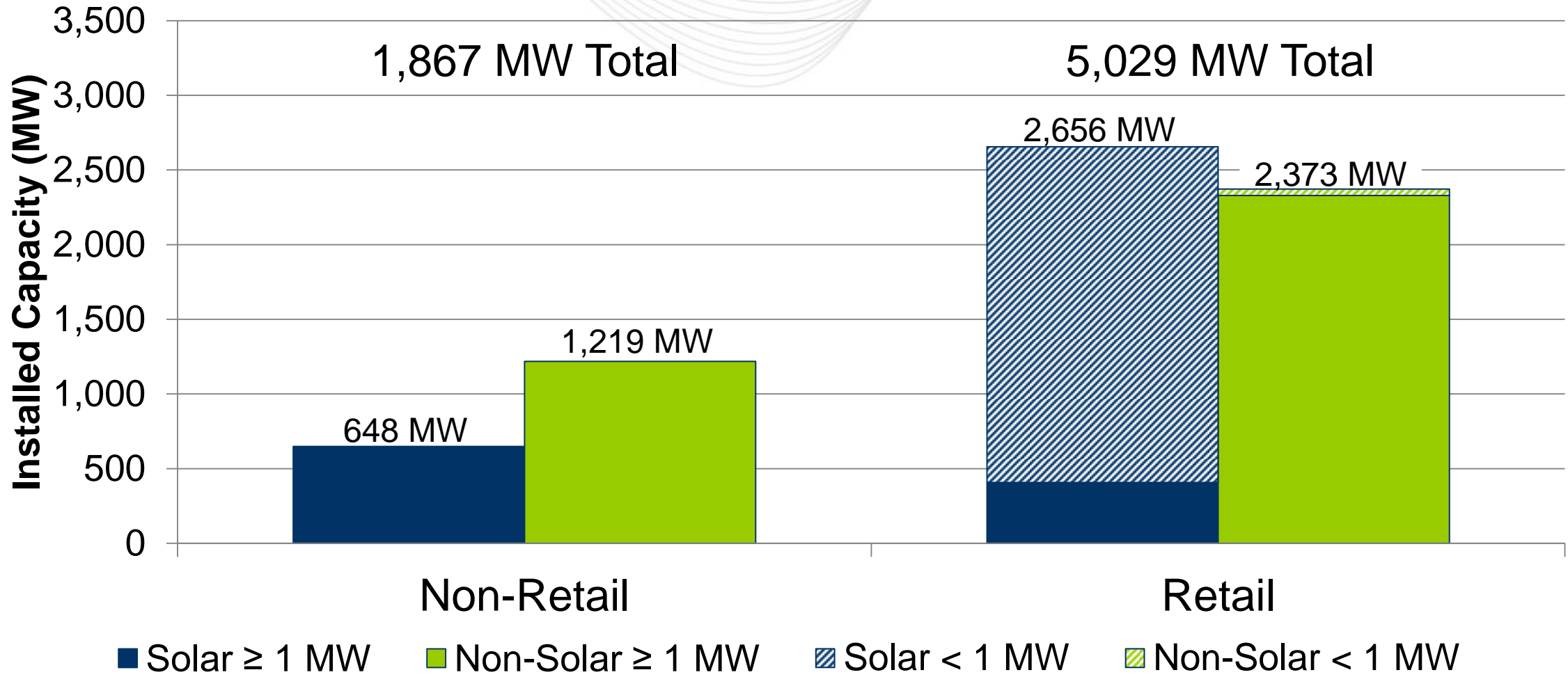


Process Used to Estimate Non-Retail Behind the Meter Generation in PJM

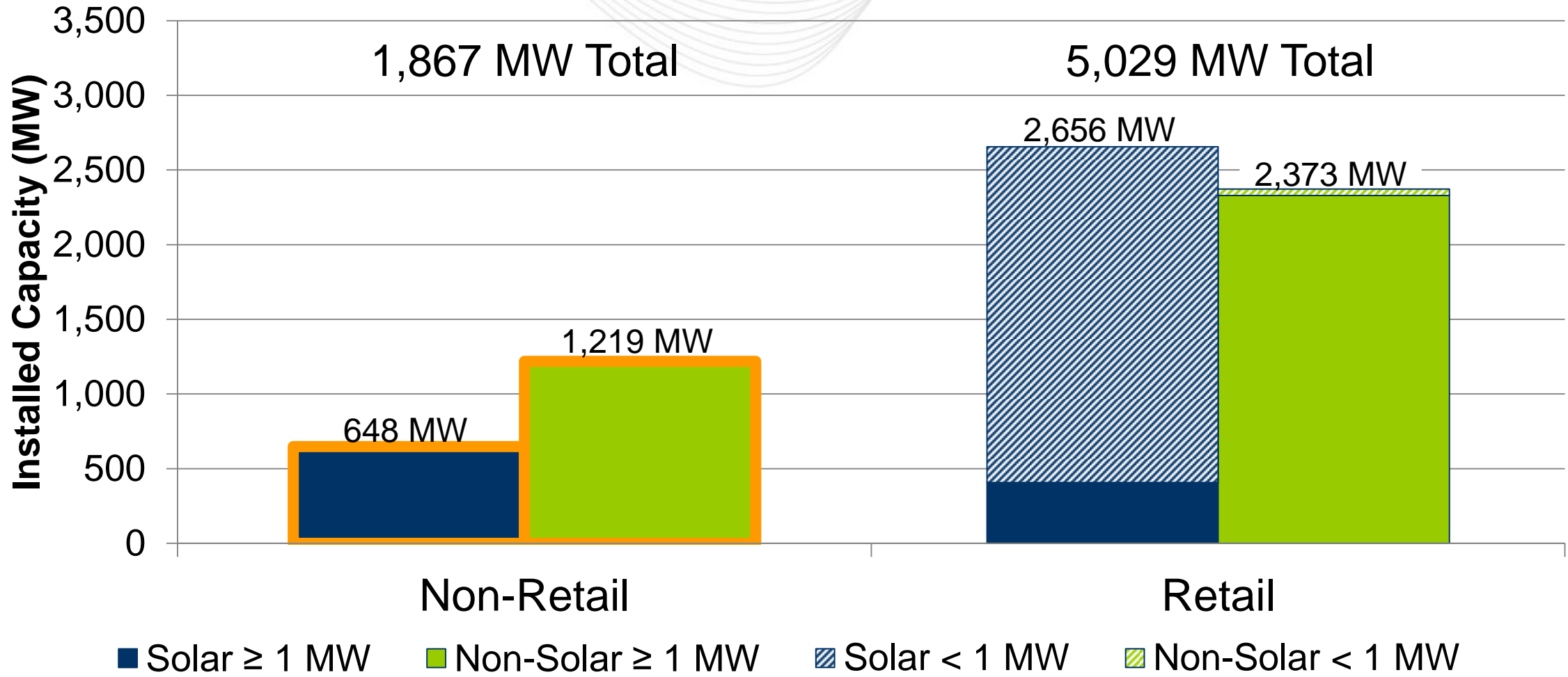
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May 14, 2019

Installed Capacity of BTM Generation in PJM by Category



Installed Capacity of BTM Generation in PJM by Category



Categories of Behind the Meter Generation

Behind the
Meter
Generation
(BTMG)

Non-Retail BTMG is BTMG that is used by municipal electric systems, electric cooperatives, or electric distribution companies to serve load.

Retail BTMG is BTMG that is located behind a retail electricity customer's meter and is used to serve that retail customer's load.

PJM posted list of potential Non-Retail BTMG with March 2019 OC materials, based on assumptions described in following slides.

- The U.S. Energy Information Administration:
 - *“collects, analyzes, and disseminates independent and impartial energy information to promote sound policymaking, efficient markets, and public understanding of energy and its interaction with the economy and the environment.”*
- Form EIA-860:
 - *“collects generator-level specific information about existing and planned generators ... at electric power plants with 1 megawatt or greater of combined nameplate capacity.”*



Step 1: Identify BTMG in PJM using EIA-860 Generator File

2017 Form EIA-860 Data - Schedule 3, 'Generator Data' (Operable Units Only)

Utility	Utility Name	Plant Co	Plant Name	Stat	County	Generator ID	Technology
195	Alabama Power Co	2	Bankhead Dam	AL	Tuscaloosa	1	Conventional Hydroelectric
195	Alabama Power Co	3	Barry	AL	Mobile	1	Natural Gas Steam Turbine
195	Alabama Power Co	3	Barry	AL	Mobile	2	Natural Gas Steam Turbine
195	Alabama Power Co	3	Barry	AL	Mobile	4	Conventional Steam Coal
195	Alabama Power Co	3	Barry	AL	Mobile	5	Conventional Steam Coal
195	Alabama Power Co	3	Barry	AL	Mobile	A1CT	Natural Gas Fired Combined Cycle
195	Alabama Power Co	3	Barry	AL	Mobile	A1CT2	Natural Gas Fired Combined Cycle
195	Alabama Power Co	3	Barry	AL	Mobile	A1ST	Natural Gas Fired Combined Cycle
195	Alabama Power Co	3	Barry	AL	Mobile	A2C1	Natural Gas Fired Combined Cycle
195	Alabama Power Co	3	Barry	AL	Mobile	A2C2	Natural Gas Fired Combined Cycle
195	Alabama Power Co	3	Barry	AL	Mobile	A2ST	Natural Gas Fired Combined Cycle
195	Alabama Power Co	4	Walter Bouldin Dam	AL	Elmore	1	Conventional Hydroelectric
195	Alabama Power Co	4	Walter Bouldin Dam	AL	Elmore	2	Conventional Hydroelectric
195	Alabama Power Co	4	Walter Bouldin Dam	AL	Elmore	3	Conventional Hydroelectric
195	Alabama Power Co	7	Gadsden	AL	Etowah	1	Natural Gas Steam Turbine
195	Alabama Power Co	7	Gadsden	AL	Etowah	2	Natural Gas Steam Turbine
195	Alabama Power Co	8	Gorgas	AL	Walker	10	Conventional Steam Coal
195	Alabama Power Co	8	Gorgas	AL	Walker	8	Conventional Steam Coal
195	Alabama Power Co	8	Gorgas	AL	Walker	9	Conventional Steam Coal
5701	El Paso Electric Co	9	Copper	TX	El Paso	1	Natural Gas Fired Combustion Turbine
195	Alabama Power Co	10	Greene County	AL	Greene	1	Natural Gas Steam Turbine
195	Alabama Power Co	10	Greene County	AL	Greene	2	Natural Gas Steam Turbine

Remove PJM wholesale generators and generators outside of PJM Balancing Authority



Step 2: NRBTMG Classification Based on Sector

*CHP = Combined Heat and Power

Sector	PJM Classification	Nameplate Capacity (MW)	# of Units	Primary Purpose (as described in Form EIA-860 Instructions)
Commercial CHP*	Retail	307.9	99	“For generators whose primary business is an industrial or commercial process (e.g., paper mills, refineries, chemical plants, etc.)”
Commercial Non-CHP*	Retail	258.1	97	
Industrial Non-CHP*	Retail	206.2	70	
Industrial CHP*	Retail	1523.6	121	
Electric Utility	Non-Retail	1118.8	273	“Electric utility plants and independent power producers whose primary purpose is generating electricity for sale”
IPP CHP*	Retail	106.4	30	
IPP Non-CHP*	Need more info	1082.2	351	



Step 3: NRBTMG Classification Based on Net Metering

Generators in IPP Non-CHP Sector

Net Metering Type	PJM Classification	Nameplate Capacity (MW)	# of Units	Net Metering Agreement Descriptions (as described in Form EIA-860 Instructions)
Net Metering	Retail	168.7	80	“Part of an arrangement that allows output from renewable resources to be credited against a customer’s electric bill”
Virtual Net Metering	Retail	23.2	13	“Part of a known billing arrangement that allows multiple energy customers to receive net metering credit from a shared onsite or remote renewable energy system much as if it was located behind the customer’s own meter”
Neither	Need more info	890.3	258	Neither of the above

Step 4: NRBTMG Classification Based on Technology

Generators in IPP Non-CHP Sector without Net Metering Agreements

Technology	PJM Classification	Nameplate Capacity (MW)	# of Units
Landfill Gas	Non-Retail	117.3	67
Conventional Hydroelectric	Non-Retail	68.5	34
Conventional Hydroelectric – Some exceptions based on research on individual generators	Retail	2.4	4
Solar Photovoltaic	Need more info	636.8	125
Other	Need more info	65.3	28

Step 5: NRBTMG Classification Based on Capacity

Generators in IPP Non-CHP Sector without Net Metering Agreements or Landfill Gas or Conventional Hydroelectric Technology

Nameplate Capacity	PJM Classification	Nameplate Capacity (MW)	# of Units
Greater than 2.5 MW – Most cases	Non-Retail	528.8	74
Greater than 2.5 MW – Some exceptions based on research on individual generators	Retail	74.4	17
Less than or equal to 2.5 MW	Need more info	98.9	62

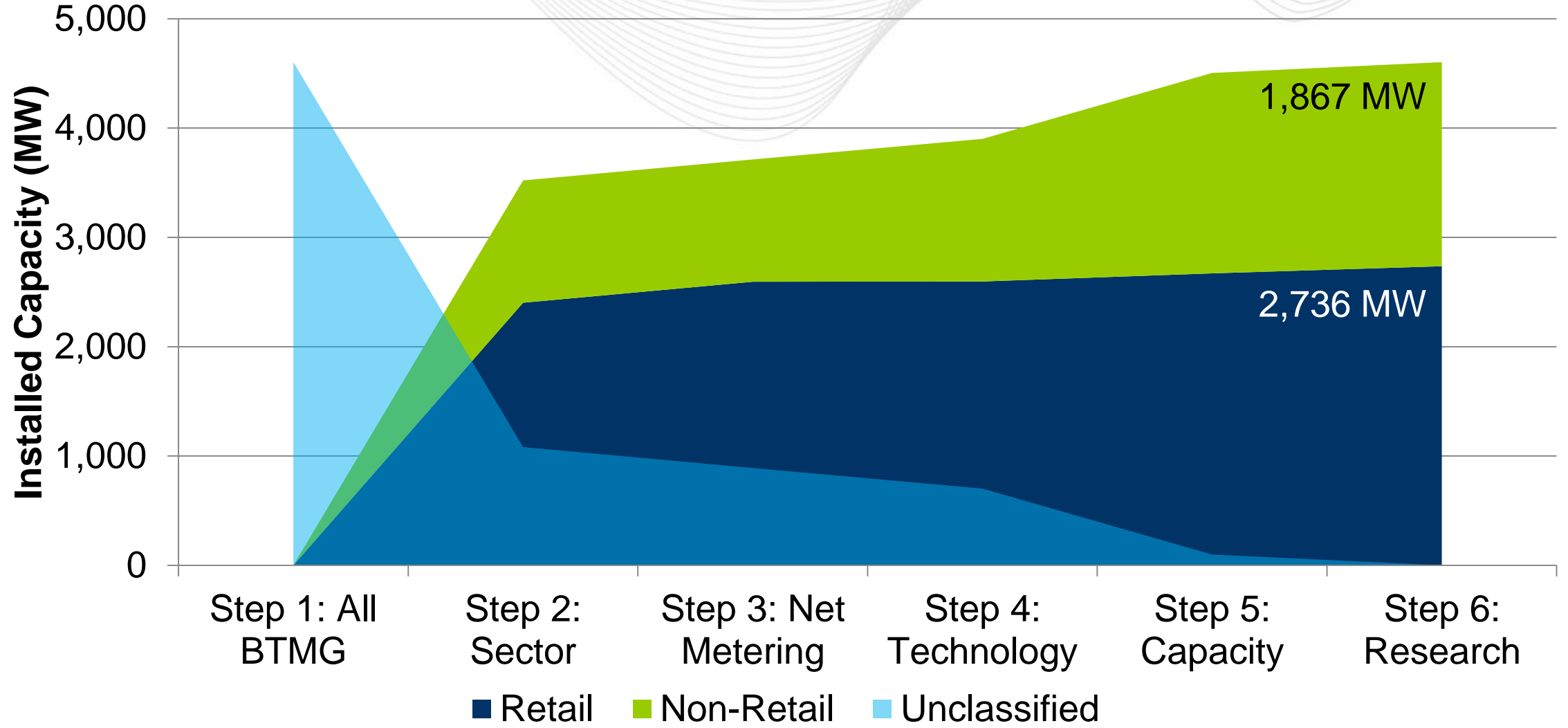


Step 6: NRBTMG Classification Based on Extra Research

Generators in IPP Non-CHP Sector without Net Metering Agreements or Landfill Gas or Conventional Hydroelectric Technology, less than 2.5 MW

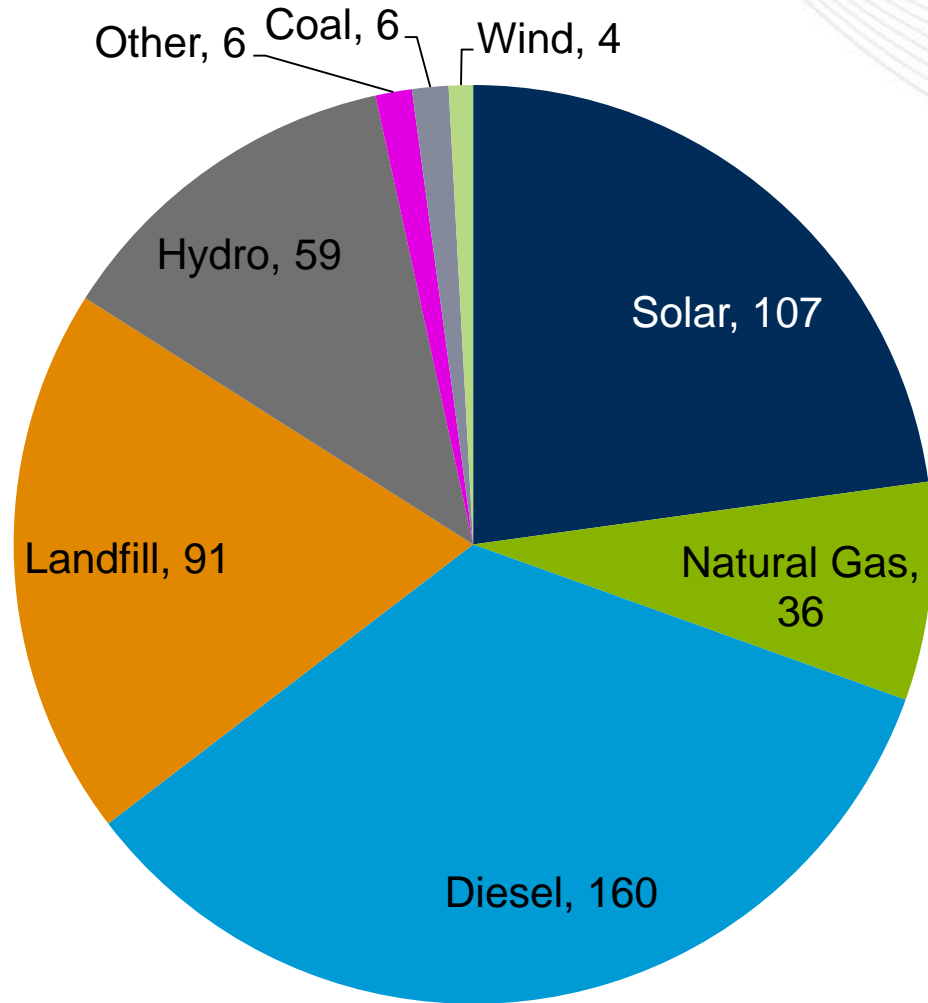
Generator-Specific Research	PJM Classification	Nameplate Capacity (MW)	# of Units
Generators with evidence indicating they provide power to multiple customers	Non-Retail	33.5	21
Generators with evidence indicating they provide power to on-site users	Retail	65.4	41

Summary of Information Gathered in Each Step

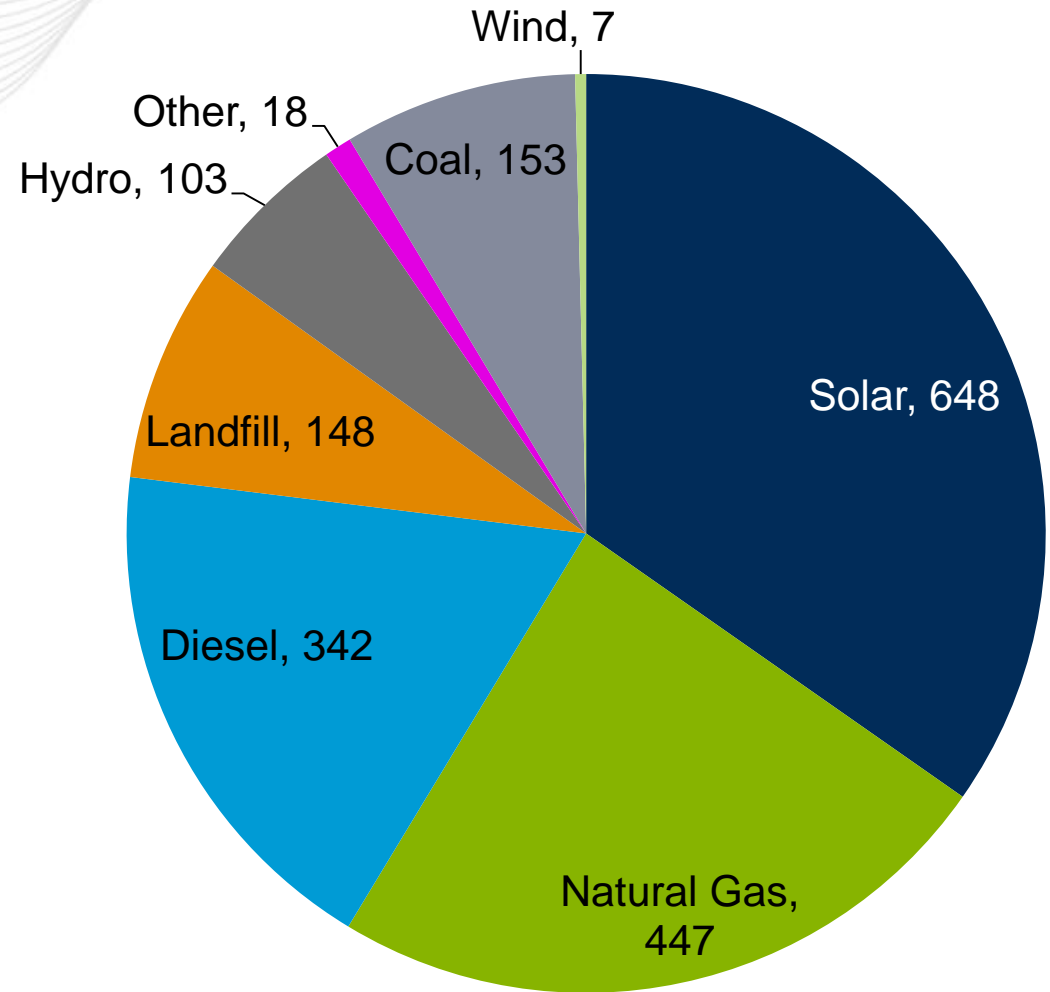


Summary of Identified Non-Retail BTMG Technologies

469 NRBTMG Units at Plants ≥ 1 MW



1,867 MW NRBTMG at Plants ≥ 1 MW



Proposal for Non-Retail BTMG Reporting Process

Annual Reporting

- PJM publishes list of potential Non-Retail BTMG based on EIA-860 data
- PJM solicits Network Customers to report Non-Retail BTMG ≥ 0.1 MW
- Network Customer completes Non-Retail BTMG reporting template or indicates that there is no Non-Retail BTMG located in their area
- First solicitation targeted for June 1, 2019; responses due July 1, 2019
- PJM presents updated list to OC in August / September timeframe

Update Reporting

- Network Customer submits updated reporting template when there is a change to the information submitted during the annual reporting process
- New / deactivated units to be reported within one month of in-service / deactivation date



Example of Non-Retail BTMG Reporting Template

Network Customer Information:																
PJM Shortname		ABC														
PJM Longname		ABC Company														
Contact Name		First Last														
Contact Email		first.last@company.com														
Contact Phone Number		(123) 456-7890														
Generator Information:																
EIA Plant Code	EIA Plant Name	EIA Generator ID	PJM Transmission Zone	Electric Distribution Company	Street Address	City	State	Zip	Latitude	Longitude	Operating Month	Operating Year	Planned Retirement Month	Planned Retirement Year	Nameplate Capacity (MW)	Technology
815	Community College PV	PV-1	TZ-A	EDC-X	10 Highway 276	Clinton	PA	14098	41.837143	-92.550196	6	2012	n/a	n/a	1.7	Solar Photovoltaic
78	ABC Cove Station	UN1	TZ-B	EDC-Y	988 Park Road	Cedar Rapids	OH	27336	32.686007	-82.145747	4	1926	8	2020	4.3	Conventional Steam Coal
78	ABC Cove Station	UN2	TZ-B	EDC-Y	988 Park Road	Cedar Rapids	OH	27336	32.686007	-82.145747	4	1926	8	2020	4.3	Conventional Steam Coal
217	Bristol	GT1	TZ-B	EDC-Y	2 Airport Avenue	Salisbury	IL	43131	32.674586	-93.962014	1	2014	n/a	n/a	3.8	Battery
192	Garden Hills Hydro	1	TZ-A	EDC-Z	4 Highway 373	Fulton	VA	98754	39.123039	-73.184911	8	1927	n/a	n/a	12.0	Conventional Hydroelectric
192	Garden Hills Hydro	2	TZ-A	EDC-Z	4 Highway 373	Fulton	VA	98754	39.123039	-73.184911	8	1927	n/a	n/a	12.0	Conventional Hydroelectric
192	Garden Hills Hydro	3	TZ-A	EDC-Z	4 Highway 373	Fulton	VA	98754	39.123039	-73.184911	8	1927	n/a	n/a	12.0	Conventional Hydroelectric