

# Existing Non-Retail BTMG Business Rules

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- Definition of Non-Retail BTMG
- Metering requirements
- Reporting requirements
- Netting requirements
  - Non-Retail BTMG Threshold
  - Adjustment to netting if Non-Retail BTMG Threshold reached
  - 3,000 MW cap on Non-Retail BTMG
  - Adjustment to netting if 3,000 MW Cap reached
- Operational Requirements
  - Performance Evaluation
  - Adjustment to netting if failure to operate

Unit delivers energy to load without using the transmission system or any distribution facilities.

Exception to the prohibition on use of distribution facilities rule is allowed.

- Consent to use must be granted from the owner, lessee or operator of distribution facilities and demonstrated to PJM.

Does not include any portion of the output of such unit:

- Designated as Capacity Resource;
- Sold to another entity for consumption at another electrical location; or
- Sold into PJM Interchange Energy Market

Unit is used by muni/coop/EDC to serve load.

## Retail BTMG

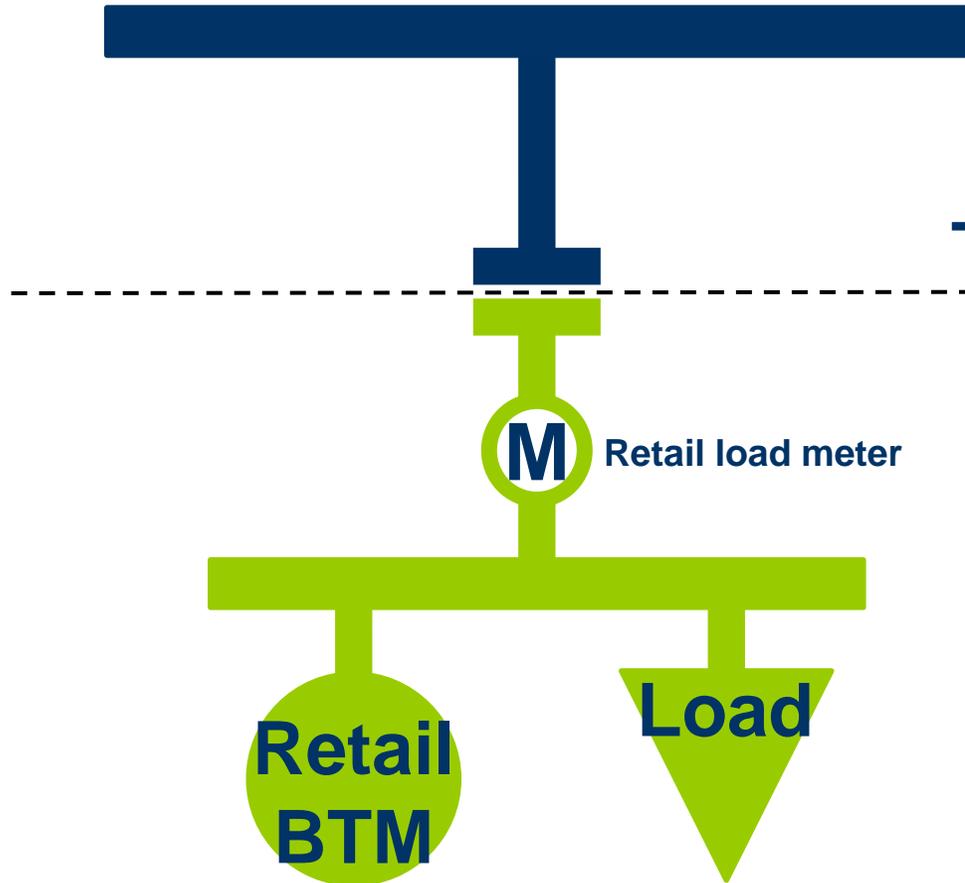
- Unit is co-located with load at same site
- Unit typically serves load for one retail electric customer (unless there is a net-energy metering arrangement with utility)
- Unit is located behind the retail electric customer's meter
- Unit is not classified as generation capacity resource, demand resource, or energy-only resource

## Non-Retail BTMG

- Unit is not co-located with load at same site
- Unit serves load for multiple retail electric customers on distribution system
- Unit is located behind the muni/coop/EDC wholesale meter
- Unit is not classified as generation capacity resource, demand resource, or energy-only resource

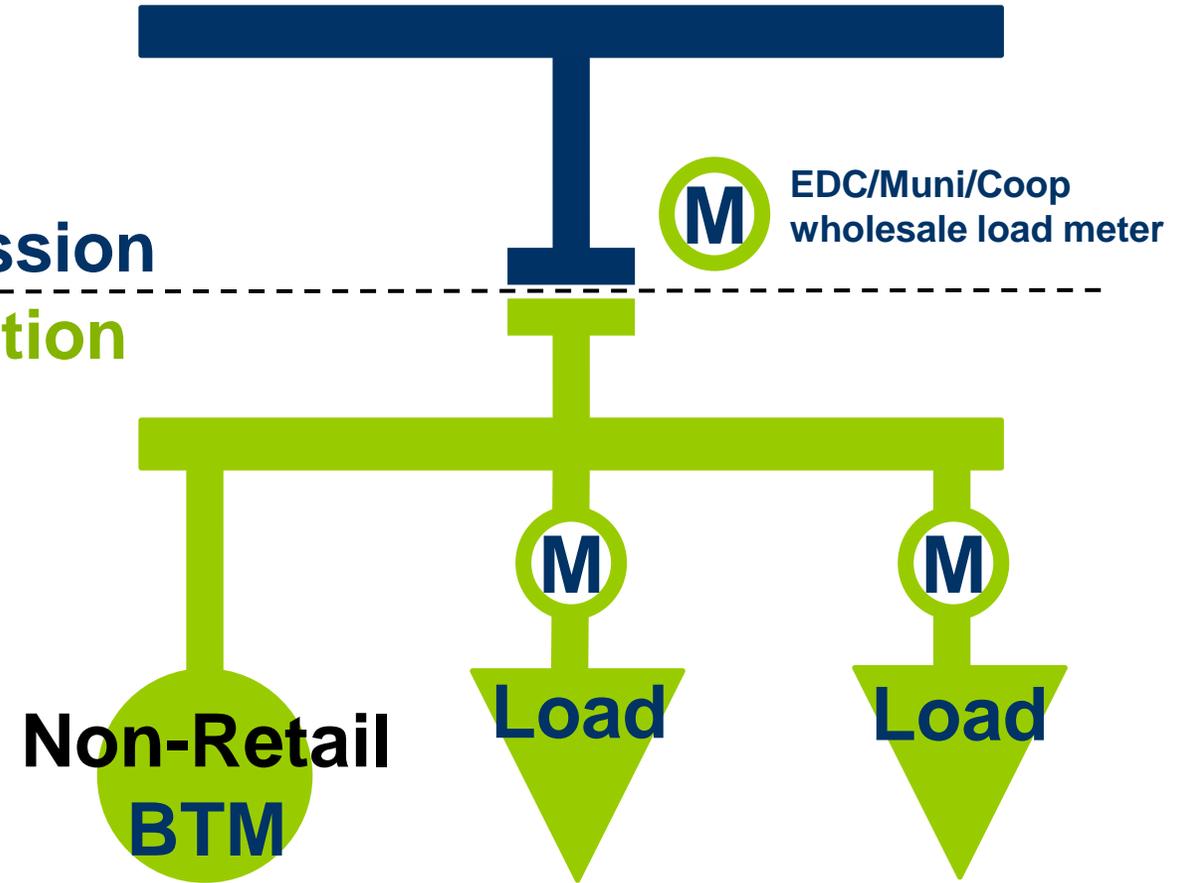
## Retail BTM

Serves load for one retail electricity customer.



## Non-Retail BTM

Serve load for multiple retail electricity customers.



- BTMG that is  $\geq 10$  MW (or that otherwise has been identified by PJM as requiring metering for operational security purposes) must have both revenue-quality metering and telemetry equipment.
  - Need for metering smaller-sized units depends on local operational security needs.
- BTMG consisting of multiple units that are individually rated at  $< 10$  MW, but collectively total  $>10$  MW at a single site and are identified as requiring metering and telemetry equipment, may meet these requirements by being metered as a single unit.
- For telemetry and metering to be communicated to PJM, the unit must be modeled in the PJM Energy Management System.

## Network Customer with Non-Retail BTMG

- Report information to facilitate the determination of Non-Retail BTMG netting credit
- Report scheduled outages of unit prior to the occurrence of such outage
- Report the output of Non-Retail BTMG during emergency conditions
- Report load and generation information to PJM for use in load forecast (EDC or network customer may report)\*

## Transmission Owner/Operator

- Report information to determine the impact of BTMG during a manual load dump or other emergency situations on an annual basis (to the extent that the TO holds or can obtain info from muni/coop/EDC) per M-14D, Appendix A
- Report load and generation information for PJM's planning purposes\*
- Submit a completed BTMG Modeling Information Form as an eDART Network Model Request\*

\*Requirement applies only if metering is required for Non-Retail BTMG.

- Operating Non-Retail BTMG is allowed to net against load for purposes of calculating capacity, transmission service, ancillary service, and administrative fee charges.
- Only the Network Customer, entity receiving Network Integration Transmission Service, is eligible for netting treatment.
  - Entity must have NITS agreement.
- Such netting may never result in a load that is less than zero.

## Obligation Peak Load (OPL)

- Locational Reliability Charge
- Schedule 9–5 Capacity Resource & Obligation Management Charge
- Generation Deactivation Charge

## Network Service Peak Load (NSPL)

- Network Integration Transmission Service Charge
- Transmission Enhancement Charge
- Reactive Supply and Voltage Control from Generation & Other Sources Service Charge
- Black Start Service Charge

## Scheduled Load or Real-Time Load

- Regulation Charge
- Day-Ahead & Real-Time Operating Reserve Charge
- Synchronized Reserve Charge
- Non-synchronized Reserve Charge
- Day-Ahead Scheduling Reserve Charge
- Reactive Services Charge
- Synchronous Condensing for Post-Contingency Operation Charge
- Transmission Loss Charge
- Inadvertent Interchange Charge
- Meter Correction Charge
- Transmission Owner Scheduling, System Control & Dispatch Service Charge
- Schedule 9-1 Control Area Administration Charge
- Schedule 9-3 Market Support Charge
- Schedule 9- MMU Funding Charge
- Schedule 9-FERC Annual Charge Recovery Charge
- Schedule 9-OPSI
- Schedule 9-CAPS
- Schedule 9-FERC
- Schedule 10-RFC

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## PJM posts zonal loads in November

Zonal NSPL has the highest metered zonal peak load during Nov. 1–Oct. 31 period.

Weather Normalized Zonal Peak (WNZP) for prior summer

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## Allocation of zonal load to retail end-use customers and wholesale areas in December

- Methods to allocate may vary from EDC to EDC
  - <https://www.pjm.com/markets-and-operations/billing-settlements-and-credit/theo-plc-and-nspl.aspx>
- Allocations of Zonal NSPL used to determine LSE's NSPL MW for next calendar year
- Allocations of WNZP used to determine LSE's OPL MW for next delivery year



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## Assignment to Network Customer (LSE) for operating day

- EDC uploads the aggregate amount of NSPL MWs and OPL MWs that an LSE is responsible to serve for the operating day in Capacity Exchange system





# Example of 100 Percent Eligible Netting

	Zonal Load	Hour	Zonal Metered Load	Wholesale Area Actual Load	Operating Non-Retail BTMG	Wholesale Area Net Metered Load	Share of Zonal Metered Load	Wholesale Area NSPL or OPL
NSPL	10,000	1 CP Hour	10,000	500	50	450	0.04500	450
WNZP	9,400						0.04767	448.1
		5 CP Hour 1	9,700	505	50	455		
		5 CP Hour 2	9,500	490	45	445		
		5 CP Hour 3	9,100	495	35	460		
		5 CP Hour 4	9,400	480	48	432		
		5 CP Hour 5	8,700	450	30	420		
		Avg.	9,280		Avg.	442.4		

$450 / 10,000 =$  (arrow pointing to NSPL Share of Zonal Metered Load)

$442.4 / 9,280 =$  (arrow pointing to WNZP Share of Zonal Metered Load)

NSPL= Share of Zonal Metered Load \* Zonal NSPL

OPL= Share of Zonal Metered Load \* WNZP

With 100 percent of operating Non-Retail BTMG allowed to net, NSPL=450 MW and OPL = 448.1 MW.  
 If operating Non-Retail BTMG was not allowed to net, NSPL = 500 MW and OPL =490.3 MW.

- Non-Retail BTMG Threshold caps the amount of Non-Retail BTMG in PJM that will be eligible for 100 percent netting.
- Initial Non-Retail BTMG Threshold was 1,500 MW for the 2006 calendar year for transmission charges and the 2006/2007 delivery year for capacity charges.
- Each year thereafter, Non-Retail BTMG Threshold is increased based PJM load growth.
- Load growth shall be determined based on the most recent forecasted weather-adjusted summer peak for PJM region, divided by the weather-adjusted coincident peak for the prior summer for the same area.
- Non-Retail BTMG Threshold shall be rounded up or down to the nearest whole MW.
- Non-Retail BTMG Threshold for the current calendar year/delivery year shall be the base amount for calculating the Non-Retail BTMG Threshold for the succeeding calendar year/delivery year.



# Non-Retail BTMG Threshold Calculation for 2019 CY & 2019/2020 DY

2018 CY & 2018/2019 DY Non-Retail BTMG Threshold = 1,953 MW

Base amount for  
calculating 2019  
CY & 2019/2020  
DY Threshold

## Load Growth

= **2019 Forecasted Summer Peak** ÷ **2018 Weather-Normalized Summer Peak**

= 151,357 MW ÷ 147,375 MW

= 1.0270

## 2019 CY & 2019/2020 DY Non-Retail BTMG Threshold

= **Base amount \* Load Growth**

= 1,953 MW \* 1.0270

= **2,006 MW**

## Exceeding the Non-Retail BTMG Threshold

- If the amount of Non-Retail BTMG in PJM exceeds the Non-Retail BTMG Threshold, the Non-Retail BTMG eligible for netting shall be prorated back to the Non-Retail BTMG Threshold.
- An entity's Non-Retail BTMG eligible for netting shall be the product of the entity's total operating Non-Retail BTMG multiplied by the ratio of Non-Retail BTMG Threshold divided by the total amount of Non-Retail BTMG in PJM (not to exceed 3,000 MW).

### Example:

Non-Retail BTMG Threshold = 1,500 MW

Non-Retail BTMG in PJM = 2,000 MW

Ratio =  $1,500 \text{ MW} / 2,000 \text{ MW} = 0.75$

Entity's Operating Non-Retail BTMG = 20 MW

Entity's Eligible Non-Retail BTMG Netting Amount =  $20 \text{ MW} * 0.75 = 15 \text{ MW}$



# Example of 75 percent Eligible Netting (Non-Retail BTMG Threshold Exceeded)

	Zonal Load	Hour	Zonal Metered Load	Wholesale Area Actual Load	Operating Non-Retail BTMG	Wholesale Area Net Metered Load	Ratio Adjustment	Eligible Non-Retail BMTG Netting Amount	Wholesale Area Adjusted Net Metered Load	Share of Zonal Metered Load	Wholesale Area NSPL or OPL
NSPL	10,000	1 CP Hr.	10,000	500	50	450	0.75	37.5	462.5	0.04625	462.5

$462.5 / 10,000 =$

WNZP	9,400									0.04879	458.7
		5 CP Hr. 1	9,700	505	50	455	0.75	37.5	467.5		
		5 CP Hr. 2	9,500	490	45	445	0.75	33.75	456.25		
		5 CP Hr. 3	9,100	495	35	460	0.75	26.25	468.75		
		5 CP Hr. 4	9,400	480	48	432	0.75	36	444		
		5 CP Hr. 5	8,700	450	30	420	0.75	22.5	427.5		
		Avg.	9,280		Avg.	442.4		Avg.	452.8		

$452.8 / 9,280 =$

With 75% of Operating Non-Retail BTMG allowed to net, NSPL = 462.5 MW and OPL = 458.7 MW.

- Non-Retail BTMG in PJM shall be capped at 3,000 MW for netting purposes unless modified pursuant to a filing.
- If a 3,000 MW cap is reached, no additional Non-Retail BTMG will be eligible for netting for purposes of determining charges based on NSPL or OPL.
- In the event a 3,000 MW cap is reached, within 6 months of the date the cap is reached, PJM shall make a section 205 filing to justify either a continuation of existing BTMG rules (including any expansion of rules to include additional MWs) or any changes to the rules.
  - Filing to address the effect of the implementation of current BTM rules on reliability and equitable allocation of cost responsibility.

# Example of 3,000 MW Cap Reached

	Zonal Load	Hour	Zonal Metered Load	Whole sale Area Actual Load	Operating Non-Retail BTMG Allowed to Net	Operating Non-Retail BTMG Not Allowed to Net	Wholesale Area Net Metered Load	Ratio Adjustment	Eligible Non-Retail BMTG Netting Amount	Wholesale Area Adjusted Net Metered Load	Share of Zonal Metered Load	Wholesale Area NSPL or OPL
NSPL	10,000	1 CP Hr.	10,000	500	50	10	440	0.66867	33.4	466.6	0.04666	466.6

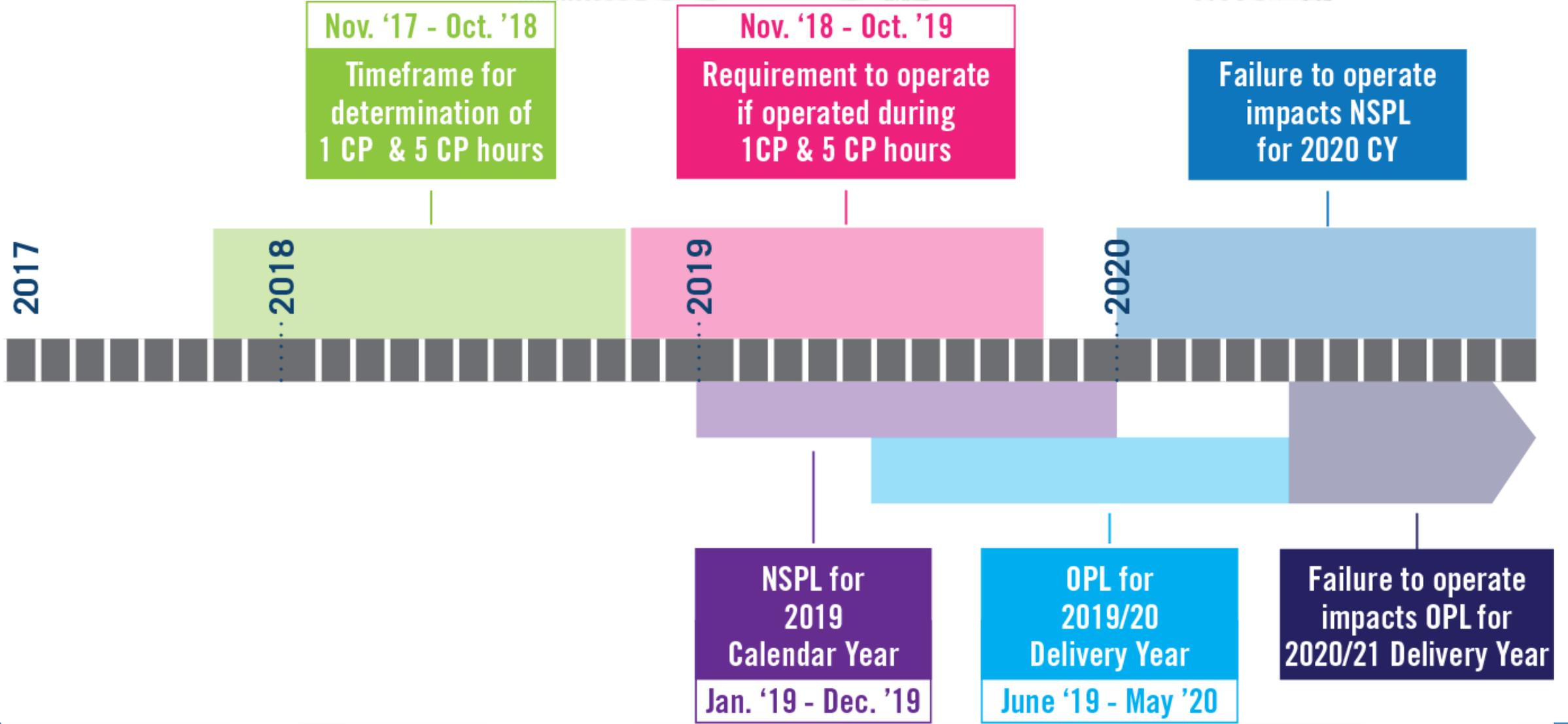
$466.6 / 10,000 =$

WNZP	9,400										0.04916	462.1
		5 CP Hr. 1	9,700	505	50	10	445	0.66867	33.4	471.6		
		5 CP Hr. 2	9,500	490	45	9	436	0.66867	30.1	459.9		
		5 CP Hr. 3	9,100	495	35	8	452	0.66867	23.4	471.6		
		5 CP Hr. 4	9,400	480	48	9	423	0.66867	32.1	447.9		
		5 CP Hr. 5	8,700	450	30	8	412	0.66867	20.1	429.9		
		Avg.	9,280						Avg.	456.2		

$456.2 / 9,280 =$

When 3,000 MW cap is reached, NSPL = 466.6 MW and OPL = 462.1 MW.

- A Non-Retail BTMG that has output that is netted from load for purposes of determining LSE's NSPL & OPL is required to operate at full output during the first 10 times between Nov. 1 and Oct. 31 that Maximum Generation Emergency (MGE) conditions occur in the zone in which Non-Retail BTMG is located.
  - Applies to MGE condition called for generation or transmission emergencies.
- Unit outages may not be scheduled from June through September.
- Except for failures to operate due to scheduled outages from October through May, for each MGE condition that Non-Retail BTMG fails to operate, in whole or in part, the amount of netting permitted for such unit will be reduced by 10 percent of the amount of MW the resource failed to produce.
- Reductions in netting shall be applied in the succeeding calendar year for NSPL and in the succeeding delivery year for OPL.



Each Non-Retail BTMG that is required to operate during an emergency condition is evaluated for performance.

Required output = 100 MW

Actual output = 50 MW

Shortfall = 50 MW

Entity's eligible Non-Retail BTMG netting amount for next CY/DY will be reduced by 10 percent \* Shortfall or 5 MW

# Example of Reduction in Netting Due to Failure to Operate

	Zonal Load	Hour	Zonal Metered Load	Wholesale Area Actual Load	Operating Non-Retail BTMG	Wholesale Area Net Metered Load	Ratio Adjustment	Eligible Non-Retail BMTG Netting Amount	Reduction in Eligible Non-Retail Netting Due to Fail. to Operate	Wholesale Area Adjusted Net Metered Load	Share of Zonal Metered Load	Wholesale Area NSPL or OPL
NSPL	10,000	1 CP Hr.	10,000	500	50	450	1	50	5	455	0.04550	455

$$455 / 10,000 =$$

WNZP	9,400										0.04821	453.2
		5 CP Hr. 1	9,700	505	50	455	1	50	5	460		
		5 CP Hr. 2	9,500	490	45	445	1	45	5	450		
		5 CP Hr. 3	9,100	495	35	460	1	35	5	465		
		5 CP Hr. 4	9,400	480	48	432	1	48	5	437		
		5 CP Hr. 5	8,700	450	30	420	1	30	5	425		
		Avg.	9,280						Avg.	447.4		

$$447.4 / 9,280 =$$

If Non-Retail BTMG fails to operate, NSPL = 455 MW and OPL = 453.2 MW.

# Appendix

**“Behind The Meter Generation”** shall refer to a generating unit that delivers energy to load without using the Transmission System or any distribution facilities (unless the entity that owns or leases the distribution facilities has consented to such use of the distribution facilities and such consent has been demonstrated to the satisfaction of the Office of the Interconnection); provided, however, that Behind The Meter Generation does not include (i) at any time, any portion of such generating unit’s capacity that is designated as a Generation Capacity Resource, or (ii) in any hour, any portion of the output of such generating unit that is sold to another entity for consumption at another electrical location or into the PJM Interchange Energy Market.

**“Non-Retail Behind The Meter Generation”** shall mean Behind the Meter Generation that is used by municipal electric systems, electric cooperatives, and electric distribution companies to serve load.

**Maximum Generation Emergency** shall mean an Emergency declared by the Office of the Interconnection to address either a generation or transmission emergency in which the Office of the Interconnection anticipates requesting one or more Generation Capacity Resources, or Non-Retail Behind The Meter Generation resources to operate at its maximum net or gross electrical power output, subject to the equipment stress limits for such Generation Capacity Resource or Non-Retail Behind The Meter resource in order to manage, alleviate, or end the Emergency.