

## **CAPACITY PEAK LOAD CONTRIBUTION & TRANSMISSION NETWORK SERVICE OBLIGATION**

In conformity with PJM's tariff, this document outlines the process Virginia Electric and Power Company (Dominion Energy) uses to determine the capacity peak load contribution (PLC) and network service peak load (NSPL) for each of its end-use customers (Customer).

As the electric distribution company (EDC) in the PJM Dominion Zone, Dominion Energy collects and reports customer load data to PJM. This data, in turn, is used by PJM to calculate the hours of the five highest daily peak loads (5CP) on the entire PJM system June 1 through September 30; PJM load management events are added back by PJM for an unrestricted value. PJM, through forecast modeling, uses this data to calculate a weather-normalized unrestricted capacity obligation (UCAP) for the load serving entities

(LSE) in the Dominion Zone; the UCAP functions as a baseline to ensure a LSE's installed capacity resources are sufficient to meet PJM's forecasted load and reserve margins.

By examining a Customer's load during PJM's 5CP and reconciling it to Dominion Energy's PJM UCAP, a Customer specific PLC is calculated. Dominion Energy updates Customer PLCs annually in January and applies it to the subsequent delivery year beginning June 1. In addition to playing an important role in determining UCAP, a Customer's PLC also establishes the amount of capacity it can register in PJM's emergency load management programs.

A Customer's transmission network service obligation is based on its load at the time of the Dominion Zone's annual NSPL – the single highest transmission peak load experienced on the Dominion Energy transmission system during the 12 month period ending October 31. Dominion Energy, as the EDC, collects and reports Customer load data to PJM which in turn determines the transmission network service obligation for the LSEs in the Dominion Zone for the succeeding calendar year.

### **Peak Load Contribution Calculation**

The methodology Dominion Energy uses for determining a Customer's PLC depends upon the type of metering, and thus the level of detail, it possesses for a Customer's load during PJM's 5CP.

- **Interval Meter** - Records the Customer's kWhs on an interval basis for each billing cycle. The interval kWhs are used to determine hourly load values, and the hourly loads are summed to determine the Customer's total kWhs for the billing cycle.
- **Non-Interval Demand Meter** - Records the Customer's total kWhs for a billing cycle as well as the highest kW demand measured over a 30-minute period. However, there is no record of the amount of load on an hourly interval basis.
- **Non-Interval Monthly Meter** - Records the Customer's total kWhs for a billing cycle. There is no record of the amount of load on an hourly interval basis.

Based upon the type of metering a Customer possesses, a Customer class load profile is established if needed. Since interval metered Customers have a historical record of their own hourly load data, they utilize their own unique individual load values. On the other hand, historical interval data is not available for non-interval metered Customers and for this reason a class load profile is developed from a random sampling of interval meters installed at Customer locations for load research purposes. These load research meters provide hourly load values that represent the average usage in that Customer class and establish its Customer class load profile.

After determining a Customer's type of metering, Dominion Energy goes through a five step process to determine its PLC.

- 1) **Retrieve Customer's Hourly Load Data** - Load data for a Customer, corresponding to PJM's 5CP, is assembled from Dominion Energy's data warehouse -- customer specific hourly metered data is used for interval metered Customers whereas load research data is used for non-interval metered Customers. If a Customer is new and does not possess historical metering, load research data is used until sufficient Customer data becomes available.

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- 2) **Calculate Customer’s Unrestricted Load** - As explained in PJM Manual 19: Load Forecasting and Analysis, any PJM load management event that occurs during one of PJM’s 5CP, and is confirmed in eLRS, is added back to a Customer’s hourly load. PJM calculates the amount, if any, of load add-back and provides this data to Dominion Energy.

PJM Manual 19: Load Forecasting and Analysis  
Attachment A.1, Requirements for Production of Load Drop Estimates

		Reason for Load Drop		
		PJM-Initiated Emergency	Economic	EDC or CSP Initiated
Program Registration	DR / ILR	Load Drop Estimates must be produced for any interruptions from June 1 through September 30. Load drop is capped at the nominated DR/ILR amount.	Load Drop Estimates must be produced for any settled interruptions from June 1 through September 30. Load drop is capped at the nominated DR/ILR amount.	No Load Drop Estimates required.
	Emergency Energy Only	Load Drop Estimates must be produced for any interruptions during Emergency hours from June 1 through September 30.	No Load Drop Estimates required.	No Load Drop Estimates required.
	Economic	No Load Drop Estimates required.	No Load Drop Estimates required.	No Load Drop Estimates required.

- 3) **Apply Loss Expansion Factor** - Each Customer is assigned a loss expansion factor intended to gross-up Customer loads to reflect transmission and distribution line energy losses. A Customer’s loss expansion factor is determined by its delivery service voltage level. Generally, interval metered Customers are assigned either a transmission, primary, or secondary distribution loss factor whereas non-interval metered Customers usually have a secondary distribution loss expansion factor.
- 4) **Calculate Customer’s Unreconciled PLC** – An average of the Customer’s hourly unrestricted loads corresponding to PJM’s 5CP is multiplied by its loss expansion factor to arrive at its unreconciled PLC.
- 5) **Calculate Customer’s Reconciled PLC** – The sum of all unreconciled Customer PLC is scaled to match PJM’s UCAP for Dominion Energy LSE. This process creates a scaling factor that is applied to each Customer’s unreconciled PLC to come up with a finalized reconciled PLC.

**Transmission Network Service Obligation**

To determine the transmission network service obligation, load data is collected for the single highest transmission peak experienced on the Dominion Zone’s transmission system during the 12 month period ending October 31. Outlined below, at a high level, is the process followed to calculate the NSPL for the ensuing calendar year once the date and hour of the transmission peak is determined.

- 1) **Retrieve Hourly Load Data** – Collect hourly load data for all LSEs in the zone, including any applicable losses, coincident with the Dominion Zone’s transmission peak.
- 2) **Calculate LSEs NSPL** – The LSE’s total hourly load coincident with the Dominion Zone’s transmission peak determines its share of the NSPL.