Pennsylvania Power Company

Determination of
Capacity Peak Load Contributions
and
Network Service Peak Loads

Overview - Capacity Peak Load Contribution (PLC)

PJM requires certain information in order to calculate an Electric Generation Supplier's (EGSs) Unforced Capacity Obligation (UCAP) in accordance with requirements of PJM's Reliability Assurance Agreement (RAA), Operating Agreement and Open Access Transmission Tariff (OATT) where applicable. One of those components is an EGS's aggregated customer Peak Load Contribution (PLC). This manual explains in detail the process used to determine each retail customer's PLC for Pennsylvania Power Company (Penn Power).

Company specific information combined with certain information provided by PJM is used to determine each retail customer's PLC. Relevant information such as customer profiles and loss class information used in the determination of PLC can be found on the Company's website.

This document does not describe processes used to determine final EGS financial UCAP. Information of this nature can be found on PJM's website.

Determination of EGS's Capacity Peak Load Contribution

Each year PJM assigns a weather normalized Capacity PLC to each Transmission Zone. The basic framework for determining the EGS's PLC consists of allocating the Zone PLC to its individual customer's and then using an EGS's portfolio of customers for any given day to determine the EGS's PLC. The customer assigned PLCs are aggregated respective to each EGS and uploaded to PJM daily. An EGS's PLC varies daily with customer enrollments and drops.

PJM rules require each EDC to revise its customers' PLCs annually. Customer PLCs are calculated each December and made available January 1 each year. However, updated PLCs are effective each June 1 to May 31 respective to the PJM planning year.

This framework is implemented using the available customer data which varies by meter type. Consequently several different algorithms are required to calculate the customer PLC for the various meter types.

The calculation of the customer's PLC is a two-step process:

1. Calculation of the customer's PLC using the algorithms based on the data available for the customer (i.e., customer's meter type), and

2. Reconciliation of the sum of the customer's PLC to the Zone PLC as assigned by PJM.

Calculation of the Customer Capacity Peak Load Contribution

PJM calculates Zone PLC

Penn Power is part of the American Transmission Systems Inc (ATSI) Zone. The ATSI Zone's capacity obligation is determined by PJM in accordance with various agreements including the RAA, Operating Agreement and OATT where applicable.

The Zone PLC determined by PJM is based on the various transmission zone loads at the time of the five PJM Pool peak hours. Furthermore, the process used by PJM results in summer forecasted Zone PLCs that are weather normalized values and unrestricted loads (i.e., including applicable curtailed load(s) as determined by PJM). PJM publishes Zone PLCs along with the five PJM summer peak hours each October.

EDC allocates Zone PLC to its customers

The general algorithm for a customer PLC is:

CAP_PLC for Customer i	=	CUST_PLC for Customer i	*	RECON_FACTOR

a. CAP_PLC is the customer capacity kW value (two decimals) to be used in the applicable publications (e.g., the customer eligibility file, EDI transactions, the value to be used in determining a supplier's capacity PLC posted to PJM, etc.).

b. CUST_PLC is the individual customer's average peak load contribution to the PJM five peak summer hours. It is customer specific and the method for calculating CUST_PLC varies by "meter type".

c. Note: CUST_PLC is not a weather-normalized value. It is unrestricted (it includes curtailed load) when applicable.

d. RECON_FACTOR is the reconciliation factor. It is a constant used to scale the customer data which is based on "as-metered" customer data to the zone PLC assigned by PJM. It is calculated as:

RECON_FACTOR For all Customers	=	The Zone's Summer Forecasted Weather Normalized Unrestricted PLC	/	The Zone's Average un-restricted as-metered load at the time of the five PJM Peaks

e. CUST PLC is calculated as:

CUST_PLC for Customer i	=	(	CUST_LOAD for Customer i	+	CUST_CL for Customer i	)	*	LOSSES_FACTOR by Service Level	*	CUST_FACTOR for Customer i

f. CUST_LOAD and CUST_FACTOR data sets are based on the most recent summer's data. For June '12 this would be the summer '11 data set.

g. CUST_CL is the customer's actual curtailed load at the time of the PJM peaks when applicable.

h. LOSSES_FACTOR are the system losses, which are determined by service level of the customer, e.g., primary, secondary, subtransmission & transmission.

i. The CUST_PLC for each of the PJM peaks (five in total) are averaged to produce the final CUST_PLC.

j. The CUST_LOAD is calculated in kW.

k. The CUST_LOAD and CUST_FACTOR are calculated to at least two decimal points.

l. CUST_LOAD and CUST_FACTOR are determined as follows:

Meter Type	CUST_LOAD For Customer i	CUST_FACTOR for Customer i
Hourly Metered Customer	Customer's Hourly Meter Readings at the time of the five PJM Peaks	= 1.0
Monthly Metered Customer	The Load Profile Hourly Meter Readings at the time of the five PJM Peaks	Customers Usage taken from monthly Meter Readings during the Summer Season Divided by the Class_Usage

m. Summer Season as defined by PJM June 1 through September 30.

n. For monthly-metered customers, the customer's summer season usage (CUST_FACTOR) is derived from the customer's billing records which occurred during the summer season.

o. Class_Usage is the aggregate of the hourly values of the Profile Load for the same time frame as the customer monthly summer meter reads. Class usage is only used in the Monthly Metered Customer calculation.

Special Considerations

a.   If a customer does not have data at the time all five PJM peaks occurred - the averaging of hourly-metered will be based upon the existing readings. For monthly-metered customers the usage data will be filled in from the applicable load profile. If a customer has no data available at the time of the 5 PJM peaks they will be assigned to the average CAP_PLC for the applicable load profile class. If a specific forecast of the customer PLC is established for the customer, the forecast will be used if agreed to by the Operating Company and the EGS.

b.   Customer PLC will be updated annually in accordance with PJM requirements and implementation schedule.

c.   New customers will be assigned the average CAP_PLC for the applicable profile class. If a specific forecast of the customer PLC is established for the customer, the forecast will be used if agreed to by the Operating Company and the EGS.

d.   Within the Zone there can and do exist "load zones" (i.e., municipalities, cooperatives, etc.) which participate in retail choice. These zones will have their PLC determined consistent with the methodology described herein, unless an alternate methodology is agreed to by the Operating Company, the EGS and PJM. (For practical purposes, these customers are hourly-metered customers.)

e.   The PLC for a Curtailable Load customer is based upon the "unrestricted" load of the customer. This requires adding back any applicable load reductions in accordance with PJM protocols.

f.   The Reconciliation Factors associated with determination of customer PLC are computed annually with the roll over to the current data set (e.g., the annual update once the previous summer's data is available).

Overview – Network Service Peak Load (NSPL)

PJM requires each EDC to provide a NSPL value for each active EGS serving load within its service territory on a daily basis needed to allocate Zone transmission costs in accordance with the requirements of the PJM Operating Agreement and OATT. This manual explains in detail the process used to determine each customer's NSPL for Penn Power.

Company specific information combined with certain information provided by PJM is used to determine an individual customer's NSPL. Relevant information such as customer profiles and loss class information used in the determination of NSPL can be found on the Company's website.

This document does not describe processes used to determine an EGS's transmission financial obligation. Information of this nature can be found on PJM's website.

Determination of EGSs Network Service Peak Load

The Penn Power system load contribution at the time the ATSI Zone peak is allocated to its individual customers and then an EGS's portfolio of customers for any given day is used to determine the EGS's NSPL. The customer assigned NSPLs are aggregated respective to each EGS and uploaded to PJM daily. An EGS's NSPL can vary daily with customer enrollments and drops.

PJM rules require each EDC to revise its customers' NSPLs annually. Customer NSPLs are re-calculated each December and become effective January 1 for the entire calendar year.

Calculation of Customer's Network Service Peak Load

Under the OATT, a transmission customer's daily NSPL requirement is based on its load at the time of its restricted (no adjustments for Demand Response programs) Zone peak occurring in the twelve months period ended October 31 of the prior calendar year.

The general algorithm for a customer NSPL is:

NSPL for Customer i	=	CUST_NSPL for Customer i	*	RECON_FACTOR

a. NSPL is the individual customer's calculated load contribution to the single Zone peak. It is customer specific and the method for calculating NSPL varies by "meter type".

b. NSPL is the value used in applicable publications (e.g., EDI transactions, the value used determine a supplier's NSPL posted to PJM, etc.).

c. Note: NSPL is not a weather-normalized value and it is a restricted value.

d. The NSPL is calculated in kW to at least two decimal points.

e. RECON_FACTOR is the reconciliation factor. It is a constant used to scale the customer data which is based on "as-metered" customer data to the Penn Power load value at the single ATSI Zone peak hour which is used by PJM to determine the transmission related charges. It is calculated as:

RECON_FACTOR For all Penn Power retail Customers	=	Penn Power load at Zone's Restricted Peak	/	Sum of customer calculated NSPL values

f. Similar to the PLC the customer CUST_NSPL is based on the highest five peak hours for the Zone. The Zone can peak either in the winter or the summer season. If a winter peak, then the CUST_NSPL is based on the five highest winter ATSI zone peak hours. Winter is defined as Dec 1 – Mar 31. If a summer peak, then the CUST_NSPL is based on the five highest summer ATSI zone peak hours. Summer is defined as June 1 – September 30.

g. CUST_NSPL is calculated as:

CUST_NSPL for Customer i	=	CUST_LOAD for Customer i	*	LOSSES_ FACTOR by Service Level	*	CUST_ FACTOR for Customer i (only for monthly customers)

h. CUST_LOAD and CUST_FACTORS are based on the ATSI zone peak season data.

Meter Type	CUST_LOAD For Customer i	CUST_FACTOR for Customer i
Hourly Metered Customer	Customer's Hourly Meter Readings at the time of the five season peak hours for the ATSI Zone	= 1.0
Monthly Metered Customer	The Load Profile Hourly Meter Readings at the time of the five season peak hours for the ATSI Zone	Customers Usage taken from monthly Meter Readings during the peak season Divided by the respective Class_Usage.

i. LOSSES_FACTOR are the Company system losses, which are determined by service level of the customer e.g., primary, secondary, subtransmission & transmission.

j. The CUST_LOAD is the average of its load at each of the season system five peaks hours.

k. New NSPL values are calculated annually and are effective each Jan 1. The transmission planning period is defined by the OATT.

l. Class_Usage is the aggregate of the hourly values of the Profile Load for the same time frame as the customer monthly season meter reads. Class_Usage is only used in the Monthly Metered Customer calculation.

Special Considerations

g. If a customer does not have data at the time all five peak season peaks - the averaging of hourly-metered will be based upon the existing readings. For monthly-metered customers the usage data will be filled in from the applicable load profile. If a customer has no data available at the time of the five season peak hours they will be assigned to the average NSPL for the applicable load profile class.

h. Customer NSPL will be updated annually in accordance with PJM requirements and implementation schedule.

i. New customers will be assigned the average NSPL for the applicable profile class. If a specific forecast of the customer NSPL is established for the customer, the forecast will be used if agreed to by Penn Power and the EGS.

j. Within the Zone there can and do exist "load zones" (i.e., municipalities, cooperatives, etc.) which participate in retail choice. These zones will have their

NSPL determined consistent with the methodology described herein, unless an alternate methodology is agreed to by Penn Power, the EGS and PJM. (For practical purposes, these customers are hourly-metered customers.)