

# Calculation of a Customer Peak Load Contribution

---

PPL Electric Utilities  
Supplier Meeting  
August 24, 2009

***Updated 12/8/2009***

***Updated to reflect new implementation date for revised PLC calculations***



**PPL Electric Utilities**

# Concept

- Peak Load Contribution (PLC)
  - Putting a value on each customer's typical contribution to a typical peak load day.
  - Allocated out to the customers that existed at the time of the 5 peak loads.
  - Default values used for new load.
    - Adjusted as appropriate
  - Purpose is to allocate responsibility to suppliers for the recovery of:
    - Capacity cost from the PJM RPM auction
    - Revenue Requirement for Transmission facilities in the PPL Zone

# Capacity PLC

- Defined in the Reliability Assurance Agreement (RAA)
  - Calculated in November/December
  - Applied from 6/1 to 5/31 of the next year.
- Based on the PJM peak allocated to PPL Zone
  - The PJM peak is weather normalized and adjusted for interruptions
    - Peak from prior year (October 1 – September 31)
  - Allocation to the PPL EU based on PJM 5 Coincident Peaks (5CP method)
    - Typically based on 5 Summer Peaks
    - Allocation based on PPL average contribution to a typical PJM peak load day.
    - PPL allocation is provided by PJM

# Transmission PLC

- Defined in the PJM Open Access Transmission Tariff. (OATT)
  - Calculated in November/December
  - Applied from 1/1 to 12/31 of the next year.
- Based on the PPL Zone peak
  - PPL peak can vary between summer and winter
- PPL Zone peak is **not** weather normalized or adjusted for interruptions.
  - Peak from prior year (November 1 – October 31)
  - Allocation based on 5CP method
  - 5CP can be by Summer or Winter Peaks

# Customer Allocation by Rate Class

Allocation is based on a similar process as the 5CP allocation of the PJM Peak Load to PPL EU.

1. Allocate the PPL Peak to each rate class using the rate groups average percent contribution to the 5CPs.
  - This allocation include losses associated with each rate class.
2. Calculate each customer average percent contribution to it's rate class.
  - Based on meter read without losses.
3. Multiply the average percent contribution to the peak allocation to the rate class which includes losses.

# Treatment Based on Meter Type

- Average percent contribution to peak is determined based on the available data for the rate class.
  - Interval Metered Customers
    - Based on hours demand on same day/hour as peaks to the sum of those peaks for the rate class.
    - LPEP, LP6, LP5, LP4, IS1, ISP, IST, ISM
  - Registered Demand Metered Customers
    - Based on highest peak in billing month that includes the peak day to the sum of those peak for the rate class.
    - GS3
  - Monthly Metered Customers
    - Based on the annual kWh of customer to the annual kwh of the rate class
    - GRS, EXR, RTS, GS1, GH, STL

# 2009-10 Interval Metered Customers

Date	Hour Ending	Load (kW)	LP4 Customer Avg.	% of LP4
6/9/2008	1700	2,539.440		
6/10/2008	1700	2,488.320		
7/17/2008	1700	2,302.560		
7/18/2008	1700	2,171.520		
7/21/08/	1700	2,179.440		
Average		2,336.256	881,849.376	0.265%

Contribution to PPL Zone Peak Associated with LP4 Customers (kW) 980,180  
 Share of Peak (kW) 2596.760

# 2009-10 Registered Demand Metered Customers

Date	Hour Ending	Load (kW)	GS3U Customer Avg.	% of GS3U
6/9/2008	1700	515.760		
6/10/2008	1700	515.760		
7/17/2008	1700	497.520		
7/18/2008	1700	497.520		
7/21/08/	1700	497.520		
Average		504.816	921,943.300	0.055%

Contribution to PPL Zone Peak Associated with GS3U Customers (kW)	701,766
Share of Peak (kW)	384.256

# 2009-10

## Monthly Metered Customers

Customer Annual kWh	44474
GS1U Annual kWh	1253002790
% of GS1U	0.0035%
Contribution to PPL Zone Peak Associated with GS1U Customers (kW)	233,978
Share of Peak (kW)	8.305

# Revised method for 2011

- Starting with the PLC to be calculated for 2011:
  - We will have interval data available for all customers.
  - We will calculate the 5 CP average contribution more directly.

# PLC Calculation stating 1/1/11

- Each customer load for the day/hour of the 5CPs will be increased by the losses associated with the rate class.
  - Losses will be the 12 month floating average losses at the time of the calculation.
  - The generation level load for every customer will then be summed.
  - The values for each day/hour will be factor up so that the sum of the loads equals the targeted peak load value for PPL.
  - The 5 adjusted values for each customer will then be averaged to create the customer PLC.

# 2011 PLC Calculation

ENTITY	Peak 1	Peak 2	Peak 3	Peak 4	Peak 5	Reconciled	Reconciled	Reconciled	Reconciled	Reconciled	Meter PLC (Average)	Meter PLC values for meters in effect on the last peak date
						Peak 1	Peak 2	Peak 3	Peak 4	Peak 5		
<b>Peak Load Values w/ Losses</b>												
A1	0.54	0.432	0.216	0.216	0.324	0.630	0.432	0.280	0.384	0.628	0.471	0.471
A2 Retired Meter	1.296	1.188	1.08			1.513	1.188	1.399	0.000	0.000	1.367	
A3	1.404	0.54	0.864	0.756	0.864	1.639	0.540	1.119	1.342	1.674	1.263	1.263
B4	3.528	3.528	3.528	3.528	2.352	4.119	3.528	4.569	6.264	4.557	4.607	4.607
B5 New Meter			8.232	8.232	12.348	0.000	0.000	10.661	14.616	23.922	16.400	16.400
B6	4.704	3.528	3.528	3.528	2.352	5.492	3.528	4.569	6.264	4.557	4.882	4.882
C7	23.664	23.664	11.832	11.832	11.832	27.627	23.664	15.324	21.009	22.922	22.109	22.109
C8 Meter 1 (Combined w/ Meter 2)	108.8544	153				127.084	153.000	0.000	0.000	0.000	140.042	
C8 Meter 2			108.8544	54.4272	54.4272	0.000	0.000	140.977	96.639	105.442	114.352	114.352
C9	35.496	23.664	23.664	35.496	23.664	41.440	23.664	30.647	63.026	45.844	40.924	40.924
Totals	179.4864	209.544	161.7984	118.0152	108.1632	209.544	209.544	209.544	209.544	209.544	346.417	205.008
Recon Ratio	1.167464	1	1.295093	1.775568	1.937295							

# Determining the UCO

- The Capacity PLC what is provide to suppliers.
- The Capacity PLC for each supplier are aggregated and then rounded up to the next highest tenth of a MW.
- PJM then adjusted that value for:
  - Scales PLC so that the sum of the PPL PLC equals the PPL Zone Target
    - Changes daily.
  - Multiplies the PLC by the Forecast Pool Requirement
    - Includes adjustment to reflect difference in ILR purchased through the RPM no assumed in the capacity obligation used for the PJM auction.