

Temperature-Sensitive Loads and Class Cost Allocation

Presentation to
Utah Cost-of-Service Working Group

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Statement of the Issue

- System generation capacity is acquired to meet forecasted peak demand plus a 15% planning margin.
- The planning margin provides operating reserves to maintain reliability during system contingencies plus capacity to serve load during periods of abnormal temperature.

Statement of the Issue

- Some customer classes (e.g., 1, 6) are more temperature-sensitive than others (e.g., 9). Temperature-sensitive classes have a relatively greater need for the portion of the planning margin that provides a buffer against abnormal weather.
- In allocating class cost responsibility for generation plant, PacifiCorp utilizes weather-normalized load data.

Statement of the Issue

- Question: Does assuming a normal weather year inadvertently ignore cost responsibility for the capacity margin that is needed to maintain service during periods of abnormal temperature?
- Answer: Yes.

Proposed Solution

Allocate appropriate class cost responsibility for costs associated with providing generation resources that accommodate above-normal temperatures

Why is this important?

Increased costs are being driven by growth in peak demand, much of which is temperature-related air conditioning load. Ignoring planning margin costs understates the costs imposed by this aspect of load growth.

Proposed Approach

- Identify what portion of the planning margin is attributable to weather contingency
- Assign an appropriate portion of planning margin costs to weather-sensitive classes based on degree of temperature sensitivity
- Adjust CP for weather-sensitive classes by the share of the planning margin allocated to the class
- Perform COS analysis using adjusted class CPs

Application of Proposed Approach to Utah COS

- Assign 50% of planning margin to weather contingency
[Note: Operating reserves = 7.0% of generation]
 - Utah 2006 TY CP = 4136 MW
 - 15% planning margin applicable to Utah = 620 MW
 - 50% of Utah planning margin = 310 MW

Is this a reasonable amount?

Reality check: PacifiCorp estimates that each 1 degree increase in temperature above 90° increases Utah demand by 35 MW.

310 MW provides sufficient capacity for 9° above normal in summer.

UAE's COS Analysis (04-035-42)

Determination of 15% of Utah Load at Time of PacifiCorp's Test Period System Peak

<u>Month</u>	<u>Pac CAL</u>	<u>Pac ORE</u>	<u>Pac WASH</u>	<u>Pac MON</u>	<u>Pac WYO</u>	<u>Utah UTAH</u>	<u>Utah IDAHO</u>	<u>Utah WYO</u>	<u>Utah FERC</u>	<u>Total</u>
Apr-05	135.9	2,070.4	600.2	0.0	768.9	2,548.4	379.4	155.1	26.0	6,684.4
May-05	120.5	1,775.9	534.4	0.0	743.6	2,718.6	434.5	145.5	32.0	6,504.9
Jun-05	144.9	1,937.7	666.0	0.0	815.4	3,615.6	619.1	157.1	37.0	7,992.9
Jul-05	149.8	2,082.9	764.4	0.0	806.9	3,986.6	610.8	148.3	35.0	8,584.7
Aug-05	148.0	2,101.4	781.1	0.0	809.7	4,135.5	550.4	144.2	37.0	8,707.2
Sep-05	120.4	1,872.0	638.4	0.0	807.2	3,536.5	429.9	146.8	37.0	7,588.2
Oct-05	129.4	2,120.8	649.6	0.0	763.4	2,894.7	386.6	150.7	29.0	7,124.2
Nov-05	137.0	2,270.1	651.9	0.0	818.2	3,044.8	402.8	161.1	30.0	7,515.7
Dec-05	149.0	2,393.6	682.8	0.0	825.2	3,136.5	422.2	156.8	29.0	7,795.1
Jan-06	144.4	2,664.4	736.5	0.0	820.9	3,163.3	378.2	155.5	25.0	8,088.3
Feb-06	141.9	2,539.8	701.6	0.0	816.1	3,291.6	390.5	162.8	25.0	8,069.3
Mar-06	146.2	2,432.2	671.0	0.0	806.8	2,712.3	391.0	161.3	28.0	7,348.8
Sum of 12 CPs	1,667.4	26,261.3	8,077.9	0.0	9,602.2	38,784.3	5,395.4	1,845.1	370.0	
12 CP Factor	1.8123%	28.5438%	8.7799%	0.0000%	10.4368%	42.1552%	5.8643%	2.0055%	0.4022%	100.00%
Annual System Peak (MW)										8,707.2
15% of Utah Load at time of Annual System Peak (MW)										620.32

Data Source: Utah Results of Operations for March 2006 (JTW-1) - Tab 10 Allocation Factors

Application of Proposed Approach to Utah COS

- Allocate weather contingency generation to classes whose load is weather-normalized (1, 6, 8 & 23) based on index of temperature sensitivity.
 - Preferred index: Algorithm that predicts class demand as a function of temperature
 - Actual application: Class relative share of total kWh adjustment for weather
 - Shares:
 - 1 - 50.5%
 - 6 - 33.2%
 - 8 - 10.7%
 - 23 - 5.6%

Results of COS w/ Planning Margin Adjustment

Impact of Planning Margin Adjustment on Rate of Return Indices for Major Rate Schedules (2004 Utah Rate Case)

Schedule	PacifiCorp Rolled-in	Rolled-in w/ Plan Margin Adjustment	PacifiCorp MSP	MSP w/ Plan Margin Adjustment
1 (Res.)	1.17	1.08	1.21	1.11
6 (GS - Large)	0.94	0.94	0.93	0.93
8 (GS>1 MW)	0.99	0.96	0.98	0.94
9 (GS - HV)	0.98	1.24	0.90	1.19
23 (GS - Sm)	1.09	1.11	1.11	1.13