

7/24 RETROSPECTIVE & Next Steps for Resource Adequacy Pilot Capacity Standard

Jerry Rust (NWPP)

- The NWPP area experienced its all time summer peak on July 24, 2006 at 14:30 (10 minute integrated demand) of 54,602 MW. The NWPP normal summer peak was estimated at 52,000 MW. The NWPP summer peak normally occurs the last week of July.
- Approximately 2,400MW of weather induced load above normal. Daily weighted average temperature (22 weather stations) deviation above normal for NWPP footprint was 8 degrees; all time high was 10 degrees above normal. Prior experience indicates the load flattens out (reaches saturation) somewhere north of 3,000 MW, so exposure on load side probably +1,000 MW more load.
- A number of Control Areas under-forecast loads for 7/24. One missed the temperature deviation by 6 degrees and sold forward.
- Many forecasts were stale, dating back to Thursday of prior week.
- The following are the various units that experienced unscheduled forced outages on July 24, 2006:
 - Revelstroke #2 @ 06:57
 - Sheerness #1 @ 07:51
 - Colstrip #4 @ 10:37
 - Revelstroke #2 @ 11:24
 - Revelstroke #2 @ 12:23
 - KCL (G 2,3,4) & AHL G 1 @ 15:28
 - GCL/CHJ @ 15:28
 - Clostrip #4 @ 15:39

In addition, at 06:32 Naughton #3 failed to ramp up due to a boiler feed pump problem, 200 MW of reserve was deployed; by 07:27, feed pump normal. Again at 08:34, Naughton # 2 lost a coal feeder, resulting in a 37 MW reduction; by 09:30, returned to service at full load. Also, at 07:40 due to loss of a coal feeder on Jim Bridger #1, 100 MW of reserve was deployed; by 08:30, the coal feeder was repaired.

- No large resources out for maintenance, coordinated (Columbia drainage) hydro system in good shape.
- NWPP Reserve sharing operated in accordance with the program with some Control Areas utilizing their own Contingency Reserve Obligation. However, the NWPP reserve requirement was met at all times.
- CHPD, PAC, AVA, PSE and AESO activated demand response.
- It may have been necessary for utilities outside of the CAISO to declare NERC alerts to gain access to BPA power, since BPA was holding power in reserve for CAISO, which had declared Stage 1 and Stage 2 emergencies.
- High-priced power available in the market; rumors of it being offered at \$600/MWH. The soft market cap was at approximately \$400/MWH

- Vacations left some less experienced staff at some utilities; NERC Emergency Energy Alert (EEA)2 might have been avoided with veterans.
- Lack of communication between merchant and reliability offices within some utilities appeared to result in more forward sales than prudent, causing some utilities to declare NERC EEAs.
- Demand response on 7/24:

Pac West	0 MW
Pac East	0 MW
Chelan (DSI)	10 MW*
PSE	9 MW
AESO	150 MW
AVA	35-40 MW
Others	unsure

*CHPD used a financial incentive to achieve ~10MW load reduction but this did not begin until HE 1600.

Pac East has "Cool Keepers"; however, July 24, 2006 was a state holiday and "Cool Keepers" can not be implemented on a holiday.

IPC made no public appeals for conservation. They have no true Demand Side Management program, however they do have an irrigation clipping program and a pilot air conditioning cycling program which are a normal day to day operation good for about 20MW.

PSE purchased 9MW of customer generation and cut a 150MW export to an entity outside of the NWPP area.

- PGE, PAC ,PSE and AESO declared NERC alerts:

	EEA 3	EEA2	EEA1
PGE		11:41 – 17:31	17:31 – 19.31
PAC		14:16 – 16:10	16:10 – 17:10
AESO	15:33 – 16:25	10:10 – 15:33	08:15 – 10:10
PSE			14:14 – 20:00

Alert 3 – All available resources in use and foresees or has implemented firm load obligation interruption.

Alert 2 – All available resources in use and is no longer able to provide its customers' expected energy requirements, and is designated an Energy Deficient Entity.

Alert 1 – All available resources in use, and expects to be unable to provide it customers' energy requirements, and has been unsuccessful in locating other systems with available resources from which to purchase

- Alberta had to shed load one-half hour after the NWPP Peak occurred, but transmission outage (lightening strikes) was the issue.

John Fazio, Ken Corum & Massoud Jourabchi (NWPPCC)

- Council staff reported that Saturday was hottest July day since record-keeping started in 1928; however, because it was a weekend day, load was not peak load.
- Council is attempting to calibrate PNW load increases due to summer and winter temperature deviations from normal; but need 4 state load data. Power Pool can't get cooperation from Control Areas to provide it. John suggested that perhaps Council can use load data for entire NWPP footprint and estimate four state loads using known calibrations.

Wally Gibson (NWPPCC)

Big California exports, but also big Canadian imports/transfers to partially offset. Net flows (4,000 – 5,000 MW) still in excess of 2525 MW assumption in base case, but don't think we should include short-term transactions in a resource adequacy evaluation.

Other

- Need a more detailed discussion of what kind of event 7/24 was in terms of summer peak and energy 1 in 20, 1 in 80, or do we need another way of characterizing? Per Council data, the aggregated daily average temperatures for the day on Monday for Seattle, Portland, Spokane and Boise were 1 degree below a 78 year record, but daily average temperatures may not be good predictor of peak loads per the NWPP.
- Wind contribution to peak and HLH generation not yet known.
- BPA staff described how river was set up to maximize generation at Lower River power plants due to cut plane issues on the transmission system. A number of flow gates on the BPA system were at their maximums and BPA was re-dispatching generation to accommodate, but no transmission problems arose to exacerbate the NW situation. BPA system was set up and managed conservatively to meet re-dispatch.

Action items:

NWPPCC

- Continue to recalibrate their load/temperature deviation from normal relationships. Track down what IPPs were doing that day.
- Using recalibrated load/temperature relationships, estimate revised summer adverse temperature component for sustained peaking capacity target.

BPA

- Estimate additional FCRPS sustained peaking capacity made available by having the system prepped for the hot weather.
- Document White Book summer capacity export assumptions.

Resource Adequacy Technical Committee:

- Discuss individual utility July 24th experiences
- Look at wind performance
- Estimate impact of demand response
- Tally of July 24 actuals against capacity standard expectations (Add Column to John Fazio's PowerPoint Slide 13 table with actual numbers for July 24th event (BPA will need to supply some of these numbers))
- Re-evaluate summer and winter targets for capacity metric
- Evaluate how to look at sustained peaking duration (longer term task)