Bonneville Power Administration

Technical Committee Deliberations on Pilot Capacity Standard

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PNW Resource Adequacy Steering Committee Meeting

October 3, 2006

NWPCC Offices, Portland, OR

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Implications of July 24th Event on PNW Pilot Capacity Standard

- July 24th pointed out that a summer capacity event in the PNW is a concern
- Seasonal diversity between the winter-peaking PNW and summer-peaking CA does not, necessarily, translate into within summer-season diversity

→ CA & NW may be vying for the same uncontracted generation at same time.

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Should any uncontracted IPP Capacity be Counted Toward Summer PRM?

YES

- Uncontracted IPPs physically located in region & do not have firm out-of-region transmission rights
- IPP market available to PNW utilities as well as CA utilities

NO

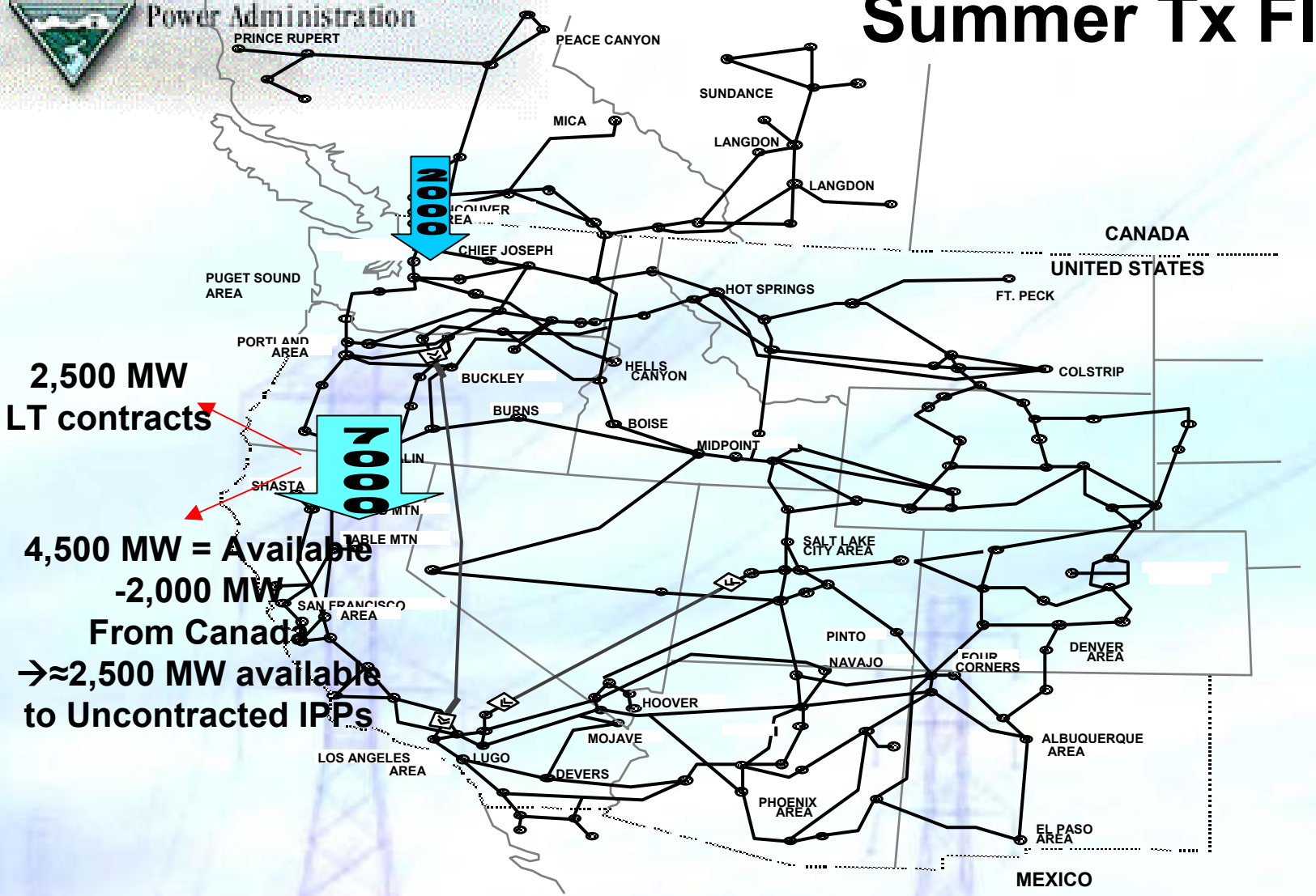
- On July 24th, it appears uncontracted IPP cap sold to CA
- CA's resource adequacy standard requires utilities to secure capacity a month in advance

How to Count Uncontracted IPPs in Summer?

- Slide on next page shows that Intertie Capacity available to transmit uncontracted IPPs to California is roughly limited to about 2,500 MW
- This means that of 3,500 MW of uncontracted IPPs, about 1,000 MW cannot reach California, or are "land-locked"
- **Technical Committee Decision [1/] = Assume "Land-Locked" IPPs, i.e. about 1,000 MW [2/], Available to serve PNW Loads**

1/ Grant Co. PUD rep dissented
2/ Needs more Analysis

Summer Tx Flows



Should Summer Capacity Target be Designed for July 24th Event?

- At time of September 22 Technical Committee Meeting, No new information regarding probability of combined PNW – CA temperature event was available
- No concerns voiced regarding using 1 in 20 PNW event to define adverse temperature component of PRM
- BPA Weather & Streamflow Forecasting Group estimates July 24th to be a rarer event than 1 in 20.

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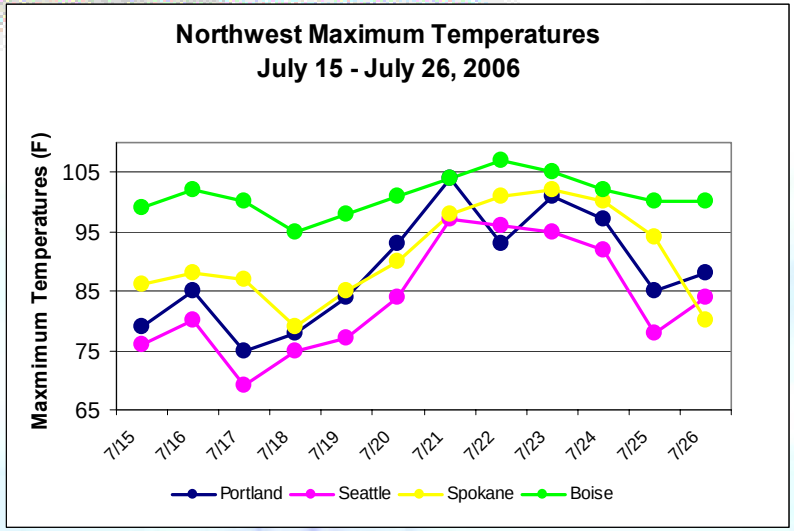

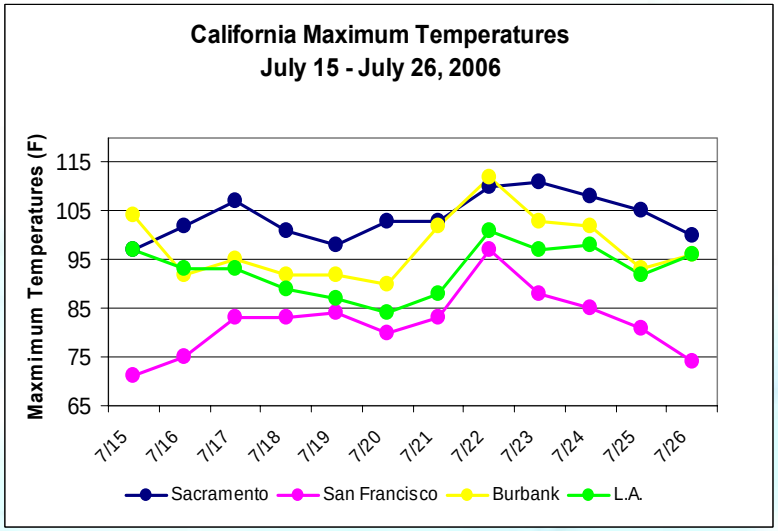

Maximum Temperatures for July 15 - July 26, 2006

Date	Seattle		Portland		Spokane		Boise		Sacramento		San Francisco		Los Angeles		Burbank	
	Max	Dep	Max	Dep	Max	Dep	Max	Dep	Max	Dep	Max	Dep	Max	Dep	Max	Dep
15-Jul-06	76	0	79	-1	86	2	99	9	97	4	71	-1	97	12	104	13
16-Jul-06	80	4	85	5	88	4	102	12	102	9	75	3	93	8	92	1
17-Jul-06	69	-7	75	-5	87	3	100	10	107	14	83	11	93	8	95	4
18-Jul-06	75	-1	78	-2	79	-5	95	5	101	8	83	11	89	4	92	1
19-Jul-06	77	2	84	4	85	1	98	8	98	5	84	12	87	2	92	1
20-Jul-06	84	8	93	13	90	6	101	11	103	10	80	8	84	-1	90	-1
21-Jul-06	97	21	104	24	98	14	104	14	103	10	83	11	88	3	102	11
22-Jul-06	96	20	93	13	101	17	107	17	110	17	97	25	101	16	112	21
23-Jul-06	95	19	101	21	102	18	105	15	111	18	88	16	97	12	103	12
24-Jul-06	92	16	97	17	100	16	102	12	108	15	85	13	98	13	102	11
25-Jul-06	78	2	85	5	94	10	100	10	105	12	84	12	92	7	93	2
26-Jul-06	84	8	88	8	93	9	100	10	100	7	74	2	96	11	96	5

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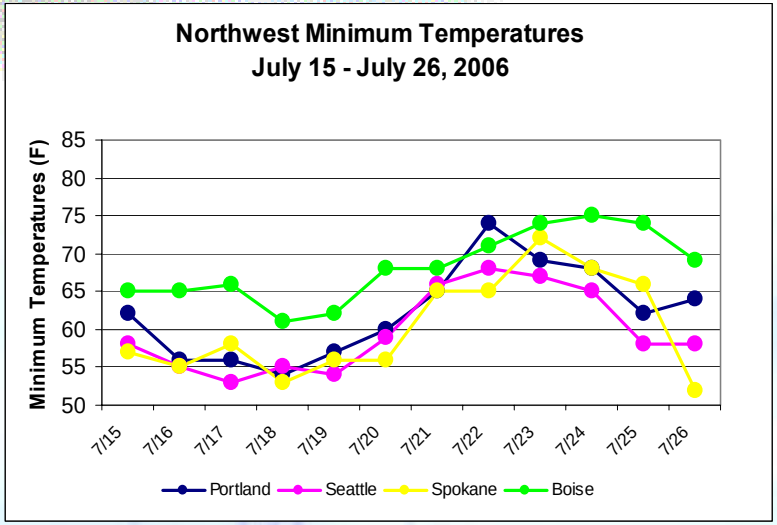

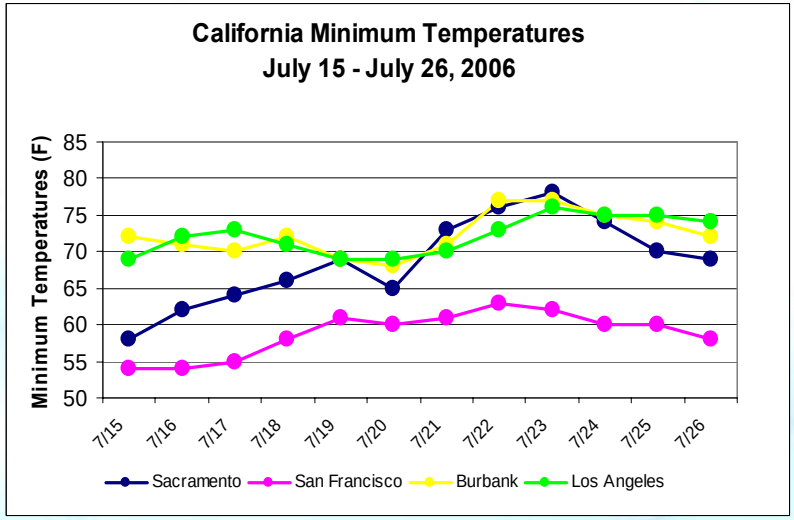

Minimum Temperatures for July 15 - July 26, 2006

Date	Seattle		Portland		Spokane		Boise		Sacramento		San Francisco		Los Angeles		Burbank	
	Min	Dep	Min	Dep	Min	Dep	Min	Dep	Min	Dep	Min	Dep	Min	Dep	Min	Dep
15-Jul-06	58	3	62	5	57	3	65	8	58	-1	54	-1	69	4	72	10
16-Jul-06	55	0	56	-1	55	0	65	7	62	3	54	-1	72	7	71	9
17-Jul-06	53	-2	56	-2	58	3	66	8	64	5	55	1	73	8	70	8
18-Jul-06	55	-1	54	-4	53	-2	61	3	65	7	55	3	71	6	72	10
19-Jul-06	54	-2	57	-1	56	1	62	4	69	10	61	6	69	4	69	7
20-Jul-06	59	3	60	2	56	1	68	10	65	6	60	5	69	4	68	6
21-Jul-06	66	10	65	7	65	9	68	10	73	14	61	6	70	5	71	9
22-Jul-06	68	12	74	16	65	9	71	12	76	17	63	8	73	7	77	15
23-Jul-06	67	11	69	11	72	16	74	15	78	19	62	7	76	10	77	15
24-Jul-06	65	9	68	10	68	12	75	16	74	15	60	5	75	9	75	13
25-Jul-06	58	2	62	4	66	10	74	15	70	11	60	5	75	9	74	12
26-Jul-06	58	2	64	6	62	6	69	10	69	10	56	3	74	8	72	10

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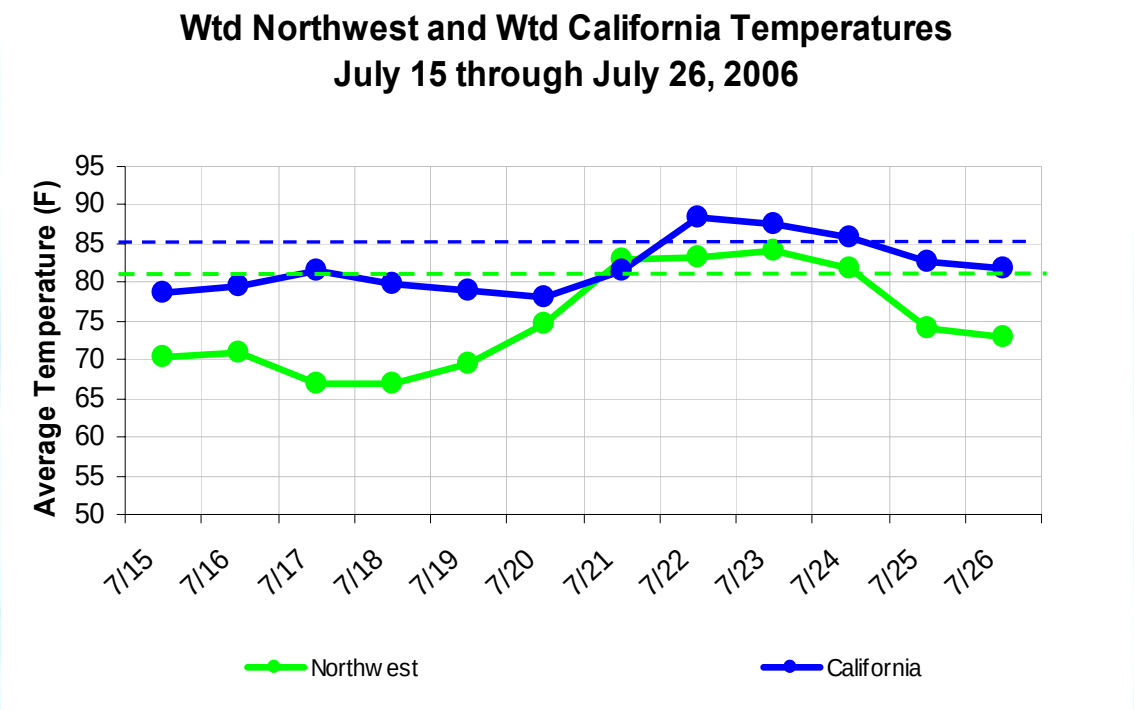
Date	Temperature NW Wtd	Cal Wtd
1970-07-03	76.8	82.2
1971-08-08	78.7	80.5
1971-08-09	80.1	81.5
1971-08-10	80.1	81.9
1985-07-09	78.3	83.6
1988-09-03	75.5	82.4
1990-07-11	77.8	83.4
1990-07-12	78.7	84.3
1992-08-14	76.1	80.3
1992-08-17	75.5	81.0
1997-08-06	75.9	82.8
1998-08-04	77.4	80.8
1998-09-01	76.4	84.8
2006-07-21	82.4	81.4
2006-07-22	83.2	88.5
2006-07-23	84.2	87.2
2006-07-24	81.4	85.6



- Using a weighted threshold of 80 deg for the NW and 85 deg for California (which this July event met or exceeded), this was an unprecedented event in 1949-2006 period of record.
- Given the frequency of this event, over this period of record, its probability of occurrence is less than 1:50

How much hydro flexibility should be assumed?

Winter

- Increase in FCRPS sustained peaking capacity during cold snap (w/o emergency declaration) = 15,600-11,200= 4,400 MW
- PNW increase in sustained hydro peaking capacity = 5,000 to 6,000 MW
- **2,000 MW** is a conservative estimate for a 1-in-20 year event

Summer

- Increase in FCRPS sustained peaking capacity during 7/24 heat wave (w/o spill curtailment) = 13,581-12,100 ≈ 1,450 MW
- PNW increase in sustained hydro peaking capacity = ?
- **1,000 MW** is a conservative estimate for a 1-in-20 year event

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Building Block Components of Planning Reserve Margin

- Initial Decision: Capacity Target = (adv temp + operating + replacement) RESERVES
- Final Decision: Capacity Target = (adv temp + operating + adjustment (based on LOLP)) RESERVES

WINTER TARGET

Initial:	Adv Temp:	19%
	Operating:	6%
	Replacement:	5%
		30%
Final:	Adv Temp:	19%
	Operating:	6%
	Replacement:	0%
		25%

SUMMER TARGET

Initial:	Adv Temp:	6%
	Operating:	6%
	Replacement:	5%
		17%
Final:	Adv Temp:	6%
	Operating:	6%
	Replacement:	7%
		19%