



Western Electricity Coordinating Council

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OPERATING TRANSFER CAPABILITY
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BOARD OF DIRECTORS
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Subject: Approved 2005 Spring OTC Limits

The Operating Transfer Capability (OTC) Policy Committee has approved the recommended Spring 2005 OTC limits for the paths listed in the attached Tables. These OTC limits are documented in the Spring Subregional Study Group Reports that are posted on the WECC Members Area of the website under the OTC Policy Committee folder.

These limits apply to the 2005 Spring operating season starting April 1, 2005, and ending no later than May 31, 2005. Consequently, the interties may be operated at the approved spring limits at any time after midnight on March 31, 2005, when the system is being operated under spring operating conditions studied by the Subregional Study Groups and pending completion of:

- The Operating Procedures Review Group's acceptance of the associated spring operating procedures for each of the interties and those operating procedures (including system monitoring and curtailment responsibilities) being implemented, and
- Operator training and direction required to ensure operation within the established operating limits.

Please call if you have questions.

Sincerely,

Vickie A. VanZandt

VV:cm
attachments

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California/Mexico Subregion

Spring 2005

Path	Rating (MW)	2005 Spring OTC (MW)	2004 Spring OTC (MW)	2004-05 Winter OTC (MW)
California				
Path 66 COI (N-S)	4800 (N-S)	4800 (N-S)	4800 (N-S)	4800 (N-S)
Path 65 PDCI (N-S)	3100 (N-S)	3100 (N-S)	3100 (N-S)	3100 (N-S)
Path 15 Midway-Los Banos (S-N)	5400 (S-N)	5400 (S-N) *	3950 (S-N)	5400 (S-N)
SCIT	18860	14500 **	12800	13500
Path 26 Midway-Vincent (N-S)	3400 (N-S)	3400 (N-S)	3400 (N-S)	3400 (N-S)

* The increase in the 2005 Spring OTC from the 2004 Spring OTC for Path 15 is due to the Path 15 Upgrade that became effective in the 2004-2005 Winter Operating Season.

** The increase in the 2005 Spring OTC from the 2004 Spring OTC is due to modifications in SCE's capacitor control scheme. The application of shunt capacitors was increased for post-transient study work in the Southern California region with these modifications.

Northwest Subregion

Spring 2005

Path	Rating (MW)	2005 Spring OTC (MW)	2004 Spring OTC (MW)	2004-05 Winter OTC (MW)
Path 66 COI + NW-Sierra	4800 (N-S) 3675 (S-N)	4800 (N-S) 3675 (S-N)	4800 (N-S) 3675 (S-N)	4800 (N-S) 3675 (S-N)
Path 65 PDCI	3100 (N-S) 3100 (S-N)	3100 (N-S) 2200 (S-N)	3100 (N-S) 2200 (S-N)	3100 (N-S) 2200 (S-N)
Path 76 NW-Sierra	300 (N-S) 300 (S-N)	300 (N-S) 300 (S-N)	300 (N-S) 300 (S-N)	300 (N-S) 300 (S-N)
COI + NW-Sierra + PDCI	7900 (N-S) 6775 (S-N)	7900 (N-S) 5875 (S-N)	7900 (N-S) 5875 (S-N)	7900 (N-S) 5875 (S-N)
Path 73 NJD	Not Rated	8000 (N-S)	8000 (N-S)	7600 (N-S)
Path 55 Brownlee East	1850 (W-E)	1850 (W-E)	1750 (W-E)	1850 (W-E)
Path 71 South of Allston	Not Rated (N-S)	3050 (N-S)	2700 (N-S)	3050 (N-S)
Path 8 Montana-NW	2200 (E-W) 1350 (W-E)	2200 (E-W) 1143-1257 (W-E)	2200 (E-W) 1143-1257 (W-E)	2200 (E-W) 1070-1300 (W-E)
MT-SE	Not Rated (N-S) Not Rated (S-N)	600 (N-S) 402-600 (S-N) HL 431-600 (S-N) LL	600 (N-S) 402-600 (S-N) HL 431-600 (S-N) LL	600 (N-S) 351-600 (S-N) HL 415-600 (S-N) LL
Path 6 West of Hatwai	4277 (E-W)**	*4252 (E-W)	2800 (E-W)	2800 (E-W)

Northwest Subregion Spring 2005

Path	Rating (MW)	2005 Spring OTC (MW)	2004 Spring OTC (MW)	2004-05 Winter OTC (MW)
Path 3 NW-Canada	3150 (N-S) 2000 (S-N)	3150 (N-S) 2000 (S-N)	3150 (N-S) 2000 (S-N)	3150 (N-S) 2000 (S-N)
Path 16 Sierra-Idaho	500 (N-S) 360 (S-N)	500 (N-S) 262 (S-N)	500 (N-S) 262 (S-N)	500 (N-S) 262 (S-N)
Path 24 Sierra-PG&E	160 (E-W) 160 (W-E)	120 (E-W) 100 (W-E)	120 (E-W) 100 (W-E)	120 (E-W) 100 (W-E)
Path 32 Sierra-Utah	440 (E-W) 235 (W-E)	*343 (E-W) *235 (W-E)	240 (E-W) 150 (W-E)	370 (E-W) 235 (W-E)
Path 14 Idaho-NW	2400 (E-W) 1200 (W-E)	2400 (E-W) 1200 (W-E)	2400 (E-W) 1200 (W-E)	2400 (E-W) 1200 (W-E)
Path 75 Midpoint-Summer Lake	1500 (E-W) 400 (W-E)	1500 (E-W) 400 (W-E)	1500 (E-W) 400 (W-E)	1500 (E-W) 400 (W-E)
Path 19 Bridger West	2200 (E-W)	2200 (E-W)	2200 (E-W)	2200 (E-W)
Path 17 Borah West	2307 (E-W)	2273 (E-W) HL 2307 (E-W) LL	2273 (E-W) HL 2307 (E-W) LL	2307 (E-W)
Path 20 Path C	1000 (N-S) 1000 (S-N)	820 (N-S) 775-900 (S-N)	830-860 (N-S) 775-900 (S-N)	820 (N-S) 785-950 (S-N)
Path 18 Montana-Idaho	337 (N-S) 337 (S-N)	324 (N-S) 302 (S-N)	337 (N-S) 302 (S-N)	324 (N-S) 324 (S-N)
Path 1 Alberta-BC	1000 (E-W) 1200 (W-E)	1000 (E-W) 1200 (W-E)	1000 (E-W) 1200 (W-E)	1000 (E-W) 1200 (W-E)

* OTC Studies were performed for the 2005 Spring season

** Rating is based on expected path definition change removing the Lolo-Oxbow line. OTC is based on current path description.

System Changes to Support OTC Increase/Decrease

West of Hatwai

- The West of Hatwai path OTC increased by 1452 MW due to the energization of the Coulee-Bell 500 kV line, series compensation on the Taft-Dworshak and Taft-Bell 500 kV lines, Dry Creek 230 kV switching station, Beacon-Rathdrum 230 kV double circuit line and 230 kV line upgrades and shunt capacitors. The West of Hatwai path expects to complete the three-phase rating process by April 1.

Brownlee East (Path 55)

- The Brownlee East path OTC increased by 100 MW due to the energization of a second Brownlee-Oxbow 230 kV line and the addition of 93 MVAR of shunt capacitors. The Brownlee East path has completed the three-phase rating process.

South of Allston (North to South)

- The South of Allston path OTC levels increased by 350 MW due to load reductions in key areas resulting in lower loading on the underlying system for critical outages.

Sierra-Utah (Path 32)

- The Sierra-Utah path OTC was increased by 103 MW (E-W) and 85 MW (W-E) due to the energization of the Falcon-Gonder 345 kV line.

Idaho-Montana (Path 18)

- The Idaho-Montana path OTC was reduced by 13 MW due to the planned removal of shunt capacitors at Anaconda in September 2004.

Path C (Path 20)

- The Path C OTC nomograms changed due to improvements made to PacifiCorp's SW Wyoming transmission system.

Rocky Mountain Subregion Spring 2005

Path	Rating (MW)	2005 Spring OTC (MW)	2004 Spring OTC (MW)	2004-05 Winter OTC (MW)
Yellowtail – N	510	510	510	510
Yellowtail – S	625	625	625	625
Path 30 TOT1A	650	650	650	650
Path 31 TOT2A	690	660 *	660	690 *
Path 36 TOT3	1605	1594 **	1579	1547
Path 39 TOT5	1680	1680	1680	1680
Path 40 TOT7	890	890	890	890

No studies were run for 2004 and 2005 spring

* With NUCLA at 80 MW and SW Colo load at 100 MW

** Spring limit on TOT3 is previous summer limit

Southwest Area Subregion Spring 2005

Path	Rating (MW)	2005 Spring OTC (MW)	2004 Spring OTC (MW)	2004-05 Winter OTC (MW)
Path 22 Four Corners West	2325 Nominal (Nomogram)	2325 Nominal (Nomogram)	2325 Nominal (Nomogram)	2325 Nominal (Nomogram)
Path 50 Cholla-Pinnacle Peak	1200	1200	1200	1200
Path 48 Northern New Mexico	1947 See note 1	1947 See note 1	1795 See note 1	1947 See note 1
Path 47 (1) Southern New Mexico	1048 See note 2	1048 See note 2	1048 See note 2	1048 See note 2

Note 1: PNM has developed independent real-time nomogram equations for Path 48 that is incorporated in their Energy Management System. These nomogram equations utilize metered real-time system conditions (e.g., real/reactive power flows, status of shunt capacitor/reactive, etc.) to determine the Path 48 limits on a one-minute basis. The nomogram equation variables included in the Path 48 calculations are therefore dependent upon system conditions and take into account seasonal and time-of-day variations. Detailed descriptions of the nomogram variables and the methodology that is utilized to determine the nomogram equations for 48 are available upon request.

The extent of the application of dynamic real-time system conditions for use in operating nomograms is quite unique to Path 48 compared to other WECC paths. These dynamic nomograms were developed in a process that identified both independent and dependent variables. When all the significant variables affecting import limits were identified, the dynamic nomogram equations were developed and implemented. Thus, the PNM real-time operating nomogram for Path 48 takes into account all seasonal and time-of-day conditions on the New Mexico system by the use of these real-time variables. These real-time nomogram methodologies have been used since 1988. Because of PNM's unique methodology to determine limits on Path 48, PNM has only performed summer OTC check studies. The OTC Policy Committee has supported PNM's reasoning for only performing summer OTC check cases.

PNM operates the system based on the lower of the voltage stability or thermal limit. The maximum simultaneous rating is 1800 MW with the El Paso Electric Phase Shifter controlling the West Mesa – Arroyo line flow to 186 MW, as measured at West Mesa with a maximum non-simultaneous rating of 1947 MW.

Note 2: El Paso Electric Company (EPE) has developed independent real-time nomogram equations for Path 47 that are incorporated in their Energy Management System. These nomogram equations utilize metered real-time system conditions (e.g., real/reactive power flows, status of shunt capacitor/reactive, status of generating units, etc.) to determine the Path 47 limits on a one-minute basis. The nomogram equation variables included in the Path 47 calculations are therefore dependent upon system conditions and take into account seasonal and time-of-day variations. Detailed descriptions of the nomogram variables and methodology that is utilized to determine the nomogram equations for Path 47 are available on the EPE webpage at www.epelectric.com.

The extent of the application of dynamic real-time system conditions for use in operating nomograms used for Path 47 compared to other WECC paths is unique. These dynamic nomograms were developed in a process that identified both independent and dependent variables. When all the significant variables affecting import limits were identified, the dynamic nomogram equations were developed and implemented. Thus, the EPE real-time operating nomogram for Path 47 takes into account all seasonal and time-of-day conditions on the southern New Mexico and EPE systems by the use of these real-time variables. These real-time nomogram methodologies have been used since 1995. Because of EPE's methodology to determine limits on Path 47, EPE has only performed summer OTC check studies. The OTC Policy Committee has supported EPE's reasoning for only performing summer OTC check cases.

EPE operates the system based on the lower of the voltage stability, absolute voltage level or thermal limit. The maximum simultaneous rating is 925 MW (by contract) with a maximum non-simultaneous rating of 1048 MW.