

## **WECC Standard TOP-STD-007-0 – Operating Transfer Capability**

### **A. Introduction**

1. **Title:**           **Operating Transfer Capability**
2. **Number:**       TOP-STD-007-0
3. **Purpose:**       Regional Reliability Standard to ensure the Operating Transfer Capability limits requirements of the Western Interconnection are not exceeded.
4. **Applicability**
  - 4.1. This criterion applies to each Transmission Operator of a transmission path in the Attachment A – WECC Table 2 (Source: Participants Subject to Criterion)
5. **Effective Date:** This Western Electricity Coordinating Council Regional Reliability Standard will be effective when approved by the Federal Energy Regulatory Commission under Section 215 of the Federal Power Act. This Regional Reliability Standard shall be in effect for one year from the date of Commission approval or until a North American Standard or a revised Western Electricity Coordinating Council Regional Reliability Standard goes into place, whichever occurs first. At no time shall this regional Standard be enforced in addition to a similar North American Standard.

### **B. Requirements**

#### **WR1. Operating Transfer Capability Limit Criteria**

Actual power flow and net scheduled power flow over an interconnection or transfer path shall be maintained within Operating Transfer Capability Limits (“OTC”). The OTC is the maximum amount of actual power that can be transferred over direct or parallel transmission elements comprising:

- An interconnection from one Transmission Operator area to another Transmission Operator area; or
- A transfer path within a Transmission Operator area.

The net schedule over an interconnection or transfer path within a Transmission Operator area shall not exceed the OTC, regardless of the prevailing actual power flow on the interconnection or transfer path.

- a. Operating limits. No elements within the interconnection shall be scheduled above continuous operating limits. An element is defined as any generating unit, transmission line, transformer, bus, or piece of electrical equipment involved in the transfer of power within an interconnection.
- b. Stability. The interconnected power system shall remain stable upon loss of any one single element without system cascading that could result in the successive loss of additional elements. The system voltages shall be within acceptable limits defined in the WECC Reliability Criteria for Transmission System Planning. If a single event could cause loss of multiple elements, these shall be considered in lieu of a single element outage. This could occur in exceptional cases such as two lines on the same right-of-way next to an airport. In either case, loss of either single or multiple elements should not cause uncontrolled, widespread collapse of the interconnected power system. For purposes of this

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Section, stability shall include transient stability, post transient stability or dynamic stability whichever is most limiting to OTC.

- c. System contingency response. Following the outage and before adjustments can be made:
  - (i) No remaining element shall exceed its short-time emergency rating.
  - (ii) The steady-state system voltages shall be within emergency limits.

The limiting event shall be determined by conducting power flow and stability studies while simulating various operating conditions. These studies shall be updated as system configurations introduce significant changes in the interconnection. (Source: WECC Criterion)

### **C. Measures**

#### **WM1.**

Actual power flow on all transmission paths shall at no time exceed the OTC for more than 20 minutes for paths that are stability limited, or for more than 30 minutes for paths that are thermally limited. (Source: Compliance Standard)

### **D. Compliance**

#### **1. Compliance Monitoring Process**

##### **1.1. Compliance Monitoring Responsibility**

Compliance Monitor: British Columbia Utilities Commission

Compliance Monitor's Administrator: Western Electricity Coordinating Council

##### **1.2 Compliance Monitoring Period**

At Occurrence and Quarterly

By no later than 5:00 p.m. Mountain Time on the first Business Day following the day on which an instance of non-compliance occurs (or such other date specified in Form A.4(a)), a Transmission Operator identified in Section A.4.1 shall submit to the Administrator's office operating transfer capability data in Form A.4(a) (available on the WECC web site) for each such instance of noncompliance. On or before the tenth day of each calendar quarter (or such other date specified in Form A.4(b)), the Transmission Operator identified in Section A.4.1 (including Transmission Operators with no reported instances of non-compliance) shall submit to the Administrator's office a completed OTC summary compliance Form A.4(b) (available on the WECC web site) for the immediately preceding calendar quarter.

##### **1.3 Data Retention**

Data will be retained in electronic form for at least one year. The retention period will be evaluated before expiration of one year to determine if a longer retention period is necessary. If the data is being reviewed to address a question of compliance, the data will be saved beyond the normal retention period until the question is formally resolved. (Source: NERC Language)

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### **2. Levels of Non-Compliance**

For each separate incident violating the OTC compliance Standard, the level of the violation shall be as set forth in the following table: (Source: Non-Compliance Levels)

Thermal Limited Paths:	Limit exceeded for more than 30 minutes, up to 35 minutes	Limit exceeded for more than 35 minutes, up to 40 minutes	Limit exceeded for more than 40 minutes, up to 45 minutes	Limit exceeded for more than 45 minutes
Stability Limited Paths:	Limit exceeded for more than 20 minutes, up to 25 minutes	Limit exceeded for more than 25 minutes, up to 30 minutes	Limit exceeded for more than 30 minutes, up to 35 minutes	Limit exceeded for more than 35 minutes
Percentage by which net scheduled or actual flows exceed OTC*				
greater than 0%, up to and including 5%	Level 1	Level 2	Level 2	Level 3
greater than 5%, up to and including 10%	Level 2	Level 2	Level 3	Level 3
greater than 10%, up to and including 15%	Level 2	Level 3	Level 3	Level 4
greater than 15%, up to and including 20%	Level 3	Level 3	Level 4	Level 4
greater than 20%, up to and including 25%	Level 3	Level 4	Level 4	Level 4
greater than 25%	Level 4	Level 4	Level 4	Level 4

\* measured after 20 continuous minutes of net scheduled or actual flows in excess of OTC. **E.**

### **E. Regional Differences**

**Version History** – Shows Approval History and Summary of Changes in the Action Field

Version	Date	Action	Change Tracking
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**ATTACHMENT A**  
**Table 2**  
**Existing WECC Transfer Paths (BTP)**  
**(Revised February 1, 2006)**

	<b>PATH NAME*</b>	<b>Path Number</b>	<b>Operating Agent</b>
1.	Alberta – British Columbia	1	BCTC/AESO
2.	Northwest – British Columbia	3	BCTC/BPA
3.	West of Cascades – North	4	BPA
4.	West of Cascades – South	5	BPA
5.	West of Hatwai	6	AVA/BPA
6.	Montana to Northwest	8	NWMT
7.	Idaho to Northwest	14	IPC
8.	South of Los Banos or Midway- Los Banos	15	CISO
9.	Idaho – Sierra	16	SPP
10.	Borah West	17	IPC
11.	Idaho – Montana	18	NWMT
12.	Bridger West	19	PAC
13.	Path C	20	PAC
14.	Southwest of Four Corners	22	APS
15.	PG&E – SPP	24	CISO
16.	Northern – Southern California	26	CISO
17.	Intmntn. Power Project DC Line	27	LADWP
18.	TOT 1A	30	WAPA
19.	TOT 2A	31	WAPA
20.	Pavant – Gonder 230 kV Intermountain – Gonder 230 kV	32	SPP/LADWP
21.	TOT 2B	34	PAC
22.	TOT 2C	35	NEVP
23.	TOT 3	36	WAPA
24.	TOT 5	39	WAPA
25.	SDGE – CFE	45	CISO/CFE
26.	West of Colorado River (WOR)	46	CISO
27.	Southern New Mexico (NM1)	47	EPE
28.	Northern New Mexico (NM2)	48	PNM
29.	East of the Colorado River (EOR)	49	APS
30.	Cholla – Pinnacle Peak	50	APS
31.	Southern Navajo	51	APS
32.	Brownlee East	55	IPC
33.	Lugo – Victorville 500 kV	61	CISO/LDWP
34.	Pacific DC Intertie	65	BPA/LADWP
35.	COI	66	BPA/CISO
36.	North of John Day cutplane	73	BPA
37.	Alturas	76	SPP
38.	Montana Southeast	80	NWMT
39.	SCIT**		CISO
40.	COI/PDCI – North of John Day cutplane**		BPA

\* For an explanation of terms, path numbers, and definition for the paths refer to WECC's Path Rating Catalog.

\*\* The SCIT and COI/PDCI-North of John Day Cutplane are paths that are operated in accordance with nomograms identified in WECC's Path Rating Catalog.

## **DEFINITIONS**

Unless the context requires otherwise, all capitalized terms shall have the meanings assigned in this Standard and as set out below:

**Business Day** means any day other than Saturday, Sunday, or a legal public holiday as designated in section 6103 of title 5, U.S. Code.

**Disturbance** means (i) any perturbation to the electric system, or (ii) the unexpected change in ACE that is caused by the sudden loss of generation or interruption of load.

**Extraordinary Contingency** shall have the meaning set out in Excuse of Performance, section B.4.c.

**Normal Path Rating** is the maximum path rating in MW that has been demonstrated to WECC through study results or actual operation, whichever is greater. For a path with transfer capability limits that vary seasonally, it is the maximum of all the seasonal values.

**Operating Transfer Capability Limit** or **OTC** means the maximum value of the most critical system operating parameter(s) which meets: (a) precontingency criteria as determined by equipment loading capability and acceptable voltage conditions, (b) transient criteria as determined by equipment loading capability and acceptable voltage conditions, (c) transient performance criteria, and (d) post-contingency loading and voltage criteria.

**WECC Table 2** means the table maintained by the WECC identifying those transfer paths monitored by the WECC regional Reliability coordinators. As of the date set out therein, the transmission paths identified in Table 2 are as listed in Attachment A to this Standard.

## **EXCUSE OF PERFORMANCE**

### **A. Excused Non-Compliance**

Non-compliance with any of the reliability criteria contained in this Standard shall be excused and no sanction applied if such non-compliance results directly from one or more of the actions or events listed below.

**B. Specific Excuses**

**1. Governmental Order**

The Reliability Entity's compliance with or action under any applicable law or regulation or other legal obligation related thereto or any curtailment, order, regulation or restriction imposed by any governmental authority (other than the Reliability Entity, if the Reliability Entity is a municipal corporation or a federal, state, or provincial governmental entity or subdivision thereof).

**2. Order of Reliability Coordinator**

The Reliability Entity's compliance or reasonable effort to comply with any instruction, directive, order or suggested action ("Security Order") by the WECC Reliability Coordinator for the WECC sub-region within which the Reliability Entity is operating, provided that the need for such Security Order was not due to the Reliability Entity's non-compliance with (a) the WECC Reliability Criteria for Transmission System Planning, (b) the WECC Power Supply Design Criteria, (c) the WECC Minimum Operating Reliability Criteria, or (d) any other WECC reliability criterion, policy or procedure then in effect (collectively, "WECC Reliability Standards"), and provided further that the Reliability Entity in complying or attempting to comply with such Security Order has taken all reasonable measures to minimize Reliability Entity's noncompliance with the reliability criteria.

**3. Protection of Facilities**

Any action taken or not taken by the Reliability Entity which, in the reasonable judgment of the Reliability Entity, was necessary to protect the operation, performance, integrity, reliability or stability of the Reliability Entity's computer system, electric system (including transmission and generating facilities), or any electric system with which the Reliability Entity's electric system is interconnected, whether such action occurs automatically or manually; provided that the need for such action or inaction was not due to Reliability Entity's non-compliance with any WECC Reliability Standard and provided further that Reliability Entity could not have avoided the need for such action or inaction through reasonable efforts taken in a timely manner. Reasonable efforts shall include shedding load, disconnecting facilities, altering generation patterns or schedules on the transmission system, or purchasing energy or capacity, except to the extent that the Reliability Entity demonstrates to the WECC Staff and/or the

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RCC that in the particular circumstances such action would have been unreasonable.

### **4. Extraordinary Contingency**

- a. Any Extraordinary Contingency (as defined in subsection c); provided that this provision shall apply only to the extent and for the duration that the Extraordinary Contingency actually and reasonably prevented the Reliability Entity from complying with any applicable reliability criteria; and provided further that Reliability Entity took all reasonable efforts in a timely manner to mitigate the effects of the Extraordinary Contingency and to resume full compliance with all applicable reliability criteria contained in this Standard. Reasonable efforts shall include shedding load, disconnecting facilities, altering generation patterns or schedules on the transmission system, or purchasing energy or capacity, except to the extent that the Reliability Entity demonstrates to the WECC Staff and/or the RCC that in the particular circumstances such action would have been unreasonable. Reasonable efforts shall not include the settlement of any strike, lockout or labor dispute.
- b. Any Reliability Entity whose compliance is prevented by an Extraordinary Contingency shall immediately notify the WECC of such contingency and shall report daily or at such other interval prescribed by the WECC the efforts being undertaken to mitigate the effects of such contingency and to bring the Reliability Entity back into full compliance.
- c. An Extraordinary Contingency means any act of God, actions by a non-affiliated third party, labor disturbance, act of the public enemy, war, insurrection, riot, fire, storm or flood, earthquake, explosion, accident to or breakage, failure or malfunction of machinery or equipment, or any other cause beyond the Reliability Entity's reasonable control; provided that prudent industry standards (e.g., maintenance, design, operation) have been employed; and provided further that no act or cause shall be considered an Extraordinary Contingency if such act or cause results in any contingency contemplated in any WECC Reliability Standard (e.g., the "Most Severe Single Contingency" as defined in the WECC Reliability Criteria or any lesser contingency).

**5. Participation in Field Testing**

Any action taken or not taken by the Reliability Entity in conjunction with the Reliability Entity's involvement in the field testing (as approved by either the WECC Operating Committee or the WECC Planning Coordination Committee) of a new reliability criterion or a revision to an existing reliability criterion where such action or non-action causes the Reliability Entity's non-compliance with the reliability criterion to be replaced or revised by the criterion being field tested; provided that Reliability Entity's noncompliance is the result of Reliability Entity's reasonable efforts to participate in the field testing.