

**B O N N E V I L L E**  
**P O W E R A D M I N I S T R A T I O N**



**Available Transfer Capability  
Implementation Document  
(MOD-001-1a)**

**Bonneville Power Administration  
Transmission Services**

Effective Date: ~~February 16~~April 29~~May 03~~, 2022

---

## Contents

I. Purpose .....	1
II. Definitions .....	1
III. Overview .....	2
<b>Methodologies Selected</b> .....	2
MOD-029-2a.....	2
MOD-008-1 .....	2
<b>Methodologies Not Applicable to BPA</b> .....	2
<b>ATC Calculations</b> .....	2
ATC Calculation Periods .....	2
Frequency of ATC Recalculation.....	2
Limiting Assumptions.....	3
IV. Allocation Processes .....	3
V. Outages .....	4
<b>Outage Planning</b> .....	4
<b>Outage Criteria for TTC Calculations</b> .....	4
VI. Priorities Used to Set TTC .....	5
VII. Rated System Path Methodology for BPA’s Paths.....	6
<b>BPA’s Paths</b> .....	6
<b>Calculating TTC</b> .....	12
Data and Assumptions.....	12
Process to Determine TTC.....	13
<b>Calculating Firm Transmission Service for Paths</b> .....	15
Calculating Firm Existing Transmission Commitments (ETC <sub>F</sub> ) .....	15
Determining base ETC for Flow-Based Paths.....	17
Calculating Interim ETC <sub>F</sub> for Flow-based Paths.....	21
Calculating Firm Available Transfer Capability (ATC <sub>F</sub> ) .....	23
<b>Calculating Non-Firm Transmission Service for BPA’s Paths</b> .....	26
Calculating Non-Firm Existing Transmission Commitments (ETC <sub>NF</sub> ) .....	27
Calculating Non-Firm Available Transfer Capability (ATC <sub>NF</sub> ) .....	28
<b>Adjustments to Flow-based Path ATC Values</b> .....	35
VIII. Data Sources and Recipients.....	35
IX. Responding to Data Requests.....	36
X. ATCID Revisions.....	37
XI. Version History .....	37

---

## 3 I. Purpose

4 This Available Transfer Capability Implementation Document (ATCID) addresses all of the  
5 requirements of North American Electric Reliability Corporation (NERC) Reliability Standard  
6 MOD-001-1a (Available Transmission System Capability). This ATCID is specifically required by  
7 MOD-001-1a, R3 and its sub-requirements. This ATCID also outlines BPA's Postback  
8 Methodology as required by North American Energy Standards Board (NAESB) Wholesale  
9 Electric Quadrant business practice standards.

10 This ATCID only applies to ATC calculations through month 13.

---

## 11 II. Definitions

12 All capitalized terms used in this ATCID are either contained in NERC's Glossary of Terms,  
13 NAESB WEQ-000, or are defined in this ATCID.

14 Defined terms specific to BPA include:

- 15 • **Federal Columbia River Power System (FCRPS):** The Transmission System  
16 constructed and operated by BPA and the 31 federally-constructed hydroelectric  
17 dams<sup>1</sup> on the Columbia and Snake Rivers, and the Columbia Generating Station nuclear  
18 plant. Each entity is separately managed and financed, but the facilities are operated  
19 as an integrated power System.
- 20 • **Federal Columbia River Transmission System (FCRTS):** The FCRTS is comprised of  
21 BPA's main grid network Facilities (Network), Interconnections with other  
22 Transmission Systems (External Interconnections<sup>2</sup>), Interties,<sup>3</sup> delivery Facilities,  
23 subgrid Facilities, and generation Interconnection Facilities within the Pacific  
24 Northwest region and with western Canada and California.
- 25 • **Long-Term Reservation:** a confirmed reservation that has duration greater than or  
26 equal to 365 days
- 27 • **Short-Term Reservation:** a confirmed reservation that has duration less than 365  
28 days

---

<sup>1</sup> Albeni Falls, Anderson Ranch, Big Cliff, Black Canyon, Boise River Diversion, Bonneville, Chandler, Chief Joseph, Cougar, Detroit, Dexter, Dworshak, Foster, Grand Coulee, Green Peter, Green Springs, Hills Creek, Hungry Horse, Ice Harbor, John Day, Libby, Little Goose, Lookout Point, Lost Creek, Lower Granite, Lower Monumental, McNary, Minidoka, Palisades, Roza and The Dalles

<sup>2</sup> Northern Intertie, Reno-Alturas Transmission System, West of Hatwai, West of Garrison and LaGrande paths.

<sup>3</sup> California-Oregon AC Intertie, Pacific DC Intertie, and Montana Intertie.

---

## 29 III. Overview

---

30 BPA owns and provides Transmission Service over the FCRTS. BPA is registered with NERC as a  
31 Transmission Operator (TOP) and Transmission Service Provider (TSP), among other  
32 registrations.

### 33 Methodologies Selected

#### 34 MOD-029-2a

35 BPA has elected to use the Rated System Path Methodology (MOD-029-2a) to calculate  
36 Available Transfer Capability (ATC) for its paths. The description of how BPA implements  
37 this methodology for these paths is included in this ATCID. (MOD-001 R1)

#### 38 MOD-008-1

39 BPA maintains Transmission Reliability Margin (TRM) as described in NERC Standard MOD-  
40 008-1 for its Northern Intertie, West of Garrison E>W and Satsop Injection paths. The  
41 description of how BPA implements TRM can be found in BPA's TRM Implementation  
42 Document (TRMID), found on BPA's website. BPA does not maintain TRM for any other  
43 paths.

### 44 Methodologies Not Applicable to BPA

45 BPA does not use the Area Interchange Methodology (MOD-028-2), the Flowgate  
46 Methodology (MOD-030-2), or a Capacity Benefit Margin (MOD-004-1). Therefore, these  
47 standards are not applicable to BPA.

### 48 ATC Calculations

#### 49 ATC Calculation Periods

50 BPA calculates ATC values using the Rated System Path Methodology for the following time  
51 periods: (MOD-001 R2)

- 52 • Hourly values for up to 168 hours. The next hour may be calculated in subhourly  
53 intervals, with the most limiting subhourly ATC value being the hourly value. (MOD-001  
54 R2.1)
- 55 • Daily values for day 3 through day 90. For days 3 to 7 (up to hour 168), the daily ATC  
56 value is the most limiting hourly ATC value for that day. (MOD-001 R2.2)
- 57 • Monthly values for month 2 through month 13. For months 2 and 3 (up to day 90), the  
58 monthly ATC value is the most limiting daily ATC value for that month. (MOD-001 R2.3)

#### 59 Frequency of ATC Recalculation

60 BPA recalculates ATC on the following frequency, even if the calculated values  
61 identified in the ATC equation are unchanged: (MOD-001 R8)

- 62 • Hourly, at least once per hour. (MOD-001 R8.1)
- 63 • Daily, at least once per day. (MOD-001 R8.2)

64 • Monthly, at least once per day. (MOD-001 R8.3)

65 BPA may recalculate ATC values more frequently due to changes in Total Transfer  
66 Capability (TTC), Power Transfer Distribution Factors (PTDFs), system issues or as deemed  
67 necessary.

## 68 Limiting Assumptions

69 BPA studies assumptions of various System conditions to develop TTCs for its paths for the  
70 planning of operations time frame. The governing TTCs for each time frame are  
71 established from these planning of operations studies, based on the time period being  
72 calculated and the reason for the change in TTC. BPA uses these TTCs in its ATC  
73 calculations. There are no additional TTC studies conducted to establish the path TTCs  
74 used BPA's ATC calculations. Therefore when determining the TTC, BPA studies  
75 assumptions that are no more limiting than those used in its planning of operations for the  
76 corresponding time period, when such planning of operations has been performed for that  
77 time period. (MOD-001 R6)

78 When calculating ATC, BPA uses the TTCs determined in its planning of operations TTC  
79 studies. There are no additional TTC studies conducted to establish the path TTCs used in  
80 BPA's ATC calculations. For flow-based paths, BPA calculates Existing Transmission  
81 Commitments (ETC) by summing base ETC from power flow studies with interim ETC from  
82 PTDFs. BPA uses the most recent System condition information to re-calculate its hourly,  
83 daily and monthly PTDFs in the planning of operations time frame. The ETCs used in  
84 BPA's ATC calculations are re-calculated with these updated PTDFs in each time frame.  
85 There are no additional ETC studies, beyond the base ETC studies and the PTDF  
86 calculations, performed during the planning of operations time frame. Therefore, BPA  
87 does not use more limiting assumptions when calculating ATC in its planning of operations  
88 time frame. (MOD-001 R7)

---

## 89 IV. Allocation Processes

---

90 BPA ~~uses the same methodology to allocate~~ transfer capability among ~~multiple lines or sub-~~  
91 ~~paths within a larger path as it uses to allocate transfer capability among~~ multiple owners or  
92 users of ~~a-its 1:1 and flow-based paths~~.

### 93 Allocating TTC:

94 For paths where ~~ownership Allocation~~ agreements exist, ~~BPA allocates TTC the~~  
95 ~~methodology is to allocate transfer capabilities~~ according to contractual rights ~~of the~~  
96 ~~various owners as~~ defined in ~~individual the Agreements agreements among the various~~  
97 ~~owners~~.

98 ~~These Agreements define the specific percentages of capacity or MW amounts of rights~~  
99 ~~assigned to each owner for specific time periods.~~ Allocation agreements do not exist for  
100 three of BPA's flow-based paths that have multiple owners: South of Allston S>N,  
101 Columbia Injection N>S and Wanapum Injection N>S. For South of Allston S>N, the same  
102 allocation methodology described in the South of Allston N>S Contract agreement is used.  
103 For Columbia Injection N>S and Wanapum Injection N>S, BPA determines its share of TTC  
104 based on BPA's-owned transmission lines that make up these flow-based paths when all  
105 lines are in service. During outage conditions, individual allocations exist for the loss of  
106 each transmission line in the pathline definitions for these flow-based paths.

### 107 Allocating base ETC:

108 BPA also allocates its base ETC among some of its shared flow-based paths. To allocate  
109 base ETC for South of Allston N>S and S>N, BPA uses the contractual rights defined in the  
110 South of Allston allocation agreement. BPA determines its share ofTo allocate base ETC  
111 for the Columbia Injection N>S and Wanapum Injection N>S paths, BPA only by modeling  
112 the full path of BPA's lines only in the base ETC cases for these paths. BPA does not  
113 allocate base ETC across any other shared flow-based paths.

114 BPA calculates Power Transfer Distribution Factors based on the entire path definition of all  
115 paths.

116 At this time BPA does not allocate transfer capabilities among multiple lines or sub-paths  
117 within a larger path or between TSPs to address forward-looking congestion management and  
118 seams coordination. (MOD-001 R3.5)

---

## 119 **V. Outages**

---

120 Outages from all TSPs that are internal or adjacent to BPA's Balancing Authority Area (BAA)  
121 can be mapped to the WECC base cases. (MOD-001 R3.6.3)

### 122 **Outage Planning**

123 Outage plans and the policy are posted to the Outage Plans website at:  
124 <http://www.bpa.gov/transmission/Reports/Pages/Proposed-Outages.aspx>.

### 125 **Outage Criteria for TTC Calculations**

126 BPA incorporates outages into the TTC calculations after they have been studied by BPA or  
127 provided to BPA by another TOP. Generally, BPA studies outages 10 to 16 days prior to the  
128 outage start date.

129 The duration of an outage is not a criteria by which BPA determines which outages to  
130 incorporate in its daily and monthly TTC calculations. The most conservative hourly TTC  
131 calculated for a given outage or combination of outages becomes the governing TTC for the  
132 daily calculation period. Likewise, the most conservative daily TTC for a given outage or  
133 combination of outages becomes the governing TTC for the monthly calculation period.  
134 (MOD-001 R3.6.1) (MOD-001 R.3.6.2)

---

## 135 VI. Priorities Used to Set TTC

---

136 BPA may update assumptions and calculate new TTCs when changes to System conditions will  
137 significantly impact those limits and may use those updated assumptions to determine new  
138 TTC values. The following hierarchy of priorities categorizes the TTC values based on the  
139 time period being calculated and the reason for the change. This prioritization may then be  
140 used to revise the path TTC for a given time period if BPA determines that more recent  
141 assumptions to calculate TTC values better reflect updated System information:

- 142 • **Real-time limit (highest priority):** The “Real-time limit” priority governs when BPA  
143 updates the assumptions of System conditions to calculate TTCs during the Real-time  
144 horizon. A change to the TTC calculation with the Real-time priority governs all other  
145 priorities. For example, if BPA receives an update that a scheduled outage will be  
146 extended by two hours early in the Real-time day, BPA may update the assumptions  
147 for the TTC calculation accordingly for the additional two hours and may use those  
148 same updated assumptions to update the TTC. If there are multiple real-time updates  
149 to assumptions for TTC calculations, the most recent TTC calculated governs.
- 150 • **Scheduling limit:** The “scheduling limit” priority may be used occasionally when the  
151 assumptions for the TTC are not governing or an actual scheduling limit has been  
152 imposed. If there is more than one scheduling limit, the lowest scheduling limit  
153 governs until a Real-time limit TTC is submitted.
- 154 • **Pre-schedule forecast:** The “pre-schedule forecast” TTC priority may be used for a  
155 path if the assumptions for the TTC calculations are updated for the pre-schedule  
156 period. For example, for TTCs calculated for flow-based paths that are derived using  
157 nomograms, if the assumptions are re-evaluated just prior to the pre-schedule day to  
158 incorporate updated data inputs, the TTC may be updated. The pre-schedule forecast  
159 TTC governs over the ‘studied’ priority.
- 160 • **Studied:** The “studied” priority is used when there are outages where a study report  
161 has been issued, including those provided by other TOPs. For example, if a study  
162 report is issued evaluating assumptions for line outage system conditions, the TTCs in  
163 that report govern over any lower-priority TTCs for the duration of the line outage  
164 conditions.
- 165 • **Estimated known limit:** The “estimated known limit” priority is used to establish  
166 unstudied TTCs or to define seasonal path TTCs that govern over “short-term  
167 seasonal” or “Path Rating” priorities.
- 168 • **Short-term seasonal:** The “short-term seasonal” priority is used for TTCs issued for  
169 seasonal Path Ratings. As these Ratings may be higher at certain times during the  
170 year, the short-term seasonal priority governs over the Path Rating priority. For  
171 example, if the longer-term Path Rating for a path is 7800 MW, but seasonally this  
172 Rating increases to 8000 MW, the short-term seasonal Rating of 8000 MW governs and  
173 is used to set the TTC during the season to which it applies.
- 174 • **Path Rating:** The “Path Rating” priority is used to set base TTCs using either the  
175 Rating of the paths, TTCs studied using normal conditions, TTCs calculated for the  
176 planning horizon, or all of the above. The lowest value resulting from the above  
177 calculations governs for the given time period and is used to set the TTC. For  
178 example, if under normal conditions the TTC for a path is 4410 MW, but the TTC  
179 calculated for the planning horizon is 4100 MW, the lower TTC of 4100 MW governs and  
180 is used to set the TTC for the path.

- **Informational limit (lowest priority):** The “informational limit” is used while establishing the initial setup of paths within the scheduling and reservation system. The informational limit is equal to the initial Path Rating of the path.

## VII. Rated System Path Methodology for BPA’s Paths

This section describes how BPA implements the Rated System Path methodology for its paths. It addresses all of the requirements in MOD-029-2a.

### BPA’s Paths

The following tables list BPA’s paths. BPA has a combination of 1:1 and flow-based paths, and uses MOD-029-2a to calculate ATC for both.

**Table 1, BPA’s 1:1 Paths**

1:1 Path Name	Direction
Northern Intertie Total On Oasis: NI_TOTL_N>S	(N>S)
Northern Intertie Total On OASIS: NI_TOTL_S>N	(S>N)
Montana-Northwest West of Garrison On OASIS: WOGARR_E>W	(E>W)
Montana-Northwest West of Garrison On OASIS: WOGARR_W>E	(W>E)
La Grande On OASIS: LAGR_W>E	(W>E)
La Grande On OASIS: LAGR_E>W	(E>W)
Montana Intertie On OASIS: MI_E>W	(E>W)
Reno-Alturas NW Sierra On OASIS: RATS_N>S	(N>S)
Reno-Alturas NW Sierra On OASIS: RATS_S>N	(S>N)
California-Oregon AC Intertie (COI) On OASIS: AC_N>S	(N>S)
California-Oregon AC Intertie (COI) On OASIS: AC_S>N	(S>N)



1:1 Path Name	Direction
Pacific DC Intertie On OASIS: DC_S>N	(S>N)
Pacific DC Intertie On OASIS: DC_N>S	(N>S)
Rock Creek On OASIS: ROCKCK_GEN	Gen
John Day Wind On OASIS: JDWIND_GEN	Gen
Satsop Injection On OASIS: SATSOP_GEN	Gen

191

192

Table 2, BPA's Flow-Based Paths

Flow-based Path Name	Direction	Transmission Line Components	Case used for base ETC calculation
North of Hanford On OASIS: NOHANF	(N>S)	Vantage-Hanford #1 500kV; Grand Coulee-Hanford #1 500kV; and Shultz-Wautoma #1 500kV	Heavy load case
North of Hanford On OASIS: NOHANF	(S>N)	<del>Vantage</del> -Hanford- <del>Vantage</del> #1 500kV; <del>Grand Coulee</del> -Hanford- <del>Grand Coulee</del> #1 500kV; and <del>Shultz</del> -Wautoma- <del>Shultz</del> #1 500kV	Heavy load case
South of Allston On OASIS: SOALSN	(N>S)	BPA -Owned Transmission Lines: <del>Keeler</del> -Allston- <del>Keeler</del> 500kV; Lexington-Ross 230kV; and and <del>St. Helens</del> -Allston- <del>St. Helens</del> 115kV; Portland General Electric -Owned Transmission Lines: Trojan-St. Marys 230kV; and Trojan- <del>River Gate</del> <del>Harborton</del> 230kV; PacifiCorp-Owned Transmission Lines: Merwin-St. Johns 115kV; Astoria-Seaside 115kV; and and Clatsop 230/115kV	Heavy load case
South of Allston On OASIS: SOALSN	(S>N)	BPA -Owned Transmission Lines: Keeler-Allston 500kV; <del>Lexington</del> -Ross- <del>Lexington</del> 230kV; and St. Helens-Allston 115kV; Portland General Electric -Owned Transmission Lines: <del>Trojan</del> -St. Marys- <del>Trojan</del> 230kV; and <del>Trojan</del> - <del>River Gate</del> <del>Harborton</del> - <del>Trojan</del> 230kV; PacifiCorp-Owned Transmission Lines: <del>Merwin</del> -St. Johns- <del>Merwin</del> 115kV; <del>Astoria</del> -Seaside- <del>Astoria</del> 115kV; and Clatsop 230/115kV	Heavy load case

Flow-based Path Name	Direction	Transmission Line Components	Case used for base ETC calculation
Raver-Paul On OASIS: RAVR_PAUL	(N>S)	Raver-Paul #1 500 kV Line When the Raver-Paul 500 kV line is out of service, the following lines are monitored: Raver – Paul #1 500-kV; St. Clair – South Tacoma #1 230kV; Chehalis – Covington #1 230kV; Puget Sound Energy-Owned Transmission Lines: Frederickson– St. Clair 115kV; Electron Heights – Blumaer 115kV	Heavy load case
Cross Cascades North On OASIS: C-CASC_N	(E>W)	BPA-Owned Transmission Lines Schultz-Raver #1, #3, & #4 500kV; Schultz-Echo Lake #1 500kV; Chief Joseph-Monroe #1 500kV; Chief Joseph-Snohomish #3 & #4 345kV; Rocky Reach-Maple Valley #1 345kV; Grand Coulee-Olympia #1 287kV; Bettas Road - Covington #1 230kV. Puget Sound Energy-Owned Transmission Line Rocky Reach – Cascade 230 kV	Heavy load case
Cross Cascades South On OASIS: C-CACS_S	(E>W)	Big-Eddy-Ostrander #1 500kV; Ashe-Marion #2 500kV; Buckley-Marion #1 500kV; Knight-Ostrander #1 500kV; John Day-Marion #1 500kV; McNary-Ross #1 345kV; Big Eddy-Chemawa #1 230kV; Big Eddy-McLoughlin #1 and #2 230kV; Midway-North Bonneville #1 230kV; Jones Canyon-Santiam #1 230kV; and Big Eddy-Troutdale #1 230kV PGE-Owned Transmission Line Bethel—Round Butte-Bethel 230 kV	Heavy load case
West of McNary On OASIS: WOMCNY	(E>W)	Coyote Springs-Slatt #1 500kV; McNary-Ross #1 345kV; Harvalum – Big Eddy #1 230 kV; Jones Canyon-Santiam #1 230kV;	Heavy load case

Flow-based Path Name	Direction	Transmission Line Components	Case used for base ETC calculation
		McNary-John Day #2 500kV	
West of Slatt On OASIS: WOSLATT	(E>W)	Slatt-Buckley <del>#1</del> 500kV; and Slatt-John Day <del>#1</del> 500kV	Heavy load case
West of John Day On OASIS: WOJD	(E>W)	John Day – Big Eddy <del>No.#-1</del> 500-kV line <del>(metered at John Day)</del> ; John Day – Big Eddy <del>No.#-2</del> 500-kV line <del>(metered at John Day)</del> ; and John Day – Marion <del>No.#-1</del> 500kV	Heavy load case
South of Boundary On OASIS: SBNDRY	(N>S)	<del>Bell</del> —Boundary- <del>Bell</del> #1 230kV; <del>Bell</del> —Boundary- <del>Bell</del> #3 230kV; <del>Usk</del> —Boundary- <del>Usk</del> #1 230kV; and Boundary 230/115kV Transformer #1	Heavy load case
Columbia Injection On OASIS: CLMBIA	(N>S)	Columbia-Grand Coulee #1 230-kV <del>(metered at Columbia)</del> ; Columbia-Grand Coulee #3 230-kV <del>(metered at Columbia)</del> ; <del>Rocky Reach</del> —Columbia- <del>Rocky Reach</del> #1_2 230-kV <del>(metered at Columbia)</del> ; <del>Rocky Reach</del> —Columbia- <del>Rocky Reach</del> #2 230-kV <del>(metered at Columbia)</del> ; Columbia-Valhalla #1 115-kV <del>(metered at Columbia)</del> ; and Columbia-Valhalla #2 115-kV; and <del>(metered at Columbia)</del> <u>Chelan PUD-Owned Transmission Line:</u> <u>Columbia-Rocky Reach #21 230-kV ;</u>	Heavy load case
Wanapum Injection On OASIS: WANAPM	(N>S)	<del>Midway</del> -Vantage- <del>Midway</del> #1 230-kV; and <del>Midway</del> - <u>Grant PUD-Owned Transmission Line:</u> Priest Rapids- <del>Midway</del> #3 230-kV	Heavy load case
West of Lower Monumental On OASIS: W_LOMO	(E>W)	<del>Ashe</del> —Lower Monumental- <del>Ashe</del> 500kV; <del>Hanford</del> —Lower Monumental- <del>Hanford</del> 500kV; and	Heavy load case

Flow-based Path Name	Direction	Transmission Line Components	Case used for base ETC calculation
		<del>McNary</del> — Lower Monumental- <del>McNary</del> 500kV	
North of Echo Lake On OASIS: N_ECOL	(S>N)	Echo Lake – Monroe - SnoKing Tap #1 500kV; Echo Lake – Maple Valley #1 500 kV; Echo Lake – Maple Valley #2 500kV; and Covington – Maple Valley #2 230kV	Heavy load case
South of Custer On OASIS: SCSTER	(N>S)	<del>Monroe</del> —Custer- <del>Monroe</del> #1 500kV; <del>Monroe</del> —Custer- <del>Monroe</del> #2 500kV; <del>Bellingham</del> —Custer- <del>Bellingham</del> #1 230kV; and <del>Murray</del> —Custer- <del>Murray</del> #1 230kV Line	Heavy load case
West of Hatwai On OASIS: WOH_E>W	(E>W)	<del>Lower Granite</del> -Hatwai- <del>Lower Granite</del> #1 500-kV line <del>Grand Coulee</del> -Bell- <del>Grand Coulee</del> #6 500-kV line <del>Grand Coulee</del> -Bell- <del>Grand Coulee</del> #3 230-kV line <del>Grand Coulee</del> -Bell- <del>Grand Coulee</del> #5 230-kV line <del>Grand Coulee</del> -Westside- <del>Grand</del> <del>Coulee</del> #1 230-kV line <del>Talbot</del> -Dry Creek- <del>Talbot</del> 230-kV line <del>Tucannon River</del> -North Lewiston- <del>Tucannon River</del> #1 115-kV line Devils Gap-Stratford 115-kV line Lind-Warden 115-kV line Creston-Bell #1 115kV line Dry Gulch-Pomeroy 69-kV line	Light load case

194  
195

BPA will select the Rated System Path Methodology if new paths are implemented, and update the appropriate table above. (MOD-001 R1)

## 196 **Calculating TTC**

### 197 **Data and Assumptions**

198 When calculating TTC for its paths, BPA uses WECC base cases that utilize data and  
199 assumptions consistent with the time period being studied. (MOD-029, R1.1) In addition to  
200 BPA's TOP area, these WECC base cases model the entire Western Interconnection.  
201 Hence, the WECC base cases include all TOP areas regardless if they are either contiguous  
202 to BPA's TOP area or are linked to BPA's TOP area by a joint operating Agreement. (MOD-  
203 029 R1.1.1.2, R1.1.1.3)

204 TOP areas contiguous with BPA's TOP area include (MOD-029 R1.1.1.2):

- 205 • Avista Corporation (AVA)
- 206 • BC Hydro (BCH)
- 207 • California Independent System Operator (CAISO)
- 208 • City of Tacoma, Department of Public Utilities, Light Division
- 209 • Eugene Water and Electric Board (EWEB)
- 210 • Idaho Power Company (IPCO)
- 211 • Los Angeles Department of Water and Power (LADWP)
- 212 • NorthWestern Energy (NWMT)
- 213 • NV Energy
- 214 • PacifiCorp (PAC)
- 215 • Pend Oreille County Public Utility District No. 1
- 216 • Portland General Electric (PGE)
- 217 • Public Utility District No. 1 of Chelan County
- 218 • Public Utility District No. 1 of Clark County
- 219 • Public Utility District No. 1 of Snohomish County
- 220 • Public Utility District No. 2 of Grant County, Washington
- 221 • PUD No. 1 of Douglas County
- 222 • Puget Sound Energy, Inc. (PSEI)
- 223 • Seattle City Light (SCL)

224 BPA uses the following data and assumptions in the WECC base cases when calculating  
225 TTCs for its paths:

226 BPA models all existing System Elements in their normal operating condition for the  
227 assumed initial conditions, up to the time horizon in which BPA begins modeling  
228 outages. (MOD-029 R1.1.2)

229 The WECC base cases include generators and phase shifters that meet the guidelines  
230 set out in the WECC Data Preparation Manual. (MOD-029 R1.1.3) (MOD-029 R1.1.4)

231 BPA uses the seasonal Load forecasts contained in the WECC base cases for each BA.  
232 (MOD-029 R1.1.5)

233 Generation and Transmission Facility additions and retirements within the WECC  
234 footprint are included in the WECC seasonal operating base cases for the season in  
235 which they are energized/de-energized, respectively. BPA engineers modify the WECC  
236 base cases to reflect the actual dates of energization/de-energization. (MOD-029  
237 R1.1.6, R1.1.7)

238 The WECC base cases include Facility Ratings as provided to WECC by the Transmission  
239 Owners and Generator Owners. (MOD-029 R1.2)

240 If Facility changes are made by BPA or another entity, then the base cases will be  
241 updated to reflect these changes with a Mid-Season update. (MOD-029 R1.1, R1.2)

242 The approved seasonal operating base cases that include the Facility changes will not  
243 be used until 0 to 16 days prior to the energization or implementation of the Facility  
244 change. (MOD-029 R1.1, R1.2)

245 For periods beyond two weeks, the WECC base cases will be updated as necessary to  
246 perform seasonal studies for the current or upcoming season in accordance with the  
247 current BPA study processes. (MOD-029 R1.1, R1.2, R2.1)

248 For all paths, except West of Garrison and Northern Intertie South to North, BPA uses  
249 the all lines in service TTC from the relevant seasonal studies when there are no  
250 studied outages to set the TTC of the path for the corresponding seasonal time  
251 periods.

252 For West of Garrison, for the seasons or time periods in which the seasonal studies  
253 have not been completed, the most recent year's seasonal study results will be used  
254 for setting the TTC for the path.

255 For Northern Intertie South to North, for the seasons or time periods in which the  
256 seasonal studies have not been completed, the most recent year's seasonal study  
257 results will be used for setting the TTC. BPA uses the minimum TTC from the relevant  
258 seasonal studies to set the TTC of the path for periods from the next day and  
259 beyond. For the Real-time horizon, when there are no studied outages, BPA uses the  
260 maximum TTC from the relevant seasonal studies to set the TTC of the path.

261 BPA models Special Protection Systems (BPA uses the term Remedial Action Schemes  
262 or RAS) that currently exist or are projected for implementation within the studied  
263 time horizon. (MOD-029 R1.1.8)

264 The WECC base cases include all series compensation for each line at the expected  
265 operating level. (MOD-029 R1.1.9)

266 BPA uses no other modeling requirements for calculating TTC in addition to those  
267 specified in this document. (MOD-029 R1.1.10)

268 **Process to Determine TTC**

269 BPA adjusts generation and Load levels within the WECC power-flow base cases to  
270 determine the TTC that can be simulated for each of its paths, while at the same time  
271 satisfying all operations planning criteria contingencies, as follows:

272 BPA studies single and multiple contingencies that are relevant to the path being studied.  
273 (MOD-029 R2.1)

274 When modeling normal conditions, BPA models all Transmission Elements in BPA’s BAA and  
275 adjacent BAAs at or below 100 percent of their continuous Rating. (MOD-029 R2.1.1)

276 BPA models contingencies as per the current version of “RC West System Operating Limits  
277 Methodology for the Operations Horizon” (RC West SOL Methodology) posted on RC West’s  
278 website. (MOD-029 R2.1.2)

279 When modeling contingencies, BPA determines TTCs by stressing the system until flows  
280 exceed emergency Facility Ratings or voltages fall outside emergency system voltage  
281 limits (i.e., the post-Contingency state). If a facility does not have an emergency Facility  
282 Rating, the normal Facility Rating is used. If there is no emergency system voltage limit,  
283 the normal system voltage limit is used. (MOD-029 R2.1.2) By meeting the criteria in the  
284 RC West SOL Methodology, uncontrolled separation should not occur. (MOD-029 R2.1.3)

285 BPA’s paths listed below are bi-directional and have studied TTCs in both the prevailing  
286 and non-prevailing direction of flow. (MOD-029 R2.2)

- 287 • Northern Intertie Total
- 288 • Montana-Northwest/West of Garrison
- 289 • La Grande
- 290 • Reno-Alturas NW Sierra
- 291 • California-Oregon AC Intertie
- 292 • Pacific DC Intertie
- 293 • North of Hanford
- 294 • South of Allston

295 All of BPA’s other paths are one directional, in the prevailing direction of flow, and have  
296 studied TTCs that are established for the prevailing direction of flow. If TTC values for  
297 the non-prevailing direction of flow were needed for these paths, BPA would determine  
298 these TTC values in accordance with the sub-requirements listed in MOD-029 R2, including  
299 MOD-029 R2.2.

300 For paths where TTC varies due to simultaneous interaction with one or more other paths,  
301 BPA develops a nomogram, represented either by an equation or its graphical  
302 representation, describing the interaction of the paths and the resulting TTC under  
303 specified conditions. BPA then calculates a value, based on that nomogram and  
304 forecasted System conditions for the time period studied, to develop its TTC values for  
305 the affected paths. (MOD-029 R2.4)

306 BPA or the adjacent path TOP identifies when the new or increased TTC for a path being  
307 studied by BPA or the adjacent path TOP has an adverse impact on the TTC value of  
308 another existing path by modeling the flow on the path being studied at its proposed new  
309 TTC level, while simultaneously modeling the flow on the existing path at its TTC level. In  
310 doing so, BPA or the adjacent path TOP honors the reliability criteria described above.  
311 BPA or the adjacent path TOP includes the resolution of this adverse impact in its study  
312 report for the path. (MOD-029 R2.5)



313 BPA has Transmission Ownership Agreements where multiple ownerships of Transmission  
314 rights exist on a path. TTC for the affected paths is allocated according to contractual  
315 ownership rights. (MOD-029 R2.6)

316 The ratings for BPA's paths whose ratings were established, known, and used in operation  
317 since January 1, 1994, have been re-established using updated methods. BPA studies its  
318 paths, with the exception of LaGrande, on a periodic basis and reconfirms the rating of  
319 each path based on these studies. These ratings are then used to establish the TTC for  
320 the path.

321 For the LaGrande path, BPA uses the Accepted Rating of the path as defined in the WECC  
322 Path Rating Catalog. BPA's LaGrande path is part of the NW-Idaho path (WECC Path  
323 14). The rating of Path 14 was reconfirmed through an updated study in 2010 when the  
324 path definition had to be modified due to the addition of the Hemingway Substation by  
325 PAC and Idaho Power.

326 BPA creates a study report that describes the TTC applicable to the outages during the  
327 studied time period and includes the limiting Contingencies and the limiting cause for the  
328 calculated TTC. The RC West SOL Methodology document defines the steps taken and  
329 assumptions BPA used to determine TTC for each path. BPA creates a study report for  
330 each study it performs. The study report relies on the basic assumptions included in RC  
331 West SOL methodology and identifies any changes to those basic assumptions. (MOD-029  
332 R2.8)

333 Information regarding TTCs is shared electronically between the appropriate BPA  
334 organizations within seven calendar days of the finalization of the study report for the TTCs.  
335 BPA sends a notice to all TSPs for the paths listed in Table 1 where there are multiple TSPs  
336 prior to limitations in TTCs. (MOD-029 R4)

337 These notices are called Notices of Planned Path Limitation. Where BPA has performed a  
338 study, the notice states that the TTC study report is available to TSPs for the specific path  
339 within seven calendar days upon request to [nercatcstandards@bpa.gov](mailto:nercatcstandards@bpa.gov) with **TTC Study  
340 Report Request** in the subject line. Use the **TTC Study Report Request Form** found on BPA's  
341 ATC Methodology website to submit the request.

342 A path for which BPA does not perform studies to determine the most current value of TTC is  
343 Reno - Alturas NW Sierra (RATS). For RATS, NV Energy determines TTC. The TTC is provided  
344 to BPA and BPA then sends a Notice of Planned Path Limitation. (MOD-029 R3)

## 345 **Calculating Firm Transmission Service for Paths**

### 346 **Calculating Firm Existing Transmission Commitments (ETC<sub>F</sub>)**

347 When calculating ETC<sub>F</sub> for all time periods for its paths, BPA uses the following algorithm as  
348 specified in MOD-029 R5:

$$349 \text{ETC}_F = \text{NL}_F + \text{NITS}_F + \text{GF}_F + \text{PTP}_F + \text{ROR}_F + \text{OS}_F$$

350 **Where:**

351 **NL<sub>F</sub>** is the firm capacity set aside to serve peak Native Load forecast commitments for the  
352 time period being calculated, to include losses, and Native Load growth, not otherwise  
353 included in Transmission Reliability Margin or Capacity Benefit Margin.

354 BPA does not have any NL<sub>F</sub>, and thus sets NL<sub>F</sub> at zero for all of its paths for all time  
355 periods. All of BPA's firm Transmission obligations are captured in the NITS<sub>F</sub>, PTP<sub>F</sub>, GF<sub>F</sub>  
356 and ROR<sub>F</sub> components of the ETC<sub>F</sub> algorithm.

357 **NITS<sub>F</sub>** is the firm capacity reserved for Network Integration Transmission Service serving Load,  
358 to include losses, and Load growth, not otherwise included in Transmission Reliability Margin  
359 or Capacity Benefit Margin.

360 For BPA's 1:1 paths where NITS<sub>F</sub> commitments exist to serve Network Load outside BPA's  
361 BAA, the firm capacity set aside for NITS<sub>F</sub> is equal to the Load forecast, which includes  
362 losses and Load growth, minus generation outside BPA's BAA that is designated to serve  
363 that Load. For BPA's 1:1 paths where NITS<sub>F</sub> commitments exist to serve Network Load  
364 inside BPA's BAA from a forecasted or designated network resource that impacts the path,  
365 the firm capacity set aside for NITS<sub>F</sub> is equal to the amount the resource is  
366 forecasted/designated for.

367 For BPA's flow-based paths, BPA accounts for NITS<sub>F</sub> obligations with a combination of base  
368 ETC and interim ETC calculations, as described further in this document.

369 **GF<sub>F</sub>** is the firm capacity set aside for grandfathered Transmission Service and contracts for  
370 energy and/or Transmission Service, where executed prior to the effective date of a  
371 Transmission Service Provider's Open Access Transmission Tariff or "safe harbor tariff."

372 The amount of GF<sub>F</sub> BPA sets aside across its 1:1 paths is based on the terms of each  
373 individual contract.

374 For BPA's flow-based paths, BPA accounts for GF<sub>F</sub> obligations with base ETC calculations,  
375 as described further in this document.

376 **PTP<sub>F</sub>** is the firm capacity reserved for confirmed Point-to-Point Transmission Service.

377 In BPA's calculations for 1:1 paths, PTP<sub>F</sub> is equal to the sum of the MW Demands of PTP<sub>F</sub>  
378 reservations or schedules.

379 For BPA's flow-based paths, BPA accounts for PTP<sub>F</sub> obligations with a combination of base  
380 ETC and interim ETC calculations, as described further in this document.

381 For Redirects from conditional short-term firm parent reservations, BPA's ETC accounts  
382 for the parent reservation until the Redirect is confirmed on OASIS. Once the Redirect is  
383 confirmed, BPA's ETC only accounts for the Redirect.

384 For Redirects from long-term firm parent reservations or unconditional short-term firm  
385 parent reservations, BPA's ETC accounts for both the parent reservation and the Redirect  
386 reservation until the Redirect itself is unconditional. Once the Redirect is unconditional,  
387 BPA's ETC only accounts for the Redirect.

388 In some cases, BPA has  $PTP_F$  contracts that give customers the right to schedule between  
389 multiple Points of Receipt (PORs) and Points of Delivery (PODs). However, the customer  
390 can only schedule up to the MW amount specified in their contract. Multiple reservations  
391 are created for these special cases to allow BPA to model each POR-to-POD combination.  
392 The amount set aside for these cases does not exceed the total  $PTP_F$  rights specified in  
393 the contracts.

394  $ROR_F$  is the firm capacity reserved for roll-over rights for contracts granting Transmission  
395 Customers the right of first refusal to take or continue to take Transmission Service when the  
396 Transmission Customer's Transmission Service contract expires or is eligible for renewal.

397 BPA assumes that all of its Transmission Service Agreements eligible to roll-over in the  
398 future will be rolled over. If a Transmission Customer chooses not to exercise its roll-over  
399 rights by the required deadline, BPA no longer holds out capacity for roll-over rights for  
400 that Transmission Customer.

401  $OS_F$  is the firm capacity reserved for any other service(s), contract(s), or agreement(s) not  
402 specified above using Firm Transmission Service as specified in the ATCID.

403 BPA has no  $OS_F$  and thus sets  $OS_F$  at zero for all of its paths for all time periods. All of  
404 BPA's firm Transmission obligations are captured in the  $NITS_F$ ,  $PTP_F$ ,  $GF_F$  and  $ROR_F$   
405 components of the  $ETC_F$  algorithm.

406 Although BPA uses the above algorithm to calculate  $ETC_F$  for all of its paths, BPA's  $ETC_F$   
407 calculation methodology differs between its 1:1 and flow-based paths. For 1:1 paths, BPA  
408 calculates  $ETC_F$  by assuming that 1 MW of reserved firm capacity equals 1 MW of  $ETC_F$  across  
409 that path. For the flow-based paths, BPA calculates  $ETC_F$  by summing the base ETC from  
410 power-flow ETC studies with interim  $ETC_F$  calculated using PTDfs.

## 411 **Determining base ETC for Flow-Based Paths**

### 412 **Use of WECC Base Cases to Determine Base ETC**

413 BPA uses the WECC seasonal base cases and modifies them to calculate the base ETC  
414 for its flow-based paths. BPA refers to these base cases as ETC Cases.

### 415 **Determining Base ETC for Heavy Load Base Cases**

416 BPA creates monthly heavy load ETC Cases to calculate base ETC values. BPA's ETC  
417 cases are produced using a power flow model that computes how much power will  
418 flow over each flow-based path for the assumed Load and generation levels for each  
419 time period studied. Counterflows are inherently modeled in these base cases.

420 BPA uses the following assumptions to create heavy load ETC Cases for its base ETC  
421 calculations:

422 **System topology:** Normal operating conditions are used. BPA uses the WECC Winter  
423 seasonal case for its November through March ETC base cases, the WECC Spring  
424 seasonal case for its April and May ETC base cases, and the WECC Summer seasonal  
425 case for its June through October ETC base cases.

426 **Load:** BPA uses loads contained in the WECC seasonal base cases for the time periods  
427 being studied, along with any updates to those loads BPA may have made after the  
428 WECC base cases were received from WECC.

429 • **NITS<sub>F</sub>, PTP<sub>F</sub> and GF<sub>F</sub>:** BPA assumes a 1-in-2 year monthly heavy load forecast in all  
430 its monthly ETC cases

431 **Generation:** For the generators in BPA’s Balancing Authority or directly  
432 interconnected to BPA, BPA uses the following generation assumptions:

433 **FCRPS:** For the FCRPS resources serving NITS<sub>F</sub>, PTP<sub>F</sub>, and GF<sub>F</sub> Long-Term Reservations,  
434 generation levels are set using a multiple-step process. For all time periods studied,  
435 BPA uses the following process:

436 • The Columbia Generating Station is assumed to be on-line at full Load in the ETC  
437 cases. Generation levels at the Libby, Hungry Horse, Dworshak, and Albeni Falls  
438 projects are set based on the requirements set forth in the 2000 Biological  
439 Opinion. The generation levels at the Willamette Valley projects<sup>4</sup> are set at a  
440 monthly fleet-aggregate lower 10th percentile of Heavy Load Hour block  
441 generation from the planning period of record and adjusted as needed to  
442 accurately reflect operations that BPA knows are in place. **Nameplate Adjusted**  
443 **Method:** When creating heavy load ETC Cases, generation levels for all other  
444 federal hydro projects<sup>5</sup> are set by first determining the nameplate for each project  
445 and then adjusting such nameplates by outages forecasted for the particular  
446 plants. Next in the month of August, the Lower Snake plants (Lower Granite,  
447 Lower Monumental, Little Goose, and Ice Harbor) are capped at the observed  
448 project outflow over the past ten Augusts. Then multiple generation scenarios are  
449 modelled by stressing one of three different “zones” of Federal hydro resources to  
450 the nameplate adjusted generation levels described above and scales the  
451 generation at the remaining Federal hydro projects to match the sum of the  
452 demands for all contracts that call out non-specific Federal hydroelectric projects  
453 as PORs after adjusting these demands for the portion served by Columbia  
454 Generating Station, Libby, Hungry Horse, Dworshak, Albeni Falls, and the  
455 Willamette Valley projects. The Federal PTP demands at each project are then  
456 added to this result to obtain the final assumed generation level for each Federal  
457 hydro project.

458 **Non-Federal Thermal Generators:** Non-federal thermal generators associated with  
459 PTP<sub>F</sub>, GF<sub>F</sub> and NITS<sub>F</sub> Transmission Service for BPA’s area and all adjacent TSP areas are  
460 set at up to the contract Demand.

---

<sup>4</sup> Willamette Valley projects include: Big Cliff, Cougar, Detroit, Dexter, Foster, Green Peter, Hills Creek, Lookout Point, and Lost Creek.

<sup>5</sup> Federal hydro projects include: Grand Coulee, Chief Joseph, Lower Granite, Lower Monumental, Little Goose, Ice Harbor, McNary, John Day, The Dalles, Bonneville.

- 461 **Wind Generators:**
- 462 • **PTP<sub>F</sub>:** Wind generators associated with PTP<sub>F</sub> Long-Term Reservations are set at
- 463 the following depending on the scenarios being run:
- 464 ○ Modeled on at 100 percent of the contract demand for the wind
- 465 generator; or
- 466 ○ Modeled off
- 467 • **NITS<sub>F</sub>:** The flow-based path impacts of wind generators identified as
- 468 designated network resources in NITS<sub>F</sub> contracts or in the NT Resources
- 469 Memorandum of Agreement in BPA’s area are determined on a flow-based
- 470 path-by-flow-based path basis and set at the greater of the following:
- 471 ○ The wind generators modeled on at the designated amount of the wind
- 472 generators; or,
- 473 ○ The wind generators modeled off and replaced by increasing the FCRPS
- 474 generation level by the designated amount of the wind generators using
- 475 the Nameplate Adjusted Method for all ETC cases described above.
- 476 Wind generators designated as network resources in NITS<sub>F</sub> contracts for all
- 477 adjacent TSPs are modeled up to the designated amount.
- 478 • **GF<sub>F</sub>:** BPA and all of BPA’s adjacent TSPs have no GF<sub>F</sub> contracts for wind
- 479 generators.

480 **Behind the Meter Generators:** Non-federal resources that do not require

481 Transmission Service over the FCRTS and that are behind the meter are set up to

482 levels used in BPA’s process for power system planning studies.

483 **Mid-Columbia Hydro Projects:** Generation levels at the non-federal Mid-Columbia

484 hydro projects are set up to 90 percent of their historical output by season.

485 When creating heavy load ETC cases, if there is more generation than load plus

486 committed exports in the base case, BPA reduces all excess generation pro rata,

487 except for the stressed FCRPS zone. The generation reduction is done to bring

488 generation and load into balance in order to solve the power flow model.

489 When creating heavy load ETC cases, if there is more load and committed exports than

490 generation in the ETC base case, BPA reduces exports on the COI and Pacific DC

491 Intertie in the ETC base case. This is done to solve the power flow model.

#### 492 **Sensitivity Studies for Heavy Load Base Cases**

493 In calculating its base ETC values, BPA runs ETC case scenarios for three different

494 sensitivities: the Canadian Entitlement Return (CER) obligation modeled on or off,

495 wind resources designated to serve PTP<sub>F</sub> and NITS<sub>F</sub> on or off, and stressing the three

496 different zones of the FCRPS.

497 For the FCRPS scenarios, the three “zones” that are stressed individually in the

498 scenarios are made up of the following projects: (i) Upper Columbia zone includes

499 Grand Coulee and Chief Joseph; (ii) Lower Snake zone includes Lower Monumental,

500 Lower Granite, Little Goose, and Ice Harbor; and (iii) Lower Columbia zone includes

501 McNary, John Day, The Dalles and Bonneville.

502 For the CER Scenarios, BPA models the FCRPS generators delivering or not delivering  
503 energy to Canada in the amount specified in the Canadian Entitlement Agreement.

504 In the CER on scenarios, BPA models the exports to Canada at the Canadian  
505 Entitlement Agreement contract level. The FCRPS generation is modeled using the  
506 Nameplate Adjusted Method.

507 In the CER off scenarios, BPA models imports from Canada at the contract rights that  
508 customers have across the Northern Intertie N>S. The FCRPS generation is also  
509 modeled using the Nameplate Adjusted Method.

510 For the wind resource scenarios, see above for a description of the base ETC  
511 assumptions for wind generators serving  $PTP_F$  and  $NITS_F$ .

512 Therefore, in its heavy load base ETC sensitivity analysis, BPA models the following 6  
513 scenarios:

- 514 1. Wind modeled off/Upper Columbia stressed
- 515 2. Wind modeled off/Lower Snake stressed
- 516 3. Wind modeled off/Lower Columbia stressed
- 517 4. Wind modeled on/Upper Columbia stressed
- 518 5. Wind modeled on/Lower Snake stressed
- 519 6. Wind modeled on/Lower Columbia stressed

520 All scenarios are run with CER modeled on and off for all months.

521 BPA uses the highest base ETC value calculated from these scenarios in its firm ATC  
522 calculations across the flow-based paths. BPA uses the lowest base ETC value from  
523 these scenarios in its non-firm ATC calculations across the flow-based paths.

524 **Determining Base ETC and Sensitivities for Light Load Base Cases**

525 BPA uses the WECC Winter seasonal light load case as the starting point for its Winter  
526 seasonal light load ETC base case. The ETC from this case is used as the base ETC for  
527 the months of November through March.

528 BPA uses the WECC Summer seasonal light load case as the starting point for its  
529 Summer light load ETC base case. The ETC from the Summer case is used as the base  
530 ETC for the months of June through October.

531 If a WECC Spring seasonal light load case is available, BPA uses that case as the  
532 starting point for its Spring seasonal light load ETC base case. The ETC from this case  
533 is used as the base ETC for the months of April and May. If the WECC Spring seasonal  
534 light load case is not available, the higher of the base ETCs from either the Winter or  
535 Summer case are used as the base ETC for April and May.

536 BPA uses the following assumptions in light load ETC base cases:

- 537 a. System topology: Normal operating conditions are used.

- 538           b. Loads: Loads from the WECC light load cases are used. Beginning with the  
539           Winter 2022 seasonal case and for Montana loads only, BPA compares the loads  
540           in the WECC seasonal light load case with the seasonal light loads supplied by  
541           Montana Power, and uses the lowest of the two values in order to properly  
542           stress the light load case.
- 543           c. Generation: BPA uses generation assumptions from historical data. Canadian  
544           Entitlement is modeled as delivering energy to Canada in the amount specified  
545           in the Canadian Entitlement Agreement.

546           There are two sensitivity studies performed for the light load ETC base cases:

- 547           a. Federal generation east of the path is increased, and a corresponding amount  
548           of federal generation west of the path is reduced
- 549           b. Federal generation east of the path is reduced, and a corresponding amount of  
550           federal generation west of the path is increased

551           BPA uses the highest base ETC value calculated from these scenarios in its firm ATC  
552           calculations across the flow-based paths where light load cases are utilized. BPA uses  
553           the lowest base ETC value from these scenarios in its non-firm ATC calculations across  
554           the flow-based paths where light load cases are utilized.

## 555           **Calculating Interim ETC<sub>F</sub> for Flow-based Paths**

556           To calculate the impacts for all NITS<sub>F</sub> and PTP<sub>F</sub> reservations that were not modeled in the  
557           base ETC cases, BPA uses PTDF analysis on the demand in each reservation. PTDF analysis  
558           is the fraction of energy (expressed as a percentage or as a decimal) that will flow across  
559           BPA's monitored flow-based paths as that energy is injected at a POR (or source) relative  
560           to a slack bus, and withdrawn at a POD (or sink) relative to a slack bus, for each flow-  
561           based path.

562           PTDF impacts are calculated as per BPA's Transmission Service Requests Evaluation  
563           business practice. If a reservation's impact on a flow-based path is determined to be *de*  
564           *minimis* per the Transmission Service Requests Evaluation business practice, then BPA  
565           deems the impact of the reservation to be zero when calculating ETC<sub>F</sub> [used in the ATC<sub>F</sub>](#)  
566           [calculation](#).

567           The sum of these positive impacts is referred to as the interim ETC<sub>F</sub> value, and is added to  
568           the base ETC values to produce a final ETC<sub>F</sub> value for each time period for each flow-  
569           based path.

## 570           **Outages in PTDF Calculations**

571           BPA calculates PTDFs by adjusting the WECC base cases to include transmission  
572           outages in BPA's outage system for BPA's area and any adjacent TSP areas. BPA has  
573           no executed coordination Agreements with other TSPs. (MOD-001 R3.6)

574           When the Raver-Paul 500 kV line is out of service, the PTDFs that BPA calculates and  
575           uses for the Raver-Paul path are based on the monitored lines for this path that are  
576           outlined in Table 2. This allows BPA to properly manage the Raver-Paul path in this  
577           outage situation.

578 **Outage Criteria in ETC Calculations**

579 BPA uses the outage planning timeline described in the “Outages” section. The  
580 following criteria determine which outages are incorporated into BPA’s hourly, daily  
581 and monthly ETC calculations: (MOD-001 R3.6)

582 **Hourly ETC Calculations**

583 For its hourly ETC calculations, BPA uses hourly PTDFs published at least once per  
584 day. Transmission outages for Transmission Lines, sections of Transmission Lines,  
585 transformers and taps are used to set branches as *open* in the appropriate base  
586 case for the hour being calculated.

587 **Daily ETC Calculations**

588 For its daily ETC calculations, BPA uses the most recent PTDFs published for the  
589 hour ending 11 of each day, since hour ending 11 tends to have the highest  
590 coincidence of outages. Therefore all Transmission outages scheduled to occur  
591 during the hour ending 11, regardless of the duration of the outage, impact daily  
592 ETC calculations. (MOD-001 R3.6.1)

593 BPA includes Transmission outages in daily ETC calculations beyond the 10- to 16-  
594 day planned outage study period if the outage is officially scheduled in BPA’s  
595 outage system.

596 **Monthly ETC Calculations**

597 For its monthly ETC calculations, BPA uses the most recent daily PTDFs published  
598 for the first Tuesday of that month. BPA includes Transmission outages in monthly  
599 ETC calculations beyond the 10- to 16-day planned outage study period if the  
600 outage is officially scheduled in BPA’s outage system. (MOD-001 R3.6.2)

601 **Source/POR and Sink/POD Identification and Mapping**

602 In the ETC components of its flow-based path ATC calculations, BPA accounts for  
603 source and sink for Transmission Service through the following processes:

604 BPA maps the source/POR and sink/POD to the WECC base cases. In this mapping, BPA  
605 has assigned network bus points that represent the primary interface for  
606 Interconnection with specific generation projects, adjacent electrical Systems or  
607 Load-serving entities and trading hubs. Some adjacent electrical Systems have  
608 multiple Interconnection points deemed as PORs/sources or PODs/sinks. The mapping  
609 of these points is published in the Transmission Service Contract Points list on BPA’s  
610 OASIS homepage.

611 BPA calculates weighted PTDFs for Sources/PORs as follows:

- 612 1. The PTDF weighting for the FCRPS/BPA Power PTDF varies by time period and path  
613 based on stress scenarios. The PTDF weighting is derived from generation  
614 forecasts of the federal resources, for calculations for the next hour through  
615 approximately two weeks. Beyond this time frame, BPA derives the weighting of  
616 the PTDF by applying the generation dispatch determined in the ETC Cases.



- 617 2. BPA derives the PTDF weighting for the Mid-Columbia bus point by applying the  
618 generation dispatch determined in the ETC Cases.  
619 3. BPA has grouped the generators in its adjacent BAAs based on the primary  
620 interface between each BAA and the generation projects within that BAA  
621 (excluding some remote generators that are scheduled via NERC e-Tag). These  
622 groupings are assigned weighted PTDFs that represent how the generators  
623 participate in the group and are used to evaluate transactions within and between  
624 adjacent BAAs that do not include BPAT. BPA derives the PTDF weightings for  
625 these points from BAA-provided generation estimates or by applying the generation  
626 dispatch determined in the ETC Cases if generation estimates are not available. In  
627 the ETC Cases, these generators are modeled up to the long-term firm  
628 Transmission rights associated with the generators.

629 BPA calculates weighted PTDFs for Sinks/PODs as follows:

- 630 1. BPA has weighted PTDFs for loads in its adjacent BAAs based on the primary  
631 interface between each BAA and the load within that BAA. The weighting is based  
632 on how the load is distributed in the BAA.  
633 2. BPA calculates a weighted PTDF to account for unscheduled Network Integration  
634 Transmission Service loads in BPA's BAA that are served from the FCRPS. The  
635 weighting is based on the individual load forecasts for the time period being  
636 calculated.  
637 3. BPA calculates a weighted load for all of the BPA Power Services customers that  
638 are served via Network Integration Transmission Service agreements. The  
639 weighting is based on the individual load forecasts for the time period being  
640 calculated.  
641 4. BPA calculates a weighted load for PNGC Power, which is a Joint Operating Entity  
642 made up of several cooperative utilities. The weighting is based on the individual  
643 load forecasts for the time period being calculated.

644 BPA calculates one weighted PTDF that applies to the following Source/POR and  
645 Sink/POD:

- 646 1. BPA calculates a weighed PTDF for the Western Energy Imbalance Market. This  
647 weighting is based on the percentage of Automatic Generation Control response  
648 (which could be zero) carried by each plant in the FCRPS.

#### 649 **Calculating Firm Available Transfer Capability (ATC<sub>F</sub>)**

650 When calculating ATC<sub>F</sub> for its paths for all time periods, BPA uses the following algorithm  
651 (MOD-029 R7):

$$652 \quad \text{ATC}_F = \text{TTC} - \text{ETC}_F - \text{CBM} - \text{TRM} + \text{Postbacks}_F + \text{Counterflows}_F$$

653 **Where:**

654 ATC<sub>F</sub> is the firm Available Transfer Capability for the ATC Path for that period.

655 **TTC** is the Total Transfer Capability of the ATC Path for that period.

656 **ETC<sub>F</sub>** is the sum of existing firm commitments for the ATC Path during that period.

657 For **ATC<sub>F</sub>** calculations for all time periods, BPA divides **ETC<sub>F</sub>** into the following variables  
658 within its ATC software:

659 **ETC<sub>F</sub> = LRES + SRES + LETC - SAdj/ETC Adjustments**

660

661 **Where:**

662 **LRES** is the sum of positive impacts of BPA's Long-Term Reservations.

663 **SRES** is the sum of positive impacts of BPA's Short-Term Reservations.

664 **LETC** is used to ensure that the amount of  $NITS_F$ ,  $GF_F$ ,  $PTP_F$  and  $ROR_F$  capacity BPA sets  
665 aside in the LRES variable for contracts where BPA gives customers the right to schedule  
666 the capacity reserved between multiple PORs and PODs does not exceed the total capacity  
667 specified in those contracts.

668 LETC is also used to align the ETC calculated in the power flow base case with additional  
669 PTDF calculations in order to balance to the standard OATI calculation. This adjustment is  
670 derived by comparing two values: a) the impacts of the confirmed  $PTP_F$ ,  $GF_F$ ,  $NITS_F$  and  
671  $ROR_F$  Long-Term Reservations derived from the base ETC Cases and b) the impacts of the  
672 same reservations calculated using PTDF Analysis for each flow-based path. The  
673 adjustment for each flow-based path is equal to the difference of these two values.  
674 Conditional firm reservations are not included in the ETC Cases and therefore are also not  
675 included in this comparison.

676 **SADJ/ETC Adjustments** is the variable BPA uses to make adjustments to  $ETC_F$  not  
677 captured in LRES or SRES.

678 BPA applies one such adjustment to allow for deferral competitions, as required in Section  
679 17.7 of BPA's OATT. When a deferral reservation is confirmed, BPA applies an SADJ/ETC  
680 Adjustment to hold out capacity for the time period deferred, starting at the latter of five  
681 months out or the service commencement date of the original reservation, to allow for a  
682 competition. At four months out, if no competition is identified, the SADJ/ETC  
683 Adjustment is modified to release the capacity for the fourth month out.

684 BPA uses a SADJ/ETC Adjustment to account for a portion of the firm TRM that BPA  
685 applies on the NI S>N.

686 BPA also uses SADJ/ETC Adjustments to ensure accurate accounting of  $ETC_F$ . These  
687 adjustments may be performed to account for situations such as data modeling  
688 corrections, and are noted in the descriptions of the adjustments.

689 The following diagram illustrates how the variables in BPA's ATC software correspond to  
690 the variables in the  $ETC_F$  algorithm.

<b><math>ETC_F =</math></b>	<b><math>NITS_F</math></b>	<b>+</b>	<b><math>GF_F</math></b>	<b>+</b>	<b><math>PTP_F</math></b>	<b>+</b>	<b><math>ROR_F</math></b>
	↓		↓		↓		↓
	<b>LRES</b>		<b>LRES</b>		<b>LRES</b>		<b>LRES</b>
	<b>+</b>				<b>+</b>		
	<b>SRES</b>				<b>SRES</b>		
	<b>+</b>		<b>+</b>		<b>+</b>		<b>+</b>
	<b>LETC</b>		<b>LETC</b>		<b>LETC</b>		<b>LETC</b>
	<b>-</b>		<b>-</b>		<b>-</b>		<b>-</b>
	<b>SADJ/ETC Adjustments</b>		<b>SADJ/ETC Adjustments</b>		<b>SADJ/ETC Adjustments</b>		<b>SADJ/ETC Adjustments</b>

691 **CBM** is the Capacity Benefit Margin for the ATC Path during that period.

692 BPA does not maintain CBM and thus sets CBM at zero for all of its paths for all time  
693 periods.

694 **TRM** is the Transmission Reliability Margin for the ATC Path during that period.

695 The description of how BPA implements TRM can be found in BPA's TRMID, which is posted  
696 on BPAs website.

697 **Postbacks<sub>F</sub>** are changes to firm Available Transfer Capability due to a change in the use of  
698 Transmission Service for that period, as defined in Business Practices.

699 BPA automatically recalculates ETC<sub>F</sub> to account for changes to Transmission Service  
700 Requests (such as request types of Recall and Redirect and annulments). Since these  
701 types of changes to Transmission Service Requests are captured in ETC<sub>F</sub>, BPA sets  
702 Postbacks<sub>F</sub> at zero for all time periods when calculating ATC<sub>F</sub>.

703 **Counterflows<sub>F</sub>** are adjustments to firm Available Transfer Capability as determined by the  
704 Transmission Service Provider and specified in their ATCID.

705 BPA does not include confirmed Transmission reservations, expected interchange or  
706 internal flow counter to the direction of the path being calculated in its ATC<sub>F</sub> calculations.  
707 BPA's rationale is that it does not want to offer firm ATC due to counterflow that may not  
708 be scheduled as this could lead to curtailments of Firm Transmission Service in the Real-  
709 time horizon. (MOD-001 R3.2) Therefore BPA sets Counterflows<sub>F</sub> at zero for all of its paths  
710 for all time periods.

711 For flow-based paths, counterflows are automatically modeled in the base ETC cases. In  
712 instances where the power flow study results in a negative base ETC value, BPA uses zero  
713 as the base ETC for purposes of calculating ATC<sub>F</sub>. This is done to ensure that BPA does not  
714 make capacity available as a result of counterflows that may or may not materialize in  
715 real-time.

## 716 **Calculating Non-Firm Transmission Service for BPA's Paths**

717 BPA [calculates ETC<sub>NF</sub> and ATC<sub>NF</sub> for each of its](#) six non-firm Transmission products. These  
718 [six non-firm](#) products are: [Secondary Network \(NITS<sub>NF6</sub>\)](#), [Monthly Non-Firm PTP \(PTP<sub>NF5</sub>\)](#),  
719 [Weekly Non-Firm PTP \(PTP<sub>NF4</sub>\)](#), [Daily Non-Firm PTP \(PTP<sub>NF3</sub>\)](#), [Hourly Non-Firm PTP \(PTP<sub>NF2</sub>\)](#) and  
720 [Secondary Non-Firm Hourly PTP \(PTP<sub>NF1</sub>\)](#).

721 ~~1. **NITS<sub>NF6</sub>**. This is a non-firm Transmission product available only to Transmission~~  
722 ~~Customers with NITS Agreements. It is the highest quality of Non-Firm Transmission~~  
723 ~~Service in that it is the last Non-Firm Transmission Service that would be Curtailed, if~~  
724 ~~necessary.~~

725 ~~2. **PTP<sub>NF5</sub>**. This is a non-firm Transmission product available only to Transmission~~  
726 ~~Customers with PTP service Agreements. PTP<sub>NF5</sub> is the fifth Non-Firm Transmission~~  
727 ~~Service that would be Curtailed, if necessary.~~

- 728 3. ~~PTP<sub>NF4</sub>. This is a non-firm Transmission product available only to Transmission~~  
 729 ~~Customers with PTP service Agreements. PTP<sub>NF4</sub> is the fourth Non-Firm Transmission~~  
 730 ~~Service that would be Curtailed, if necessary.~~
- 731 4. ~~PTP<sub>NF3</sub>. This is a non-firm Transmission product available only to Transmission~~  
 732 ~~Customers with PTP service Agreements. PTP<sub>NF3</sub> is the third Non-Firm Transmission~~  
 733 ~~Service that would be Curtailed, if necessary.~~
- 734 5. ~~PTP<sub>NF2</sub>. This is a non-firm Transmission product available only to Transmission~~  
 735 ~~Customers with PTP service Agreements. PTP<sub>NF2</sub> is the second Non-Firm Transmission~~  
 736 ~~Service that would be Curtailed, if necessary.~~
- 737 6. ~~PTP<sub>NF1</sub>. This is a non-firm Transmission product available only to Transmission~~  
 738 ~~Customers with PTP service Agreements. PTP<sub>NF1</sub> is the first Non-Firm Transmission~~  
 739 ~~Service that would be Curtailed, if necessary (this Transmission Service has the highest~~  
 740 ~~likelihood of being Curtailed).~~

741 ~~BPA calculates ETC<sub>NF</sub> and ATC<sub>NF</sub> for each of these products.~~

## 742 **Calculating Non-Firm Existing Transmission Commitments (ETC<sub>NF</sub>)**

743 BPA calculates ETC<sub>NF</sub> for all time periods ~~for a and~~ paths using the ~~following~~ algorithm as  
 744 ~~specified~~ in MOD-029 R6:

$$745 \text{ETC}_{\text{NF}} = \text{NITS}_{\text{NF}} + \text{GF}_{\text{NF}} + \text{PTP}_{\text{NF}} + \text{OS}_{\text{NF}}$$

746 ETC<sub>NF</sub> is calculated for each of BPA's six non-firm Transmission products as follows:

- 747 1. ETC<sub>NF6</sub>: includes the NITS<sub>NF6</sub> transmission product
- 748 2. ETC<sub>NF5</sub>: includes the NITS<sub>NF6</sub> and PTP<sub>NF5</sub> transmission products
- 749 3. ETC<sub>NF4</sub>: includes the NITS<sub>NF6</sub>, PTP<sub>NF5</sub> and PTP<sub>NF4</sub> transmission products
- 750 4. ETC<sub>NF3</sub>: includes the NITS<sub>NF6</sub>, PTP<sub>NF5</sub>, PTP<sub>NF4</sub>, and PTP<sub>NF3</sub> transmission products
- 751 5. ETC<sub>NF2</sub>: includes the NITS<sub>NF6</sub>, PTP<sub>NF5</sub>, PTP<sub>NF4</sub>, PTP<sub>NF3</sub> and PTP<sub>NF2</sub> transmission products
- 752 6. ETC<sub>NF1</sub>: includes the NITS<sub>NF6</sub>, PTP<sub>NF5</sub>, PTP<sub>NF4</sub>, PTP<sub>NF3</sub>, PTP<sub>NF2</sub> and PTP<sub>NF1</sub> transmission products

### 753 **Where:**

754 NITS<sub>NF</sub> is the non-firm capacity set aside for Network Integration Transmission Service serving  
 755 Load (i.e., secondary service), to include losses, and Load growth not otherwise included in  
 756 Transmission Reliability Margin or Capacity Benefit Margin.

757 In BPA's calculations, this is comprised of the NITS<sub>NF6</sub> Transmission product. BPA's NITS<sub>NF6</sub>  
 758 calculation does not include losses or Load growth, since losses and Load growth are  
 759 already set aside as firm capacity in NITS<sub>F</sub>.

760  $GF_{NF}$  is the non-firm capacity set aside for grandfathered Transmission Service and contracts  
761 for energy and/or Transmission Service, where executed prior to the effective date of a  
762 Transmission Service Provider’s Open Access Transmission Tariff or “safe harbor tariff”.

763 BPA does not have any grandfathered non-firm Transmission Service obligations and thus  
764 sets  $GF_{NF}$  at zero for all of its paths for all time periods.

765  $PTP_{NF}$  is non-firm capacity reserved for confirmed Point-to-Point Transmission Service.

766 ~~Depending on the  $ETC_{NF}$  being calculated in BPA’s calculations,~~  $PTP_{NF}$  will includes the  
767  $PTP_{NF5}$ ,  $PTP_{NF4}$ ,  $PTP_{NF3}$ ,  $PTP_{NF2}$  and  $PTP_{NF1}$  Transmission products.

768  $OS_{NF}$  is the non-firm capacity reserved for any other service(s), contract(s), or agreement(s)  
769 not specified above using non-firm transmission service as specified in the ATCID.

770 BPA has no  $OS_{NF}$  and thus sets  $OS_{NF}$  at zero for all of its paths for all time periods.

771  $ETC_{NF}$  for 1:1 paths is calculated by assuming that 1 MW of reserved and/or scheduled capacity  
772 results in 1 MW of impact across the 1:1 path.

773 When calculating  $ETC_{NF}$  for flow-based paths, BPA sums the positive impacts of reservations  
774 and/or schedules as determined by PTDF analysis, per BPA’s Transmission Service Requests  
775 Evaluation business practice. ~~When calculating  $ETC_{NF}$  for flow-based paths when using~~  
776 ~~reservations, BPA deems *de minimis* impacts of the reservations to be zero. However, when~~  
777 ~~calculating  $ETC_{NF}$  for flow-based paths when using schedules, all impacts are accounted for in~~  
778  ~~$ETC_{NF}$ , regardless of whether their PTDF analysis impact is deemed to be *de minimis* or not.~~  
779 ~~The treatment of *de minimis* impacts in  $ETC_{NF}$  is covered within the Calculating Non-Firm~~  
780 ~~Available Transfer Capability section below.~~

## 781 Calculating Non-Firm Available Transfer Capability ( $ATC_{NF}$ )

782 BPA ~~uses two time horizons when calculating~~ calculates  $ATC_{NF}$  for ~~all of=~~ its paths ~~for two~~  
783 ~~horizons:~~ Real-time and Beyond Real-time. The Real-time horizon begins at 10 p.m. each  
784 day for the 24 hours in the next day.  ~~$ETC_{NF}$  and  $ETC_{NF}$  for the Real-Time horizon are calculated~~  
785 ~~using schedules and reservations that have not yet been scheduled.~~ The ~~B~~beyond Real-time  
786 horizon includes hourly for the hours after those included in the Real-time period as well as  
787 daily and monthly calculations.  ~~$ETC_{NF}$  and  $ETC_{NF}$  for the time horizon beyond Real-time are~~  
788 ~~calculated using reservations.~~

789 ~~BPA calculates  $ATC_{NF}$  for all time periods and paths using the algorithm found in MOD-029~~  
790 ~~R8: BPA calculates  $ETC_{NF}$  and  $ATC_{NF}$  for the six non-firm Transmission products associated with~~  
791 ~~NERC Curtailment priorities as follows:~~

792 ~~1.  $ATC_{NF6}$ :  $ATC_{NF6}$  is calculated using an  $ETC_{NF}$  that only includes the  $NITS_{NF6}$  transmission~~  
793 ~~product.~~

794 ~~1.  $ATC_{NF5}$ :  $ATC_{NF5}$  is calculated using an  $ETC_{NF}$  that includes the  $NITS_{NF6}$  and  $PTP_{NF5}$~~   
795 ~~transmission products.~~

796 ~~2.  $ATC_{NF4}$ :  $ATC_{NF4}$  is calculated using an  $ETC_{NF}$  that includes the  $NITS_{NF6}$ ,  $PTP_{NF5}$  and  $PTP_{NF4}$~~   
797 ~~transmission products.~~

798 3. ~~ATC<sub>NF3</sub>: ATC<sub>NF3</sub> is calculated using an ETC<sub>NF</sub> that includes the NITS<sub>NF6</sub>, PTP<sub>NF5</sub>, PTP<sub>NF4</sub>,~~  
 799 ~~and PTP<sub>NF3</sub> transmission products.~~

800 4. ~~ATC<sub>NF2</sub>: ATC<sub>NF2</sub> is calculated using an ETC<sub>NF</sub> that includes the NITS<sub>NF6</sub>, PTP<sub>NF5</sub>, PTP<sub>NF4</sub>,~~  
 801 ~~PTP<sub>NF3</sub> and PTP<sub>NF2</sub> transmission products.~~

802 5. ~~ATC<sub>NF1</sub>: ATC<sub>NF1</sub> is calculated using an ETC<sub>NF</sub> that includes the NITS<sub>NF6</sub>, PTP<sub>NF5</sub>, PTP<sub>NF4</sub>,~~  
 803 ~~PTP<sub>NF3</sub>, PTP<sub>NF2</sub> and PTP<sub>NF1</sub> transmission products.~~

804 When calculating ATC<sub>NF</sub> for its paths for the real-time and beyond real-time horizons, BPA uses  
 805 the following algorithm as specified in MOD-029 R8:

806 
$$ATC_{NF} = TTC - ETC_F - ETC_{NF} - CBM_S - TRM_U + Postbacks_{NF} + Counterflows_{NF}$$

807 ATC<sub>NF</sub> is calculated for each of BPA’s six non-firm Transmission products as follows:

808 1.  $ATC_{NF6} = TTC - ETC_F - ETC_{NF6} - CBM_S - TRM_U + Postbacks_{NF} + Counterflows_{NF}$

809 2.  $ATC_{NF5} = TTC - ETC_F - ETC_{NF5} - CBM_S - TRM_U + Postbacks_{NF} + Counterflows_{NF}$

810 3.  $ATC_{NF4} = TTC - ETC_F - ETC_{NF4} - CBM_S - TRM_U + Postbacks_{NF} + Counterflows_{NF}$

811 4.  $ATC_{NF3} = TTC - ETC_F - ETC_{NF3} - CBM_S - TRM_U + Postbacks_{NF} + Counterflows_{NF}$

812 5.  $ATC_{NF2} = TTC - ETC_F - ETC_{NF2} - CBM_S - TRM_U + Postbacks_{NF} + Counterflows_{NF}$

813 6.  $ATC_{NF1} = TTC - ETC_F - ETC_{NF1} - CBM_S - TRM_U + Postbacks_{NF} + Counterflows_{NF}$

814 The table below outlines the differences in how the ATC<sub>NF</sub> algorithm components are  
 815 calculated between the Beyond Real-time and Real-time time horizons.

<u>Algorithm Component</u>	<u>Beyond Real-time</u>	<u>Real-time</u>
<u>TTC</u>	<u>As described in TTC section in the ATCID</u>	<u>Same</u>
<u>ETC<sub>F</sub></u>	<u>Calculated using reservations and base ETC cases for flow-based paths</u>  <ul style="list-style-type: none"> <li><u>De minimis impacts are treated as zero in ETC<sub>F</sub></u></li> </ul>	<u>Calculated using schedules</u>  <ul style="list-style-type: none"> <li><u>De minimis impacts are included in ETC<sub>F</sub></u></li> </ul>

<a href="#">ETC<sub>NF</sub></a>	<a href="#">Calculated using reservations</a> <ul style="list-style-type: none"> <li>• <a href="#">De minimis impacts are treated as zero in ETC<sub>NF</sub></a></li> </ul>	<a href="#">Calculated using reservations until scheduled, then calculated using schedules</a> <ul style="list-style-type: none"> <li>• <a href="#">De minimis impacts are included in ETC<sub>NF</sub> for both reservations and schedules</a></li> </ul>
<a href="#">CBM<sub>S</sub></a>	<a href="#">N/A</a>	<a href="#">N/A</a>
<a href="#">TRM<sub>U</sub></a>	<a href="#">As described in the TRMID</a>	<a href="#">Same</a>
<a href="#">Postbacks<sub>NF</sub></a>	<a href="#">Zero since ETC<sub>NF</sub> is recalculated to capture changes to the Transmission Service Requests</a>	<a href="#">Zero since ETC<sub>NF</sub> is recalculated to capture changes to the Transmission Service Requests and/or schedules, with the exception of AC N&gt;S</a>
<a href="#">Counterflows<sub>NF</sub></a>	<a href="#">Included with schedules</a>	<a href="#">Same</a>

816 **Where:**

817 **ATC<sub>NF</sub>** is the non-firm Available Transfer Capability for the ATC Path for that period.

818 BPA calculates six ATC<sub>NF</sub> values as described above.

819 **TTC** is the Total Transfer Capability of the ATC Path for that period.

820 **ETC<sub>F</sub>** is the sum of existing firm commitments for the ATC Path during that period.

821 The section below outlines how BPA calculates ETC<sub>F</sub> for all of its paths for the beyond  
822 Real-time and the Real-time horizons.

823 **ETC<sub>F</sub> for the Beyond Real-Time Horizon**

824 [Reservations, and base ETC cases for flow-based paths, are used to calculate ETC<sub>F</sub> for the](#)  
825 [Beyond Real-time horizon. When calculating ETC<sub>F</sub> for this horizon, de minimis impacts of](#)  
826 [reservations across flow-based paths are deemed to be zero.](#)

827 For ATC<sub>NF</sub> calculations for the beyond Real-time horizon, BPA utilizes the following  
828 variables within its ATC software to calculate ETC<sub>F</sub>:

829 
$$\text{ETC}_F = \text{LRES} + \text{SRES} - \text{SADJ/ETC Adjustments} + \text{NFETC}$$

830 **Where:**

831 **LRES** is the sum of positive impacts of BPA's Long-Term Reservations.

832 **SRES** is the sum of positive impacts of BPA's Short-Term Reservations.



833 **SADJ/ETC Adjustments** is the variable used to make adjustments to  $ETC_F$  not captured  
 834 in LRES or SRES.

835 BPA applies one such adjustment to allow for deferral competitions, as required in  
 836 Section 17.7 of BPA’s OATT. When a deferral reservation is confirmed, BPA applies a  
 837 SADJ/ETC Adjustment to hold out capacity for the time period deferred, starting at  
 838 the latter of five months out or the service commencement date of the original  
 839 reservation, to allow for a competition. At four months out, if no competition is  
 840 identified, the SADJ/ETC Adjustment is modified to add back capacity for the fourth  
 841 month out.

842 BPA uses SADJ/ETC Adjustments to ensure accurate accounting of  $ETC_F$ . These  
 843 adjustments may be performed to account for situations such as data modeling  
 844 corrections, and are noted in the descriptions of the adjustments.

845 **NFETC** is used to ensure that the amount of  $NITS_F$ ,  $GF_F$ ,  $PTP_F$  and  $ROR_F$  capacity BPA  
 846 sets aside in the LRES variable for contracts where BPA gives customers the right to  
 847 schedule the capacity reserved between multiple PORs and PODs does not exceed the  
 848 total capacity specified in those contracts.

849 **NFETC** is also used to align the ETC calculated in the power flow base case along with  
 850 additional PTDF calculations in order to balance to the standard OATI calculation.

851 This adjustment is derived by comparing two values: a) the impacts of the  $PTP_F$ ,  $GF_F$   
 852 and  $NITS_F$  Long-Term Reservations derived from the base ETC Cases and b) the impacts  
 853 of the same reservations calculated using PTDF Analysis for each flow-based path. The  
 854 adjustment for each flow-based path is equal to the difference of these two values.  
 855 Conditional firm reservations are not included in the ETC Cases and therefore are also  
 856 not included in this comparison.

857 The following diagram illustrates how the variables in BPA’s ATC software correspond  
 858 to the variables in the  $ETC_F$  algorithm for the Beyond Real-time horizon.

859

<b><math>ETC_F =</math></b>	<b><math>NITS_F</math></b>	<b>+</b>	<b><math>GF_F</math></b>	<b>+</b>	<b><math>PTP_F</math></b>	<b>+</b>	<b><math>ROR_F</math></b>
	↓		↓		↓		↓
	<b>LRES</b>		<b>LRES</b>		<b>LRES</b>		<b>LRES</b>
	<b>+</b>				<b>+</b>		
	<b>SRES</b>				<b>SRES</b>		
	<b>+</b>		<b>+</b>		<b>+</b>		<b>+</b>
	<b>NFETC</b>		<b>NFETC</b>		<b>NFETC</b>		<b>NFETC</b>
	<b>-</b>		<b>-</b>		<b>-</b>		<b>-</b>
	<b>SADJ/ETC Adjustments</b>		<b>SADJ/ETC Adjustments</b>		<b>SADJ/ETC Adjustments</b>		<b>SADJ/ETC Adjustments</b>

860  $ETC_F$  for the Real-Time Horizon

861 For  $ETC_{NF}$  calculations for the Real-time horizon, BPA divides  $ETC_F$  into the following  
 862 variables within its ATC software:

863 
$$ETC_F = SCH^+_7 + ASC^+_7 + \text{RADJ/ETC Adjustment}$$

864 [Schedules are used to calculate  \$ETC\_F\$  for the Real-time horizon. When calculating  \$ETC\_F\$  for](#)  
 865 [this horizon, \*de minimis\* impacts of schedules across flow-based paths are included in](#)  
 866  [\$ETC\_F\$ .](#)

867 **Where:**

868  $SCH^+_7$  is the sum of the positive impacts of schedules that reference confirmed  $NITS_F$ ,  
 869  $GF_F$  and  $PTP_F$  reservations for the ATC Path for that period. The energy profile of the  
 870 schedule is used except for the schedule types of Dynamic, Capacity and Pseudo-tie.

871  $ASC^+_7$  is the sum of the positive impacts of dynamic schedules that reference  
 872 confirmed  $NITS_F$ ,  $GF_F$  and  $PTP_F$  reservations for the ATC Path for that period. The  
 873 transmission profile of the schedule is used for the schedule types of Dynamic,  
 874 Capacity and Pseudo-tie.

875 **RADJ/ETC Adjustment:** BPA uses RADJ/ETC adjustments to ensure accurate  
 876 accounting of  $ETC_F$ . These adjustments may be performed to account for situations  
 877 such as data modeling corrections.

878 The following diagram illustrates how the variables in BPA’s ATC software correspond  
 879 to the variables in the  $ETC_F$  algorithm for the Real-time horizon.  $ROR_F$  is not included  
 880 in  $ETC_F$  for the Real-time horizon because  $ROR_F$  is not relevant for the Real-time  
 881 horizon.

$ETC_F =$	$NITS_F$	+	$GF_F$	+	$PTP_F$
	↓		↓		↓
	$SCH^+_7$		$SCH^+_7$		$SCH^+_7$
	+		+		+
	$ASC^+_7$		$ASC^+_7$		$ASC^+_7$
	+		+		+
	<b>RADJ/ETC Adjustment</b>		<b>RADJ/ETC Adjustment</b>		<b>RADJ/ETC Adjustment</b>

882  $ETC_{NF}$  is the sum of existing non-firm commitments for the ATC Path during that period.

883 The section below outlines how BPA calculates  $ETC_{NF}$  for all of its paths for the beyond  
 884 Real-time and the Real-time horizons.

885  **$ETC_{NF}$  for the Beyond Real-Time Horizon**

886 For  $ETC_{NF}$  calculations for the beyond Real-time horizon,  $ETC_{NF}$  is reflected as the  
 887 following variable within BPA’s ATC software:

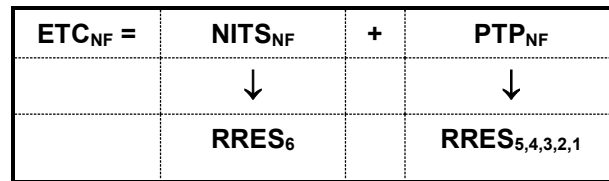
888 
$$ETC_{NF} = RRES_{6,5,4,3,2,1}$$

889 [Reservations are used to calculate ETC<sub>NF</sub> for the Beyond Real-time horizon. When](#)  
 890 [calculating ETC<sub>NF</sub> for this horizon, \*de minimis\* impacts of reservations across flow-based](#)  
 891 [paths are deemed to be zero.](#)

892 **Where:**

893 **RRES<sub>6,5,4,3,2,1</sub>** is the sum of the positive impacts of all confirmed NITS<sub>NF6</sub>, PTP<sub>NF5</sub>, PTP<sub>NF4</sub>,  
 894 PTP<sub>NF3</sub>, PTP<sub>NF2</sub> and PTP<sub>NF1</sub> reservations.

895 The following diagram illustrates how the variables in BPA’s ATC software correspond  
 896 to the variables in the ETC<sub>NF</sub> algorithm for the Beyond Real-time horizon.



897 **ETC<sub>NF</sub> for the Real-Time Horizon**

898 For ATC<sub>NF</sub> calculations in the Real-time horizon, ETC<sub>NF</sub> is reflected as the following  
 899 variables within BPA’s ATC software:

900 **ETC<sub>NF</sub> = SCH<sup>+</sup><sub>6,5,4,3,2,1</sub> + ASC<sup>+</sup><sub>6,5,4,3,2,1</sub>**

901 [To calculate ETC<sub>NF</sub> for the Real-time horizon, reservations are used until schedules are](#)  
 902 [received, and then schedules are used. When calculating ETC<sub>NF</sub> for this horizon, \*de\*](#)  
 903 [minimis impacts across flow-based paths are included in ETC<sub>NF</sub>, regardless of whether the](#)  
 904 [reservation or schedule is being used in the calculation.](#)

905 **Where:**

906 **SCH<sup>+</sup><sub>6,5,4,3,2,1</sub>** is the sum of the positive impacts of schedules referenced to confirmed  
 907 NITS<sub>NF6</sub>, PTP<sub>NF5</sub>, PTP<sub>NF4</sub>, PTP<sub>NF3</sub>, PTP<sub>NF2</sub> and PTP<sub>NF1</sub> reservations, plus the sum of the  
 908 positive impacts of confirmed NITS<sub>NF6</sub>, PTP<sub>NF5</sub>, PTP<sub>NF4</sub>, PTP<sub>NF3</sub>, PTP<sub>NF2</sub> and PTP<sub>NF1</sub>  
 909 reservations that have not yet been scheduled. Once these reservations are  
 910 scheduled, the schedule is used for ETC<sub>NF</sub>, thereby adding back the difference  
 911 between the reservation and schedule amounts to ATC<sub>NF</sub>. The energy profile of the  
 912 schedule is used except for the schedule types of Dynamic, Capacity and Pseudo-tie.

913 **ASC<sup>+</sup><sub>6,5,4,3,2,1</sub>** is the sum of positive impacts of dynamic schedules referenced to  
 914 confirmed NITS<sub>NF6</sub>, PTP<sub>NF5</sub>, PTP<sub>NF4</sub>, PTP<sub>NF3</sub>, PTP<sub>NF2</sub> and PTP<sub>NF1</sub> reservations, plus the sum of  
 915 the positive impacts of confirmed NITS<sub>NF6</sub>, PTP<sub>NF5</sub>, PTP<sub>NF4</sub>, PTP<sub>NF3</sub>, PTP<sub>NF2</sub> and PTP<sub>NF1</sub>  
 916 reservations that have not yet been scheduled. Once these reservations are  
 917 scheduled, the schedule is used for ETC<sub>NF</sub>, thereby adding back the difference  
 918 between the reservation and schedule amounts to ATC<sub>NF</sub>. The transmission profile of  
 919 the schedule is used for the schedule types of Dynamic, Capacity and Pseudo-tie.

920 The following diagram illustrates how the variables in BPA’s ATC software correspond  
 921 to the variables in the ETC<sub>NF</sub> algorithm for the Real-time horizon.

922

$ETC_{NF} =$	$NITS_{NF}$	+	$PTP_{NF}$
	↓		↓
	$SCH^+_6$		$SCH^+_{5,4,3,2,1}$
	+		+
	$ASC^+_6$		$ASC^+_{5,4,3,2,1}$

923  $CBM_s$  is the Capacity Benefit Margin for the ATC Path that has been scheduled during that  
924 period.

925 BPA does not maintain CBM and thus sets  $CBM_s$  at zero for all of its paths for all time  
926 periods.

927  $TRM_u$  is the Transmission Reliability Margin for the ATC Path that has not been released for  
928 sale (unreleased) as non-firm capacity by the Transmission Service Provider during that  
929 period.

930 The description of how BPA implements TRM can be found in BPA’s TRMID, which is posted  
931 on BPAs website.

932  $Postbacks_{NF}$  are changes to non-firm Available Transfer Capability due to a change in the use  
933 of Transmission Service for that period, as defined in Business Practices.

934 The section below outlines how BPA calculates  $Postbacks_{NF}$  for all of its paths for the  
935 beyond Real-time and the Real-time horizons.

936  **$Postbacks_{NF}$  for the Beyond Real-time horizon**

937 BPA automatically recalculates  $ETC_{NF}$  to account for changes to Transmission Service  
938 Requests (such as request types of Recall and annulments) for the Beyond Real-time  
939 horizon. Since these types of changes to Transmission Service Requests are captured in  
940  $ETC_{NF}$ , BPA sets  $Postbacks_{NF}$  at zero for this horizon.

941  **$Postbacks_{NF}$  for the Real-time Horizon**

942 BPA automatically recalculates  $ETC_{NF}$  to account for changes to Transmission Service  
943 Requests (such as request types of Recall and annulments) and/or schedules for the Real-  
944 time Horizon. Since these types of changes to Transmission Service Requests and/or  
945 schedules are captured in  $ETC_{NF}$ , BPA sets  $Postbacks_{NF}$  at zero for this horizon for all paths  
946 with the exception of CO-AC N>S.

947 For  $ATC_{NF}$  calculations for the CO-AC N>S path in the Real-time horizon, BPA uses a  
948  $Postbacks_{NF}$ , expressed as RADJ/ETC. For its hourly CO-AC N>S non-firm calculations, BPA  
949 posts back any unused share of non-firm capacity that is available to BPA by capacity  
950 ownership and other Agreements for the CO-AC N>S, if needed to prevent Curtailments.

951 **Counterflows<sub>NF</sub>** are adjustments to non-firm Available Transfer Capability as determined by  
952 the Transmission Service Provider and specified in its ATCID.

953 Since a schedule provides assurance that the transaction will flow, all counterflows  
954 resulting from firm and non-firm Transmission schedules, excluding tag types dynamic,  
955 pseudo and capacity, are added back to ATC<sub>NF</sub> in the Counterflows<sub>NF</sub> component. (MOD-001  
956 R3.2)

957 In BPA's ATC<sub>NF</sub> calculations, Counterflows<sub>NF</sub> is expressed as  $SCH_{7,6,5,4,3,2,1}$ , which is the sum  
958 of schedules flowing in the direction counter to the direction of the path.

959 Counterflows are modeled in the ETC Cases used to determine ETC<sub>F</sub> for BPA's flow-based  
960 paths. In instances where the power flow study results in a negative base ETC value, BPA  
961 uses zero as the base ETC for purposes of calculating ATC<sub>NF</sub>. This is done to ensure that  
962 BPA does not make capacity available as a result of counterflows that may or may not  
963 materialize in real-time

964 In some cases, the amount of Counterflows<sub>NF</sub> exceeds the sum of the ETC<sub>F</sub> and ETC<sub>NF</sub>,  
965 which, when added to TTC, results in ATC<sub>NF</sub> greater than TTC.

966 Note: The variable RADJ/ETC is also used to respond to a BPA dispatcher order to change ATC  
967 values by a specified amount and thereby reduce schedules in-hour when the flow exceeds  
968 the TTC.

## 969 **Adjustments to Flow-based Path ATC Values**

970 There may be instances where BPA needs to perform testing in the production environment of  
971 the systems that manage BPA's ATC calculations. In these instances, BPA may adjust its ATC  
972 values across the flow-based paths to ensure that Hourly requests are not declined due to  
973 lack of ATC across the flow-based paths. BPA will issue a notice to customers with the details  
974 prior to performing this testing.

---

## 975 **VIII. Data Sources and Recipients**

---

976 BPA receives data for use in its ATC calculations, and provides data for use in calculating 1:1  
977 and flow-based path capabilities through the WECC base case process. BPA also directly  
978 receives and provides data, such as outage information and specific Transmission  
979 commitments, from and to the following Transmission Service Providers and Transmission  
980 Operators: (MOD-001 R3.3, R3.4)

- 981 • Avista Corporation
- 982 • BC Hydro
- 983 • California Independent System Operator
- 984 • City of Tacoma, Department of Public Utilities, Light Division
- 985 • Eugene Water and Electric Board
- 986 • Fortis BC
- 987 • Idaho Power Company
- 988 • Los Angeles Department of Water and Power

- 989 • NV Energy
- 990 • NorthWestern Energy
- 991 • Pacific Gas & Electric
- 992 • PacifiCorp
- 993 • Pend Oreille County Public Utility District No. 1
- 994 • Portland General Electric
- 995 • Public Utility District No. 1 of Chelan County
- 996 • Public Utility District No. 1 of Clark County
- 997 • Public Utility District No. 1 of Douglas County
- 998 • Public Utility District No. 2 of Grant County, Washington
- 999 • Public Utility District No. 1 of Snohomish County
- 1000 • Puget Sound Energy, Inc.
- 1001 • Sacramento Municipal Utility District
- 1002 • Seattle City Light
- 1003 • Southern California Edison
- 1004 • Transmission Agency of Northern California
- 1005 • Western Area Power Administration - Sierra Nevada Region
- 1006 • California Independent System Operator

---

## 1007 **IX. Responding to Data Requests**

---

1008 Upon official request from any Transmission Service Provider, Planning Coordinator,  
 1009 Reliability Coordinator, or Transmission Operator for any data from the list below, solely for  
 1010 use in the requestor’s ATC or AFC calculations, BPA will begin to make the data available  
 1011 within 30 calendar days of receiving the request.

- 1012 • Expected generation and Transmission outages, additions, and retirements
- 1013 • Load forecasts
- 1014 • Unit commitments and order of dispatch, to include all designated resources (BPA does
- 1015 not have resources that are committed or have the legal obligation to run)
- 1016 • Firm NITS and non-firm NITS (i.e. Secondary Service)
- 1017 • Firm and non-firm Transmission reservations
- 1018 • Grandfathered obligations
- 1019 • Firm roll-over rights
- 1020 • Any firm and non-firm adjustments applied by BPA to reflect parallel path impacts
- 1021 • Power flow models and underlying assumptions
- 1022 • Contingencies, provided in one or more of the following formats:
  - 1023 ○ A list of Elements
  - 1024 ○ A list of flow-based paths
  - 1025 ○ A set of selection criteria that can be applied to the WECC base cases used by
  - 1026 BPA

- 1027 • Facility Ratings
  - 1028 • Any other service that impact ETCs
  - 1029 • Values of CBM and TRM for all paths
  - 1030 • Values of TTC and ATC for all paths
  - 1031 • Source and sink identification and mapping to the WECC base cases
- 1032 BPA will make this data available on the schedule specified by the requestor (but no more frequently than once per hour, unless mutually agreed to by the requestor and Bonneville).
- 1033
- 1034 For a Transmission Service Provider, Planning Coordinator, Reliability Coordinator, or  
 1035 Transmission Operator to officially request data to use in ATC or AFC calculations, the  
 1036 requestor must fill out the **Data Request Form** (MOD-001 R9) found on BPA's ATC  
 1037 Methodology website. The completed request form must be sent to  
 1038 [nercatcstandards@bpa.gov](mailto:nercatcstandards@bpa.gov) with **Data request Form** (MOD-001 R9) in the subject line. (MOD-  
 1039 001 R9)

1040 **X. ATCID Revisions**

1041 BPA will notify the entities contained in ATCID TP Distribution List when implementing a new  
 1042 or revised ATCID and make its current ATCID available. (MOD-001 R4, R5)

1043 **XI. Version History**

ATCID Revision History			
Version	Date Revised	Description of Changes	Prepared by
1.0	03/30/2011	BPA ATCID FINAL	S Long L Trolese C Etheridge
2.0	05/11/2011	P.31 Table 2 BPA Flowgates: Corrected the definition of the West of McNary Flowgate by replacing McNary - Horse Heaven 230 kV line with Harvalum - Big Eddy #1 230 kV line in the West of McNary Flowgate Transmission Line Components	L Trolese
3.0	08/11/2011	P. 7 line 114: Revised frequency of hourly calculations from at least three times per hour to at least once per hour.	L Trolese

### ATCID Revision History

		<p>P. 12-13 Table 1 BPA Paths: Added Montana-Northwest to the Path Name; added Garrison 500 kV 1 and 2 to the Transmission Line Components of the West of Garrison E&gt;W and W&gt;E Paths and revised the Montana Intertie Transmission Line Component from Broadview - Garrison 500 kV 1 and 2 to Townsend-Garrison 500 kV 1 and 2 to be effective October 1, 2011.</p> <p>P. 17 lines 395-397: Revised sentence to include Montana Intertie as an ATC Path that is limited by contract.</p> <p>P. 18 lines 440-445: Revised paragraph to include Montana Intertie as an ATC Path where another TOP sets the TTC.</p> <p>P. 19 line 483-486 and P. 40 line 1102: Added forecasted network resources to be included in Network Integration Transmission Service</p> <p>P. 20 line 517: corrected reference from ETC to ATC<sub>NF</sub>.</p> <p>P. 20 line 531; P. 22 ETC<sub>F</sub> variable diagram, P. 25 line 669, P. 26 ETC<sub>F</sub> variable diagram, P. 47 line 1324, P. 49 ETC<sub>F</sub> variable diagram, P. 53 line 1493 and P. 54 ETC<sub>F</sub> variable diagram: Corrected ETC<sub>F</sub> formula to subtract SADJ/ETC Adjustments instead of add it.</p> <p>P. 27 lines 724-726 and P. 55 lines 1549-1551: Updated reason for why ROR<sub>F</sub> is not included in the real-time horizon.</p> <p>P. 29 line 789: Deleted “implemented” from which schedules impact counterflows.</p> <p>P. 30 lines 798-800: Added a note describing the variable RADJ/Congestion Management and how it impacts ATC calculations.</p> <p>P. 44: Corrected footnote 7 to align it with the reference.</p> <p>P. 47: Deleted language referring to including adjacent TSP reservations in interim ETC<sub>Fi</sub>.</p> <p>P. 53 lines 1517-1521: Added paragraph describing LETC that was mistakenly left out in Version 1.0 and 2.0.</p> <p>P. 57 line 1604: Deleted “confirmed” from which schedules impact counterflows.</p>	
--	--	---	--



ATCID Revision History			
		<p>P. 58: Replaced table delineating the NERC registered functions of the entities with a bulleted list of the entities.</p> <p>Appendix A: Updated List of Contracts and Specific Paths with Shared Ownership to indicate the Colstrip Project on the Montana Intertie Path will no longer be represented as an allocation agreement after October 1, 2011.</p> <p>Appendix C: Updated the SOL Methodology.</p> <p>Appendix D: Updated BPA's NITS, GF, and PTP Agreements to include the Colstrip Project and other contracts that have been added since February 3, 2011.</p>	
4.0	09/30/2011	P. 27 lines 720 - 722 and ETC <sub>F</sub> variable diagram: added new use for RADJ/ETC Adjustments variable.	L Trolese
5.0	10/20/2011	<p>P. 39 lines 1068-1070, P. 40 lines 1077-1079 and lines 1087-1089: Removed language referring to the month of August.</p> <p>P. 40 lines 1103-1114, P. 41 lines 1118-1128 and P. 48 lines 1325-1331: added paragraph describing how BPA accounts for the impacts of its adjacent TSP firm NITS and PTP Transmission Service.</p>	L Trolese
6.0	11/1/2011	<p>P.31 Table 2 BPA Flowgates: Added the McNary - John Day #2 500 kV line to the West of McNary Flowgate definition.</p> <p>Appendix C: Updated the SOL Methodology.</p>	L Beckman
7.0	11/10/2011	P. 40 line 1103 and P.41 line 1118: Changed effective date from November 8 <sup>th</sup> to no later than November 15, 2011 for incorporating adjacent TSP TSRs into AFC calculations.	L Beckman
8.0	02/03/2012	P. 35 line 907: Added paragraph describing how BPA prepares for the addition of a flowgate.	L Beckman
9.0	02/13/2012	<p>P. 5, P. 22, P. 29: Defined BPA's TRM practice for the Northern Intertie S&gt;N Path.</p> <p>P. 20 line 528 and P. 23 line 597: Replaced NI Holdout in the ATC<sub>F</sub> formula with TRM.</p>	L Beckman

ATCID Revision History			
10.0	02/14/2012	<p>P.30-31 Table 2 BPA Flowgates: Corrected the following flowgate definitions:            South of Allston Flowgate: replaced Astoria-Seaside 115kV; and Lewis &amp; Clark-Astoria Tap 115kV line with Astoria-Seaside 115kV; and Clatsop 230/115kV line in the South of Allston Flowgate Transmission Line Components.            North of John Day Flowgate: replaced Wautoma-John Day 500kV line with Wautoma-Rock Creek 500kV line in the North of John Day Flowgate Transmission Line Components.            Cross Cascades North Flowgate: Added the Anderson Canyon-Beverly Park 115 kV line to the Cross Cascades North Flowgate Transmission Line Components.            Cross Cascades South Flowgate: replaced Hanford-Ostrander 500kV line with Wautoma-Ostrander 500kV line, replaced McNary-Santiam 230kV line with Jones Canyon-Santiam 230kV line, replaced Parkdale-Troutdale 230kV with Big Eddy-Troutdale 230kV, and added Bethel - Round Butte 230 kV line in the Cross Cascades South Flowgate Transmission Line Components.            West of McNary Flowgate: replaced McNary-Santiam 230kV line with Jones Canyon-Santiam 230kV line in the West of McNary Flowgate Transmission Line Components.</p>	L Beckman
11.0	02/22/2012	<p>P. 8 line 166: Removed reference to Northwest Power Pool (NWPP) Outage Coordination Processes, dated 01/29/09.</p>	L Beckman
12.0	03/01/2012	<p>P. 32 Table 2 BPA Flowgates: Added the West of John Day Flowgate and Transmission Line Components.            P. 32 Figure 3 BPA Network Flowgate Map: Added the West of John Day Flowgate.</p>	L Beckman
13.0	03/27/2012	<p>P. 31 Table 2 BPA Flowgates: Removed the Anderson Canyon-Beverly Park 115 kV line from the Cross Cascades North Flowgate Transmission Line Components.            P. 4 line 52: Moved MOD 008-01 to the Methodologies Selected section.</p>	L Beckman
14.0	04/11/2012	<p>Appendix A: Updated Portland General Electric's Intertie Agreements to reflect the termination of the AC/DC Exchange Agreement that will be effective on 7/1/2012.</p>	L Beckman
15.0	05/15/2012	<p>P. 38 lines 1013-1015, P. 41 lines 1107-1115, P. 46 lines 1282-1289, P. 50 lines 1402-1407 and P. 50 lines 1422-1427: Moved language regarding the PTDF Analysis impact and percentage used in the Western Interconnection-wide Congestion Management Procedure.            P. 40 lines 1084-1093: Added generation estimates as the source of the PTDF weightings.</p>	L Beckman  L Trolese

ATCID Revision History			
		<p>P. 42 lines 1157-1159 and P. 51 lines 1433-1436: Added description of how BPA accounts for schedules in ETC<sub>Fi</sub>.</p> <p>P. 44-45: Removed the definition of and all reference to the “94th Percentile Method”.</p> <p>P. 47 lines 1305-1315 and P. 52 lines 1476-1486: clarified that LRES and SRES include reservations for all of BPA’s adjacent TSP areas, filtered to reduce duplicates.</p>	
16.0	06/27/2012	P. 40 lines 1084-1086: changed sentence to describe that BPA is grouping the generators for all of its adjacent BAAs instead of just a subset.	L Trolese
17.0	08/15/2012	<p>P. 31 Table 2 BPA Flowgates: Added outage conditions flowgate definition for Raver-Paul (N&gt;S).</p> <p>P. 29-30 lines 774,787,799: Replaced RADJ variable descriptions with RADJ/ETC.</p>	L Beckman
18.0	09/20/2012	<p>P. 12 line 299 Table 1 BPA Paths: Removed Transmission Line Components and RAS.</p> <p>P. 23-28 lines 599-607, 633, 750 and 752: Added new Non-firm products to formulas used for calculating Non-firm ETC and Non-firm ATC.</p> <p>P. 50-56 lines 1403-1411, 1428, 1479-1484 and 1604: Added new Non-firm products to formulas used for calculating Non-firm ETC and Non-firm AFC.</p> <p>Appendix C: Updated the SOL Methodology.</p>	L Beckman
19.0	10/18/2012	P. 48 and 53, lines 1334 and 1513: Removed language on accounting for Conditional Firm products in the ETC Adjustment.	L Beckman
20.0	10/24/2012	<p>P. 32 Table 2 BPA Flowgates: Added the South of Boundary Flowgate and Transmission Line Components.</p> <p>P. 33 Figure 3 BPA Network Flowgate Map: Added the South of Boundary Flowgate.</p>	L Beckman
21.0	11/14/2012	<p>P. 8, lines 159-167: Updated BPA’s allocation processes for the Columbia Injection (N&gt;S) and Wanapum Injection (N&gt;S) flowgates.</p> <p>P. 31 Table 2 BPA Flowgates: Replaced Bettas Road - Covington #1 230kV with Bettas Road - Covington #1 230kV in the Cross Cascades North Flowgate Transmission Line Components.</p>	L Beckman

ATCID Revision History			
		<p>P. 31-33 Table 2 BPA Flowgates: Added the North of Hanford (S&gt;N), South of Allston (S&gt;N), Columbia Injection (N&gt;S), Wanapum Injection (N&gt;S) and West of Lower Monumental (E&gt;W) Flowgates in Transmission Line Components, effective Nov. 30, 2012.</p> <p>P. 45 and 46, lines 1245-1248, 1286-1288 and 1318: Added documentation describing ETC calculation practices for light load ETC Cases.</p> <p>P. 55 and 56, lines 1564, 1574-1576 and 1580: Added RETC variable and definition to calculation formula for ETCFi for the Real-Time Horizon.</p>	
22.0	01/31/2013	Appendix A: Updated Seattle City Light's PNW AC Intertie Ownership Agreement to reflect shared ownership, effective 1/31/13.	L Wickizer
23.0	01/31/2013	<p>P. 5 line 61, P. 22 line 579, P. 23 lines 594-596, P. 29 line 786: Removed BPA's TRM practice for the Northern Intertie S&gt;N Path, effective Feb. 13, 2013.</p> <p>P. 31-33 Table 2 BPA Flowgates: Added the North of Echo Lake (S&gt;N) and South of Custer (N&gt;S) Flowgates and removed the Monroe-Echo Lake Flowgate in Transmission Line Components, effective Feb. 13, 2013.</p> <p>P. 32 Table 2 BPA Flowgates: Added John Day - Marion No. 1 500kV in the West of John Day Flowgate Transmission Line Components, effective Feb. 13, 2013.</p> <p>P.33 Figure 3 BPA Network Flowgate Map: Updated location of the North of Echo Lake (S&gt;N) and South of Custer (N&gt;S) Flowgates.</p>	L Wickizer
24.0	02/12/2013	P. 5 lines 52-57, P. 22 lines 581-584, P. 23 lines 597-601, P. 29 lines 788-793, P. 30 lines 826-830: Added BPA's updated TRM practice for the Northern Intertie Path.	L Wickizer
25.0	03/04/2013	P. 58 lines 1651-1655: Added BPA's practice for Converting AFC to ATC.	L Wickizer
26.0	03/25/2013	<p>P.32 Table 2 BPA Flowgates: Updated flowgate names on OASIS.</p> <p>P. 41 lines 1102-1112: Added documentation for Mid-Columbia generators in the weighted PTDF description.</p>	L Wickizer

ATCID Revision History			
27.0	05/01/2013	<p>P. 38-39 lines 993-1002: Updated BPA's process for mapping and incorporating outages into the WECC base case.</p> <p>Appendix A: Updated Avista's West of Hatwai Ownership Agreement number.</p>	L Wickizer
28.0	05/15/2014	<p>P. 7-8 lines 123-127, 131-134, 142-143, 149-150: Language clarification in Limiting Assumptions section.</p> <p>P. 9 lines 178-203: Updated BPA's process for outage planning.</p> <p>P. 10 lines 209 - 222: Language clarification on Daily and Hourly TTC and TFC Calculations.</p> <p>P. 10-11 lines 238 - 272: Language clarification on SOL Priorities Used to Set TTC and TFC.</p> <p>P. 37, lines 884-885, 892: Language clarification on SOL study process.</p> <p>P. 38, lines 952-953: Language clarification on SOL study process.</p> <p>P. 39, line 965: Language clarification on TFC calculation.</p> <p>Appendix C: Updated the SOL Methodology.</p>	M Olczak
29.0	05/31/2014	<p>P. 33 Table 2 BPA Flowgates: Added outage conditions flowgate definition for West of McNary.</p>	M Olczak
30.0	7/24/2014	<p>P. 32 Table 2 BPA Flowgates: Changed Olympia - South Tacoma 230kV to St. Clair - South Tacoma 230kV in the Raver-Paul section.</p> <p>P. 36 Table 3 Interfaces with BAs Adjacent to BPA: Added Gridforce Energy Management as a BA-BA interconnection.</p> <p>P. 36 Table 3 Interfaces with BAs Adjacent to BPA: Updated to show Portland General Electric and Seattle City Light also have connections accounted for with paths that use the Rated System Path Methodology.</p> <p>P. 5 Clarification on number of BAs within the WECC area</p>	J Ofstead
31.0	09/13/2014	<p>P. 33 Table 2 BPA Flowgates: Updated West of McNary flowgate definition during outages.</p>	J Ofstead

ATCID Revision History			
32.0	10/21/2014	P. 7, lines 106-108: Language clarification on ATC and AFC hourly firm calculations	J Ofstead
33.0	12/05/2014	P. 18, lines 410-417: Language updated to reflect the current practice of setting TTCs in the non-prevailing flow direction on BPA's ATC Paths that use the Rated System Path Methodology.	L. Proctor
34.0	06/01/2015	<p>P. 4, lines 32-38: Deleted lines regarding registration amongst other organizations other than NERC.</p> <p>P.5-6, lines 67-101: Deleted section on "BPA's Use of Western Electricity Coordinating Council Base Cases".</p> <p>P. 9, lines 179-238: Added "...and Criteria for TTC and TFC Calculations" to section title and deleted "Timeline" from title. Deleted all content in section except "Outage planned and the policy are posted to the Outage Plans website (<a href="http://www.oatioasis.com/bpat/index.html">http://www.oatioasis.com/bpat/index.html</a>) (MOD-001 R3.6.1) (MOD-001 R3.6.2)"</p> <p>P15, lines 319-321: Added language to reflect the tracking and monitoring of the previous 12 months of curtailments due to the issuance of generation limits and inclusion of ATC calculations in Table 1.</p> <p>P.16, lines 347-349: Deleted language to reflect current practices.</p> <p>P. 16, line 350: Added "...and phase shifters".</p> <p>P. 16, lines 352-359: Deleted language regarding phase shifters.</p> <p>P. 18, lines 362-363: Deleted language regarding BPA engineers running variations on WECC base cases.</p> <p>P.17, lines 371-373: Added language on base cases being updated with a Mid-Season update.</p> <p>P. 17, lines 388-389: Deleted reference to Table 1 for RAS.</p> <p>P. 17, line 391: Deleted language reference to BPA transmission lines with series compensation.</p> <p>P. 18, lines 401-404: Deleted language on modeling contingencies.</p>	L. Proctor

### ATCID Revision History

		<p>P. 18, lines 416-417: Deleted language related to Montanan Intertie Path limitation by Colstrip Project and NorthWestern Energy is the TO and set TTC for this ATC Path.</p> <p>P. 18, lines 423-424: Deleted the reference to ATC paths for which BPA expresses TTC by nomogram.</p> <p>P. 18, lines 431-432: Deleted language related to the process defined by WECC’s OTCP.</p> <p>P. 18, line 437: Deleted reference to LaGrande Path.</p> <p>P. 18, lines 438-442: Deleted language related to path ratings.</p> <p>P. 19 lines 460-484: Updated language on TTC ratings.</p> <p>P. 21, lines 538: Deleted reference to Appendix D, which has been deleted from this document.</p> <p>P.30, lines 820-822: Deleted reference to DSO 319.</p> <p>P.31, lines 851-852: Table 2, BPA Flowgates: Deleted facilities monitored during outage conditions for West of McNary.</p> <p>P. 35, lines 863-866: Deleted “History or Flowgates”.</p> <p>P. 35, line 873 and line 87: Replaced “included as” with “protected for by”.</p> <p>P. 36, lines 883-884: Deleted “Note” on multiple interfaces.</p> <p>P. 39-40, lines 1002, 1007 and 1008: Replaced “WECC” with “Peak”.</p> <p>P. 40, lines 1032-1033: Updated language for accuracy.</p> <p>P. 40, lines 1037 and 1049: Replaced “calculated” with “published”.</p> <p>P. 41, lines 1064: Added “...the PTDF difference is...”.</p> <p>P. 44, lines 1164, 1175, 1190 and 1195: Deleted reference to BPA not having coordination agreements with other TSP.</p> <p>P.45, lines 1199: Added language to reflect BPA does not have coordination agreements with other TSPs.</p>	
--	--	--	--

ATCID Revision History			
		<p>P. 45, line 1213: Deleted reference to Appendix D, which has been deleted.</p> <p>P. 63-64, line 1745 and chart: Deleted ATCID TP distribution list chart and updated language in line 1745 to reflect ATCID TP Distribution List.</p> <p>Appendix A: Updated chart listing contracts and specific paths with shared ownership, specifically Montana-NW/West of Garrison and added Montana Intertie and La Grande.</p> <p>Appendix B: Deleted - Significant Equipment Operating Bulletin 19.</p> <p>Appendix D: Deleted BPA NITS, GF and PTP Agreements list from 2011.</p> <p>Appendix E: Deleted DSO 319</p>	
35.0	08/10/2015	<p>Language updated to reflect completion of the bulk MOD-030 Mitigation Plan.</p> <p>P. 3, lines 7-8: Deleted “or Available Flowgate Capability (AFC)”</p> <p>P. 4, lines 29-36: Deleted “MOD-001-1, MOD-004-1, MOD-008-1, MOD-028-1, MOD-029-1, and MOD-030-02 variously apply to the Transmission Operator (TOP) and Transmission Service Provider (TSP)”, “Transmission Operator”, and deleted lines 34-36; added “Transmission Operator”, Transmission Service Provider” and “among other registrations”; added “a” to line 38; lines 39-47: deleted “described in NERC Standard as its methodology”, “determine” and “interties, External interconnections and some Paths internal to BPA’s Network”; added “calculate”, “ATC Paths”, “for these paths” and “VIII, and IX”; deleted lines 44-47; line 50: deleted “in its ATC calculation”; line 53: “in its ATC and AFC calculations” and “or Flowgates”; line 54: deleted “Not Selected”; line 55 deleted; lines 56-59: deleted “has elected”, “to”, “described in NERC Standard MOD-028-1 as its methodology to determine ATC for any of its ATC Paths” and “MOD-028-01”, added “does”, “(MOD-028-2), the Flowgate Methodology (MOD-030-2), or a Capacity Benefit Margin (CBM) (MOD-004-1)” and “these standards are”; deleted lines 60-63</p>	L. Proctor



### ATCID Revision History

		<p>P. 5: lines 64, 65, 66, 69, 72, 75, 77, 78, 79 and 84: deleted “and AFC”; line 66 deleted “and Flowgate”; line 79-80 “MOD-030-R10”; line 81 deleted “MOD-030 R10.1”; line 82 deleted “MOD-030 R10.2”; line 83 deleted “MOD-030 R10.3”; line 84 deleted “or TFC”; lines 88-89 deleted “The studied assumptions are also used in determining the”, “for ATC purposes” and “and the TFC for AFC purposes”; added to line 89 “BPA uses these SOLs as the”; added to lines 97-100 “BPA may use more recent system condition information in its SOL calculations when the studies are updated after the ETC Cases are performed. However, this is not considered a difference in assumptions.”</p> <p>P. 6: lines 102-120 deleted; deleted “Flowgate” in lines 122-140; added “Network Paths” to lines 130, 134 and 136; added “Transfer” to line 133</p> <p>P. 7: lines 144, 147, 150, 152, 161, 178, and 186 deleted “and TFC”; deleted “or Flowgate” in line 173, 178 and 186; added “Network Paths” in line 174</p> <p>P, 8: deleted “and TFCs” in lines 188, 194, 198; replaced “TFC” with “TTC” in lines 193 and 200; added “Network Path” in line 201; added “for the Paths listed in Table 1” in lines 207-208; deleted line 212</p> <p>P. 11: added “NV Energy” in line 243, and deleted “Sierra Pacific Power Company (SPPC) in line 254</p> <p>P. 12: line 284 deleted “MOD-029”</p> <p>P. 25: lines 693, 697, 698, 701 and in chart replaced “Flowgate” with “Network Path”; line 694 and 698-699 replaced “Flowgate” with “Rated System Path”; line 696 replaced “30” with “29” and “02” with “1a”</p> <p>P. 26, 27 and 28: replaced “Flowgate” with “Network Path” in chart</p> <p>P. 28: replaced “Flowgate” with “Network Path” in lines 703 and 706; changed “Figure 1” to “Figure 2”; deleted lines 708-712</p> <p>P. 30: deleted lines 713-723 and chart</p> <p>P. 31: deleted lines 724-766</p>	
--	--	--	--

### ATCID Revision History

		<p>P. 32: deleted lines 767-796; replaced “Flowgate” with “Transfer” in line 797 and “TFC” with “TTC”; added lines 798-801; deleted line 801-802 beginning with “BPA establishes.....”; deleted lines 803-806</p> <p>P. 32: deleted lines 807-820; added “(ETC)” to line 821; replaced “AFC” with “ATC” I lines 824 and “Flowgates” with “Network Paths”; deleted “(MOD-030 R5.1) in lines 824; added “base” to line 825; added lines 825-829 beginning with “The assumptions...”; added “to” in line 835; deleted “(MOD-030 R5-2) in line 836; deleted “(MOD 030 R3.1)” in line 843; and deleted “(MOD 030 R3.4)” in line 847</p> <p>P. 33: added “therefore does not” to line 848; deleted “(MOD 030 R3.5)” in line 849-850; replaced “AFC” with “ATC” in lines 853 and 858; deleted “(MOD 303 R3.2)” in line 855; deleted “(MOD 030 R3.3)” in lines 860; added “base” to line 863; and deleted “(MOD 303 R5.2)” in lines 867 and 872</p> <p>P. 34: replaced “Flowgates” with “Network Paths” in lines 900, 902, 904, 906, 907 and 090; added “Network Path” to lines 914 and replaced “AFC” with “ATC”; and deleted “(MOD-030 R1.2.3)” in lines 922</p> <p>P. 35: added “Network Path” and replaced “AFC” with “ATC: in lines 923, 926, 945 and 948; deleted “MOD” reference in lines 928, 932, 937, 942, 944, 950, 954, 959, 963 and 965</p> <p>P. 36: deleted “MOD” references in lines 975-976, 983, 992 and 1003; replaced “Flowgate” with “Network Path” in lines 995; deleted “as described in” in line 996 and replaced “MOD-030 R6” with “(MOD-030 R5) in line 996</p> <p>P. 37: deleted references to MOD in lines 1008, 1010, 1012, 1030, 1033, 1035, 1037, 1040 and 1041-1042; and replaced “Flowgates” with “Network Paths” in lines 1017-1018, 1027 and 1040</p> <p>P. 38: replaced “Flowgates” with “Network Paths” in lines 1043, 1053 and 1063; added “Network Path” and replaced “AFC” with “ATC” in line 1056; added “base” to line 1064; and deleted MOD references in lines 1066 and 1075</p> <p>P. 39: replaced “Flowgates” with “Network Paths” in line 1082; deleted MOD references in lines 1082 and 1085-1086; deleted “power flow” from line 1093 and added “ETC”</p>	
--	--	--	--

### ATCID Revision History

		<p>P. 40: replaced “Flowgates” with “Network Paths” in lines 1127 and 1129-113-; deleted MOD references in lines 1121-1122, 1126, 113601137, 1141, 1144-1145 and 1147-1149</p> <p>P. 41: added “base” in lines 1151, 1154 and 1157; replaced “Flowgates” with “Network Paths” in lines 1181 and 1183; added “Network Path” in line 1182 and replaced “AFC” with “ATC”; and changed “Table 4” to “Table 3” in line 1187</p> <p>P. 42: replaced “Flowgates” with “Network Paths” in lines 1197, 1200, 1204 and 1206; deleted references to MOD in lines 1198 and 1206; added “Transfer” in lines 1199, 1204 and 1206; replaced “AFC” with “ATC” in lines 1199, 1200, 1202 and 1204; added “(MOD-029 R7) in line 1201</p> <p>P. 43: replaced “Flowgate” with “Transfer” in lines 1208, 1220, 1225, 1229 and 1233; replaced “TFC” with “TTC” in line 1209; replaced “Flowgates” with “Network Path” in lines 1210-1211; and deleted “base” I line 1219</p> <p>P, 44: replaced “Flowgate” with “Network Path” in lines 1246, 1247, 1256, 1258-1259, 1260, 1262, 1263, 1267-1269 and 1269; deleted MOD reference in 1255’ changed “AFC” to “ATC” in line 1264 and 1267</p> <p>P. 45: changed “AFC” to “ATC” in lines 1271, 1278, 1280, 1283 and 1307; replaced “Flowgate” with “Network Path” in lines 1272, 1277, 1278 and 1282; replaced “Flowgate” with “Transfer” in line 1274</p> <p>P. 46: replaced “Flowgate” with “Network Path” in lines 1309 and 1330; deleted “as described in MOD-030 R7” in line1311; added “(MOD-029 R6)” to line 1311; and deleted references to MODs in lines 1316, 1322, 1325, 1327, 1337 and 1343</p> <p>P. 47: replaced “Flowgate” with “Network Path” in lines 1346, 1348, 1353-1354 and 1360; removed “(MOD-030 R7.7)” in line 1345; added “Network Path” to line 1356 and replaced “AFC” with “ATC”; replaced “Flowgate” with “Transfer” in line 1358; replaced “AFC” with “ATC” in lines 1358, 1359, 1367, 1369, 1377, 1379 and 1381</p>	
--	--	---	--

ATCID Revision History			
		<p>P. 48: replaced “AFC” with “ATC” in lines 1382, 1385, 1387, 1389 and 1400; replaced “Flowgate” with “Network Path” in lines 1382, 1387-1388, 1391, 1396, 1397-1398; replaced “TFC” with “TTC” in line 1385; replaced “Flowgate” with “Transfer” in lines 1387, 1391, 1393, 1409 and 1414; added “Network Path” to line 1400; and deleted “base” from line 1413</p> <p>P. 49: replaced “Flowgate” with “Transfer” in lines 1418 and 1422; replaced “Flowgate” with “Network Path” in lines 1435 and 1436</p> <p>P. 50: added “Network Path” in lines 1445 and 1467 and changed “AFC” to “ATC”; deleted MOD reference in line 1451; replaced “Flowgate” with “Network Path” in lines 1463 and 1464</p> <p>P. 51: added “Network Path” to line 1481 and replaced “AFC” with “ATC”; and replaced “Flowgate” with “Network Path” in line 1497</p> <p>P. 52: replaced “Flowgate” with “Network Path” in lines 1498, 1499, 1501, 1502, 1507, 1508, 1510, 1519 and 1524; replaced “Flowgate” with “Transfer” in lines 1503 and 1512; replaced “AFC” with “ATC” in lines 1507, 1514, 1519, 1521, 1525, 1527; replaced “TFC” with “TTC” in lines 1521, 1525, 1526 and 1527; and deleted lines 1528-1532</p> <p>P. 53-57: added lines 1339-1516</p> <p>P. 58: deleted “and AFC” in line 1713; changed “Nevada Power” to “NV Energy” in line 1726; deleted “(PAC)” from line 1729; and deleted “Sierra Pacific Power Company” from line 1740</p> <p>P. 59: replaced “Flowgates” with “Network Path” in line 1762; deleted “and Flowgates” in line 1766; and deleted line 1767</p>	
36.0	8/28/15	<p>Moved Appendix B: System Operating Limit Methodology for the Operations Horizon; Appendix 1 - TPL-001-0.1 System Performance Under Normal Conditions; and Appendix 2 - TPL-001-WECC-RBP-2.1 into a separate document titled “System Operating Limit Methodology for the Operations Horizon “ and posted on the same website as the ATCID at:  <a href="http://www.bpa.gov/transmission/Doing%20Business/Pages/default.aspx">http://www.bpa.gov/transmission/Doing%20Business/Pages/default.aspx</a> under the ATC Methodology.</p>	L. Proctor

ATCID Revision History			
37.0	9/29/15	Deleted reference to the Appendix B SOL in line 253 and added the SOL website address on BPA's ATC Methodology website in lines 255-257; deleted lines 258-263 regarding prevailing and non-prevailing directions of flow (MOD-029 R2.2) and inserted new language; removed reference to Appendix B: SOL in line 253 and added link to the SOL in line 25; and deleted in Appendix A for the COI, under the Contract Party Seattle City Light "EDF Trading North America LLC and Southern California Edison Company (Effective 1/31/2013)", under Contract Number deleted "13ZZ-15826 (formerly" and added under Contract Description, Consent Agreement, Contract Party "Under consent agreement and EDF Trading North American LLC".	L. Proctor
38.0	11/02/15	Removed reference to Appendix B in line 298 and added link to SOL; updated Table 2, BPA Network Paths table beginning on line 656 for the North of John Day On OASIS: NOJDAY path changed from Wautoma-Ostrander to Wautoma-Knight and the Cross Cascades South on OASIS: C-CACS_S changed from Wautoma-Ostrander to Knight-Ostrander and deleted in Appendix A the Contract Party Seattle City Light Consent Agreement Contract Number 10TX-15107 from the COI path.	L. Proctor
39.0	12/07/15	Updated Outage Plan website link in line 104-105 from OASIS <a href="http://www.oatioasis.com/bpat/index.html">http://www.oatioasis.com/bpat/index.html</a> to <a href="http://www.gpa.gov/transmission/Reports/Pages/Proposed-Outages.aspx">http://www.gpa.gov/transmission/Reports/Pages/Proposed-Outages.aspx</a> ; moved "(MOD-001 R3.6.1) (MOD-001 R.3.6.2)" to line 115; and added outage language in lines 106-115.	L. Proctor
40.0	1/03/16	<p>p. 12, lines 241-255: Replaced "beyond two weeks" with "from the next day and beyond" and "periods within the next two weeks" with "the Real-time horizon" and added "On West of Garrison" and "On Northern Intertie South to North, for the seasons or time periods in which the seasonal studies have not been completed, the last year's seasonal study results will be used for setting the TTC for the relevant Path. "</p> <p>p. 17, lines 430-435: Added "BPA also uses SADJ adjustments on the Northern Intertie Path 3 S&gt;N. These adjustments are used to account for uncertainties on the path caused by simultaneous interaction with paths COI and NOH. The SADJ is being used temporarily while BPA tests and implements an additional 450MW TRM value for this path. BPA will stop using SADJ for this purpose on NI S&gt;N once testing of the additional TRM value is complete and it is implemented."</p>	L. Proctor

ATCID Revision History			
		<p>p. 21, lines 564-569: Added “In addition, BPA uses SADJ adjustments on the Northern Intertie Path 3 S&gt;N. These adjustments are used to account for uncertainties on the path caused by simultaneous interaction with paths COI/NOH. The SADJ is being used temporarily while BPA tests and implements and additional 450MW TRM value for this path. BPA will stop using SADJ for this purpose on NI S&gt;N once testing of the additional TRM value is complete and it is implemented.”</p> <p>p. 24, lines 647-649: Added “50 MW “ and “However, BPA does release the additional 450 MW TRM for the Northern Intertie Path S&gt;N as non-firm capacity.”</p>	
41.0	9/06/2016	<p>p. 11, line 243: Added “On West of Garrison,”; line 249: Added “On Northern Intertie South to North,”; lines 252-253: Added “from the next day and beyond.” and “the Real-time horizon”</p> <p>p. 16, line 430-431: Added “SADJ” and “reflect the TRM across this path that”; deleted lines 433-436</p> <p>p. 20, line 565: Added “SADJ”, “reflect the TRM across this path that” and “and”; deleted lines 567-570</p> <p>p. 23, Deleted lines 648-650; added in lines 650-652: “BPA does not release the TRM Due to simultaneous path interactions for the Northern Intertie Path S&gt;N as non-firm capacity, but does not release the remaining TRM as non-firm capacity”</p>	L. Proctor
42.0	11/01/2016	<p>Table of Contents: Deleted section IX. BA to BA Interconnection Methodology per BPA decision to no longer utilize this methodology</p> <p>p. 26, Table 2, BPA Network Paths starting on line 693: Added to Paul-Allston on OASIS: PAUL_ALSN, column Transmission Line Components “During outage conditions of the Paul-Allston #2 500kV line with either of the Paul-Napavine #1 or Napavine-Allston #1 500kV lines, the following lines are monitored: Napavine-Allston #1 500kV; Paul-Allston #2 500kV; Longview-Chehalis #1 &amp; #3 230kV; Holcomb-Naselle #1 115kV</p> <p>p.34, lines 930-931: Deleted “and light load ETC Cases for the month of January”</p>	L. Proctor

## ATCID Revision History

		<p>p. 36-37, lines 967-1001: Replaced “90<sup>th</sup> Percentile Method” with “Nameplate Adjusted Method”; replaced “each project’s 90<sup>th</sup> percentile of historic generation by project and month” with “the nameplate for each project and then adjusting such nameplates by outages forecasted for the particular plants. Next in the month of August, the Lower Snake plants (Lower Granite, Lower Monumental, Little Goose and Ice Harbor) are capped at the observed project outflow over the past ten Augusts.”; deleted lines 975-986; added lines 986-995; deleted lines 998-1001</p> <p>p. 37, lines 1007-1011: Replaced “modeled at up to 80 percent of the wind generators’ contract Demands for BPA’s area and all adjacent TSP area” with “set at the greater of the following: Modeled on the 100 percent of the contract demand for the wind generator; or Modeled off and replaced by the “Balancing Logic Method”</p> <p>p. 37, line 1020: Replaced “90<sup>th</sup> Percentile” with “Nameplate Adjusted” and “on p. 35” with “above</p> <p>p. 37, lines 1032-1035: Deleted “the Mid-Columbia Hydro Projects by 50 percent of the excess generation and FCRPS generation by the other 50 percent of the; added “Prorata, except for the stress FCRPS zone, see below”; and replaced “90<sup>th</sup> Percentile” with “Balancing Logic”</p> <p>p. 38, lines 1039-1041: Deleted lines</p> <p>p. 38, 1043-1051: Replaced “two” with “three”; replaced “NITSfi” with “PTPfi and NITSfi” and “and stressing the three different zones of the FCRPS. For the FCRPS scenarios, the three “zones” that are stressed individually in the scenarios are made up of the following projects: (i) Upper Columbia zone includes Grand Coulee and Chief Joseph; (ii) Lower Snake zone includes Lower Monumental, Lower Granite, Little Goose, and Ice Harbor; and (iii) Lower Columbia zone includes McNary, John Day, The Dalles, Bonneville.</p> <p>p. 38, lines 1055-1056 and lines 1059-1060: Replaced “90<sup>th</sup> Percentile” with “Nameplate Adjusted”</p> <p>p. 38, lines 1062-1063: Deleted “NITSfi” and replaced “p. 39” with “above”</p> <p>p. 38-39, lines 1064-1086: Replaced “four” with “12”; updated scenarios on lines 1066-1077; deleted lines 1078-1080; added language starting in line 1080-1086; deleted line 1092</p> <p>p. 41, Added lines 1135-1142</p>	
--	--	--	--

ATCID Revision History			
		<p>p. 46, Added lines 1322-1329</p> <p>p. 49-53, lines 1376-1553: Deleted section IX. BA to BA Interconnection Methodology per BPA decision to no longer utilize this methodology.</p>	
43.0	11/14/2016	<p>p. 9, lines 185-192: Deleted language regarding the tracking and monitoring of issuance of gen limits. Modified language in regards to adding new ATC paths to be more general.</p> <p>p. 9. Lines 190-192: Added “if new” and “are identified and implemented. Table 1 will be updated to reflect the new ATC Paths.”</p> <p>p.34, lines 925-926: Added “and light load ETC Cases for the month of January”:</p>	L. Proctor
44.0	4/1/2017	<p>p.7, Line 136: Remove “and TFC,” to correct an oversight when changes were made in version 35 to remove all references to flowgates, TFCs and AFCs.</p> <p>pps. i, 5 - 9, 14-16, 27: All other modifications are made to incorporate changes to align the ATCID with changes resulting from 1) revisions to Peak Reliability’s SOL Methodology v.8.1; and 2) changes in TOP and IROL standards that are effective April 1, 2017. As of April 1, 2017, BPA will continue to use SOLs as TTCs for ATC calculations for stability limited paths; various system conditions will be used to develop TTCs for thermally limited paths.</p> <p>Appendix A: Removed.</p>	A. Heredia
45.0	9/19/2017	<p>p. 11, Added lines 335-336</p> <p>p. 12, line 339: Added “When modeling contingencies”</p>	L. Proctor



ATCID Revision History			
		<p>p. 12, lines 343-349: Added “When modeling contingencies” and “until flows exceed emergency Facility Ratings or voltages fall outside emergency system voltage limits (i.e., the post-Contingency state) and deleted “one of the following reliability constraints is encountered: 1) In the pre-Contingency state, flows exceed normal Facility Ratings or voltages fall outside normal system voltage limits; or (2) In the post-Contingency state, flows exceed emerging Facility Ratings or voltages fall outside emergency system voltage limits.” and “The contingencies studied to determine the post-Contingency state are posted on Peak Reliability’s secure website <a href="https://www.peakrc.org">https://www.peakrc.org</a>.”.</p>	
46.0	4/01/2018	<p>p. 4, line 111: Deleted “See Appendix A for a list of contracts and specified Paths with shared ownership.”</p> <p>p. 11, lines 308-312: Deleted “BPA uses the minimum SQL from the relevant seasonal studies to set the TTC of the Path for periods beyond two weeks.”; “within the next two weeks”; “maximum”; “mw”; “SOL”; and “seasonal” from “seasonal studies”. Added “all time”; “MW”; “value” and “seasonal” to “seasonal TTC”. Line 332 deleted “always credible”.</p> <p>p. 34, line 999: Removed “June”.</p> <p>p. 38-39, lines 1111-1136: Changed “12” to “6”. Removed “CER modeled one/” from lines 1113-1118; Deleted lines 1119-1124; Deleted “two seasonal groupings” and “Early and”. Added “with CER modeled off” and “with CER modeled on for the last 3 scenarios”. Lines 1127, 1128 and 1130: Replaced “24” with “15”. Table, row month June, under “Base ETC Values Used” column, changed “June” to “May”.</p> <p>p. 40, line 1179: Deleted “June”.</p> <p>p. 46, line 1366: Deleted “June”.</p>	L. Proctor
47.0	10/12/2018	<p>p. 23, lines 711-713: Minor simplification of language for clarity.</p>	M. Olczak

ATCID Revision History			
48.0	10/31/2018	p.16 and p.20, removed references to TRM values being accounted for as SADJ. BPAT will no longer use SADJs to account for TRM beginning 11/1//2018.	M. Olczak
49.0	06/01/2019	p. 49, lines 1460 – 1465: added a section on adjustments to ATC values on Network Paths when testing in BPA's production systems is necessary.	M. Olczak
50.0	08/14/2019	<p>P.16, line 505 and P.23, line 701 – detail of how BPA implements TRM has been removed from the ATCID. See the TRMID for TRM information.</p> <p>p.23, line 712 – BPA has updated its “PostbacksNF for the Real-time Horizon” section. BPA will no longer be using a Miles City postback, due to the implementation of the TRM across West of Garrison E&gt;W.</p> <p>BPA is discontinuing the use of RETC in BPA's ETC calculation. References to the RETC variable have been removed from the document.</p>	M. Olczak
51.0	09/10/2019	<p>p.29 – removed references to BPA's Outage to Base Case Mapping document. The mapping of outages to the WECC base case is contained in BPA's Transmission Reference Entity Data system.</p> <p>p.30, line 802 – specifies that BPA updates its Hourly PTDFs at least once per day for hourly ETC calculations</p> <p>p.30, line 808 – clarifies that BPA uses Daily PTDFs published for hour ending 11 of each day in its Daily ETC calculations</p> <p>p.30, lines 812 – 814 and 816 – 819 – clarifies which generation and transmission outages are included in BPA's daily and monthly ETC calculations</p>	M. Olczak
52.0	11/01/2019	<p>p.11: deleted the statement related to West of Garrison that read “For all time periods, when there are no studied outages, BPA uses a TTC of 2000 MW E&gt;W and the maximum value from the relevant studies to set the seasonal TTC of the Path W&gt;E.” This statement is no longer applicable as of 8/14/2019. Please see OASIS for TTC values.</p> <p>p.12, lines 333 – 335 and 342, p.13, lines 388-393: changed Peak RC references to RC West</p>	M. Olczak

ATCID Revision History			
		<p>p.13, lines 377 – 387: clarification on study process for ATC Paths with Ratings that were established, known and used in operation since January 1, 1994</p> <p>p.15, Calculating Firm Available Transmission Capability section: removed ATC Firm formulas from end of section since the formula is already stated in line 465</p> <p>p.18, Calculating Non-Firm Available Transfer Capability section: removed ATC Non-Firm formulas from end of section since the formula is already stated in line 601</p> <p>p.29, lines 774 – 777: removed references to Peak RC from this section and clarified the modeling data included in the WECC base cases</p>	
53.0	11/13/2019	<p>ATCID has been updated to reflect that BPA will be calculating base ETC for West of Hatwai using flow-based studies. As such, the following changes have been made:</p> <p>p. 7, removed West of Hatwai from Table 1</p> <p>p. 24, added West of Hatwai to Table 2</p> <p>p. 24, added column to Table 2 entitled “Case used for base ETC calculation.” This column identifies whether BPA is using heavy or light load studies to establish base ETC<sub>Fi</sub> for each path.</p> <p>p. 33, line 932: BPA has renamed this section “Determining Base ETC<sub>Fi</sub> for Heavy Load Base Cases.” All information on light load cases has been removed from the section.</p> <p>p. 35, line 1018: BPA has renamed this section “Sensitivity Studies for Heavy Load Base Cases” to clarify that these sensitivity studies only apply to heavy load cases.</p> <p>p. 37, line 1059: BPA has added a section entitled “Determining Base ETC<sub>Fi</sub> and Sensitivities for Light Load Base Cases.” This section provides information on the assumptions and sensitivities for BPA’s light load case studies.</p> <p>BPA has removed references to adjustments that BPA had been making for West of Hatwai to hold out NITS capacity for the Western Montana hydro projects; these obligations are now included in BPA’s base ETC<sub>Fi</sub> studies for West of Hatwai and the adjustments are therefore no longer needed.</p>	M. Olczak

ATCID Revision History			
		<p>Maps of BPA paths have been removed from the ATCID.</p> <p>Upon evaluation, BPA has determined that the SADJ/ETC adjustments across the West of Garrison path are no longer appropriate. BPA has removed references to these adjustments throughout the document.</p> <p>p. 36, lines 1052-1053: clarification that the difference between the highest and lowest seasonal base ETC<sub>Fi</sub> values is used to establish a commercial uncertainty margin.</p>	
54.0	01/28/2020	<p>p.12, line 396: corrected email address</p> <p>p.13, line 399: corrected link</p> <p>p.27, lines 716-717 and lines 720-721: simplified wording</p> <p>p.27 – 28: deleted the following language in the “Use of WECC Base Cases to Determine ETC” section, as the language does not reflect BPA’s current process:</p> <p>“BPA updates the relevant WECC base cases with equipment outages which are known and mapped to the WECC base case, as well as newly-energized generation and Transmission for ATC calculations at least once per day for intra-day, next day and days two through 30.</p> <p>BPA updates the relevant WECC base cases with equipment outages which are known and mapped to the WECC base case, as well as newly-energized generation and Transmission for ATC calculations at least once per month for months two through 13.”</p> <p>p.29: In the “PTDF Analysis and De Minimis” section, deleted the sentence reading “Ten percent is the percentage used to curtail in the Western Interconnection-wide congestion management procedure.” This is a simplification of this section and does not impact the methodology related to this topic.</p> <p>p.32: deleted the following language in the “Determining Base ETC<sub>Fi</sub> for Heavy Load Base Cases” section, as the language does not reflect BPA’s current process:</p> <p>“In ETC Cases, BPA models all of its own NITS<sub>Fi</sub>, GFF<sub>Fi</sub> and PTP<sub>Fi</sub> Long-Term Reservations, as well as those of its adjacent TSPs, active at the time the ETC Cases are produced.</p>	M. Olczak

ATCID Revision History			
		<p>To model the impact of PTPFi long-term reservations for all of its adjacent TSPs, BPA queries a list of PTPFi long-term reservations from the OASIS of its adjacent TSPs. To model the impact of GFFi and NITSFi long-term obligations for all of BPA's adjacent TSPs, BPA contacts its adjacent TSPs and requests a list of their GFFi obligations and a list of their NITSFi with a list of designated network resources with the MW amounts designated to serve Network Service and Native Load.</p> <p>BPA models the NITSFi, GFFi and PTPFi Long-Term obligations of all of its adjacent TSPs to the extent that there are sufficient firm Transmission rights on BPA's or its adjacent TSPs' Transmission Systems to serve the Load.”</p> <p>p.49, line 1480: corrected link</p>	
55.0	03/24/2020	<p>p.27, line 720: added the word “seasonal” to clarify which WECC cases BPA uses for its ETC studies</p> <p>p.27, lines 722-724: clarified which load forecasts BPA is using in its ETC studies</p> <p>p.28: streamlined section with removal of sentence stating “See “Determining Base ETC<sub>F</sub>” section for a description of how BPA develops its ETC Cases”</p> <p>p.32, section titled “Determining Base ETC for Heavy Load Base Cases”: changes throughout the section to reflect BPA's transition to monthly base ETC studies</p> <p>p.35, lines 1013-1017: removed references to seasonal cases to support BPA's transition to monthly base ETC studies</p> <p>p.35, lines 1028-1029: changed wording to reflect BPA's transition to monthly base ETC studies</p> <p>p.35, lines 1030-1033: changes to reflect that BPA uses the highest base ETC to calculate firm ATC and lowest base ETC to calculate non-firm ATC; reference to commercial uncertainty margin removed</p> <p>p.35-36, lines 1034-1039: changes to reflect BPA's transition to monthly base ETC studies</p> <p>p.36, lines 1041-1047: changes to reflect BPA's transition to monthly base ETC studies</p>	M. Olczak

ATCID Revision History			
		<p>p.37, lines 1060-1064: change to reflect that BPA uses the highest base ETC to calculate firm ATC and lowest base ETC to calculate non-firm ATC; reference to commercial uncertainty margin removed</p> <p>p.38, SADJ/ETC Adjustments section: removed references to SADJs for the commercial uncertainty margin, as this process has been discontinued</p> <p>p.44, SADJ/ETC Adjustment section: removed references to SADJs for the commercial uncertainty margin, as this process has been discontinued and clarified that an SADJ is used to account for BPA's use of the lowest base ETC in the non-firm ATC calculation.</p>	
56.0	05/20/2020	<p>p.1, lines 23-26: modified the "Long-Term Reservation" and "Short-Term Reservation" definitions to clarify that all requests (including Network Integration) fall into each definition based on duration</p> <p>p.27, lines 721-728: clarification on load and generation forecasts used in BPA's ETC cases</p> <p>p. 28, lines 750-751: slight rewording to clarify PTDF calculation process</p> <p>p.29: removed sentence reading "The source used in BPA's Network Path ATC calculations of transactions for all adjacent TSPs is obtained from the source field if a source is identified, or the POR field if only the POR is identified." This no longer applies with the elimination of adjacent TSP impact functionality in OATI.</p> <p>p.30: removed sentence reading "The sink used in BPA's Network Path ATC calculations of transactions for all adjacent TSPs is obtained from the sink field if a sink is identified, or the POD field if only the POD is identified." This no longer applies with the elimination of adjacent TSP impact functionality in OATI.</p> <p>p.30: removed section on the weighted PTDF for FCRPS generation in the Idaho Power Company BAA. This no longer applies with the elimination of adjacent TSP impact functionality in OATI.</p>	M. Olczak

## ATCID Revision History

		<p>p.31, line 855: conformed the formulas/definitions in the “Calculating Firm Existing Transmission Commitments” section to MOD-029 (section referenced MOD-030 formulas/definitions, which BPA no longer uses). References to calculations of adjacent TSP impacts have been deleted, due to elimination of adjacent TSP impact functionality in OATI.</p> <p>p.32, lines 896-897, 905-906, and 911-912: revised to reflect BPA has transitioned from Summer seasonal ETC study to monthly ETC studies for June through October.</p> <p>p.35, line 1002: revised to reflect BPA has transitioned from Summer seasonal ETC study to monthly ETC studies for June through October</p> <p>p.35-36, Table 3: revised to reflect BPA has transitioned from Summer seasonal ETC study to monthly ETC studies for June through October</p> <p>p.36, lines 1040-1041: removed reference to adjacent TSPs from section. This no longer applies with the elimination of adjacent TSP impact functionality in OATI.</p> <p>p.37, lines 1060-1061: Simplification of LRES and SRES definitions, to account for the elimination of adjacent TSP impact functionality in OATI</p> <p>p.39, lines 1116-1120: documentation that BPA will use zero as the base ETC when the ETC cases result in a negative base ETC value.</p> <p>p.40, line 1145: conformed the formulas/definitions in the “Calculating Non-Firm Existing Transmission Commitments” section to MOD-029 (section referenced MOD-030 formulas/definitions, which BPA no longer uses). References to calculations of adjacent TSP impacts have been deleted, due to elimination of adjacent TSP impact functionality in OATI.</p> <p>p.42, lines 1221-1222: Simplification of LRES and SRES definitions, to account for the elimination of adjacent TSP impact functionality in OATI</p> <p>p.43, lines 1262-1265: updated definitions for <math>SCH^+_7</math> and <math>ASC^+_7</math> to account for the elimination of adjacent TSP impact functionality in OATI</p> <p>p.44, lines 1279-1280: updated definition for <math>RRES_{NF}</math> to account for the elimination of adjacent TSP impact functionality in OATI</p>	
--	--	---	--

ATCID Revision History			
		<p>p.44, lines 1291-1294: updated definitions for <b>SCH</b><sup>6,5,4,3,2,1</sup> and <b>ASC</b><sup>6,5,4,3,2,1</sup> to account for the elimination of adjacent TSP impact functionality in OATI</p> <p>p.45, lines 1322-1324: updated definition for <b>Counterflows</b><sub>NF</sub> to account for the elimination of adjacent TSP impact functionality in OATI</p> <p>p.45-46, lines 1325-1331: documentation that BPA will use zero as the base ETC when the ETC cases result in a negative base ETC value.</p> <p>Throughout the document: conformed ETC and AFC formula terms and definitions from MOD-030 to MOD-029 (i.e. PTP<sub>FI</sub> to PTP<sub>F</sub>) and replaced any references to “flowgates” with the term “network paths.”</p>	
57.0	09/16/2020	<p>p.2, line 38: added Satsop Injection to the list of ATC Paths for which BPA has a TRM</p> <p>p.7-8, Table 1: Added Satsop Injection to the table of BPA's 1:1 ATC Paths</p> <p>p.7, line 235: clarified that this section applies to BPA's 1:1 ATC Paths. Paths listed in this section will be referenced by BPA as 1:1 ATC Paths going forward. References to these paths have been conformed to this new naming convention throughout the ATCID.</p> <p>p.23, line 708: clarified that this section applies to BPA's Flow-Based ATC Paths. Paths listed in this section will be referenced by BPA as Flow-Based ATC Paths going forward. References to these paths have been conformed to this new naming convention throughout the ATCID.</p>	M. Olczak
58.0	09/30/2020	<p>Throughout document, changed references from MOD-029-1a to MOD-029-2a to match current effective NERC standard.</p> <p>p.27: moved some of the language pertaining to how BPA models generation in its ETC base cases from “Use of WECC Base Cases to Determine ETC” section to p.32, lines 916-917. Language has been modified to better reflect process that BPA uses (process has not changed; this is a documentation change only).</p> <p>p.37, line 1081: language describing the LETC variable has been clarified</p>	M. Olczak



ATCID Revision History			
		p.42, line 1240: language describing the LETC variable has been clarified	
59.0	10/21/2020	<p>p.9, line 263: Updated name to match NERC registry</p> <p>p.27, lines 727-735: Added information on loads used in BPA's Winter light load ETC base cases for both BPA's Balancing Authority and outside of BPA's Balancing Authority</p> <p>p.32, lines 905-921: revised to reflect BPA has transitioned from a Winter seasonal ETC study to monthly ETC studies for November through February.</p> <p>p.35, line 1013-1024: revised to reflect BPA has transitioned from a Winter seasonal ETC study to monthly ETC studies for November through February.</p> <p>p.36, "Determining Base ETC and Sensitivities for Light Load Base Cases" section: removed outdated verbiage regarding the balancing of the case.</p>	M. Olczak
60.0	02/17/2021	<p>p.1, lines 6-9: purpose statement has been revised to clarify that BPA's ATCID also documents BPA's Postback Methodology, as required by the NAESB Wholesale Electric Quadrant business practice standards.</p> <p>p.14, line 460: removed page number references to streamline document</p> <p>p.15, line 495: removed page number reference to streamline document</p> <p>p.16, lines 504-507: slight rewording to better align with the NAESB Postback Methodology requirements in the Wholesale Electric Quadrant business practice standards; there has not been a change to BPA's Postback Methodology.</p> <p>p.17, line 563: removed page number reference to streamline document</p> <p>p.20, line 640: removed page number reference to streamline document</p>	M. Olczak

### ATCID Revision History

		<p>p.21, line 654: removed page number reference to streamline document</p> <p>p.21, line 670: removed page reference to streamline document</p> <p>p.22, lines 684-698: slight rewording to better align with the NAESB Postback Methodology requirements in the Wholesale Electric Quadrant business practice standards; there has not been a change to BPA's Postback Methodology.</p> <p>p.27, lines 731-732: clarifies that BPA uses the loads in the WECC light load cases for BPA's Balancing Authority</p> <p>p.27, lines 734-735: clarifies that BPA uses the loads in the WECC light load and heavy load cases outside of BPA's Balancing Authority</p> <p>p.32, line 905: revised to reflect that BPA has fully transitioned to monthly base ETC cases.</p> <p>p.32, lines 911-14: revised to reflect that BPA has fully transitioned to monthly base ETC cases.</p> <p>p.35, lines 1012-1013: revised to reflect expanded scenarios for March through May</p> <p>p.35, Table 3: Table 3 has been deleted; Table 3 is no longer applicable as BPA has fully transitioned to monthly base ETC cases</p> <p>p.35, lines 1022-1024: documents the starting point for BPA's Summer light load cases and that the Summer light load ETC case is used to set the base ETC for April through October.</p> <p>p.37, lines 1074-1075: change to reflect that the CER PTDF adjustment is only being used for June through October</p> <p>p.38, lines 1101-1104: slight rewording to better align with the NAESB Postback Methodology requirements in the Wholesale Electric Quadrant business practice standards; there has not been a change to BPA's Postback Methodology.</p> <p>p.40, line 1174: removed page number reference to streamline document</p>	
--	--	--	--

ATCID Revision History			
		<p>p.41, lines 1231-1232: change to reflect that the CER PTFD adjustment is only being used for June through October</p> <p>p.44, lines 1302-1306: slight rewording to better align with the NAESB Postback Methodology requirements in the Wholesale Electric Quadrant business practice standards; there has not been a change to BPA's Postback Methodology.</p>	
61.0	02/26/2021	<p>p.20, lines 631-636: clarification of the SCH and ASC variables, and where energy versus transmission profiles are used</p> <p>p.20-21, lines 661-676: clarification of the SCH and ASC variables, and where energy versus transmission profiles are used</p> <p>p.29, lines 801-804: removed reservation evaluation and de minimis criteria from the ATCID, and added reference to the Transmission Service Requests Evaluation business practice, which now defines BPA's processes for evaluating Transmission Service Requests.</p> <p>p.32, lines 904-905: clarifies that BPA deems de minimis impacts to be zero when calculating firm ETC using reservations.</p> <p>p.37, lines 1094-1096: minor clarification to language</p> <p>p.40, lines 1175-1178: clarifies that BPA deems de minimis impacts to be zero when calculating non-firm ETC using reservations.</p> <p>p.42, lines 1253-1254: clarifies that BPA deems de minimis impacts to be zero when calculating firm ETC using reservations.</p> <p>p.42, lines 1264-1268: clarification of the SCH and ASC variables, and where energy versus transmission profiles are used</p> <p>p.43, lines 1284-1285: clarifies that BPA deems de minimis impacts to be zero when calculating non-firm ETC using reservations.</p> <p>p.44, lines 1295-1308: clarification of the SCH and ASC variables, and where energy versus transmission profiles are used</p>	M. Olczak

ATCID Revision History			
62.0	04/08/2021	<p>p.15, lines 490-491: added clarification that BPA uses SADJ across NI S&gt;N to account for a portion of the firm TRM across this path. This is a process clarification and not a change to how the TRM or ATC calculations are performed.</p> <p>p.15, lines 477-480: clarified that the LETC variable is used for <math>NITS_F</math>, <math>GF_F</math>, <math>PTP_F</math> and <math>ROR_F</math> in the <math>ETC_F</math> calculation. This is a clarification and not a change to BPA's process.</p> <p>p.15, Table between lines 497 and 498: aligned ETC variables with the OATI variables. This is a formula clarification and not a change to how the ETC calculation is performed.</p> <p>p.19, lines 621-624: clarified that the LETC variable is used for <math>NITS_F</math>, <math>GF_F</math>, <math>PTP_F</math> and <math>ROR_F</math> in the <math>ETC_F</math> calculation. This is a clarification and not a change to BPA's process.</p> <p>p.20, Table between lines 629 and 630: aligned ETC variables with the OATI variables. This is a formula clarification and not a change to how the ETC calculation is performed.</p> <p>p.42, Table between lines 1260 and 1261: aligned ETC variables with the OATI variables. This is a formula clarification and not a change to how the ETC calculation is performed.</p>	M.Olczak
63.0	05/12/2021	<p>p.3, footnote: removed reference to North of John Day, as this path has been de-activated; also matched up the names of the paths listed in the footnote to those used in Table 2 on Page 24</p> <p>p.11, line 347 and content previously found between lines 351-352: deleted references to North of John Day, as this path has been de-activated</p> <p>p.24, Table 2: removed North of John Day from table, as this path has been de-activated</p>	M. Olczak
64.0	05/19/2021	<p>p.28, "Outages in ETC Calculations" section: deleted sentences on generation outages in ETC calculations; BPA does not include generation outages in its ETC calculations</p>	M. Olczak

ATCID Revision History			
		<p>p.30, lines 848-853: added specificity that the weighted FCRPS PTDF calculation is based on the stress scenario per path, and clarified the time frame for which generation forecasts are used in the calculation of this PTDF</p> <p>p.33, lines 931-939: revised to explain BPA's transition to a new methodology for modeling the Willamette Valley projects in its ETC cases</p> <p>p.35, line 1019: revised to reflect the scenarios BPA is currently running in the heavy base ETC cases</p> <p>p.37 and p.41: deleted references to CER SADJs, as these SADJs have been replaced by additional base ETC scenarios</p>	
65.0	09/15/2021	<p>Extensive re-organization of the ATCID to combine the 1:1 and Flow-based ATC Path sections into one.</p> <p>p.17, lines 438-444: language addition to account for new OASIS functionality for short-term Redirects to comply with FERC policy adopted in Order 676-I</p>	M. Olczak
66.0	09/29/2021	<p>p.22, p.23 and p.31: removed references to ST non-firm ATC adjustments for lowest base ETC (these adjustments have been replaced with a new non-firm ATC variable, NFETC)</p> <p>p.30, line 891: replaced reference to LETC with new non-firm ATC variable, NFETC</p> <p>p.31, lines 907 and 911: replaced references to LETC with new non-firm ATC variable, NFETC</p> <p>p.31, line 921: replaced references to LETC in the chart with new non-firm ATC variable, NFETC</p>	M. Olczak
67.0	10/20/2021	<p>p.1, line 13: added reference to NAESB WEQ-000</p> <p>p.20, lines 514 and 516: revised to explain BPA's transition to a new methodology for modeling the Willamette Valley projects in its ETC cases</p> <p>p.22, line 601: added the months of November through February for the CER off scenarios</p> <p>p.22, lines 615-619: added specificity to the modeling of Montana loads in the light load cases</p>	M. Olczak

ATCID Revision History			
68.0	01/07/2022	<p>Whole document: replaced “ATC Path” with “path” unless section has been directly copied from MOD-029-2a; replaced “SOL” with “TTC”; removed website links; removed contract numbers</p> <p>p.3, line 68, “Limiting Assumptions” section: references to stability and thermally limited paths were eliminated and duplicative language was deleted; language added to clarify how BPA complies with MOD-001-1a R6 and R7.</p> <p>p.4, line 122, “Priorities Used to Set TTC” section: references to stability and thermally limited paths were eliminated and duplicative language was deleted</p> <p>p.10, line 184, “Data and Assumptions” section: references to stability and thermally limited paths were eliminated and duplicative language was deleted</p> <p>p.12, line 255, “Process to Determine TTC” section: references to stability and thermally limited paths were eliminated and duplicative language was deleted</p> <p>p.16, line 394, “Use of WECC Base Cases to Determine Base ETC” section: deleted content related to what WECC includes in their seasonal base cases</p> <p>p.18, lines 470-476: clarification on the actions BPA takes to solve the power flow model</p> <p>p.18-19, lines 489-494: clarification on how BPA models the CER in heavy load scenarios</p> <p>p.19, lines 517-522: language added to reflect change discussed at the December 16, 2020 customer meeting</p> <p>p.21, line 584, “Source/POR and Sink/POD Identification and Mapping” section: deleted language that is found in the TSR Evaluation Business Practice and language related to MOD-030 R4 requirement; additional information on weighted PTDFs provided.</p>	M.Olczak
69.0	01/26/2022	<p>p.7, Table 1: removed Paul-Allston from table, as this path has been de-activated</p> <p>p.12-13, lines 272-286: rewording of section for clarity</p> <p>p.20, lines 565-568: added information on the PTDFs calculated and used for the Raver-Paul path when the Raver-Paul 500 kV line is out of service</p>	M.Olczak

ATCID Revision History			
70.0	02/16/2022	<p>p.17, line 426-429: revised to incorporate BPA's new methodology for modeling the Willamette Valley projects in ETC cases</p> <p>p.19, line 507: updated to reflect current suite of scenarios being run in heavy load ETC cases</p>	M. Olczak

1044