

Dynamic Transfer Operating and Scheduling Requirements

BPA Transmission Business Practice

Version 11

2/16/2021

Dynamic Transfer Operating and Scheduling Requirements

Version 11

This business practice sets forth the technical and communication requirements for a Customer to use BPA’s Transmission System for Dynamic Transfers.

For more information, visit the [BPA Transmission Business Practices webpage](#) or submit questions to techforum@bpa.gov.

Table of Contents

A. Introduction.....	1
B. Eligibility Criteria.....	2
C. Telemetry.....	2
D. E-Tagging Dynamic Transfers	4
E. Transmission Requirements Using FCRTS Capacity.....	5
F. Transmission Requirements Not Using FCRTS Capacity.....	5
G. Apportioning NWACI DTC Among NWACI Owners	6
H. Allocating NWACI DTC on BPA's Transmission System.....	6
I. Scheduling Procedures for Dynamic Transfers using BPA's Share of NWACI	7
J. Limitations on Dynamic Transfer.....	8
K. Dynamic Transfer Ramp Rate.....	9
L. Load & Resource One-Day Forecast Requirements.....	9

A. Introduction

1. This business practice may require some Customers to upgrade their telemetry for projects that are dynamically transferred. BPA understands that this may take Customers some time to accomplish. BPA will work with its Customers to help them comply with these requirements.
2. In addition to addressing Dynamic Transfers using BPA’s Transmission System, this business practice:
 - a. Governs Dynamic Transfers on BPA’s share of the Northwest AC Intertie (NWACI);
 - b. Reflects certain common scheduling and operational provisions that are currently agreed to by the other Transmission Service Providers (TSP) on NWACI; and

- c. Governs NWACI Dynamic Transfers for Customers on BPA's Transmission System. BPA is the path operator for the northern portion of the NWACI. As such, BPA performs certain activities for NWACI transactions to maintain reliability (including managing dynamic signals within the delivery hour). However, Dynamic Transfers on other NWACI owners' systems are governed by each respective TSP's OATT and associated business practices. BPA coordinates Dynamic Transfers on the NWACI with the other owners of the NWACI facilities as path operator. Those facilities are owned jointly by BPA, Portland General Electric, and PacifiCorp.

B. Eligibility Criteria

1. New requests for Dynamic Transfer on BPA's Transmission System are subject to the Dynamic Transfer Capability: Requesting and Awarding Access Business Practice or its successor. Access to Dynamic Transfer Capability on the NWACI on BPA's Transmission System is governed by this business practice.
2. The Dynamic Transfer Entity must have executed a Dynamic Transfer Agreement, or equivalent agreement, and other agreements as appropriate, with BPA, prior to implementation of a Dynamic Transfer that involves the use of BPA's Transmission System or the use of non-federal transmission within BPA's Balancing Authority Area.
3. Each Balancing Authority involved in a Dynamic Transfer must have executed a Dynamic Transfer Operating Agreement, or equivalent agreement.
4. The Dynamic Transfer Entity may effect Dynamic Transfers on BPA's Transmission System with firm or non-firm transmission rights. Entities desiring to effect Dynamic Transfers on BPA's Transmission System must either (1) have had their use of Dynamic Transfer approved by BPA or (2) request Dynamic Transfer Capability pursuant to the Dynamic Transfer Capability: Requesting and Awarding Access Business Practice or its successor.
5. The Dynamic Transfer Entity that requires a Dynamic Transfer shall be operating within a Balancing Authority Area recognized by the Western Electricity Coordinating Council (WECC).
6. The Dynamic Transfer Entity must coordinate with its Balancing Authority, BPA, and any other impacted Balancing Authorities to ensure that procedures are in place and appropriate agreements executed to facilitate the desired Dynamic Transfer.
7. The Dynamic Transfer Entity and all involved Balancing Authorities must comply with WECC and North American Electric Reliability Corporation (NERC) (or successor organizations) standards and policies.
8. A generator that is dynamically transferring its full output to a Balancing Authority Area outside of the BPA Balancing Authority Area must do so using a Pseudo-Tie subject to the requirements of Section J.

C. Telemetry

1. Telemetry requirements for implementation of a Dynamic Transfer into, out of, or through BPA's Balancing Authority Area are described below:

- a. BPA must test and approve in advance all systems necessary, as determined by BPA, to affect a Dynamic Transfer for each Dynamic Transfer Entity that desires to engage in a Dynamic Transfer.
- b. The Dynamic Transfer Entity will provide BPA a telemetry signal corresponding to each Dynamic Transfer e-Tag representing the Dynamic Transfer. BPA will determine where the appropriate signal will emanate from. This is the Dynamic Transfer Request Signal.
- c. The Dynamic Transfer Request Signal will be updated at least once every four (4) seconds and will conform to Inter-control Center Communications Protocol (ICCP) requirements, or equivalent requirements as determined by BPA, for data format, accuracy, and reliability consistent with BPA's AGC cycle time and anti-aliasing filtering.
- d. If the desired Dynamic Transfer sources or sinks in BPA's Balancing Authority Area, BPA will send a Dynamic Transfer Return Signal to the Dynamic Transfer Entity in response to the Dynamic Transfer Entity's Dynamic Transfer Request Signal described above. The Dynamic Transfer Return Signal will be based on the actual response to the Dynamic Transfer Entity's Dynamic Transfer Request Signal. The Dynamic Transfer Return Signal will be the official Dynamic Transfer.
- e. BPA will provide a Dynamic Transfer Limit Signal to the Dynamic Transfer Entity continuously in real-time. This Dynamic Transfer Limit Signal will indicate the maximum allowable Dynamic Transfer. The Dynamic Transfer Entity shall adhere to this Dynamic Transfer Limit Signal.
- f. If BPA's Balancing Authority Area is an intermediary Balancing Authority Area between the Source and Sink Balancing Authorities (the Source and Sink Balancing Authorities can be the same Balancing Authority or two different Balancing Authorities), the Dynamic Transfer Entity will arrange for either the Source or Sink Balancing Authority to provide BPA with a real-time telemetry signal that represents the amount of power being dynamically transferred through BPA's Balancing Authority Area. This signal will be the official Dynamic Transfer and will conform to the same requirements described in Section C.1.d, above.
- g. Latency time is measured from the attaining Balancing Authority metering point to inclusion of the BPA Dynamic Transfer Return Signal in the same attaining Balancing Authority's ACE calculation and shall be no greater than 20 seconds.
- h. BPA will provide a Ramp Rate Limit Signal to the Dynamic Transfer Entity continuously in real-time, which indicates the maximum ramp rate in MW per minute allowed for the Dynamic Transfer. Consistent with Section K.1, BPA may reduce the allowable ramp rate to maintain system reliability. The Dynamic Transfer Entity shall adhere to this limit.
- i. If the Dynamic Transfer Request Signal emanates from a Balancing Authority Area other than BPA's Balancing Authority Area, that Balancing Authority Area shall provide to BPA, upon request, documentation showing in detail the method of anti-aliasing and frequency cutoff it will be using to implement a Dynamic Transfer Request Signal. As required in Section B.3, the Dynamic Transfer Entity is responsible for ensuring the appropriate arrangements with the applicable Balancing Authority Area to comply with this requirement.

- j. If there is a communication failure such that one or more of the requirements in Sections C.1.b through C.1.h is not met, the Dynamic Transfer Entity shall immediately contact BPA Dispatch. BPA shall hold the Dynamic Transfer Limit Signal(s) at the last good value until appropriate communication is restored.
- k. All costs incurred by BPA to install telemetry for a Dynamic Transfer will be the responsibility of the Dynamic Transfer Entity requesting such service. Such costs may include, without limitation, cost of system studies performed to determine the transmission impacts of the requested Dynamic Transfer request, costs for labor, software for AGC, communication equipment, and costs to upgrade both the Dynamic Transfer Entity and BPA's facilities. The Dynamic Transfer Entity is responsible for ongoing maintenance costs of its own equipment. BPA will maintain its own equipment.
- l. If a Dynamic Transfer sources from multiple PORs and/or sinks to multiple PODs, then BPA reserves the right to require the Dynamic Transfer Entity to provide a separate official Dynamic Transfer for each POR/POD combination. This applies to any Dynamic Transfer into, out of, or through the BPA Balancing Authority Area and is necessary so that BPA can determine the impact of the Dynamic Transfer on the FCRTS.

D. E-Tagging Dynamic Transfers

1. Each Dynamic Transfer shall be electronically tagged in accordance with current NERC and WECC requirements and related BPA procedures.
2. The Dynamic Transfer Entity must arrange with BPA to have Real Time Operations Dispatch and Scheduling system Accounts established for each Dynamic Transfer request. This must be arranged during a regular Business Day and be completed prior to the first WECC Preschedule period in which the Dynamic Transfer Entity expects to request Dynamic Transfer Capability.
3. The Transmission Profile on the e-Tags will be used to determine the transmission demand set aside for a Dynamic Transfer. The dynamic capacity reserved shall be deemed as used.
4. The e-Tag requirements for a Dynamic Transfer are specified in the Scheduling Transmission Service Business Practice, as may be replaced or revised, and must also include the following:
 - a. Transaction type "DYNAMIC" is required for Dynamic Schedules.
 - b. Transaction type "PSEUDO-TIE" is required for Pseudo-Tie transactions.
 - c. Expected average Energy Profile delivered during the hour.
 - d. Adjustment after the hour will use the integrated official Dynamic Transfer.
 - e. The Dynamic Transfer Entity responsible for e-tagging Dynamic Transfers must ensure the e-Tag is updated for the next scheduling hour and future hours when:
 - i. The average Energy Profile on the e-Tag deviates from the hourly average Energy Profile, as described in NERC Standard INT-004-2 (as may be replaced or modified); and
 - ii. Requested by a Reliability Coordinator or BPA.

5. Real-time *pro rata* curtailments of transmission capacity that is being used to affect a Dynamic Transfer will be calculated based upon Transmission Profile. The resulting Dynamic Transfer capacity curtailment will be communicated via the Dynamic Transfer Limit Signal and via the revised e-Tag from BPA indicating the new maximum allowable Dynamic Transfer capacity use.
6. If BPA limits the dynamically transferred electrical power injected by the Dynamic Transfer Entity at a particular POR, then the Dynamic Transfer Entity will reduce the generation of its resources sourcing the Dynamic Transfer at the specific POR. The resulting change in the Dynamic Transfer Entity's official Dynamic Transfer will be used to assess the Dynamic Transfer Entity's compliance with the limit. Failure to comply with any Dynamic Transfer limit shall be subject to the Failure to Comply Penalty Charge consistent with the Failure to Comply Penalty Charge Business Practice, as may be replaced or revised.

E. Transmission Requirements Using FCRTS Capacity

1. If the Dynamic Transfer Entity is using FCRTS reserved capacity for Dynamic Transfers, the following transmission requirements shall apply:
 - a. The Dynamic Transfer Entity may allocate all or part of its reserved capacity to its allowed Dynamic Transfer amount.
 - b. The Dynamic Transfer Entity may allocate any remaining reserved capacity to standard (i.e. non-Dynamic Transfer) transmission usage.
 - c. The Dynamic Transfer Entity must have adequate reserved capacity in the Transmission Profile for the Dynamic Transfer.
 - d. Population of the Energy Profile shall occur electronically using the official Dynamic Transfer after the fact based on the integrated number within 15 minutes after the end of the hour.
 - e. Each Dynamic Transfer will be for only one direction over a path. The portion of reserved capacity that has been reserved for Dynamic Transfer purposes in the Transmission Profile cannot be redirected, resold, or reassigned.
 - f. All reserved capacity for a Dynamic Transfer in the Transmission Profile whether or not called on, will be included in the Dynamic Transfer Entity's usage for purposes of determining whether an Unauthorized Increase Charge applies.

F. Transmission Requirements Not Using FCRTS Capacity

1. This section applies to any Dynamic Transfer Entity that wishes to affect a Dynamic Transfer in or through BPA's Balancing Authority Area on non-FCRTS transmission. The following transmission requirements shall apply:
 - a. The Dynamic Transfer Entity must demonstrate that it has transmission capacity across BPA's Balancing Authority Area or on a path where BPA is the path operator for its Dynamic Transfer by setting aside reserved capacity in the Transmission Profile for the non-FCRTS path used.
 - b. The official Dynamic Transfer integrated over the hour will be used for interchange accounting purposes.

G. Apportioning NWACI DTC Among NWACI Owners

1. NWACI DTC, which is based on the Dynamic Transfer limits established under Section J.10 below, will be apportioned to the NWACI facility owners in proportion to facility ownership share of total NWACI transmission capacity. The amount of NWACI DTC apportioned to the NWACI owners is based on respective southbound ownership interests.
2. BPA's share of NWACI DTC may be further apportioned among NWACI capacity owners, and BPA may modify this business practice as needed to reflect that process.
3. NWACI DTC use on each NWACI facility owner's system will be governed by each respective TSP's OATT and associated business practices.
4. If a NWACI facility owner (or its customers) does not allocate their full share of apportioned NWACI DTC to its customers, then any remaining NWACI DTC will be apportioned to the other NWACI facility owners based on their respective ownership interests.

H. Allocating NWACI DTC on BPA's Transmission System

1. A Dynamic Transfer Entity's total NWACI DTC allocation for the time period calculated will be based on the following methodology:
 - a. The Dynamic Transfer Entity's Total Customer Weighting (TCW) which is equivalent to:
 - i. The proportion of (A) the Customer's NWACI DTC request to (B) the total of all NWACI DTC requests for that TSP; multiplied by
 - ii. The proportion of (C) the Dynamic Transfer Entity's current reserved Long-Term Firm Point-to-Point Transmission Service capacity on the NWACI to (D) the TSP's Total Transfer Capability (TTC) on the NWACI N-S.

$$\text{Restated as a formula: } TCW = A/B \times C/D$$

- b. The Dynamic Transfer Entity's amount of NWACI DTC to be allocated (DTC1) is equal to:
 - i. The proportion of the Customer's TCW to the sum of all TCWs for the TSP; multiplied by
 - ii. The TSP's DTC share, which is the proportion of (E) the TSP's NWACI transmission facility ownership share to (F) the rated total transfer capacity of the NWACI N-S; multiplied by
 - iii. (G) the total DTC for the NWACI.

$$DTC1 = (TCW/\text{sum of all TCWs for TSP}) \times ((E/F) \times G)$$

- c. Following the DTC1 allocation, if a TSP has unallocated NWACI DTC remaining, the TSP will release its unused NWACI DTC share (Remainder) to TSPs with remaining unfulfilled requests for NWACI DTC (Remaining TSPs), according to (E) the NWACI transmission facility ownership share of each Remaining TSP relative to (G) the sum of the transmission facility ownership of all Remaining TSPs.

$$\text{TSP Remainder (TSPR)} = \text{Remainder} \times E/G$$

- d. BPA will then allocate its share of the Remainder to its Dynamic Transfer Entities with remaining unfulfilled requests according to the DTC1 formula.

$$\text{DTC2} = (\text{TCW} / \text{sum of all TCWs for TSP}) \times \text{TSPR}$$

- e. The sum of the two distributions described above is the total DTC allocation per transmission Customer for the time period calculated.

$$\text{Customer's total allocation} = \text{DTC1} + \text{DTC2}$$

I. Scheduling Procedures for Dynamic Transfers using BPA's Share of NWACI

1. Dynamic Transfer Entities that want to use their reserved capacity for a Dynamic Transfer over the NWACI must follow the procedures described below:
 - a. The Dynamic Transfer Entity must submit a request for a NWACI Dynamic Schedule via e-Tag to BPA for each hour covered by the WECC Preschedule day before 08:00.00 PPT of the WECC Preschedule day.
 - b. The e-Tag must be in a Confirmed state by 08:00 PPT of the WECC Preschedule day to be considered for an allocation.
 - c. The Dynamic Schedule must include two tokens in the "MISC" field to receive an allocation:
 - i. "BPAT", as the DTC Provider; and
 - ii. "DTC Requestor", being the Purchasing Selling Entity Code of the Dynamic Transfer Entity requesting DTC.
 - d. BPA will perform the allocation in Preschedule by 10:00:00 PPT of the WECC Preschedule day for Dynamic Schedules from eligible Dynamic Transfer, as described in Section H.
 - e. The amount of Dynamic Transfer capacity requested must be entered in the Transmission Profile of the e-Tag for each hour or the requested amount will be assumed zero, and the Dynamic Transfer Entity will not receive an allocation for that hour.
 - f. The maximum Dynamic Transfer capacity that a Dynamic Transfer Entity can request is limited to the lesser of:
 - i. The amount of Dynamic Transfer capacity the Dynamic Transfer Entity has been certified to schedule by the California Independent System Operator (CAISO) or other California Balancing Authority; or
 - ii. The total Dynamic Transfer capacity that BPA has allocated to the Dynamic Transfer Entity; or
 - iii. The capacity available for Dynamic Transfers on other paths that must also be used to effect a Dynamic Transfer on the NWACI; or
 - iv. The total Dynamic Transfer scheduling capability described in Section J.10; or
 - v. Other factors limiting Dynamic Transfers.

- g. BPA will curtail the Dynamic Schedule to the allocation made to the Dynamic Transfer Entity under Section H.
- h. The Dynamic Transfer Entity must then modify the Transmission Profile in its Dynamic e-tag to be equal to or less than its Dynamic Transfer capacity allocation by 1500 of the WECC Preschedule day.
- i. The Dynamic Transfer Entity can decrease the Transmission Profile of its Dynamic e-Tag up to 20 minutes prior to the hour of delivery.
- j. The Dynamic e-Tag should represent the Dynamic Transfer capacity needed to meet the Dynamic Transfer Entity's obligation in the CAISO market or other NWACI transaction as represented by valid e-Tags.

J. Limitations on Dynamic Transfer

1. A Dynamic Schedule will be allowed to move between zero and the upper limit within the Operating Hour in one direction over the path. For Dynamic Schedules on the NWACI this is the lesser of its Transmission Profile or allocation under Section I of this business practice.
2. A Pseudo-Tie on BPA's Transmission System will be allowed to move within a BPA assigned bandwidth around the estimated usage shown on the transaction type Pseudo-Tie e-Tag within the Operating Hour in one direction over the path.
3. The Transmission Profile shall not be exceeded during the hour of flow. This applies to both Dynamic Schedules and Pseudo-Ties.
4. Pseudo-Ties are not allowed on the NWACI.
5. BPA may limit or freeze a Dynamic Transfer (including ramp rates) into, out of or through BPA's Balancing Authority Area at any time if the reliability of the FCRTS or associated interconnection is threatened where the Dynamic Transfer is a contributing factor to the problem being encountered, even if no other transactions or ATC are curtailed. In more serious cases, BPA may also have to curtail ATC to maintain reliability.
6. Examples of when BPA may take action to limit or freeze a Dynamic Transfer include, but are not limited to:
 - a. Staying within acceptable limits during real-time operations;
 - b. Performing acceptably after contingencies; and
 - c. Effecting restoration after loss of system elements.
7. The Dynamic Transfer limit will be the lower of the Reliability Limit or the Transmission Profile on the e-Tag. Failure to comply with any Dynamic Transfer limit shall be subject to the Failure to Comply Penalty Charge consistent with the Failure to Comply Penalty Charge Business Practice, as may be replaced or revised.
8. BPA is the path operator of the northern portion of the NWACI. BPA is also the Balancing Authority in which the northern portion of the NWACI is located.
9. Each Dynamic Transfer over the NWACI must be monitored and operated through BPA's Balancing Authority Area without regard to whose transmission rights are used.
10. NWACI Dynamic Schedules are currently limited to 600 MW per hour during all hours. BPA expects to revise the Dynamic Transfer scheduling limits for the NWACI from time

to time based on new studies or changes in NWACI operating conditions. BPA will make any change in limits available publicly.

11. Dynamic Schedules over the Northern Intertie are limited to 300 MW in aggregate.
12. Dynamic Transfers are not allowed over the Pacific DC Intertie at this time.

K. Dynamic Transfer Ramp Rate

1. BPA may establish a maximum ramp rate limitation for each Dynamic Transfer and may lower the maximum ramp rate due to system conditions.
2. Failure to follow a Ramp Rate Limit Signal will be subject to a Failure to Comply Penalty Charge consistent with the Failure to Comply Penalty Charge Business Practice, as may be replaced or revised.

L. Load & Resource One-Day Forecast Requirements

1. Load and resource forecasts are necessary to allow BPA to plan the Transmission System, determine the usage of constrained transmission paths for the calculation of ATC and Available Flowgate Capability and to determine curtailment priority.
2. Dynamic Transfer Entities with loads outside the BPA Balancing Authority Area, which are served with a resource dynamically transferred using transmission in BPA's Balancing Authority Area, must submit or arrange to have submitted one-day forecasts for the use of that resource for each POR/POD combination for each hour of the following delivery day.
3. Forecasts are to be provided on the prescheduled day in accordance with the preschedule ancillary services window. Forecasts may be updated in accordance with the real-time window.
4. If multiple days are being prescheduled, then hourly load forecasts for all days being prescheduled must be submitted.
5. BPA will treat these one-day forecasts as the equivalent of transmission usage for purposes of ATC, curtailment, and Energy Imbalance calculations.
6. Forecasts will be submitted consistent with the scheduling provisions of the Dynamic Transfer Entity's transmission contract and may not exceed transmission contract demand.