

September 28, 2018

The Honorable Kimberly D. Bose
Secretary
Federal Energy Regulatory Commission
888 First Street, N.E.
Washington, DC 20426

RE: *PacifiCorp*, Docket No. ER16-193-_____
Revisions to Western Interconnection
Unscheduled Flow Mitigation Plan

Dear Secretary Bose:

Pursuant to Section 205 of the Federal Power Act, 16 U.S.C. § 824d (2012), Part 35 of the Federal Energy Regulatory Commission's ("Commission") regulations, 18 C.F.R. Part 35 (2018), Order No. 714¹ regarding electronic filing of tariff submittals, and based on discussions with Commission Staff regarding a previous filing in Docket Number ER16-193-000,² PacifiCorp submits for itself and on behalf of the following: Northwestern Corporation d/b/a NorthWestern Energy, NV Energy, Inc., Pacific Gas & Electric Company, and Southern California Edison Company, (collectively, the "Filing Parties"), revisions to the Western Interconnection Unscheduled Flow Mitigation Plan ("Plan"), which will serve as PacifiCorp's Third Revised Rate Schedule No. 439.³

Each of the other Filing Parties will be submitting a certificate of concurrence to adopt the additional changes to the revised Plan, on or soon after the date of this filing, or already has a standing certificate of concurrence that adopts the proposed modifications.

1. Background and Reason for Filing

¹ *Electronic Tariff Filings*, Order No. 714, 124 FERC ¶ 61,270 (2008).

² Informational Filing Regarding Change in Administrator under Western Interconnection Unscheduled Flow Mitigation Plan of Southwest Power Pool, Inc. under ER16-193.

³ It is PacifiCorp's understanding that the Plan is currently on file with the Commission as a rate schedule for the following jurisdictional entities, in addition to PacifiCorp: Northwestern Corporation d/b/a NorthWestern Energy, NV Energy, Inc., Pacific Gas & Electric Company, and Southern California Edison Company. *See PacifiCorp*, Letter Order, Docket No. ER14-778-000 (May 16, 2014); *See also PacifiCorp*, Letter Order, Docket No. ER16-193-001 (Mar. 11, 2016).

The Plan was developed to address the ongoing concerns and problems associated with off-path or unscheduled flows⁴ in the Western Interconnection, and results in significant cost savings and reliability benefits to the Western Interconnection. The Plan was first approved by the Commission on November 29, 1995.⁵ Under the Plan, phase shifters and other facilities that can be used to mitigate the effects of unscheduled flow can be designated “Qualified Controllable Devices.” Entities whose facilities are approved as Controllable Devices (“Qualified Controllable Device Owners”) may allocate a share of the costs of these facilities to “Applicable Entities” as defined in the Plan. Cost allocation is based on the size of the entity’s exports, imports, generating resources and loads, with large utilities being assigned a majority of these costs. The Plan works in conjunction with Reliability Standard IRO-006-WECC-2 to relieve unscheduled flow in the Western Interconnection.

PacifiCorp, on behalf the Filing Parties, filed the Plan with the Commission on December 20, 2013 in Docket No. ER14-778. The Plan was designated as PacifiCorp’s First Revised Rate Schedule No. 439. The Commission accepted the filing on May 16, 2014, via letter order.⁶ On October 30, 2015, PacifiCorp submitted additional revisions to the Plan in Docket No. ER16-193-000, requesting that the revised Plan be designated as PacifiCorp’s Second Revised Rate Schedule No. 439. The Commission issued a deficiency letter on December 17, 2015, requesting further clarification regarding cost determination for controllable devices, criteria and timeline for implementation of the 10 percent late payment penalty, and further clarification on how Filing Parties planned to resolve disputes under the revised Plan. PacifiCorp, on behalf of the Filing Parties, submitted a response to the deficiency letter on January 12, 2016 addressing the Commission’s concerns, and the Commission issued accepted the revised Plan in a March 11, 2016 letter order.⁷

In late 2016, the Western Electricity Coordinating Council (“WECC”), the long-standing Plan Administrator, publicly announced that it would no longer administer the Plan beginning in 2018.⁸ In December 2017, the Qualified Controllable Device owners

⁴ Off-path or unscheduled flow refers to the portion of actual flows on a given path or element that results from scheduled transactions that do not utilize transmission on the given path or element. This is calculated as the difference between actual flow and flow that is scheduled on that path.

⁵ *S. Cal. Edison Co., et al.*, Docket No. ER95-215-000, 73 FERC ¶ 61,219 (1995). Later modifications to the Plan prior to PacifiCorp’s filing of the Plan as its First Revised Rate Schedule No. 439 were accepted by the Commission in the following letter orders: *S. Cal. Edison Co., et al.*, Docket No. ER97-4724-000 (Nov. 12, 1997); *W. Sys. Coordinating Council*, Docket No. ER00-1670-000 (Mar. 24, 2000); *W. Sys. Coordinating Council*, Docket No. ER01-3085-000 (Nov. 20, 2001).

⁶ *PacifiCorp*, Letter Order, Docket No. ER14-778-000 (May 16, 2014).

⁷ *PacifiCorp*, 154 FERC ¶ 61,189 (2011).

⁸ W. Elec. Coordinating Council, *Western Interconnection Unscheduled Flow Mitigation Plan Seeking New Administrator* (posted Nov. 22, 2017), <https://www.wecc.biz/Lists/weccannouncements/DispForm.aspx?ID=243&ContentTypeId=0x0100608F564C19E24B458D97A59341CB61D1001B235492BD279A41AFAAFB01EC6C132C>

and Transmission Operators of Qualified Paths developed a request for proposals and solicited bids for an entity to perform the Administrator function. In January 2018, the Qualified Controllable Device owners and Transmission Operators of Qualified Paths selected and ratified by the requisite two-thirds votes the Southwest Power Pool, Inc. (“SPP”) as the new Plan Administrator.

SPP and the Qualified Controllable Device owners and Transmission Operators of Qualified Paths agreed that SPP would assume the Administrator duties of the Plan from WECC on or before August 1, 2018, so as to ensure timely billing and invoicing for the 2018 year. The Qualified Controllable Device owners and Transmission Operators of Qualified Paths also formed an oversight committee, the Qualified Owners and Operators (“QOO”) Committee to oversee the Administrator function. Additionally, the QOO intend to form an Unscheduled Flow Committee (“UFC”) to replace the Unscheduled Flow Administrative Subcommittee (“UFAS”), which is a current subcommittee of the WECC Operations Committee. The UFAS provides technical oversight, review and implementation of the WIUFMP. The intent is to form the UFC concurrently with the sunset of the WECC UFAS. SPP, as the Administrator of the WIUFMP, will track performance and execute all cost and allocation calculations, as well as issue invoices and collect and disburse funds related to the WIUFMP.

On August 21, 2018, SPP submitted an informational filing to the Commission advising the Commission of the Administrator change on behalf of the QOO. On August 24, 2018, Commission Staff contacted PacifiCorp to indicate that the Plan should be revised to reflect the Administrator change and that the revised Plan should be submitted to the Commission on behalf of all the Filing Parties and SPP. PacifiCorp hereby submits the present filing to address issues raised by Commission Staff in an effort to formalize the transition of Plan Administrator duties to SPP, and to reflect recent changes to the qualified paths and devices subject to the Plan:

- Added section numbers for clarity and readability;
- Revised new Section 5 to remove any identification of the current Plan Administrator, updated the new oversight committee structure, and removed references to Peak Reliability, which will be winding down operations by December 31, 2019;
- Updated the list of Qualified Controllable Devices in Section 16 to substitute references to Montana Power Company (“MPC”) for MPC’s successor company, NorthWestern Energy; and
- Updated the list of Qualified Paths in Section 16 to reflect the deletion of former Paths 22 and 23 from the list of Qualified Paths, as voted on by the WECC UFAS, before it wound down its WIUFMP administration oversight role.

PacifiCorp respectfully requests that the Commission accept the Plan attached hereto for filing.

2. Effective Date and Request for Waiver

In accordance with 18 C.F.R. § 35.11, PacifiCorp respectfully requests waiver of the Commission's prior notice and filing requirements⁹ to permit an August 1, 2018 effective date for the revised Plan, which is the date on which SPP assumed the Plan Administrator role formerly held by WECC. Good cause exists to grant this waiver request because this plan is instrumental to controlling impactful loop flows in the WECC, and SPP has already undertaken many time-sensitive and critical Administrator duties and begun the 2018 billing process. Plan calculations and billings are performed on a calendar year basis, thus, without the waiver, the completion of the plan year functions under the program will be jeopardized and the Qualified Controllable Device owners may not receive compensation for the use of their Qualifying Devices for 2018, thereby jeopardizing these device owners' future participation in this beneficial program.

To the extent that any filing requirement in Part 35 of the Commission's regulations is not satisfied by this filing and the materials enclosed herewith, PacifiCorp respectfully requests waiver of such requirements.

3. Designation

PacifiCorp requests that the Plan be designated as PacifiCorp's Third Revised Rate Schedule No. 439.

4. Enclosures

The following enclosures are attached hereto:

Enclosure 1 A new clean Western Interconnection Unscheduled Flow Mitigation Plan designated as PacifiCorp's Third Revised Rate Schedule No. 439

Enclosure 2 A redline showing changes made to the Plan since PacifiCorp's Second Revised Schedule No. 439, filed on January 12, 2016.

5. Communications

All communications and correspondence regarding this filing should be forwarded to the following persons:

⁹ See *Prior Notice Filing Requirements Under Part II of the Federal Power Act*, 64 FERC ¶ 61,139 (1993), *on reh'g*, 65 FERC ¶ 61,081 (1993).

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6. Service List

Pursuant to Rule 2010 of the Commission's Rules of Practice and Procedure, a copy of this filing is being served on all parties on the official service list of this proceeding, and the following:

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For the reasons stated above, PacifiCorp, on behalf of the Filing Parties, requests that the Commission approve the proposed revisions to the Plan on the effective date described above.

If you have any questions, or if I can be of further assistance, please do not hesitate to contact me.

Respectfully Submitted,

/s/ Matthew McVee
Matthew McVee

Attorney for PacifiCorp

CERTIFICATE OF SERVICE

I hereby certify that I have on this day caused a copy of the foregoing document to be served via first-class mail or electronic mail upon each of the parties listed in the enclosed Service List.

Dated at Portland, Oregon this 28th day of September, 2018.

/s/ Matthew McVee

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Western Interconnection Unscheduled Flow Mitigation Plan, (WIUFMP)

1. Purpose: The purpose of the Western Interconnection Unscheduled Flow Mitigation Plan (WIUFMP) is to mitigate flows on Qualified Paths to reliable levels during real-time operations.

This is accomplished in two primary ways – First, by the use of Qualified Controllable Device(s) that can change flow dynamics within the interconnection, and Second, by the use of curtailments.

2. Applicable Entities: All organizations that generate power, serve load, buy, sell, or transport energy within the Bulk Electric System of the Western Interconnection are subject to the WIUFMP.

3. Term: The WIUFMP will take effect on the effective date approved by FERC.

4. Definitions:

- a. Qualified Controllable Device (QCD): A system element that has qualified for inclusion into the WIUFMP.
- b. Qualified Path (QP): A transmission element, or group of transmission elements that has qualified for inclusion into the WIUFMP.
- c. Administrator: The organization(s) or individual(s) designated with oversight, review, and implementation of the WIUFMP.

5. Administrator Selection: Qualified Controllable Device owners and Transmission Operators of Qualified Paths shall meet at least once every two years as an oversight committee to review and/or select a new organization, multiple organizations, or individuals as the Administrator(s) of the WIUFMP. If a new Administrator is selected, the new Administrator must be ratified by two-thirds of the Qualified Controllable Device owners and two-thirds of the Transmission Operators of Qualified Paths.

The Qualified Controllable Device owners and Transmission Operators of Qualified Paths have formed a Qualified Owners and Operators (QOO) Committee, to provide oversight, review, and implementation of the WIUFMP either directly or through subcommittees as may be established. The Administrator tracks performance and executes all cost and allocation calculations under the QOO. The Administrator also issues invoices, collects, and disburses funds related to the WIUFMP.

6. Qualification of Controllable Devices: For inclusion into the WIUFMP by the Administrator as a Qualified Controllable Device, an element must meet the following criteria:

- 1) Operation of the element must reduce unscheduled flows by an average of 1.0 percent over all current Qualified Paths.
- 2) Operation of the element must reduce unscheduled flows by at least 1.0 percent on each of at least half of the current Qualified Paths.

An entity seeking to qualify an element for coordinated operation under the WIUFMP must demonstrate to the

Administrator that it meets the criteria for inclusion, and that procedures are in place to ensure that adequate communication and coordination occurs between the operator of the element and all appropriate reliability entities.

The Administrator may review and/or conduct studies to confirm that operation of the element meets the inclusion criteria.

The sponsoring entity shall also provide a brief written element description including appropriate diagram(s) or outlines, information on typical operating modes, the expected operation date for the new element and a proposed date of availability for operation in the WIUFMP.

Additionally, the sponsoring entity must provide documentation for the element's capital cost, ownership, and any fixed charges.

After the Administrator has reviewed all applicable information and completed its analysis, it will approve or disapprove inclusion of the new element into the WIUFMP's list of Qualified Controllable Devices. If approval is secured during the calendar year, compensation for the new QCD will be prorated accordingly.

7. Removal of Controllable Devices: The Administrator may remove a Qualified Controllable Device from the WIUFMP when it no longer meets the criteria for inclusion.

8. Qualification of Paths: A transmission element or elements (path) must meet the following criteria for inclusion into the WIUFMP by the Administrator as a Qualified Path (QP):

- 1) The path must be metered and usable as a transmission segment in a Schedule.
- 2) The path must have a Facility Rating in MW.
- 3) The path must have a documented record of at least 100 hours in the most recent 36 months where actual flows across the path have exceeded 97% of the applicable Facility Rating and curtailments (schedules or other elements) have been made to mitigate exceedances.
- 4) A power flow analysis must show that unscheduled flows can reasonably equal or exceed five percent (5%) of the applicable path Facility Rating.

An entity seeking to qualify a path for mitigation under the WIUFMP must demonstrate to the Administrator that it meets the criteria for inclusion, and that procedures are developed to ensure that adequate communication and coordination occurs between the operator of the path and all appropriate reliability entities.

In addition, the entity must provide the following documentation to the Administrator:

- A description of series-connected controllable devices in the path that can be used to reduce unscheduled flows.
- A description of any unique operating procedures or agreements that might affect the WIUFMP if

the path is qualified.

- A description of any known simultaneous operating conditions that may limit Qualified Controllable Device coordinated operation.

Paths are normally qualified in a specific direction. If an entity is seeking qualification in both directions, supporting data must be provided for each direction.

The Administrator may review and/or conduct studies to confirm that the path meets the inclusion criteria.

9. Removal of Paths: The Administrator may remove a Qualified Path from the WIUFMP when it no longer meets the criteria for inclusion.

10. Process for Use of the WIUFMP:

Transmission Operators of Qualified Paths may utilize the WIUFMP to reduce flows on Qualified Paths. The utilization process has four steps:

Step 1: The Transmission Operator advises their RC of the situation and their intended actions.

Step 2: To the practical extent possible, the Transmission Operator uses their own equipment to reduce unscheduled flows on the Qualified Path.

The Qualified Path Operator and their RC shall communicate periodically and as necessary regarding system status, Qualified Controllable Device positioning, the termination of, or taking additional steps in the WIUFMP based on current and anticipated system conditions.

Step 3: The Transmission Operator requests the coordinated operation of Qualified Controllable Devices to mitigate unscheduled flows on the Qualified Path.

This request shall remain active for four (4) consecutive hours unless terminated or advanced to Step 4 by the Transmission Operator of the Qualified Path. To continue beyond the fourth consecutive hour, the Transmission Operator must reissue the request before the completion of the third hour of the event or the event will automatically terminate at the completion of the fourth consecutive hour.

Step 4: The Transmission Operator requests curtailments in conjunction with the coordinated operation of Qualified Controllable Devices to mitigate unscheduled flows on the Qualified Path.

Each hour is deemed to be a separate event for WIUFMP curtailment purposes. Therefore, Transmission Operators must re-issue a curtailment mitigation request for each hour that mitigation is desired.

Qualified Path flows must reach 95% of the path limit, or must be anticipated to reach 95% of the path limit before calling on Step 3 or Step 4. Requests for Step 4 must be made by twenty-five minutes after the hour, or sooner as

determined by the Administrator, for actions related to the next hour.

Upon request from a Transmission Operator to their Reliability Coordinator (RC) for WIUFMP mitigation of flows on a Qualified Path, the applicable RC will review the request for reliability impacts, coordinate with other RCs as necessary, and either approve or disapprove the request for Step 4 by thirty minutes after the hour for actions related to the next hour.

The WIUFMP process first uses the coordinated operation of Qualified Controllable Devices to change flows on the Qualified Paths. When more relief is required, curtailments may also be issued.

Upon approval of a Step 4 request by the RC, the mitigation software will initiate a prescription of curtailments that will result in the relief requested by the Transmission Operator of the Qualified Path. Balancing Authorities (BA) that receive WIUFMP curtailment prescriptions may take action to approve the curtailments, or may provide equivalent relief via an alternate method.

Balancing Authorities are encouraged to actively approve the prescription of calculated curtailments or take alternative relief as soon as possible without waiting for passive approval.

When more than one Transmission Operator requests WIUFMP mitigation, best efforts will be made by the RC to coordinate the settings of the Qualified Controllable Devices to maximize the total relief to both competing Qualified Paths.

Special rules for curtailments apply during competing Qualified Path events and are shown below:

1. If a schedule or other element contributes to congestion on both paths, the schedule or other element is curtailed by an amount that corresponds to the larger of the two contribution Transmission Distribution Factor (TDF) percentages.
2. If a schedule or other element has a positive contribution to congestion on one path, but a negative contribution on the second path, the schedule or other element is subject to curtailment only if the positive contribution percentage divided by the rating of the first path is greater than two times the negative contribution percentage divided by the rating of the second path. If this is not true, the schedule or other element should not be curtailed.

11. Curtailment Priority:

Curtailment priority is divided into 16 groups based upon the lowest transmission priority used, and whether the curtailment is considered on-path or off-path. Curtailments with a TDF of 10 percent or lower are not used for mitigation.

If a curtailment contains a transmission segment across the Qualified Path that is being mitigated, it is considered an on-path curtailment. All other curtailments are considered off-path.

When an event is called that requires curtailments, the Transmission Operator of the Qualified Path will designate an amount (MW) of relief. Then, starting with Group 1 and proceeding through the groups numerically, eligible

curtailments are made until the aggregated amount of curtailments reaches the designated amount of relief.

All curtailments above the threshold TDF in the groups below the last priority group will be reduced to zero.

The last priority group requiring curtailments will have the remaining relief requirement spread across all schedules or other elements within that group based upon a "TDF Squared" methodology that requires the higher TDF schedules or other elements be assigned a proportionally greater relief requirement. This results in all schedules or other elements within the group being curtailed, but not to zero.

The following is the list of the transmission priority groups (lowest to highest):

- Group 1 – Priority 0 (Transmission Product - code 0-NX) off-path
- Group 2 – Priority 0 on-path
- Group 3 – Priority 1 (Transmission Product - code 1-NS) off-path
- Group 4 – Priority 1 on-path
- Group 5 – Priority 2 (Transmission Product - code 2-NH) off-path
- Group 6 – Priority 2 on-path
- Group 7 – Priority 3 (Transmission Product - code 3-ND) off-path
- Group 8 – Priority 3 on-path
- Group 9 – Priority 4 (Transmission Product - code 4-NW) off-path
- Group 10 – Priority 4 on-path
- Group 11 – Priority 5 (Transmission Product - code 5-NM) off-path
- Group 12 – Priority 5 on-path
- Group 13 – Priority 6 (Transmission Product - codes 6-NN and 6-CF) off-path
- Group 14 – Priority 6 on-path
- Group 15 – Priority 7 (Transmission Product - codes 7-F and 7-FN) off-path
- Group 16 – Priority 7 on-path

12. WIUFMP Cost Determination: Qualified Controllable Device owners are compensated for the availability of their devices and the time their devices are utilized to mitigate flows on Qualified Paths as part of the WIUFMP. The method for determining those costs and the methodology for allocating those costs to Applicable Entities is set forth below.

Near the end of a year N, or immediately following the end of year N, the Administrator requests that each QCD owner provide the actual monthly operations and maintenance (O&M) costs associated with the operation of their device(s) during year N-1. The submissions of the O&M costs are due within 60 days of the Administrator's request. The Administrator then determines a yearly O&M total for each QCD and adds them together to determine the total amount of O&M costs associated with year N-1.

Yearly actual fixed costs are reported to the Administrator at the time the controllable device is submitted for qualification. These actual fixed costs are reviewed and approved as a part of adding the Qualified Controllable Device to the WIUFMP. These yearly fixed costs are then multiplied by an effectiveness factor (the average ability of a QCD to affect flows on each Qualified Transfer Path expressed as a percentage – see further detail below) that

is updated yearly based on system power flow calculations. The adjusted fixed costs are then added to the yearly O&M costs for each QCD for year N-1 to determine the net total yearly costs for the QCD.

Individual QCD costs are not eligible for recovery when the QCD is not available for operation, so the net total yearly costs for a QCD associated with year N-1 are then multiplied by the individual QCD's capacity factor (the average availability of the QCD expressed as a percentage) for year N-1, resulting in the total adjusted costs for the QCD.

A minimum payment equal to the greater of ten percent of the annual fixed and O&M costs or \$50,000 per QCD is provided whether the devices are used or available or not.

The total adjusted costs for year N-1 are then divided by a fixed two thousand (2000) hours to derive an hourly QCD cost rate. This hourly QCD cost rate is multiplied by year N's total amount of hours of coordinated operation of controllable devices (commonly called Coordinated Operation of Phase Shifter or "COPS" hours) and added to the minimum payment. It is this final amount that is then allocated to Applicable Entities for year N.

When deemed necessary by the Administrator at its discretion, the Administrator may require additional documentation to justify, verify, or clarify any information submitted by QCD owners related to the cost calculations described above. The Administrator typically completes the review and approval of costs, completes calculations, and issues invoices to Applicable Entities by the end of the second quarter of year N+1.

13. Effectiveness Factors: A QCD's effectiveness factor on each of the Qualified Transfer Paths is determined from yearly incremental power flow studies using base cases representing the appropriate system topology and time period.

- This effectiveness is multiplied by the Qualified Controllable Device's control range and divided by the Qualified Transfer Path's nominal rating to determine the percentage effectiveness of each Controllable Device on each Qualified Transfer Path.
- The average percentage control for each Qualified Controllable Device is equal to the simple average of the percentage effectiveness on all of the Qualified Transfer Paths.

As new Controllable Devices or Paths are qualified, re-qualified, or deleted from the WIUFMP, the effectiveness factors and associated compensation levels will be established by the methodology described above.

14. Administrative Costs: At the discretion of the Administrator, actual administrative costs related to the WIUFMP may be added to the final yearly costs or waived. The Administrator is responsible for determining the actual administrative costs and such costs must be approved by a majority of the Qualified Controllable Device owners and a majority of the Transmission Operators of Qualified Paths.

15. WIUFMP Cost Allocation: Costs are allocated proportionately to Applicable Entities based on a method of averaging relative energy data.

Applicable Entities must provide data for Generation, Imports, Remote Generation Imports, Exports, Remote Generation Exports, and Load for the N-4, N-3, and N-2 years relative to the current year costs being calculated.

For example, if the Administrator were calculating costs for 2014, energy data is submitted for the years 2010, 2011, and 2012.

Three year averages are then calculated for each data category.

Proportionate percentages are then calculated based on the three-year averages of the following three data groups:

1. Load
2. Imports + Remote Generation Imports + Exports
3. Load + Generation – Remote Generation Exports.

An entity with a radial interconnection to the Western Interconnection is allocated costs based only on Imports and Exports.

Finally, the three proportionate percentages are averaged to obtain each entity’s allocation proportion of the final yearly costs.

16. Currently Qualified Controllable Devices and Qualified Paths:

As of the filing of this document the Qualified Controllable Devices include:

Qualified Controllable Device Name	Owner(s)	Operator(s)	Type(s)
Tot 2A – Waterflow & Shiprock	Western	Western	Phase Shifting Transformer
Pinto – two devices	PAC/SCE/PG&E	PAC	Phase Shifting Transformer
Sigurd	PAC/SCE/PG&E	PAC	Phase Shifting Transformer
Harry Allen	PAC/NEVP	NPC	Phase Shifting Transformer
Billings	NWE	NWE	Phase Shifting Transformer
Gladstone	Tri-State	TSGT	Phase Shifting Transformer
Crossover	Western	NWE	Phase Shifting Transformer

As of the filing of this document the QPs include:

Qualified Path Name	Operator(s)	Nominal Rating in MW*
Path 66 - COI	BPA & CAISO	4800
Path 30 – TOT 1A	WAPA - Loveland	650
Path 31 – TOT 2A	WAPA - Loveland	690
Path 36 – TOT 3	WAPA - Loveland	1680
		* Ratings can change

17. Non-Payment of WIUFMP Costs: In all cases Applicable Entities will be given at least ninety (90) days from the date of invoice to pay their allocated costs. The end of the ninety day period constitutes the period after which payments are considered late.

Applicable Entities that do not pay their allocated costs by the appointed deadlines, as determined by the Administrator, may be assessed a ten percent penalty for each six-month period they are late as described below and in the event of ultimate non-payment shall be included on the list of non-paying Entities included in the yearly Administrator Report.

The Administrator will assess a ten percent penalty if after six months from the due date of the allocated costs the Administrator has determined, at its discretion, that an Applicable Entity has not paid their allocated costs, has not responded to communications from the Administrator to rectify the non-payment, or otherwise has no intention of paying.

Circumstances may arise that in the judgment of the Administrator justify a waiver of this penalty. If the Administrator determines, at its discretion, that the non-paying Applicable Entity intends to pay their allocated costs and is making reasonable efforts to do so, the Administrator may at its discretion waive assessment of the penalty.

Funds collected from penalty payments will be used to: (i) fully compensate Qualified Controllable Device owners in the event of an ultimate inability to collect all allocated costs, (ii) offset any approved Administrator costs associated with the Plan, or (iii) offset the costs of the Plan in subsequent years.

18. WIUFMP Administrator Report: An administrative report for each Year N will be publicly posted and provided to Applicable Entities within three months of the completion of the calculation, collection, and disbursement of all funds related to Year N. The Administrative report shall include but not be limited to:

1. The number of COPS hours.
2. The total QCD costs charged to Applicable Entities.
3. The total amount collected from Applicable Entities.
4. Administrative costs.
5. The total number of entities to which costs were allocated.
6. A list of non-paying Applicable Entities and their respective invoice amounts.
7. A record of all QCD and QP changes during the year.
8. A notice of any Administrator changes.

19. Dispute Resolution: Disputes with regards to the WIUFMP will be resolved through discussions with the Administrator. In cases where discussions with the Administrator do not yield an acceptable resolution, or in cases where the dispute is with the Administrator, a group consisting of Qualified Controllable Device owners and Transmission Operators of Qualified Paths shall meet to hear the dispute. A majority vote of both groups (Qualified Controllable Device owners and Transmission Operators of Qualified Paths) is required for a final decision to be binding.

Western Interconnection Unscheduled Flow Mitigation Plan, (WIUFMP)

1. Purpose: The purpose of the Western Interconnection Unscheduled Flow Mitigation Plan (WIUFMP) is to mitigate flows on Qualified Paths to reliable levels during real-time operations.

This is accomplished in two primary ways — First, by the use of Qualified Controllable Device(s) that can change flow dynamics within the interconnection, and Second, by the use of curtailments.

2. Applicable Entities: All organizations that generate power, serve load, buy, sell, or transport energy within the Bulk Electric System of the Western Interconnection are subject to the WIUFMP.

3. Term: The WIUFMP will take effect on the effective date approved by FERC.

4. Definitions:

- a.** Qualified Controllable Device (QCD): A system element that has qualified for inclusion into the WIUFMP.
- b.** Qualified Path (QP): A transmission element, or group of transmission elements that has qualified for inclusion into the WIUFMP.
- c.** Administrator: The organization(s) or individual(s) designated with oversight, review, and implementation of the WIUFMP.

5. Administrator Selection: Qualified Controllable Device owners and Transmission Operators of Qualified Paths shall meet at least once every two years as an oversight committee to review and/or select a new organization, multiple organizations, or individuals as the Administrator(s) of the WIUFMP. If a new Administrator is selected, the new Administrator must be ratified by two-thirds of the Qualified Controllable Device owners and two-thirds of the Transmission Operators of Qualified Paths.

~~As of the filing of this document the WIUFMP Administrator is the Western Electricity Coordinating Council (WECC). As part of WECC's committee structure, the Unscheduled Flow Administrative Subcommittee (UFAS) has the primary responsibility for~~
The Qualified Controllable Device owners and Transmission Operators of Qualified Paths have formed a Qualified Owners and Operators (QOO) Committee, to provide oversight, review, and implementation of the WIUFMP, ~~while WECC staff either directly or through subcommittees as may be established. The Administrator~~ tracks performance and executes all cost and allocation calculations. ~~WECC staff~~ under the QOO. The Administrator also issues invoices, collects, and disburses funds related to the WIUFMP. ~~The software tools utilized in the implementation of the WIUFMP are currently owned by the Reliability Coordinator, Peak Reliability.~~

6. Qualification of Controllable Devices: For inclusion into the WIUFMP by the Administrator as a Qualified Controllable Device, an element must meet the following criteria:

- 1) Operation of the element must reduce unscheduled flows by an average of 1.0 percent over all

current Qualified Paths.

2) Operation of the element must reduce unscheduled flows by at least 1.0 percent on each of at least half of the current Qualified Paths.

An entity seeking to qualify an element for coordinated operation under the WIUFMP must demonstrate to the Administrator that it meets the criteria for inclusion, and that procedures are in place to ensure that adequate communication and coordination occurs between the operator of the element and all appropriate reliability entities.

The Administrator may review and/or conduct studies to confirm that operation of the element meets the inclusion criteria.

The sponsoring entity shall also provide a brief written element description including appropriate diagram(s) or outlines, information on typical operating modes, the expected operation date for the new element and a proposed date of availability for operation in the WIUFMP.

Additionally, the sponsoring entity must provide documentation for the element's capital cost, ownership, and any fixed charges.

After the Administrator has reviewed all applicable information and completed its analysis, it will approve or disapprove inclusion of the new element into the WIUFMP's list of Qualified Controllable Devices. If approval is secured during the calendar year, compensation for the new QCD will be prorated accordingly.

7. Removal of Controllable Devices: The Administrator may remove a Qualified Controllable Device from the WIUFMP when it no longer meets the criteria for inclusion.

8. Qualification of Paths: A transmission element or elements (path) must meet the following criteria for inclusion into the WIUFMP by the Administrator as a Qualified Path (QP):

1) The path must be metered and usable as a transmission segment in a Schedule.

2) The path must have a Facility Rating in MW.

3) The path must have a documented record of at least 100 hours in the most recent 36 months where actual flows across the path have exceeded 97% of the applicable Facility Rating and curtailments (schedules or other elements) have been made to mitigate exceedances.

4) A power flow analysis must show that unscheduled flows can reasonably equal or exceed five percent (5%) of the applicable path Facility Rating.

An entity seeking to qualify a path for mitigation under the WIUFMP must demonstrate to the Administrator that it meets the criteria for inclusion, and that procedures are developed to ensure that

adequate communication and coordination occurs between the operator of the path and all appropriate reliability entities.

In addition, the entity must provide the following documentation to the Administrator:

- [9.2](#) A description of series-connected controllable devices in the path that can be used to reduce unscheduled flows.
- [9.3](#) A description of any unique operating procedures or agreements that might affect the WIUFMP if the path is qualified.
- [9.4](#) A description of any known simultaneous operating conditions that may limit Qualified Controllable Device coordinated operation.

Paths are normally qualified in a specific direction. If an entity is seeking qualification in both directions, supporting data must be provided for each direction.

The Administrator may review and/or conduct studies to confirm that the path meets the inclusion criteria.

[9. Removal of Paths:](#) The Administrator may remove a Qualified Path from the WIUFMP when it no longer meets the criteria for inclusion.

[10. Process for Use of the WIUFMP:](#)

Transmission Operators of Qualified Paths may utilize the WIUFMP to reduce flows on Qualified Paths. The utilization process has four steps:

Step 1: The Transmission Operator advises their RC of the situation and their intended actions.

Step 2: To the practical extent possible, the Transmission Operator uses their own equipment to reduce unscheduled flows on the Qualified Path.

The Qualified Path Operator and their RC shall communicate periodically and as necessary regarding system status, Qualified Controllable Device positioning, the termination of, or taking additional steps in the WIUFMP based on current and anticipated system conditions.

Step 3: The Transmission Operator requests the coordinated operation of Qualified Controllable Devices to mitigate unscheduled flows on the Qualified Path.

This request shall remain active for four (4) consecutive hours unless terminated or advanced to Step 4 by the Transmission Operator of the Qualified Path. To continue beyond the fourth consecutive hour, the Transmission Operator must reissue the

request before the completion of the third hour of the event or the event will automatically terminate at the completion of the fourth consecutive hour.

Step 4: The Transmission Operator requests curtailments in conjunction with the coordinated operation of Qualified Controllable Devices to mitigate unscheduled flows on the Qualified Path.

Each hour is deemed to be a separate event for WIUFMP curtailment purposes. Therefore, Transmission Operators must re-issue a curtailment mitigation request for each hour that mitigation is desired.

Qualified Path flows must reach 95% of the path limit, or must be anticipated to reach 95% of the path limit before calling on Step 3 or Step 4. Requests for Step 4 must be made by twenty-five minutes after the hour, or sooner as determined by the Administrator, for actions related to the next hour.

Upon request from a Transmission Operator to their Reliability Coordinator (RC) for WIUFMP mitigation of flows on a Qualified Path, the applicable RC will review the request for reliability impacts, coordinate with other RCs as necessary, and either approve or disapprove the request for Step 4 by thirty minutes after the hour for actions related to the next hour.

The WIUFMP process first uses the coordinated operation of Qualified Controllable Devices to change flows on the Qualified Paths. When more relief is required, curtailments may also be issued.

Upon approval of a Step 4 request by the RC, the mitigation software will initiate a prescription of curtailments that will result in the relief requested by the Transmission Operator of the Qualified Path. Balancing Authorities (BA) that receive WIUFMP curtailment prescriptions may take action to approve the curtailments, or may provide equivalent relief via an alternate method.

Balancing Authorities are encouraged to actively approve the prescription of calculated curtailments or take alternative relief as soon as possible without waiting for passive approval.

When more than one Transmission Operator requests WIUFMP mitigation, best efforts will be made by the RC to coordinate the settings of the Qualified Controllable Devices to maximize the total relief to both competing Qualified Paths.

Special rules for curtailments apply during competing Qualified Path events and are shown below:

~~1-1~~ 1-1. If a schedule or other element contributes to congestion on both paths, the schedule or other element is curtailed by an amount that corresponds to the larger of the two contribution Transmission Distribution Factor (TDF) percentages.

~~2-2~~ 2-2. If a schedule or other element has a positive contribution to congestion on one path, but a negative contribution on the second path, the schedule or other element is subject to curtailment only if the positive contribution percentage divided by the rating of the first

path is greater than two times the negative contribution percentage divided by the rating of the second path. If this is not true, the schedule or other element should not be curtailed.

11. Curtailment Priority:

Curtailment priority is divided into 16 groups based upon the lowest transmission priority used, and whether the curtailment is considered on-path or off-path. Curtailments with a TDF of 10 percent or lower are not used for mitigation.

If a curtailment contains a transmission segment across the Qualified Path that is being mitigated, it is considered an on-path curtailment. All other curtailments are considered off-path.

When an event is called that requires curtailments, the Transmission Operator of the Qualified Path will designate an amount (MW) of relief. Then, starting with Group 1 and proceeding through the groups numerically, eligible curtailments are made until the aggregated amount of curtailments reaches the designated amount of relief.

All curtailments above the threshold TDF in the groups below the last priority group will be reduced to zero.

The last priority group requiring curtailments will have the remaining relief requirement spread across all schedules or other elements within that group based upon a "TDF Squared" methodology that requires the higher TDF schedules or other elements be assigned a proportionally greater relief requirement. This results in all schedules or other elements within the group being curtailed, but not to zero.

The following is the list of the transmission priority groups (lowest to highest):

- Group 1 — Priority 0 (Transmission Product - code 0-NX) off-path
- Group 2 — Priority 0 on-path
- Group 3 — Priority 1 (Transmission Product - code 1-NS) off-path
- Group 4 — Priority 1 on-path
- Group 5 — Priority 2 (Transmission Product - code 2-NH) off-path
- Group 6 — Priority 2 on-path
- Group 7 — Priority 3 (Transmission Product - code 3-ND) off-path
- Group 8 — Priority 3 on-path
- Group 9 — Priority 4 (Transmission Product - code 4-NW) off-path
- Group 10 — Priority 4 on-path
- Group 11 — Priority 5 (Transmission Product - code 5-NM) off-path
- Group 12 — Priority 5 on-path
- Group 13 — Priority 6 (Transmission Product - codes 6-NN and 6-CF) off-path
- Group 14 — Priority 6 on-path
- Group 15 — Priority 7 (Transmission Product - codes 7-F and 7-FN) off-path

Group 16 — Priority 7 on-path

12. WIUFMP Cost Determination: Qualified Controllable Device owners are compensated for the availability of their devices and the time their devices are utilized to mitigate flows on Qualified Paths as part of the WIUFMP. The method for determining those costs and the methodology for allocating those costs to Applicable Entities is set forth below.

Near the end of a year N, or immediately following the end of year N, the Administrator requests that each QCD owner provide the actual monthly operations and maintenance (O&M) costs associated with the operation of their device(s) during year N-1. The submissions of the O&M costs are due within 60 days of the Administrator's request. The Administrator then determines a yearly O&M total for each QCD and adds them together to determine the total amount of O&M costs associated with year N-1.

Yearly actual fixed costs are reported to the Administrator at the time the controllable device is submitted for qualification. These actual fixed costs are reviewed and approved as a part of adding the Qualified Controllable Device to the WIUFMP. These yearly fixed costs are then multiplied by an effectiveness factor (the average ability of a QCD to affect flows on each Qualified Transfer Path expressed as a percentage — see further detail below) that is updated yearly based on system power flow calculations. The adjusted fixed costs are then added to the yearly O&M costs for each QCD for year N-1 to determine the net total yearly costs for the QCD.

Individual QCD costs are not eligible for recovery when the QCD is not available for operation, so the net total yearly costs for a QCD associated with year N-1 are then multiplied by the individual QCD's capacity factor (the average availability of the QCD expressed as a percentage) for year N-1, resulting in the total adjusted costs for the QCD.

A minimum payment equal to the greater of ten percent of the annual fixed and O&M costs or \$50,000 per QCD is provided whether the devices are used or available or not.

The total adjusted costs for year N-1 are then divided by a fixed two thousand (2000) hours to derive an hourly QCD cost rate. This hourly QCD cost rate is multiplied by year N's total amount of hours of coordinated operation of controllable devices (commonly called Coordinated Operation of Phase Shifter or "COPS" hours) and added to the minimum payment. It is this final amount that is then allocated to Applicable Entities for year N.

When deemed necessary by the Administrator at its discretion, the Administrator may require additional documentation to justify, verify, or clarify any information submitted by QCD owners related to the cost calculations described above. The Administrator typically completes the review and approval of costs, completes calculations, and issues invoices to Applicable Entities by the end of the second quarter of year N+1.

13. Effectiveness Factors: A QCD's effectiveness factor on each of the Qualified Transfer Paths is

determined from yearly incremental power flow studies using base cases representing the appropriate system topology and time period.

• This effectiveness is multiplied by the Qualified Controllable Device's control range and divided by the Qualified Transfer Path's nominal rating to determine the percentage effectiveness of each Controllable Device on each Qualified Transfer Path.

• The average percentage control for each Qualified Controllable Device is equal to the simple average of the percentage effectiveness on all of the Qualified Transfer Paths.

As new Controllable Devices or Paths are qualified, re-qualified, or deleted from the WIUFMP, the effectiveness factors and associated compensation levels will be established by the methodology described above.

14. Administrative Costs: At the discretion of the Administrator, actual administrative costs related to the WIUFMP may be added to the final yearly costs or waived. The Administrator is responsible for determining the actual administrative costs and such costs must be approved by a majority of the Qualified Controllable Device owners and a majority of the Transmission Operators of Qualified Paths.

15. WIUFMP Cost Allocation: Costs are allocated proportionately to Applicable Entities based on a method of averaging relative energy data.

Applicable Entities must provide data for Generation, Imports, Remote Generation Imports, Exports, Remote Generation Exports, and Load for the N-4, N-3, and N-2 years relative to the current year costs being calculated. For example, if the Administrator were calculating costs for 2014, energy data is submitted for the years 2010, 2011, and 2012.

Three year averages are then calculated for each data category.

Proportionate percentages are then calculated based on the three-year averages of the following three data groups:

1. Load
2. Imports + Remote Generation Imports + Exports
3. Load + Generation \div Remote Generation Exports.

An entity with a radial interconnection to the Western Interconnection is allocated costs based only on Imports and Exports.

Finally, the three proportionate percentages are averaged to obtain each entity's allocation proportion of the final yearly costs.

16. Currently Qualified Controllable Devices and Qualified Paths:

As of the filing of this document the Qualified Controllable Devices include:

Qualified Controllable Device Name	Owner(s)	Operator(s)	Type(s)
Tot 2A — Waterflow & Shiprock	Western	Western	Phase Shifting Transformer
Pinto — two devices	PAC/SCE/PG&E	PAC	Phase Shifting Transformer
Sigurd	PAC/SCE/PG&E	PAC	Phase Shifting Transformer
Harry Allen	PAC/NEVP	NPC	Phase Shifting Transformer
Billings	MPCNWE	MPCNWE	Phase Shifting Transformer
Gladstone	Tri-State	TSGT	Phase Shifting Transformer
Crossover	Western	MPCNWE	Phase Shifting Transformer

As of the filing of this document the QPs include:

Qualified Path Name	Operator(s)	Nominal Rating in MW*
Path 66 - COI	BPA & CAISO	4800
Path 30 — TOT 1A	WAPA - Loveland	650
Path 31 — TOT 2A	WAPA - Loveland	690
Path 36 — TOT 3	WAPA - Loveland	1680
Path 22	APS	2325
Path 23	APS	1000
		* Ratings can change

17. Non-Payment of WIUFMP Costs: In all cases Applicable Entities will be given at least ninety (90) days from the date of invoice to pay their allocated costs. The end of the ninety day period constitutes the period after which payments are considered late.

Applicable Entities that do not pay their allocated costs by the appointed deadlines, as determined by the Administrator, may be assessed a ten percent penalty for each six-month period they are late as described below and in the event of ultimate non-payment shall be included on the list of non-paying Entities included in the yearly Administrator Report.

The Administrator will assess a ten percent penalty if after six months from the due date of the allocated costs the Administrator has determined, at its discretion, that an Applicable Entity has not

paid their allocated costs, has not responded to communications from the Administrator to rectify the non-payment, or otherwise has no intention of paying.

Circumstances may arise that in the judgment of the Administrator justify a waiver of this penalty. If the Administrator determines, at its discretion, that the non-paying Applicable Entity intends to pay their allocated costs and is making reasonable efforts to do so, the Administrator may at its discretion waive assessment of the penalty.

Funds collected from penalty payments will be used to: (i) fully compensate Qualified Controllable Device owners in the event of an ultimate inability to collect all allocated costs, (ii) offset any approved Administrator costs associated with the Plan, or (iii) offset the costs of the Plan in subsequent years.

18. WIUFMP Administrator Report: An administrative report for each Year N will be publicly posted and provided to Applicable Entities within three months of the completion of the calculation, collection, and disbursement of all funds related to Year N. The Administrative report shall include but not be limited to:

1. The number of COPS hours.
2. The total QCD costs charged to Applicable Entities.
3. The total amount collected from Applicable Entities.
4. Administrative costs.
5. The total number of entities to which costs were allocated.
6. A list of non-paying Applicable Entities and their respective invoice amounts.
7. A record of all QCD and QP changes during the year.
8. A notice of any Administrator changes.

19. Dispute Resolution: Disputes with regards to the WIUFMP will be resolved through discussions with the Administrator. In cases where discussions with the Administrator do not yield an acceptable resolution, or in cases where the dispute is with the Administrator, a group consisting of Qualified Controllable Device owners and Transmission Operators of Qualified Paths shall meet to hear the dispute. A majority vote of both groups (Qualified Controllable Device owners and Transmission Operators of Qualified Paths) is required for a final decision to be binding.