



Document name	Project Coordination, Path Rating and Progress Report Processes
Category	<input type="checkbox"/> Regional Reliability Standard <input type="checkbox"/> Regional Criteria <input type="checkbox"/> Policy <input checked="" type="checkbox"/> Guideline <input type="checkbox"/> Report or other <input type="checkbox"/> Charter
Document date	October 15, 2015
Adopted/approved by	Planning Coordination Committee
Date adopted/approved	October 15, 2015
Custodian (entity responsible for maintenance and upkeep)	Planning Coordination Committee
Stored/filed	Physical location: Web URL: http://www.wecc.biz/library/Documentation%20Categorization%20Files/Guidelines/Project Coordination Path Rating and Progress Report Processes.pdf
Previous name/number	Project Coordination and Path Rating Processes
Status	<input checked="" type="checkbox"/> in effect <input type="checkbox"/> usable, minor formatting/editing required <input type="checkbox"/> modification needed <input type="checkbox"/> superseded by _____ <input type="checkbox"/> other _____ <input type="checkbox"/> obsolete/archived)



Project Coordination, Path Rating and Progress Report Processes

Western Electricity Coordinating Council

Revised October 15, 2015

Table of Contents by Section

Project Coordination and Path Rating Processes	4
Project Coordination Process	16
Path Rating Process.....	24
WECC Progress Report Policies and Procedures.....	112

Project Coordination and Path Rating Processes

Table of Contents

1. Introduction.....	5
2. Process Outline	6
3. The Project Coordination Process	7
4. Path Rating Process.....	7
5. Progress Report.....	8
Attachment A — Definitions	12

Project Coordination and Path Rating Processes

1. Introduction

This Project Coordination and Path Rating Processes document addresses the following purposes:

1. Provide procedures for WECC members and others to report on planned projects and to work together to expand the Western Interconnection's capacity according to member and stakeholder needs.
2. Provide an opportunity to recognize regional transmission planning conducted by the Transmission Expansion Planning Policy Committee (TEPPC) and others.
3. Provide project sponsors with an industry-agreed upon procedure that, when completed, could potentially be used to help demonstrate that coordinated planning has been performed for proposed projects, as may be required to obtain required regulatory approvals.
4. Provide the policies and procedures for notification and reliability assessment requirements related to projects planned within the Western Interconnection.
5. Provide agreed upon methods applicable to the rating of transmission facilities.
6. Promote the reliable and coordinated integration of existing and new projects so that the use of the system is maximized for all participants.

The Planning Coordination Committee (PCC) has the responsibility for oversight and review of the Project Coordination and Path Rating Processes.¹ All steps outlined in this document are considered voluntary unless explicitly identified as a requirement. During all processes described in this document, the Project sponsors retain sole responsibility for ensuring its compliance with NERC Reliability Standards and WECC Criteria.

¹ TEPPC has oversight and review of the Regional Planning Process. Regional Planning is defined in the TEPPC Protocol document.

These Policies and Procedures are comprised of three WECC processes:

1. Project Coordination Process

Facilitates informing others of the opportunity to participate in or review a project and solicits participation. It is intended to avoid duplication of projects and to allow a new project to integrate the needs of other WECC member(s) by mutual agreement.

2. Path Rating Process

Provides new projects being integrated into the system with a Path rating, while recognizing protected ratings of other Paths.

3. Progress Reports Policies and Procedures

Requires reports from project sponsors regarding potential significant additions and changes to the Western Interconnection. WECC members are provided the opportunity to review and comment on these additions or changes.

While these processes function separately, for significant projects these processes are interrelated and support each other. For example, the Progress Reports process is used for reporting on all projects and also supports completion of reporting on project coordination and Path rating for significant projects.

2. Process Outline

The policies, guidelines, Project Coordination Process, scenario examples, and study methodology presented in this document are intended to provide guidance to members on the process of coordinating and placing a project in service as well as to outline member responsibilities with regard to this process. Specifically, this document has been developed to establish the following:

1. Procedures for reviewing project conformity with WECC's role for project coordination;
2. Guidelines to demonstrate that regional needs and efficiencies are considered;
3. A process for project coordination (who does what, when, etc.) that is well understood, consistent, and predictable and is accepted as standard practice in the Western Interconnection;
4. Consistent methods for determining and demonstrating Path ratings based on performance requirements in the NERC Reliability Standards and WECC Criteria;
5. Accepted Ratings that have been reviewed by the WECC membership;
6. A process for negotiations to resolve capacity allocation issues between parties;
and;

7. Means for resolving disputes over capacity allocation issues that is consistent and effective, should negotiations fail.

The sequence of Project Coordination and Path Rating Processes that the project sponsor normally should follow are shown in Figure 1

3. The Project Coordination Process

The Project Coordination Process encompasses the initial development phase of a significant transmission project.² The process addresses how transmission project sponsors should work and interact with other parties when developing a project that has or may have a significant regional benefit or impact. Through this process, WECC members cooperate to identify transmission expansion projects that may be beneficial to the region. By following this process, project sponsors might also address certain issues related to regulatory approval of their projects.

The Project Coordination Process should begin as soon as possible and involve all interested project participants. Although it will vary, this phase of the process should start when interested project participants are developing their individual and collective transmission needs. This phase is completed when the PCC has made a final determination regarding the project's conformity with the Project Coordination Review Objectives.

4. Path Rating Process

The purpose of the Path Rating Process is to provide a formal process for project sponsors to attain an -Accepted Rating and demonstrate how their Project will meet NERC Reliability Standards and WECC Criteria. This three-phase process addresses planned new facility additions and upgrades, or the re-rating of existing facilities. It requires coordination through a review group comprised of the project sponsors and representatives of other systems that may be affected by the project. Section 1.2 of the Path Rating Process explains which projects must undergo the three-phase rating process.

² A significant transmission project is defined as 200 kV and above (for transformer banks the operating voltage refers to the low side of the transformer bank) unless granted a waiver by the PCC chair based on the two criteria below and in accordance with the process outlined in Subsection 4 of the Project Coordination Process:

1. The purpose of the transmission project is to serve local load.
2. The transmission project does not have a significant impact on the operation of the Western Interconnection.

At the completion of this process, an Accepted Rating may be granted by WECC that affords the project sponsor some protection against erosion of established capacity of this facility when further expansion of the Interconnection is proposed or new limitations are discovered.

The Path Rating Process is divided into three separate phases.

Phase 1 is conducted by the project sponsor and is initiated when the project sponsor submits a report through the WECC Progress Report Process or when a formal letter of notification is provided to the PCC and Technical Studies Subcommittee (TSS). During Phase 1, the project sponsor conducts sufficient studies to demonstrate the proposed non-simultaneous rating of the Path associated with the Project and prepares a Comprehensive Progress Report documenting study results and describing Project details including a preliminary Plan of Service. Known simultaneous relationships should also be addressed in the Comprehensive Progress Report. In general, the acceptance of the Comprehensive Progress Report signals the completion of Phase 1, at which time the Path associated with the Project is granted a Planned Rating.

Phase 2³ encompasses a review of the Project's Plan of Service by a Project Review Group (PRG) that is comprised of interested WECC members. During this phase, the Project's Planned Rating is validated. In addition, the simultaneous Transfer Capability effects and the impact of the Project on neighboring transmission systems are further assessed. The project sponsor and the PRG must document all the studies and findings in the *Project Review Group Phase 2 Rating Report*. Phase 2 is completed when the Phase 2 Rating Report is accepted and the Path associated with the Project is granted an "Accepted Rating."

Phase 3 is the last part of the Path Rating Process. Phase 3 is a monitoring phase where major changes in assumptions and conditions are evaluated to assure the "Accepted Rating" is maintained. Phase 3 is completed when the Project is placed into service.

5. Progress Report

The WECC Progress Report Policies and Procedures provide comprehensive direction regarding requirements for notification and reliability assessment related to projects planned within the Western Interconnection. The intent of this document is to provide direction for all generation and transmission projects that may have a significant impact

³ Phase 2 consists of Phase 2A and Phase 2B. Completion of Phase 2 requires completion of both Phases 2A and 2B. Please refer to Section 5 of the Path Rating Process for more detailed description of Phases 2A and 2B.

on the reliability of the Western Interconnection. All projects subject to the procedures are required to adhere to the WECC Progress Report Policies and Procedures.

Projects subject to these WECC Progress Report Policies and Procedures include: (1) generation projects 200 MW or greater connected to the transmission system through step-up transformers, (2) all new and upgraded transmission facilities with voltage levels over 200 kV, and (3) any facilities that may have a significant impact on the reliability of the Western Interconnection. The term “generation projects” includes, but is not limited to: new generation plants, generation repower, or upgrades that may significantly alter the operation of the generation facilities. The term “transmission projects” includes, but is not limited to: new transmission facilities, transmission re-designs or upgrades, permanent removal of existing transmission facilities, or other changes that may significantly alter the operation of the transmission facilities (e.g., operating procedures).

In general, these WECC Progress Report Policies and Procedures require the following to be submitted and/or completed during the planning of a project.

- Initial Progress Report
- Comprehensive Progress Report
- Supplemental Progress Report
- Review of Progress Reports By All TSS members
- Informal Reports Presented At TSS meetings

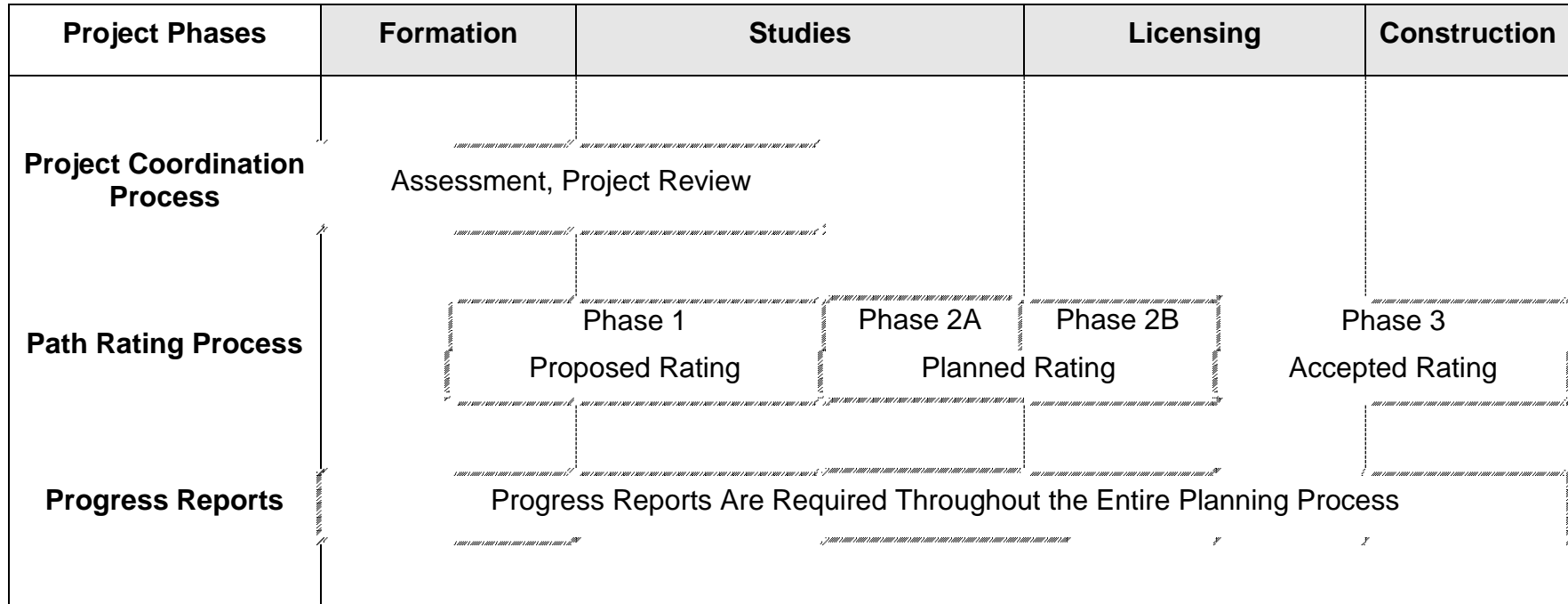
A Path Rating Report is optional because it is required only if a project sponsor desires an Accepted Rating.

A Comprehensive Progress Report can be used to fulfill the requirement of a Path Rating Report only if no comments were received on the Comprehensive Progress Report from the WECC membership and no WECC member desires to form a PRG (see Section on Expediting the Process).

Approved by Planning Coordination Committee

July 15, 2014

Figure 1
Sequence of Project Coordination and Path Rating Processes



Notes:

1. “Proposed Rating” – used at the initiation and throughout Phase 1 of the Path Rating Process.
2. “Planned Rating” – final rating at the conclusion of Phase 1 of the Path Rating Process and used throughout Phase 2 of the Path Rating Process. Phase 2 consists of Phase 2A and Phase 2B. Completion of Phase 2 requires completion of both Phases 2A and 2B. Please refer to Section 5 of the Path Rating Process for more detailed description of Phases 2A and 2B.
3. “Accepted Rating” – final rating granted at the conclusion of Phase 2 of the Path Rating Process and is also the rating that is used when the Project is placed in-service.

Attachment A

Definitions

Attachment A — Definitions

Accepted Rating – a Path rating that has been reviewed and accepted by WECC members. This rating is granted by WECC at the conclusion of reviewed planning studies and will be the rating of the Path associated with the Project when it is put in service if it is built in accordance with Plan of Service specified in the Phase 2 Rating Report. This is a comprehensive rating including both Simultaneous and Non-simultaneous Transfer Capabilities.

Adversely-Impacted Transfer Capability – the reduction of either the Simultaneous or Non-simultaneous Transfer Capability. A new project causes a significant and verifiable adverse impact that needs to be mitigated if it reduces the Transfer Capability of a rated Path in a Benchmark Case comparison.

Benchmark Case – a case that models the existing system (including appropriate recognition of other projects in the Rating Process) in the timeframe of the new project and shows the maximum Transfer Capabilities (e.g., the Existing or Accepted Rating) of existing Paths that may interact with the new project.

Capability – the maximum load that a generator, turbine, transmission circuit, apparatus, station, or system can supply under specified conditions for a given time interval, without exceeding approved limits of temperature and stress.

Capacity – synonymous with capability.

Comparison Cases – cases with the new Project showing range of desired operation of new project and illustrating whether there are impacts or interaction with existing projects.

Existing Rating – transmission Path ratings that were known and used in operation as of January 1, 1994.⁴ An Existing Rating is for a Path that is defined and included in the WECC Path Rating Catalog.

Foundational Base Case – the first base case developed by a project sponsor(s) that would be ready for the first simultaneous assessment as agreed to by the Project Review Group. This Foundational Base Case must be defined in the Project Review Group-approved study plan and must include data suitable for conducting dynamic stability studies.

Latent Capacity – Transfer Capability is considered "latent" when it can be acquired due to changes in the system conditions or by making transmission equipment additions

⁴ WECC's three-phase Accepted Rating Process was implemented after January 1, 1994.

(e.g., series or shunt reactive devices, reconductoring or re-tensioning portions of an existing line or phase shifters, Looping transmission line(s) within a Path into a new or existing switching station, remedial action schemes (RAS), etc.) on an existing path without adding new transmission lines to the path. Latent Capacity is not protected unless the project sponsor(s) completes the process in this Path Rating Process.

Mitigation Plan – A comprehensive list of the measures that the Project Sponsor and Project Review Group believe will be required to address issues found during the Path Rating studies in order to ensure compliance with NERC Reliability Standards and WECC Criteria, the entity(ies) responsible for managing the issue in Phase 3 and the expected timeframe for completion.

Non-Simultaneous Transfer Capability (or Limit) – The Capability, in megawatts, of a transmission circuit or path to transfer power reliably and in accordance with prescribed Reliability Criteria independent of concurrent flows on other circuits or paths. It is normally determined with all potentially interacting circuits or paths loaded below the levels at which limitations are observed.

Other Rating – A transmission Path rating, either proposed or planned, that is not an Accepted or Existing Rating.

Path – In the context of the Path Rating Process, a path is defined as a facility(ies) between systems or internal to a system, for which schedules and/or actual flows can be monitored for reliability purposes. Facilities in a path may originate and terminate at the same point (substation or generating station) or at different points. Two or more individual paths can be combined into a single path for rating purposes, although they may be separate scheduling paths. Paths are often called cutplanes.

Planned Rating – The tentative rating assigned to a Project that is in Phase 2 of the rating process.

Plan of Service – The complete set of facilities, remedial actions, and operating procedures proposed by a sponsor for a particular project, together with their in-service dates.

Project – A Project is defined as a new generator or transmission facility or a change in rating of an existing generator or transmission facility through facility additions, facility upgrades, facility retirements or the re-rating of existing facilities that would result in a new Path or changes in existing Path ratings.

Proposed Rating – This is a preliminary rating proposed by a project sponsor.

Rating Process – The three-phase process described in the Path Rating Process.

Reliability Criteria – Western Electricity Coordinating Council Reliability Criteria.

Similarly-Situated Projects – At any point in time, if any two Projects are together in Phase 2B of the Path Rating Process, they are Similarly Situated and have a responsibility to mitigate interaction they have with each other until both become operational.

Simultaneous Transfer Capability (or Limit) – The Capability, in megawatts, of a transmission circuit or path to transfer power reliably and in accordance with prescribed Reliability Criteria in concert with other interacting paths, circuits, or generators. It is normally defined by its interactive relationship in the form of nomograms (parametric functions) with the flows on other transfer paths or circuits or the outputs of generators.

Subregional Planning Group – a TEPPC-recognized entity that performs planning within a defined geographical area within the Western Interconnection.

Transmission Expansion Planning Policy Committee (TEPPC) – a Western Electricity Coordinating Council Board-level committee.



Project Coordination Process

Project Coordination Process

Table of Contents

1. Introduction and Purpose	17
2. Project Coordination Review Objectives	17
3. WECC Project Coordination Process	19
1. Initiating the Process.....	19
2. During the Process	19
3. Completing the Process.....	20
4. Waiver of “Significant Impact” Status	20

1. Introduction and Purpose

This process identifies how transmission project sponsors should work and interact with other interested parties when developing a significant transmission project. A significant transmission project is defined as 200 kV and above⁵ unless granted a waiver by the PCC chair based on the two criteria below in accordance with the process outlined in Subsection 4:

1. The purpose of the transmission project is to serve local load.
2. The transmission project does not have a significant impact on the operation of the Western Interconnection.

The purpose of the Project Coordination Process is to:

1. Foster the development of a broad perspective among all stakeholders in the project planning process.
2. Promote and encourage a more efficient use and development of the region or subregion's existing and future facilities to enhance interconnected-system operation.
3. Facilitate consideration of all relevant regional or subregional planning issues during the planning of specific transmission projects.
4. Provide procedures and guidelines for coordinated project review.
5. Involve WECC member representatives, member executives, regulators, existing planning bodies, environmental groups, land-use groups, and other non-utility interest groups in the process.
6. Allow stakeholders to identify opportunities for improved regional transmission efficiencies and make recommendations to achieve them.
7. Provide a voluntary dispute resolution procedure.

The PCC has the responsibility for oversight and review of the Project Coordination Process.

2. Project Coordination Review Objectives

Sponsors of all significant transmission projects are required to prepare a Project Coordination Report. This report documents how the project sponsor meets four objectives:

⁵ For transformer banks, the operating voltage refers to the low side of the transformer bank.

1. Undertake Integrated Project Evaluation

- Take multiple project needs and plans into account, including identified utilities and non-utilities' future needs, as well as environmental and other stakeholder interests. The findings of TEPPC, the Subregional Planning Groups (SPG), or other analyses may be used to satisfy these requirements.
- Identify transmission physical and operational constraints resulting from the project or that are removed by the project.
- Look beyond specific end points of the sponsors' project to identify broader regional and subregional needs or opportunities.

2. Conduct Coordination and Outreach

- Cooperate with Project Coordination Review Group members in determining the benefits and impacts from the project.
- Coordinate project plans with and seek input from all interested members, TEPPC, SPGs, power pools, region-wide planning group(s), and other stakeholders including utilities, independent power producers, environmental and land-use groups, and regulators.

3. Describe Generation Resources and Related Policy Initiatives

- Review how the project improves or impacts efficient use of existing and planned resources of the region.
- Address impacts of project for transmission congestion mitigation.
- Describe how the project addresses specific energy policy initiatives.

4. Consider Reasonable Alternatives to the Project

- Review the possibility of using the existing system, upgrades, or reasonable alternatives to the project to meet the need (including non-transmission alternatives where appropriate).
- Address the efficient use of transmission corridors and take rights-of-way, new projects, optimal line voltage, upgrades, etc., into account.
- Specify how the evaluation of the project has taken into account costs and benefits of the project compared with reasonable alternatives.
- Describe potentially affected or competing projects and consolidate projects where practicable.

3. WECC Project Coordination Process

1. Initiating the Process

The sponsor(s) of a project should start the Project Coordination Process when a project is in the conceptual level of project development. At the earliest possible time, the project sponsor should notify the PCC, TSS, and TEPPC of the intention to initiate the Project Coordination Process and the purpose of the project. Notifications should be made prior to submittal of project data for the WECC Data Collection Process. If the project sponsor intends to have the project considered in a broader planning context in TEPPC, the project sponsor should also submit project information, if available, to WECC staff for inclusion in the WECC Transmission Projects Portal.

The process may also be initiated by the PCC upon determining that regional interest has been expressed or at the request of a member. The PCC will maintain a list of projects under consideration by members that are not yet reported through the WECC Data Collection Process so that the PCC may determine whether regional interest has been expressed.

Upon initiation of the review process, the project sponsor shall form a Project Coordination Review Group (PCRG). The project sponsor shall provide notice of the formation of the PCRG to all PCC, TSS, and TEPPC members. The project sponsor shall accept all persons who express a desire to participate in the PCRG as members. The purpose of the PCRG is to identify opportunities to incorporate multiple interests and multiple needs into a single project. To reduce meetings and the time frame to complete the Project Coordination Process, a project sponsor may use TEPPC or a Subregional Planning Group to meet the requirements of Project Coordination Process in lieu of forming an independent PCRG for the project. A project sponsor must notify the TSS, PCC, and TEPPC in writing of the forum the project sponsor plans to use for the Project Coordination Process if an independent PCRG is not used. TEPPC or the host Subregional Planning Group must agree with the project sponsor to be a host forum for the Project Coordination Review. However, the project sponsor is still responsible for all items associated with the Project Coordination Process, such as sending updates to the TSS and PCC, and sending reports to the PCC.

2. During the Process

The project sponsor, in coordination with the PCRG or host forum, will prepare a Project Coordination Report indicating how the project conforms or plans to conform to each of the Project Coordination Review Objectives. Upon approval of this report by the PCRG, the sponsor shall submit this report to the PCC, TSS, and TEPPC.

The PCC shall review the proposed project relative to the Project Coordination Review Objectives. The PCC — through the PCRG or host forum — may:

- Require that the project sponsor performs additional studies or provides the sponsor's own studies to the PCC.
- Require the evaluation of alternatives or options that may provide greater regional benefits.

Upon completion of the PCC's review, the PCC chair will approve the report. During the review process, the project sponsor remains solely responsible for performing analyses and responding to PCC requests.

3. Completing the Process

Upon approval of the Project Coordination Report by the PCC, the project sponsor shall document that it has completed the WECC Project Coordination Project Process and has met the four [Project Coordination Review Objectives](#) specified in Subsection 2 above.

The project sponsor will submit the Project Coordination Report to the PCC to be posted for 30-day review and comment on the project's conformity with the Project Coordination Review Objectives. WECC staff shall notify all WECC members of the posting. When comments from this review are addressed by the project sponsor, the project sponsor will notify the PCC chair. The PCC chair will notify the Project Sponsor as well as the PCC, TSS, and TEPPC of the completion of the Project Coordination Process.

If a project sponsor does not demonstrate any evidence of activity for a period of 18 months, the project will no longer be considered to be within the Project Coordination Process. Evidence of activity is demonstrated in the WECC Project Coordination logs. If no evidence of activity is demonstrated, the project will be removed from Project Coordination logs and the PCC chair will notify the project sponsor (if possible) that the project has been removed. The project sponsor can re-initiate the process as outlined in Subsection 1 above, if desired.

4. Waiver of "Significant Impact" Status

The sponsor(s) of transmission projects with operating voltages⁶ 200 kV and above, and are not seeking a path rating, may request waivers of the WECC Project Coordination Process. The request must either provide documentation of how the project is being coordinated in another forum, or provide an explanation of why the project is not expected to have any significant impact to the operation of the WECC interconnected

⁶ For transformer banks the operating voltage refers to the low side of the transformer bank.

electric system. Project sponsors can request the waiver according to the following process:

1. The project sponsor includes a list of projects for which waiver is requested in a separate section in its Annual Progress Report to the TSS with a copy to WECC staff. If the request for waiver is needed before the next Annual Progress Report is to be submitted, the project sponsor submits a request to WECC staff with a copy to the TSS.

2. The following project information shall be included, as a minimum:
 - a. Project name
 - b. Project purpose
 - c. Brief Project description, including expected termination points
 - d. Expected date of release to operations
 - e. Expected operating voltage
 - f. Either:
 - i. Description of how the Project has been coordinated through a transmission planning forum, such as a Subregional Planning Group (SPG), the Transmission Expansion Planning Policy Committee (TEPPC), or another appropriate forum.⁷ The description should include references to any transmission studies performed.

OR

- ii. Explanation of why the Project is not expected to have a significant impact on the operation of the WECC interconnected electric system.

The following questions may be considered in determining whether a project has significant impact to the WECC interconnected system:

- Have studies demonstrated that there are impacts to other systems?
- Is there any impact on flow of energy on other systems?
- Are any WECC transfer paths impacted?
- Is some kind of flow control device needed or required as a part of the project?
- Is the project connected to other utilities' systems?
- Do disturbances impact other entities?

⁷ If the project is being coordinated through a transmission planning forum, the sponsor shall provide an open invitation for participation to all WECC members and other interested stakeholders.

3. WECC staff posts the list of projects and notifies the PCC, TEPPC, and TSS. The waiver is granted unless a letter from a WECC member opposing the waiver is received within 30 days.
4. Any WECC member(s) that believes the project should not be granted a waiver must submit a letter to the PCC chair with a copy to the project sponsor and WECC staff within 30 calendar days of the posting of the list. The letter must outline the reason(s) for not granting the waiver and include a request that the project proceeds with the Project Coordination Process.
5. WECC staff posts the letter opposing the waiver and notifies the PCC, TEPPC, and TSS.
6. The PCC chair determines if the waiver will be granted within 20 calendar days of posting the letter opposing the waiver. If the project sponsor is also the PCC chair, such determination will be made by the PCC vice chair.

Approved by Planning Coordination Committee

July 15, 2014



Path Rating Process

Path Rating Process

Table of Contents

1. Introduction.....	27
2. Policies and Guidelines for Path Rating Review.....	28
2.1. Objectives	28
2.2. Policies	28
2.3. Paths Subject To This Procedure	29
2.4. Protection of Ratings.....	29
2.5. Guidelines.....	31
3. Path Rating Process.....	32
3.1. Objectives	32
3.2. The Rating Process	33
3.3. Expediting the Process	42
3.4. Monitoring Project Progress.....	43
3.5. Formation of a WECC Project Review Group	46
4. Philosophy and Principles For Transmission Path Rating Methods	51
4.1. Introduction	51
4.2. Philosophy	51
4.3. Principles	53
5. Phase 2 Accepted Rating Comprehensive Study Plan.....	57
5.1. Introduction	57
5.2. Study Objectives	57
5.3. Major Study Assumptions and System Representation	58
5.4. Study Methodology	60
5.5. Study Guidelines.....	63
5.6. Documentation of Study Conclusions	66

6. Process Examples	67
6.1. Expediting the Process – Project with no Comments Received.....	67
6.2. Project with Minor Comments	68
6.3. Complex High-Impact Project	69
6.4. Project With Protest	70
6.5. Rating Determined By Alternative Method	72
6.6. Similarly Situated Projects	73
7. Principle Scenarios	74
7.1. Neutrality of Path Definition	74
7.2. Reverse Flow.....	76
7.3. Flow-Limited Ratings – Flow-Limited By Available Resources (Using MFT Method).....	77
7.4. Flow-Limited Ratings – Flow-Limited By Low Impedance Parallel Path	78
7.5. Accepted Rating Protection - Reliability Criteria Violation.....	79
7.6. Accepted Rating Protection - Reliability Criteria Violation. Acceptable Reduction in Accepted Rating Caused By Another Party	79
7.7. Accepted Rating Protection - Reliability Criteria Violation. Retention of Accepted Rating for Facility Removal by Another Party	81
7.8. Accepted Rating Protection - Failure to Meet Maximum Flow Test (MFT) - Retention of Accepted Rating as a Result of Changes Made By Another Party	82
7.9. Accepted Rating Protection - Failure to Meet Maximum Flow Test (MFT) - Reduction of Accepted Rating as a Result of Changes Made By Path Owner/Operator	83
7.10. Accepted Rating Protection - Failure to Meet Maximum Flow Test (MFT) - Reduction of Accepted Rating as a Result of Changes Made By Both the Path Owner/Operator and Other Parties.....	84
7.11. Accepted Rating Protection - Increase in Accepted Rating Caused By Path Owner/Operator	86
7.12. Accepted Rating Protection - Increase in Accepted Rating Caused By Another Party.....	87
Appendix A: Rating Methods Discussion and Background	89
Affected Path Stress Levels.....	89

Latent Capacity	90
Maximum Flow Test (MFT)	91
Flow Test Exemption	93
Fictitious Elements.....	95
Resource Modeling Assumptions	96
System Representation.....	97
Delay, Cancellation, or Changes to Resources Potentially Affecting Ratings	98
Appendix B: Simultaneous Studies, Similarly Situated Projects, and Combined Project Studies	100
Simultaneous Studies	100
Similarly Situated Projects	101
Combined Project Studies	101
Appendix C: Phases 1–3 Templates	103
Appendix D: Testing Path Independence.....	106
Appendix E: Treatment of Projects Sent Back To Earlier Study Phases.....	109

1. Introduction

This document has been developed to establish consistent methods for obtaining Accepted Rating(s) for transmission facilities through:

- A predictable path rating process (who does what, when, etc.) that is well understood and is accepted as standard practice in WECC;
- Methods for determining and demonstrating ratings;
- A review by the WECC membership; and
- A level field for negotiations to resolve capacity allocation issues between parties.

This procedure describes the path rating process project sponsors and participants shall follow to obtain an Accepted Rating. It is divided into three separate phases and is meant to mirror the development process for projects.

Phase 1 is conducted by the project sponsor and is initiated when the project sponsor submits a report through the WECC Progress Report Policies and Procedures process or when a formal letter of notification is provided to the PCC and TSS. During Phase 1, the project sponsor is to conduct sufficient studies to demonstrate the proposed non-simultaneous rating of the Path associated with the Project. The project sponsor prepares a Comprehensive Progress Report documenting study results and describing project details, including a preliminary Plan of Service.

Phase 2⁸ encompasses a review of the Project's Plan of Service by a Project Review Group (PRG) comprised of WECC members with an interest in the Project. During this phase, the Planned Rating associated with the Project is validated and the simultaneous Transfer Capability effects and the impact of the Project on neighboring transmission systems are further assessed. The project sponsor and the PRG must document all the studies and findings in a report called the *Project Review Group Phase 2 Rating Report*. Phase 2 is completed when the Phase 2 Rating Report is accepted and the Project is granted an "Accepted Rating."

Phase 3 is the last part of the Path Rating Process. Phase 3 is a monitoring phase where major changes in assumptions and conditions are evaluated to assure the "Accepted Rating" is maintained. Phase 3 is completed when the Project is placed into service.

⁸ Phase 2 consists of Phase 2A and Phase 2B. Completion of Phase 2 requires completion of both Phases 2A and 2B. Please refer to Section 5 of the Path Rating Process for more detailed description of Phases 2A and 2B.

The three-phase process is intended to address Path rating due to planned new facility additions and upgrades or re-rates of existing facilities that require coordination through a review group comprised of the project sponsors and other members that may be affected by the Project. It is recognized that some re-rates of existing transmission paths or the addition of new facilities will not be of significance to others or may not require the formation of a review group. If an Accepted Rating is desired, these Projects can be expedited through the three-phase Path Rating Process described in Section 3.0.

2. Policies and Guidelines for Path Rating Review

Principles for establishing a transfer path "Accepted Rating" are encompassed in the following policies and guidelines.

2.1. Objectives

The objectives of the policies and guidelines are to:

1. Promote the development of an efficient, reliable electric transmission system;
2. Balance the competing interests of protecting the Accepted and Existing Ratings of existing Paths; and
3. Encourage the economic, reliable, and environmentally sound expansion of the electric transmission system.

Ratings of existing Paths deserve a degree of protection; however, this should not discourage needed system expansion. Conversely, system expansion should not unfairly penalize existing system facilities.

2.2. Policies

To support these objectives, WECC has adopted the following policies for rating transmission Paths.

1. Parties will plan, design, and operate their systems consistent with the following:
 - NERC Reliability Standards
 - WECC Criteria
 - Project Coordination Process, Path Rating Process, and Progress Reports Policies and Procedures
2. New facilities and facility modifications should not adversely impact Accepted or Existing Ratings, regardless of whether an Accepted Rating for the path associated with the new facility or modification is being sought. New or

modified facilities can include transmission lines, generating plants, substations, series capacitor stations, remedial action schemes, or any other facilities affecting the capacity or use of the Western Interconnection.

2.3. Paths Subject To This Procedure

Transmission paths shall complete the Path Rating Process specified in this document and obtain an Accepted Rating if any of the following criteria apply:

1. The limiting condition (e.g., thermal limit, stability, or voltage) in determining the Total Transfer Capability of the path or the System Operating Limit for transmission facilities that impact the path is on another system and the affected member system requests the path be rated.
2. The path must be operated within the constraints of a nomogram to meet NERC Reliability Standards and WECC Criteria, the elements of the nomogram (e.g., path flows or generation levels) are in different systems, and one of those systems or a neighboring member system requests the path be rated.
3. The path owners or operators have requested a seasonal or operational Total Transfer Capability for a new path or the path owners or operators have requested a seasonal or operational Total Transfer Capability that is in excess of an existing path's rating (Accepted, Existing, or Other).
4. A facility (generator, series, or shunt reactive equipment; Remedial Action Scheme; etc.) that an Existing or Accepted Rating depends on is modified⁹ or retired from service, without regard to whether the facility is owned by the same system as the rated path.

For the purposes of these criteria, transmission dependent utilities, loads, or generators interconnected exclusively to the path operator's system are not considered other systems. In addition, any Project may seek a Path rating under the WECC Path Rating Process on a voluntary basis.

2.4. Protection of Ratings

The protection of ratings encompasses the following:

1. The amount of power that a rated Path can transfer is protected from being diminished due to subsequent projects;

⁹ If the modified RAS is functionally equivalent to the existing RAS and is approved by the RASRS, then the Path does not need to be rerated.

2. Protection for a rating is conferred by obtaining an Accepted Rating or by virtue of having an Existing Rating and is subject to a benchmarking case comparison;
3. If the capability of a path was diminished due to new or modified Transmission or Generation projects (as demonstrated in benchmark comparison of studies with and without the change) it would constitute an "impact" to a protected rating that will require mitigation;
4. All WECC members shall actively participate in defining, in advance of operation, any potential simultaneous transfer limits. The burden of reporting, modeling, and studying the Project, and of assessing its impact on the Western Interconnection, will be shared with the sponsors taking the lead and primary responsibility. Other affected members have the responsibility to actively participate in the review process;
5. All parties benefit from interconnected-system operation. There may be benefits to interconnected-system operation other than increased Transfer Capability and these benefits should be appropriately recognized;
6. The WECC process for determining the Accepted Rating of a Path associated with the Project will:
 - allow for the review of studies by all potentially affected parties; and
 - comprehensively address both simultaneous and non-simultaneous conditions.
7. Facility owners/operators are responsible for establishing operating procedures and notifying the WECC Reliability Coordinator that these procedures are in place. The involved parties will expeditiously negotiate operating strategies and/or curtailment allocations prior to initial operation to assure operation within safe limits. Negotiations should not unduly delay new Projects and disputes should be resolved expeditiously through WECC's Alternate Dispute Resolution (ADR) process or some other process as mutually agreed to by the parties;
8. If all planned facilities, including facilities of other projects on which the rating studies relied, are not installed for a Project or are modified or retired from service, project sponsor(s) are responsible for the corresponding reduced Path rating and associated curtailments;
9. New simultaneous limits may be discovered between existing transmission paths even when no facilities or ratings are being changed. The limits may be caused by the retirement of existing facilities or changes in system load and/or resources that occur over time in several systems. The involved

parties should negotiate operation strategies and/or curtailment allocations to promote continued operation within safe limits. Negotiations shall not adversely affect ongoing reliable system operations and disputes should be resolved expeditiously through WECC's ADR process or some other process as mutually agreed to by the parties.

2.5. Guidelines

The following guidelines apply with respect to adverse impacts on Transfer Capability:

1. Sections 6.0 and 7.0 address Principals and Scenario examples for rating transmission facilities. Project sponsors should refer to these for guidance in determining new ratings. It should be recognized that it is not possible to address all situations and issues that may arise in facility ratings. Project sponsors should be prepared to apply judgment in addressing facility rating issues not addressed in Sections 6.0 and 7.0.
2. A new Path rating should not adversely impact the Transfer Capability of the existing system and individual Paths in the system. A new project shall not result in a reduction of another Path's Existing or Accepted Rating. If it does, the sponsors of the project should work with all adversely affected parties to mitigate Transfer Capability limitations or to negotiate appropriate and reasonable compensation. The intent is that new projects will be developed in consideration of the existing system and not cause reductions in existing Transfer Capabilities where mitigation options can be developed. The key consideration is achieving balance. Existing Paths deserve a degree of protection; however, existing Paths should not discourage needed system expansion. For example, a new project could create a new simultaneous relationship with an existing Path or alter an existing simultaneous relationship between existing Paths and still meet the intent of the rating process. Conversely, system expansion should not unfairly penalize existing system facilities.
3. When a simultaneous transfer conflict occurs between systems that have established Accepted Ratings, the vintage of the rating should not, in itself, grant preference in determining curtailment allocations.
4. Negotiated agreement between the affected parties is the preferred method for resolving simultaneous transfer conflicts. If negotiations fail, alternative dispute resolution should be considered.
5. Generally, the burden of resolving limitations between Projects in Phase 2B of the Path Rating Process should be shared between the Projects. In addition, the mutual impacts of Similarly Situated Projects need to be investigated in

Phase 2B. (Please see Appendix B for a discussion on Similarly Situated Projects).

In allocating curtailments or costs of mitigation, consideration should be given to factors including:

- State of completion of planning
- Level of commitment to Project
- Speed of progress
- Projected completion dates

3. Path Rating Process

3.1. Objectives

To fulfill the purpose of these Processes, Policies and Procedures, project sponsors should consider potential interactions and problems of simultaneous transfers when performing the planning studies for a Project. To facilitate this purpose, WECC has adopted the following Path Rating Process to guide the project sponsors through their planning effort.

The objectives of the Path Rating Process are to:

1. Facilitate communication of Project plans, performance, and limitations to all affected parties during the period from Project inception to commercial operation.
2. Encourage a reasonable and diligent effort to discover simultaneous limitations and assure their resolution prior to operation.
3. Provide the opportunity for owners of existing or future facilities that may be affected by the Project to participate in review of the Project studies.
4. Facilitate the conclusion of all necessary studies in a timely manner.
5. Identify operating limitations and facilitate the project sponsor's development of mitigation measures with sufficient lead-time to allow development of operating procedures.
6. Integrate Projects into the existing system in a manner that will preserve interconnected-system reliability and operating efficiency.
7. Provide clarity, consistency, and transparency in classifying Projects that are Similarly Situated (see Appendix B).

3.2. The Rating Process

The project sponsor is responsible for initiating and following through with the rating process. The rating process covers the period of activity from the first announcement of a Project (through either the WECC Data Collection Process or through a letter of notification to PCC and TSS members) to when it is placed in operation. While the sponsor is responsible for initiating and completing the Rating Process, there is a shared responsibility between the project sponsor and the rest of the WECC membership to complete some parts of the process.

The Rating Process consists of three phases:

Phase 1 – Non-simultaneous Study and Path Definition

This phase includes defining the proposed Path and including a proposed Path rating and the Project Plan of Service that supports the proposed Path rating. This phase builds on the work done in the Project Coordination Process.

Phase 2 – Simultaneous Study, Review, and Planned Rating

This phase is to address issues related to the Path rating, mainly Simultaneous Transfer Capability, but also Non-simultaneous Transfer Capability if issues were not resolved in Phase 1.

Phase 3 – Accepted Rating and Project Implementation

This phase covers the construction period for the Project. Phase 3 is deemed complete when the Project is placed in service.

The Rating Process also provides for project sponsors to compress activities when the Path rating is not expected to raise significant concerns. This is described in Section 3.3 - Expediting the Process.

Throughout the planning process the project sponsor is responsible for adequately communicating and coordinating the development of the Project with existing facilities and other projects. WECC provides many opportunities for the project sponsor to communicate information to members and interested parties about the Project through informal reports at various committee meetings, as well as the preparation of progress reports. (See Appendix C for a list of templates to provide some examples on the contents of such communications.)

This Path Rating Process has been established to promote that the planning process is completed in a timely and orderly manner. The process is pictorially illustrated in Figure 2.

3.2.1. Phase 1 - Path Definition

The purpose of Phase 1 is to define the proposed Path and proposed rating. Phase 1 is often carried out concurrently with the Project Coordination Process and is complete upon acceptance of a Comprehensive Progress Report by the TSS. Phase 1 is also the most appropriate phase for the project sponsor to decide if the proposed Project would constitute a subset of an existing Path. Otherwise, this determination should be made as early as possible in Phase 2. Please refer to Appendix D for the two tests the project sponsor is required to perform in order to provide information to the PRG to aid in determining whether a proposed Project is a subset of an existing Path.

However, if a project sponsor's study plan includes treating the proposed Project as a subset of an existing Path, or the sponsor makes that decision in Phase 1, performing the two tests referred to in Appendix D will not be needed. If the proposed Project is determined to be a subset of an existing Path, the project sponsor will also be required to re-rate the combined Path within the Path Rating Process. The determination that a Project is a subset of an existing Path does not preclude a Project from defining a separate Path or from seeking a separate Path rating for itself.

The project sponsor's initial announcement of a project starts Phase 1 of the planning process. This announcement takes place when the project sponsor submits data on the Project in accordance with the WECC Progress Report Policies and Procedures or provides a letter of notification. If a letter of notification is used, the letter should include a complete description of the Project including the proposed Path and proposed Path rating and shall be distributed to all PCC and TSS members (WECC staff will distribute material upon request of the project sponsor). For the purposes of these criteria, transmission dependent utilities, loads, or generators interconnected exclusively to the Path operator's system are not considered other systems.

3.2.2. Phase 1 Requirements

During Phase 1 the Project is in the preliminary phase of development and a definitive Plan of Service may not be available. The sponsor should be performing the necessary studies to develop a preliminary Plan of Service and a Planned Rating. Studies should focus on the non-simultaneous rating; however, known simultaneous effects should also be addressed. In addition, the project sponsor is required to determine whether the proposed Project is part of an existing Path either in Phase 1 or in Phase 2 as part of project review. (Refer to Appendix D for the two tests required to provide information to the PRG to aid in determining if a proposed Project is a subset of an existing Path.) During Phase 1, the Path associated with the Project has only a Proposed Rating and other

projects in later phases of the planning process are not obligated to recognize the Project in their studies.

3.2.3. Completion of Phase 1

The transition from Phase 1 to Phase 2 is accomplished by notification from the TSS chair to PCC, OC, TSS and the project sponsor of the completion of all the following:

1. PCC has completed its assessment of the Project's conformity with the Project Coordination Review Objectives.
2. The project sponsor has submitted a full Project representation to WECC for inclusion in WECC base cases. The project sponsor should work with applicable Area Coordinators so that it is clearly understood when transmission facilities associated with the Project should be modeled in specific WECC base cases.
3. The project sponsor has distributed a Comprehensive Progress Report accompanied by a letter to TSS and PCC requesting Phase 2 Status for the Project. TSS and PCC members have 60 days to comment on the Comprehensive Progress Report by submitting a letter to the project sponsor with copy to WECC staff.

If the above criteria have been satisfied and no objections were received within 60 days, the project sponsor(s) will so notify the TSS chair and provide evidence that the project has satisfied all requirements. The TSS chair will notify PCC and TSS members that the Comprehensive Progress Report has been accepted and the Project has entered Phase 2 of the planning process. If any objection is received, the TSS chair will consult with WECC staff and TSS members to determine whether the Project has met the above requirements to transition to Phase 2. This transition from Phase 1 to Phase 2 signals that the project sponsor's preliminary planning studies have been completed and a Planned Rating for the Path associated with the Project has been established using accepted methodology.

It is recognized that the Rating Process can be very complex. Notwithstanding the minimum reporting requirements necessary to qualify for transition to Phase 2, it may not be practical to address all technical questions within the defined Phase 1 scope. Unresolved issues may include:

1. Planning and technical issues that the project sponsor is responsible for demonstrating under NERC Reliability Standards and WECC Criteria. This includes:
 - determining whether a proposed Project is a subset of an existing Path;

- addressing simultaneous technical interactions between projects, including:
 - known interactions; and
 - new interactions that are intended to be identified and that have a bearing on the reliability of the interconnected electric system and development of associated nomograms.
2. Adequacy of supply is not a factor in the rating process as a stand-alone requirement. It may be an indirect factor if generation patterns have bearing on the technical rating issues described above. Adequacy of supply issues are to be addressed in other forums.
 3. Commercial issues are to be addressed outside of the rating process by the affected parties. It is the intent of these policies and procedures that commercial issues be resolved before operation at the new Accepted Rating commences. It is intended that at the end of the Path Rating Process operation at the new Accepted Rating of the Path associated with new Projects that meet all reliability requirements not be unreasonably delayed by commercial discussions.

The PCC expects that, early in the 60-day comment period, personnel with authority to resolve these areas of disagreement from each of the involved parties will make a good faith effort to identify issues and resolve any issues of disagreement. If at the end of the 60-day period, there remains objections to the Comprehensive Progress Report that have not been resolved, the project sponsor may agree to resolve the objections in Phase 2, in which case the Comprehensive Progress Report can be accepted and the Project can move into Phase 2, provided that all other Phase 2 entry requirements have been satisfied. Otherwise, the Project will remain in Phase 1.

Notification by the TSS chair of the acceptance of the Comprehensive Progress Report and the Planned Rating indicates completion of Phase 1 and transition to Phase 2.

3.2.4. Phase 2 - Path Rating

The purpose of Phase 2 of the Rating Process is to:

- Confirm the Non-Simultaneous Transfer Capability of the Path associated with the proposed Project for a specific Plan of Service determined in Phase 1;
- Identify Simultaneous Transfer Capability of the Path for specific Project plans of service on a combined basis for all affected paths and all Projects

classified as Similarly Situated; (please see Appendix B for discussion on Similarly Situated and Combined Project studies.)

- Address the mitigation of adverse impacts on simultaneous and non-simultaneous Transfer Capability relative to the existing system;
- Determine impacts on the Western Interconnection of outages of all facilities in the same corridor as the proposed Project.¹⁰
- Address all comments to the Comprehensive Progress Report.

3.2.5. Phase 2 Requirements

During Phase 2, the project sponsor will lead a PRG comprised of interested WECC member representatives. Prior to or during Phase 2, the project sponsor will send a letter to all TSS, PCC, and OC members soliciting interest in participating in a PRG. A 30-day period (starting from WECC's distribution of the request letter) will be allowed for recipients of the letter to respond with their interest in participating in the PRG. This letter may be distributed at the same time as the Comprehensive Progress Report is distributed, although the deadline for expressing interest in participating in the PRG cannot be before the deadline for comments on the Comprehensive Progress Report.

Details concerning the formation of the PRG are discussed in Section 3.5, Formation of a WECC PRG. All members interested in participating in a PRG shall be allowed to participate. Members with interest in the Path rating should participate in the PRG, as it is the PRG comments that will determine the outcome of Phase 2 and transition to Phase 3. In addition, the PRG is also responsible for approving the study plan and the base cases to be used for simultaneous transfer studies in Phase 2.

All Projects associated with Paths that have Planned Ratings must consider each other as relevant to their planning studies. Once a Project has entered Phase 2 its associated Path has attained a Planned Rating and, it is considered on an equal basis with other Projects Similarly Situated in Phase 2. Similarly Situated Projects must consider each other on an equal basis.

To aid in the determination of Projects that are Similarly Situated, Phase 2 is further separated into Phases 2A and 2B with a bright line. This bright line¹¹ is used to identify those Phase 2 proposed Projects that have completed and obtained approval by the PRG of a study plan and the first base case (or

¹⁰ Loss of all facilities in the same corridor is an Extreme Event. Mitigation of the impacts due to Extreme Events is not required to achieve an Accepted Rating.

¹¹ The bright line is further defined in Section 3.2.6

Foundational Base Case) needed to perform simultaneous studies. Phase 2A Projects that cross this bright line will be moved to Phase 2B. (See Appendix B for further discussion of Similarly Situated Projects, Simultaneous Studies and Combined Project Studies and the relationship between proposed Projects in Phase 2A and Phase 2B.)

Phase 2 is the phase in which adverse impacts must be identified and Mitigation Plans must be established. If a new transmission Project potentially impacts an Existing Rating or an Accepted Rating then it is required that preliminary Mitigation Plans be developed in Phase 2B by the project sponsor to alleviate the adverse impact. For example, a change that affects the effectiveness of a RAS is expected to be addressed in Phase 2B if the RAS effectiveness has a direct adverse affect on an Existing or Accepted Rating.

The essential burden of mitigating or compensating for new problems relative to the existing system lies with the project sponsor. Project sponsors of proposed Projects are encouraged to work together on mitigation needed. The burden of mitigation of new impacts associated with a new Project only applies for interactions with Paths having Existing or Accepted Path Ratings as of the date the new Project enters Phase 2B. The burden of mitigating new impacts does not apply for interactions with Paths with Other Ratings. Allocations of ratings are considered to be commercial issues and are not addressed by this process.

Phase 2B is also the phase in which project sponsors must determine impacts on the Western Interconnection of outages of all facilities in the same corridor as the proposed Project.¹²

3.2.6. Process to establish the Bright Line between Phase 2A and 2B

Phase 2 is divided into two parts with a bright line; Phases 2A and 2B. All Projects entering Phase 2 will need to comply with the following process to establish the basis by which these Projects will be classified as Similarly Situated.

The bright line between Phases 2A and 2B is drawn when the project sponsor(s) has developed, and the PRG has approved, the study plan and the first simultaneous base case, and the project sponsor(s) is ready to perform simultaneous analyses. Based on PRG requests, multiple simultaneous analyses may need to be performed requiring multiple simultaneous base cases. However, the Foundational Base Case that will establish this bright line is the first base case that would be ready for the first simultaneous assessment as agreed to by

¹² Loss of all facilities in the same corridor is an Extreme Event. Mitigation of the impacts due to Extreme Events is not required to achieve an Accepted Rating.

the PRG. Additionally, this Foundational Base Case must be defined in the PRG-approved study plan.

1. In general, the PRG, once formed, will develop and agree to the study plan within 60 calendar days unless otherwise agreed to by the PRG. This study plan, at a minimum, must include study assumptions, methodology, milestones, and time lines. (See Section 5.0 for a Comprehensive Study Plan outline.) Once the study plan is approved by the PRG the project sponsor will notify WECC staff. WECC staff will document the completion of this step in the WECC Three-Phase Rating Process Log.
2. The PRG, together with the project sponsor, must reach consensus that the Foundational Base Case is complete and then establish a time stamp to indicate that the Project has entered Phase 2B. This transition and time stamp will be documented in the Path Rating Log. (Typically, such Foundational Base Cases would take about three months to complete.)
3. Completion of the study plan and the Foundational Base Case will establish a time stamp that creates a clear bright line on a consistent and transparent basis by which to identify those individual Projects among multiple Projects that qualify to be considered Similarly Situated. Moreover, this process should give the project sponsor(s) a time line to perform the rating study. The intent is to tie study progress with the study plan and to establish a time line for the study that has been agreed to by the project sponsor(s) and the PRG. Once the time stamp has been established, the project sponsor(s) will communicate this fact to the TSS chair and WECC staff. WECC staff will keep track of the time stamp and notification process in the WECC Three-Phase Rating Process Log.
4. If Similarly Situated Projects impact (or may be part of) an existing Path or a new Path, then these Projects must conduct a Combined Project Study which will examine the non-simultaneous rating¹³ of this Path with the addition of these Projects. Project sponsors together with PRG members will determine the need for, and the nature of, a Combined Project Study. Refer to Appendix D for the two tests required to provide information to the PRG to aid in determining if a proposed Project is on the same Path.

3.2.7. Notification of establishment of the Bright Line between Phase 2A and 2B

¹³ The Combined Project Study will determine the simultaneous impact of the projects on the path, but the Path Rating thus determined will constitute the non-simultaneous rating in relation to other WECC Paths.

The Similarly Situated Bright Line Notification does not need to have the same formality as going from Phase 1 to Phase 2, or from Phase 2 to Phase 3.

However, at a minimum it must consist of the following:

- The notification must contain the final date establishing the bright line as the basis for determining the Similarly Situated classification. This final date shall be based on the latest date when both the study plan had been approved and the Foundational Base Cases were approved by the PRG (i.e., assuming they were approved on different dates, the final date would represent the latest approval date).
- Project sponsor(s) shall send written notification to the TSS chair and WECC staff within five working days after the bright line date was identified by the PRG. If the notification is received after five working days, the bright line date will be the date that the TSS chair and WECC staff receive notification.
- WECC staff will distribute the notification to WECC members and enter the status in the WECC log for Phase 2 Projects.

Please refer to Section 7.0 for examples of specific situations to aid in applying the policy on Similarly Situated Projects.

3.2.8. Completion of Phase 2

After completing the technical studies defined in the study plan and drafting a detailed technical report that reflects the technical study findings, the project sponsor shall send a Phase 2 Rating Report to the PRG and a copy of the report to WECC staff. The Phase 2 Rating Report shall document and its executive summary shall include highlights of key aspects of at least the following items:

1. Plan of Service (including milestones) and a statement that the Plan of Service meets NERC Reliability Standards and WECC Criteria;
2. Corrective actions and/or Mitigation Plan, if needed, to support the Accepted Rating
3. Assumptions used in the Rating Study, including load levels, existing and future resources, and other projects upon which the Accepted Rating relies.

A 30-day period for comments from the PRG on the Phase 2 Rating Report (starting from the distribution date of the report) shall be provided during which the PRG may raise concerns or provide comments. This may be shortened by agreement of the PRG if all its members are satisfied with the Phase 2 Rating Report.

The project sponsor shall work with the PRG to resolve all concerns and comments received during the comment period. Once the PRG group agrees

that all concerns and comments have been addressed or if the project sponsor has made a good faith effort to address the comments received, the project sponsor will distribute the Phase 2 Rating Report to the PCC, TSS, and OC and request Phase 3 status.

PCC members will have 30 days to comment on conformance with the procedures in this document. The PCC comments will not encompass adverse impacts or Mitigation Plans, as these are the responsibility of the PRG. The project sponsor shall work with the PCC to resolve all concerns and comments received during the PCC comment period. Completion of Phase 2 can be addressed in a number of ways:

1. If all comments received have been resolved, the project sponsor will so notify the PCC chair and formally request Phase 3 status. The PCC chair will — upon determination that the requirements have been met — notify the PCC, TSS, and OC members that the Phase 2 Rating Report has been accepted and the Project has entered Phase 3 of the planning process.
2. If comments from the PRG or PCC concerning the Project's compliance with NERC Standards and WECC Criteria, policies, and procedures are received that cannot be resolved, the disagreements will be handled in accordance with the resolution process provided in the WECC Progress Report Policy and Procedure, Section 4.4.
3. In the event that outstanding issues have not been resolved using the above process, upon request by the project sponsor or any member of the PRG or PCC, the PCC chair will provide a forum for discussion and the PCC will determine through a vote whether PCC members are satisfied that the Project has met all requirements of Phase 2 of this Path Rating Process. The PCC chair will consider the need to consult with the WECC Board chair and WECC CEO regarding Phase 2 completion determined in this manner.
4. PRG members (including the project sponsor) that have outstanding issues may use the WECC Alternative Dispute Resolution (ADR) process to seek resolution.

Upon determination that Phase 2 has been completed, the PCC chair, in consultation with the TSS chair and WECC staff, will notify the PCC, TSS, and OC members that the Phase 2 Rating Report has been accepted and the Project has entered Phase 3 of the Path Rating Process. The final accepted Phase 2 Rating Report will be attached to the notification. The acceptance of the Phase 2 Rating Report will complete Phase 2 and establish an Accepted Rating that must be considered by other projects in all phases of the planning process.

3.2.9. Phase 3

Phase 3 is entered upon successful completion of Phase 2. This phase includes construction and assumes the sponsor is committed to the Project. The essential planning activity during this phase is maintenance and monitoring of the Accepted Rating and assuring that the Project will be completed in a timely manner in accordance with the Plan of Service presented in the Phase 2 Rating Report. For a Project consisting only of a rerating of the existing system, Phase 3 would simply entail instituting the rating.

A Project in Phase 3 will be considered to be part of the "existing system" for the purposes of a project being planned. All other Projects that are not Similarly Situated with this Project or in earlier phases of the planning process must treat Phase 3 Projects as part of the existing system. Because a Phase 3 Project is considered a peer with the existing system, if new simultaneous transfer limitations are discovered, their resolution will be shared among the parties as if the Project were complete.

The Project's Accepted Rating is only "at risk" if the project sponsor fails to complete the Plan of Service or meet milestones within the required time as presented in the Phase 2 Rating Report or there is a failure or delay of other projects that were relied on in establishing the rating. The PRG and the TSS have the responsibility of monitoring the progress of the Project. If the schedule for Project completion is delayed or interrupted, the project sponsor may be required to repeat or update Phase 2 of the planning process. The PRG shall decide the appropriate action. This is further described under Monitoring Project Progress.

When construction is complete (or in the case of up-rates of existing facilities - when all operating procedures, etc., are accepted by the Operating Procedures Review Group and are in place) and the Project is put into operation, the planning process is also complete and the Project is a fully-accepted part of the existing system.

3.3. Expediting the Process

The Path Rating Process is designed to provide for an orderly completion of steps with adequate times for member participation and comments for significant or complex Projects. However, in some cases (when the project sponsor anticipates that there will be few comments or that comments can be addressed and incorporated in the Project without delays) the project sponsor may seek to expedite the process of achieving an Accepted Rating. Expediting the process will result in simultaneous acceptance by the PCC of both the Phase 1 and Phase 2 requirements. One example of a Project seeking expeditious treatment is the up-rating of an existing transmission Path accomplished by changing an operating procedure or installing a new remedial action scheme.

Expediting the process involves combining several of the rating process steps. The Letter of Notification, the Comprehensive Progress Report, and the request for interest in forming a Review Group may all be combined into a single distribution. Project sponsor notification to all PCC, OC, and TSS members at the beginning of the process shall include a clear statement of the desire to expedite the process. Members concerned that expediting the process will not give adequate opportunity for rating review should notify the Project sponsor, TSS chair and PCC chair as soon as possible. The project sponsor and the member should work together to resolve the concerns. If concerns cannot be resolved, then the TSS will determine if the process can be expedited.

While all requirements herein remain the same and all timelines for the individual steps would still apply, they may be done concurrently and the PRG may be formed before comments are due on the Comprehensive Progress Report. For example, the WECC Progress Report Policies and Procedures requires a 60-day comment period for the Comprehensive Progress Report that can be concurrent with the 30-day period required for forming the PRG and the 30-day period allowed for the PCC to comment on the conformance with this procedure. However, while these two processes are allowed to overlap, the deadline for expressing interest in participating in a PRG cannot end before the end of the 60-day comment period for the Comprehensive Progress Report has expired. Acceptance of completion of Phase 2 and transition into Phase 3 is as described above. If the Phase 2 Rating Report is unchanged from the Comprehensive Progress Report, the project sponsor should send a letter stating such to the PCC and TSS.

Expediting the process has the advantage of facilitating the process of achieving an Accepted Rating for a Path associated with a straightforward Project. However, during the expediting of a Path Rating Process, the Project remains in Phase 1. Consequently, the Project does not achieve any status with respect to Projects in Phase 2. Should significant or unanticipated issues arise, the project sponsor may find that the process cannot be expedited and may request Phase 2 status, and then follow the Phase 2 process discussed in Section 3.2.

If the proposed Path rating change is planned to occur within six months after WECC notification, the Operating Practices Subcommittee (OPS) and the Technical Operations Subcommittee (TOS) should be included in the various Path rating process mailings.

3.4. Monitoring Project Progress

Granting of Phase 2 status or an Accepted Rating to a Path associated with a Project/project sponsor obligates other WECC members to various levels of recognition and accommodation in the planning of other projects. In exchange for

this, a project sponsor is responsible for maintaining the Project's Phase 2A or 2B status and rating with a continuous demonstration of steady progress toward commercial operation through continued compliance with the WECC Progress Reporting Procedure.

A Phase 2A or 2B status may be lost if a Project in Phase 2 shows no evidence of any activity¹⁴ a period of time after the achievement of Phase 2 status. The project sponsor can revive the Project's Phase 2 status by providing evidence that Phase 2 studies and/or PRG meetings are being conducted. Table 1 below outlines the conditions under which a proposed Path rating study can be reverted back to previous phases due to inactivity.

¹⁴ Refers to study activities visible to PCC, TSS, or PRG and WECC staff.

Table 1¹⁵

The start time is initiated once a Project enters Phase 2A. The following requirements shall be met or the Project in Phase 2 will either revert back to Phase 1 or Phase 2A (depending on if the Project is in Phase 2A or 2B) under the following conditions:			
Conditions	Notifier	Elapse time (calendar days) without activities*	Project reverts back to
If project sponsor does not form a Project Review Group while in Phase 2A	TSS chair/TSS	60 days	Phase 1
If project sponsor does not initiate any study on simultaneous Path Transfer Capability limits	PRG	12 months ¹⁶	Phase 1
If project sponsor misses completing any Project study milestones by 12 months or more	PRG	12 months ¹⁷	Phase 2A
If project sponsor does not show any evidence of any activity for 12 months during Phase 2.	TSS chair/TSS	12 months	Phase 1
If the project sponsor cannot be located by the TSS chair or WECC staff, or no response is received from the project sponsor after a formal WECC announcement on the Project status has been made.	TSS chair/TSS	18 months	Remove the project from the WECC Log
A project sponsor may appeal these decisions to either the TSS or PCC if the project sponsor can demonstrate that group meetings or studies coordinated with the PRG were in progress prior to the notification of being removed from the current status.			

* Refers to study activities visible to PCC, TSS, or PRG and WECC staff.

Phase 3 Accepted Rating Status may be lost if a delay in meeting any Project milestones by 12 months or more occurs or a change in the Project's Plan of Service adversely impacts the Accepted Rating. The PRG and the TSS have the responsibility of monitoring the progress of the Project in this Phase.

If either of these conditions occurs, the project sponsor shall promptly notify TSS, PCC, and the PRG. The PRG will determine if the Project status will revert back to the appropriate status within Phase 2 with a Planned Rating or remain in Phase 3 with an Accepted Rating. In addition, a determination will be made if more study work is necessary. The project sponsor will promptly notify PCC and TSS regarding the determination of the PRG.

¹⁵ Table 1 will be effective 90 calendar days after the approval of this version of the document by the WECC Board of Directors.

¹⁶ 12 months after achieving Phase 2B.

¹⁷ 12 months counting from the missed milestone.

See Appendix E for guideline on treatment of proposed Projects for which rating studies were reverted back to earlier phases.

3.5. Formation of a WECC Project Review Group

A WECC PRG is formed to facilitate review of planning studies for a Project in Phase 2 of the Path Rating Process. The PRG provides WECC members with the opportunity to meaningfully contribute to the Plan of Service for the Project and identify concerns with potential impacts of the Project.

Timing of the PRG formation is at the project sponsor's discretion, but should be within 60 Calendar Days after the Project enters Phase 2. While the PRG will normally complete its task at the end of Phase 2, the PRG members should stand ready to help the project sponsor resolve additional simultaneous transfer-related issues should they occur and to determine if the Project status should revert back to earlier phases as described under the Section 3.4, "Monitoring Project Progress."

While participation in a PRG is voluntary and open to all WECC members, it is required that, at a minimum, the PRG membership include all WECC members who desire to join the PRG. The responsibility for forming the PRG belongs to the project sponsor, but the responsibility for facilitating an objective, positive, and effective PRG is shared by all WECC members.

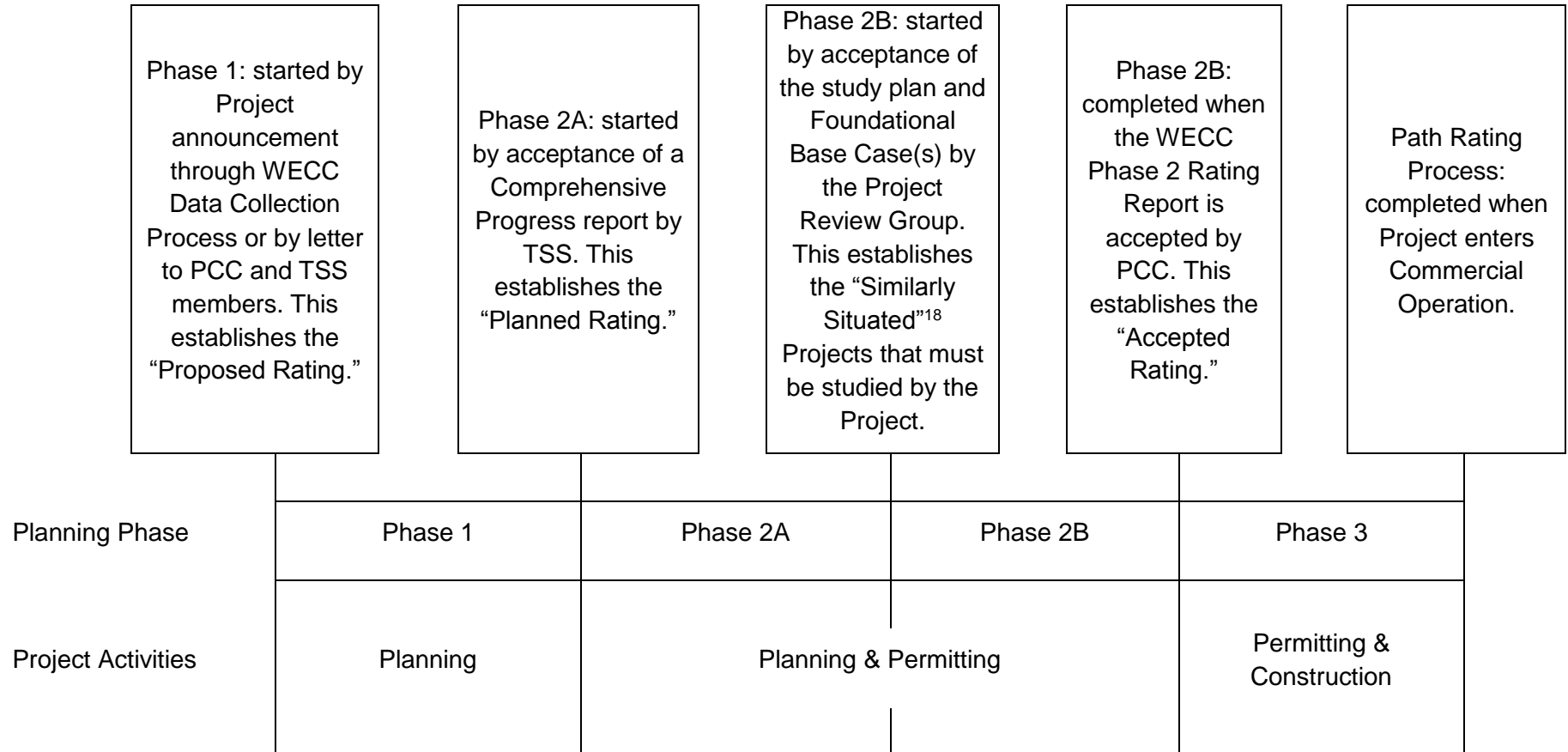
The PRG's main area of interest lies in identifying all non-simultaneous and simultaneous impacts and methods for mitigating these for both the existing system (including Phase 3 Projects) and other Projects in Phase 2. The PRG is also responsible for approving the study plan and the base cases to be used for simultaneous transfer studies. PRG participants are responsible to provide any necessary information required to prepare the simultaneous transfer studies, which should be fully supported by studies and/or mitigation measures. Likewise, it is the responsibility of the project sponsor to adequately address all appropriate issues raised by the PRG members or as they arise during the course of the study process.

Mitigation methods may include, but should not be limited to, additional facilities, remedial action measures, and operating nomograms. The project sponsor will select the available mitigation measure(s) to be implemented or adjust the Path rating to mitigate any adverse impacts. The functions of the PRG are technical in nature and shall not address commercial issues. While the project sponsor is responsible for addressing curtailment procedures, because they are commercial issues they shall be addressed through negotiations outside of the PRG.

It should be recognized that some Projects will be more difficult to evaluate than others, which may require a significant effort by the project sponsor and the PRG

members. The PRG is a shared responsibility between the project sponsor and the WECC members and as such, the project sponsor is not obligated to "study the world." Should circumstances arise where studies being requested go beyond the scope of the Project, the project sponsor may request a PRG member(s) to run some of the studies as may be needed to be included in the report.

Figure 2
Path Rating Process



¹⁸ At any point in time, if any two projects are together in Phase 2B, they are Similarly Situated and have a responsibility to mitigate interaction they have with each other until both become operational.

Figure 2
Path Rating Process

Study Emphasis	Sponsor's Independent Studies and draft Comprehensive Project Report.	Sponsor forms WECC Project Review Group, develops Rating Study Plan and appropriate WECC system base cases.	WECC Review Group Rating Studies demonstrate both Non-Simultaneous Rating and any Simultaneous Ratings with other Similarly Situated Projects.	Monitoring Progress and final determination of all identified mitigation measures.
Study Considerations	Other project not obligated to recognize new Project in their studies.	All Projects in Phase 2A shall include all Projects in Phase 2B and Phase 3 in their studies as agreed to by the PRG.	All Projects shall identify any interactions with other concurrent Phase 2B Projects The burden of study shall rest with Projects entering Phase 2B.	Other projects MUST treat Project as part of the existing system provided it continues to meet milestones.

Figure 2
Path Rating Process

Mitigation Requirements	None	None	<p>All Projects concurrently in Phase 2B are equally responsible to mitigate for impacts, if any, on any others Projects in Phase 2B.</p> <p>Projects in Phase 2B are responsible to mitigate for impacts, if any, on Paths associated with Project with an “Existing” or an “Accepted” Rating.</p>	<p>Other Projects that are not similarly situated or not in Phase 3 are responsible to mitigate impacts, if any, on this Project provided this Project continues to meet milestones.</p> <p>Mitigation requirements, if any, must have been determined and resolved prior to “commercial operation” of the new Project.</p>
-------------------------	------	------	---	---

4. Philosophy and Principles For Transmission Path Rating Methods

4.1. Introduction

A Project is defined as a new generator or transmission facility or a change in rating of an existing generator or transmission facility through facility additions, facility upgrades, facility retirements or the re-rating of existing facilities that would result in a new Path or changes in existing Path ratings. The primary focus of the Path Rating Process is to establish a set of well-defined principles for determining Accepted Ratings for Transmission Paths. These principles are intended to foster a consistent transmission rating method that will provide a level playing field for the traditional utility as well as the non-utility organizations that are participating in the planning and operation of the WECC interconnected system. All participants are expected to follow these principles. Consequently, these principles must be practical, technically sound, unambiguous, and consistent with the NERC Reliability Standards and WECC Criteria, and must promote efficient use of the system. The determination of an Accepted Rating for a Path is important for several reasons that include, but are not limited to; assuring reliable operation, determining access or contract rights, and establishing scheduling limits.

4.2. Philosophy

To determine the Accepted Rating for a path, use the method described above in the Path Rating Process. This applies to all paths whether they are considered "internal" or "external." Ratings are pre-outage, with all facilities in service, and may be achieved through the use of appropriate Remedial Action Schemes. The adoption of a consistent study method should ensure that the Accepted Rating of a Transmission Path:

- Is technically sound;
- Can be used in actual operation, and;
- Is consistent with the flow achievable on the Transmission Path.

This method does not constrain how parties may commercially allocate the rating of a path among its owners. In addition, this method does not constrain how owners of interacting paths may allocate curtailments among their paths. However, project sponsors are required to determine if the proposed Project would constitute a subset of an existing Path. Refer to Appendix D for the two tests required to provide information to the PRG to aid in determining if a proposed Project is a subset of an existing Path.

If a project sponsor includes that it will treat the proposed Project as a subset of an existing Path in its study plan, performing the tests is be needed. In addition, being a subset of an existing Path does not preclude a Project from defining a separate Path or from seeking a separate Path rating for itself. However, if the proposed Project is determined to be a subset of an existing Path, the project sponsor(s) is required to re-rate the Path within the Path Rating Process.

The WECC PRG described in these procedures is responsible for ensuring that these guidelines are followed in developing an Accepted Rating. The PRG is also responsible for ensuring that the study plan and base cases represent realistic conditions.

The planning process should address potential unscheduled flow impacts. One possible way to address unscheduled flow is to establish Transmission Path ratings at a level where no system reliability problems exist and schedules will be limited by the maximum flow that can occur on the Path under realistic (although perhaps optimistic) conditions. This rating philosophy embodies a Maximum Flow Test (MFT) and precludes having operating schedules on the transfer path that exceed the resulting Accepted Rating (see Appendix A). Consequently, this aspect of the planning process is a positive step in limiting unscheduled flow that would otherwise be higher if the Accepted Rating is not constrained by the MFT. With the concurrence of all affected parties, the sponsor may use some method other than the MFT.

All sponsors must provide notification to the PCC of what method they will use; including an explanation of what the proposed method is intended to accomplish. With the concurrence of all affected parties, the sponsor may use some method other than the MFT.

It is the intent of these procedures to afford the appropriate measure of protection for Path ratings. Protection is a fundamental element of what an Accepted Rating provides. An Accepted Rating is fully peer reviewed, recognized in future planning studies, and directly usable in operations for both scheduled and actual flows. An Accepted Rating addresses both simultaneous and non-simultaneous Transfer Capabilities and may involve the use of nomograms or remedial action schemes. It is not acceptable for a new project to cause a reduction in an Accepted Rating of another Path unless mitigated or compensated by the new project. Notwithstanding this protection philosophy, compliance with the NERC Reliability Standards and WECC Criteria is always the overriding consideration for the project sponsor.

4.3. Principles

The following principles are the basis for the methodology to be used in determining the Accepted Rating of a Transmission Path.

4.3.1. Reliability Limited Ratings

An Accepted Rating is determined such that the scheduled and actual use of a transmission Path is limited to levels that meet the NERC Reliability Standards and WECC Criteria.

4.3.2. Realistic Simulation

Studies and analyses performed to determine the Accepted Rating of a transfer path must use realistic simulations; i.e., the use of fictitious devices is not allowed and the system conditions represented must be realistic, as determined by the PRG. Considerable latitude is intended to be allowed in determining realistic conditions. When remedial action schemes are used, they are modeled as they are anticipated to be applied in operation. If a change in RAS actions occurs, additional studies may be required to verify the Rating. See Appendix A for guidelines on Resources Acceptable for Path Rating Studies.

4.3.3. Flow-Limited Ratings

Certain Transmission Paths may not be limited by reliability considerations. For example, a Path may be limited by the amount of available resources, or parallel a lower impedance path. Where this occurs, these Paths will be described as flow-limited (as opposed to reliability-limited). When testing for this condition, considerable latitude in the base case assumptions is allowed in maximizing the flow on the Path being rated. After the flow on the Path has been maximized with the above consideration and a reliability limit has not been reached, an MFT is defined as having been passed for the Path being rated. This maximum flow achieved is called a Flow-Limited Rating and is protected.

An advantage to defining this maximum flow as a Flow-Limited Rating is that this produces a reasonable way to address potential unscheduled flow in the planning process. By defining this as a "rating," schedules will be limited by the maximum flow that can occur on the Path under realistic conditions.

However, if the MFT is not applied, the project sponsors must provide notification to the PCC of what method they will use during Phase 2 of the rating process; including an explanation of what the proposed method is intended to accomplish. The intent of this notice is to allow potentially affected parties not already on the PRG to come forward. With the concurrence of all affected parties, the project sponsor may use some other method to determine a Path rating.

4.3.4. Accepted Rating Protection

A new project shall not cause a reduction in an Accepted Rating of another Path (e.g., because of a reliability criteria consideration) unless mitigating or compensating measures are provided. However, if a facility is retired from service (e.g., generator, shunt reactive equipment, RAS), all Path ratings that rely on the facility must be reviewed and reduced to the extent that system impacts of such retirements are not mitigated. Just as with the addition of facilities, planning for the retirement of facilities must be closely coordinated with affected systems (e.g., through the Progress Reporting Procedure or Path Rating Process) to allow adequate time to mitigate any adverse impacts and negotiate any commercial issues (e.g., which system should be responsible for the costs of mitigation). If a Path's Accepted Rating relied on facilities that are not part of the Path's Plan of Service, and if those facilities are retired, modified, or never built, the Accepted Rating is subject to review in the same manner as if changes had occurred in the Path's Plan of Service.

A transmission Path's Accepted Rating will not be lowered because its maximum achievable flow is reduced (i.e. the Path can no longer meet the MFT) due to system changes made by others with the exception of the changes described in the previous paragraph. System owners that make such changes shall be responsible for mitigating any adverse impacts on the other system(s).

Transmission Path owners that make changes to their system that increase the flow on a Path with a Flow-Limited Rating can receive a higher Accepted Rating consistent with the MFT. This same principle applies if the flow on the Path is increased by a project initiated by another party; although in that case, it should be recognized that the higher Accepted Rating relies on and is subject to the operation of the other party's facilities.

4.3.5. Application To Existing Systems

Although the primary focus of the Path Rating Process is to establish ratings for new Paths, existing transmission paths cannot be ignored. Existing transmission paths have been rated using various methodologies and guidelines, some of which are inconsistent with the methods proposed in this document. These inconsistencies are primarily in the areas of flow-limited paths, use of fictitious elements, and Latent Capacity.

This document is intended to assure the development of an efficient, reliable electric system and to balance the competing interests of protecting the legitimate ratings of existing facilities while encouraging the economic and environmentally sound expansion of transmission capacity. The following principles guide how existing transmission paths are treated within the WECC rating process.

1. Transmission path ratings that were known and used in operation as of January 1, 1994, will be classified as Existing Ratings.
2. A sponsor of a new Project who is impacted by an Existing Rating and is in Phase 2 of the Path Rating Process may ask that the Existing Rating be reviewed by the PRG. The PRG is responsible for deciding if, and how, the Existing Rating will be demonstrated.
3. If an owner desires to establish an Accepted Rating for an existing Transmission Path, the current WECC approved guidelines will be followed.
4. A Transmission Path's Existing Rating will not be lowered because of reduced maximum achievable flow on the path due to system changes made by others.
5. Transmission path owners that make changes to their system that reduce the maximum achievable path flow, will have their Existing Rating reduced by the amount the path's flow was reduced.

4.3.6. Latent Capacity

Latent Capacity is the Transfer Capability that may be acquired by improving an existing path without adding new lines to the path. Latent Capacity is not protected, it cannot be used in operation, and it is not recognized nor incorporated by others in their rating studies. The only means of protecting Latent Capacity is to take the path through the Path Rating Process.

Project sponsors, as appropriate, need to identify and document Latent Capacity. Documenting information on Latent Capacity may be useful for:

- Promoting appropriate decisions in generator siting;
- Facilitating Project Coordination;
- Fulfilling transmission access request requirements;
- Establishing one's intent to expand the transmission system;
- Gaining expedited review by a PRG provided that the Latent Capacity has been adequately reviewed and documented and the PRG determines that the original documentation is still applicable; and
- Providing some assistance in contract negotiations.

4.3.7. Margin

If planning margin beyond that afforded by the NERC Reliability Standards and WECC Criteria is considered necessary, the PRG may agree to establish the additional planning margin requirement when determining a Path rating. To allow potentially affected parties not on the PRG to come forward, the project sponsors

must provide notification to the PCC of their intent regarding the requirement for additional planning margin during Phase 2 of the rating process, including a justification of why the additional planning margin is needed.

The justification for additional planning margin needs to specifically address the following points:

1. Explain how the amount of planning margin is related to risk.
2. Describe how the amount of planning margin applied to a path rating is related to the level of uncertainty in determining the rating.
3. Define the rationale for the amount of additional planning margin recommended.
4. Explain how the amount of planning margin would be consistently applied.

4.3.8. Neutrality of Path Definitions

When a new facility interacts with an existing Path, two options are available to address this interaction. One option is to include the new facility in the existing Path and manage the expanded Path as a single unit. The second option is to define the new facility as a new Path and define the relationship with the existing Path in a nomogram.

In either case projects sponsors are required to determine if the proposed Project would constitute a subset of an existing Path. Ideally, this is done as early in the Path Rating Process as possible. If the proposed Project is determined to be a subset of an existing Path, the project sponsor must re-rate the Path within the Path Rating Process. Please refer to Appendix D for the two tests required to provide information to the PRG to aid in determining whether a proposed Project is a subset of an existing Path. However, if a project sponsor includes in its study plan or decides in Phase 1 that it will treat the proposed Project as a subset of an existing Path, performing the tests will not be necessary.

4.3.9. Reverse Flow

It may be impossible to achieve a desired MFT if a project sponsor is trying to rate a line in a direction counter to prevailing flows. Parties faced with such a circumstance could still schedule transactions over the path in the opposite direction using a net scheduling approach. Once the rating of a Transmission Path has been established, scheduled transactions over the Path are permitted in either direction providing the net schedule at any time does not exceed the Path rating in either direction. For example, if the Path rating has only been established in one direction, schedules are still permitted in both directions as long as the net schedule is in the same direction as the Path rating direction and does not exceed the Path rating.

5. Phase 2 Accepted Rating Comprehensive Study Plan

5.1. Introduction

The purpose of this study plan is to provide a consistent, comprehensive study methodology for the path or project sponsor to follow in establishing an Accepted Rating for either an existing Transmission Path or a Transmission Path which includes a new Project.

The following generic study plan is an example describing activities appropriate to rating a major transmission Path associated with a Project. Not all of these proposed activities are necessary for all Projects. Project sponsors, with agreement from the PRG, shall determine the study activities required.

5.2. Study Objectives

5.2.1. Satisfy Reliability Criteria

In establishing an Accepted Rating for an existing Path or for a Path with a new Project, the project sponsor is responsible for assuring that the Accepted Rating complies with NERC Reliability Standards, WECC Criteria, and requirements in this document.

5.2.2. Affirm Plan of Service For a New Project

1. If a new Project is planned, the PRG shall review and comment on the Plan of Service.
2. The PRG shall establish a consensus that the Plan of Service supports the Accepted Rating.

5.2.3. Acquire An Accepted Rating

1. In establishing the Accepted Rating for a Transmission Path, the non-simultaneous and simultaneous Transfer Capabilities must be determined.
2. All new Projects that are Similarly Situated on the same Path are required to establish a combined non-simultaneous rating¹⁹ increase on that Path.
3. The impact of the new Project on other Projects or Paths with Existing Ratings, Planned Ratings Similarly Situated in Phase 2B, or Accepted Ratings, must be determined.
4. The project sponsor should obtain agreement from the PRG regarding the study results.
5. A Phase 2 Rating report must be prepared for submittal to the WECC PCC based on the findings of the PRG.

¹⁹ The Combined Project Study will determine the simultaneous impact of the projects on the path, but the Path Rating thus determined will constitute the non-simultaneous rating in relation to other WECC Paths.

5.3. Major Study Assumptions and System Representation

5.3.1. Project Description

Detailed information regarding the Plan of Service must be provided to the PRG and WECC staff and must include the technical and physical characteristics of the Project such as:

- Associated generation (if any);
- Line voltage, line length, and other line characteristics;
- Use of series capacitors, series compensation level, location of capacitor banks within the line, capacitor over voltage protection type (varistor or conventional gap);
- Phase Shifters;
- Shunt reactive compensation;
- SVCs (with ratings);
- Remedial Action Schemes;
- Indication of whether the proposed Project is part of a new Path or existing Path; and
- Any other relevant characteristics.

5.3.2. Other Phase 2B and Phase 3 Projects Included

The project sponsor must provide a list of planned Projects in Phase 2B and Phase 3 of the Path Rating Process that could affect or be affected by the Project under consideration.

5.3.3. Regional/Area Loads and Resources

System studies must be performed using the latest available load and resource data for the Western Interconnection for the time frame being studied. In general, the load level modeled for the base cases should be typical for the time of year being evaluated. Sufficient generation shall be represented to accommodate the interchange patterns described and in accordance with the individual system's plans or operating policies. Interchange transfers shall reflect the objectives of the case.

5.3.4. System Representation

The Path or project sponsors must explain how the system, both transmission and generation, will be modeled. The PRG must approve the representation. For further guidance, see Appendix A and the System Review Work Group (SRWG) Data Preparation Manual.

The following are general guidelines for system representation:

1. Full loop representation is to be used with the entire WECC system modeled.
2. All system elements will be in service for the assumed initial conditions.
3. System transfer levels for major WECC Paths should be agreed upon and listed. Additional transfer paths should be included as appropriate.
4. Voltage criteria should be applied in accordance with existing practice by the respective utilities or the operating agents.
5. The phase shifter methodology to be followed for all applicable phase shifters should be identified.
6. A list of the series compensation assumptions for the major extra-high voltage (EHV) lines should be provided.
7. A detailed system representation of the study area should be modeled when appropriate.

5.3.5. System Stressing/Loading

1. Loading on the subject Path shall be accomplished in such a way as to achieve the expected Accepted Rating of the Path. In achieving the Simultaneous Transfer Capability on the subject Path, affected Transmission Paths must not be loaded above their applicable Transfer Capabilities. The intent here is to set guidelines in developing reasonable base cases.
2. The Transfer Capability of a path is based on the amount of power that flows on a path and not how much schedule change was required to load the path to its rating.
3. Possible methods in which power will be made available for stressing the subject Path include:
 - a. Sending Region
 - i. Available generating units should be added in a reasonable manner within the appropriate areas as agreed to by the PRG.
 - ii. Loads should be decreased in a reasonable manner as agreed to by the PRG within the appropriate areas. The amount of load reduction should be documented.
 - b. Receiving Region
 - i. Those generators to be decreased in a reasonable manner should be specified within the appropriate areas as agreed to by the PRG.
 - ii. Load should be increased in a reasonable manner as agreed to by the PRG within the appropriate areas. The amount of load increase should be documented.

5.4. Study Methodology

Power flow, stability, and post-transient studies shall be performed in accordance with the NERC Reliability Standards, WECC Criteria, the WECC Post-Transient Study Methodology, local utility criteria and guidelines, and the process described herein. General study guidelines follow in Section 5.5.

5.4.1. Development of Base Cases

1. Select base cases from the most recent WECC cases available for the study time frame and conditions.
2. The PRG shall update the base cases to reflect the most accurate system line configuration, generation, and load representation for each appropriate individual control area for the study time period.
3. Incorporate all appropriate study assumptions agreed to by the PRG into the base cases.
4. Represent significant non-utility generators.
5. Considerable latitude in the base case assumptions is allowed in maximizing the flow on the Path being rated. The PRG is responsible for ensuring that the representation is realistic.

5.4.2. Developing an Accepted Rating for an Existing Path

1. Determine the non-simultaneous Transfer Capability.
 - a. The objective of this phase of the study is to have the Project sponsor ensure and demonstrate that the Path being rated meets the NERC Reliability Standards, WECC Criteria, and other specific regional criteria where appropriate.
 - b. Stress the subject Path to its proposed or expected Non-Simultaneous Transfer Capability and take outages. All affected Path flows should be at flow levels that result in non-interaction with the Path being rated. If a limit due to a Reliability Criteria violation has not been reached or has been exceeded, increase/decrease, as appropriate, the stress level for the subject Transmission Path until a limit is reached.
 - c. If the ability to increase flow on the Path is exhausted (due to lack of generation, affected Path overloading, etc.) prior to reaching a reliability limit, then the maximum flow achieved on the Path is defined to be the Non-Simultaneous Transfer Capability and the Path is considered to be flow-limited.
2. Conduct screening studies to determine which affected Paths are to be evaluated on a simultaneous basis.

- a. If the interacting paths are already identified, then the screening studies described below are not required.
- b. If the interacting paths are not already identified, then a screening study should be conducted using the base case that established the Non-Simultaneous Transfer Capability:
 - Apply the most critical outage on the path that established the Path's Non-Simultaneous Transfer Capability.
 - Phase shifters should be in a non-regulating mode.
 - As a minimum study requirement, identify all affected paths that pick up a ten percent increment or more, based on that affected path's rating, due to the outage.

It should be noted that this screening test is not intended to be the only consideration in determining the impact on affected paths.

3. Determine the Simultaneous Transfer Capability.
 - a. The objective of this phase of the study is to have the project sponsor ensure and demonstrate that the Path being rated meets the NERC Reliability Standards and WECC Criteria under simultaneous conditions.
 - b. Using the base case that established the Non-Simultaneous Transfer Capability, maintain the Path being rated at its Non-Simultaneous Transfer Capability, in Steps c and d.
 - c. Individually stress every affected path, one at a time, to its Non-Simultaneous Transfer Capability (whether reliability or flow based).
 - d. Apply outages and look for criteria violations. This step is performed on a path by path basis. If a violation occurs, determine a simultaneous nomogram describing the safe operating range. If criteria violations are not observed, then a simultaneous interaction problem does not exist.
4. Conduct sensitivity studies.

Sensitivity studies should be conducted as agreed to by the PRG and as they relate to the study objectives.

5.4.3. Developing an Accepted Rating for a New Path:

1. Conduct pre-Project benchmark studies, if needed.
 - a. Pre-Project benchmark studies for the Non-Simultaneous and/or Simultaneous Transfer Capabilities should be performed for the subject Path (and, if necessary, other paths) if the system performance and/or the existing Transfer Capability without the Project in service is unknown.

2. Determine post-Project non-simultaneous Transfer Capability.
 - a. The objective of this phase of the study is to demonstrate that the proposed Plan of Service for the Project is adequate to support the proposed rating while meeting the NERC Reliability Standards and WECC Criteria and specific regional criteria where appropriate.
 - b. Stress the Path with the new Project to its proposed or expected Non-Simultaneous Transfer Capability and take outages. All affected path flows should be at flow levels that result in non-interaction with the Path being rated. If a limit due to a reliability criteria violation has not been reached or has been exceeded, increase/decrease, as appropriate, the stress level for the Transmission Path until a limit is reached.
 - c. If the ability to increase flow on the Path is exhausted (due to lack of generation, affected path overloading, etc.) prior to reaching a reliability limit, then the maximum flow achieved on the Path is defined to be the Non-Simultaneous Transfer Capability and the path is considered to be flow-limited.
3. Conduct screening studies to determine which affected paths are to be evaluated on a simultaneous basis.
 - a. If the interacting paths are already identified, then the screening studies described below are not required.
 - b. If the interacting paths are not already identified, then a screening study should be conducted. Using the base case that established the Non-Simultaneous Transfer Capability, take the most critical outage on the Path that established the Non-Simultaneous Transfer Capability. As a minimum study requirement, identify all paths that pick up an increment of ten percent or more based on the affected path's rating due to the outage. Phase shifters should be in a non-regulating mode. It should be noted that this screening test is not intended to be the only consideration in determining the impact on affected paths.
4. Determine Simultaneous Transfer Capability.
 - a. The objective of this phase of the study is to have the project sponsor ensure and demonstrate that the path being rated meets the NERC Reliability Standards and WECC Criteria under simultaneous conditions.
 - b. Using the base case that established the Non-Simultaneous Transfer Capability, maintain the path being rated at its Non-Simultaneous Transfer Capability, in Steps c and d.

- c. Individually stress every affected path, one at a time, to its Non-Simultaneous Transfer Capability (whether reliability or flow based).
 - d. Apply outages and look for criteria violations. This step is performed on a path by path basis. If a violation occurs, determine a simultaneous nomogram describing the safe operating range. If criteria violations are not observed, then a simultaneous interaction problem does not exist.
5. Conduct sensitivity studies.
- Sensitivity studies should be conducted as agreed to by the PRG and as they relate to the study objectives.

5.5. Study Guidelines

5.5.1. General Principles

In general, companies involved will base the criteria applied to the Transmission Paths on the current criteria in use. These criteria shall be made available to the PRG and consistently applied.

5.5.2. Power Flow Guidelines

Power flow studies shall be performed using the following guidelines:

1. Phase Shifter Operation
 - a. Phase shifters shall be operated according to operating procedures established by the owners. The PRG must agree to deviations to the procedures.
 - b. For line outages, phase shifters shall be operated at pre-outage phase angles unless resultant flows exceed established limits. If emergency loadings are exceeded, the owner of the overloaded phase shifter shall be consulted about the impact of the disturbance on their system to determine an appropriate action to reduce the overload. The action could include reducing transfers.
2. Thermal Capacity Limits
 - a. No transmission element will be loaded above 100% of its continuous rating under normal conditions.
 - b. For a single contingency loss of an element(s), no transmission element will be loaded above its emergency rating. A list of continuous and emergency ratings for applicable facilities shall be developed by the PRG and included in the study documentation.

3. System Voltage Limits
 - a. System stresses shall be limited such that the NERC Reliability Standards and WECC Criteria will govern voltage deviation for loss of a system element. All deviations from the WECC Criteria shall be listed.
 - b. Document important base case voltage criteria in this section. Also include a list of minimum acceptable bus voltages for outages. Provide a list of bus voltages to be monitored. The PRG must review and approve this list to ensure all meaningful buses are monitored.
4. Important path flows must be monitored and listed in this section. The PRG must review and approve this list to ensure that all meaningful paths are being monitored.

5.5.3. Stability Guidelines

Stability studies shall be performed as needed to establish the stability transfer limit and to ensure system stability following a critical fault on the system. These studies facilitate the development of the dynamic voltage support requirements.

1. Fault Damping

Three phase fault damping shall be applied according to the appropriate operating guidelines. The rationale and use of it shall be documented in the assumptions used.

2. Machine Representation

- a. Representation of generators in the WECC transient stability database must be consistent with available generator data modeled in current WECC base cases. Machines greater than 20 MVA must be represented.
- b. The power system stabilizers that are normally in service within the WECC system must be modeled for the appropriate case selected.

3. System Disturbance

System disturbances for stability studies must be initiated by a three-phase-to-ground fault on the EHV bus adjacent to the major interconnection point and/or power plant of interest. A single line-to-ground fault must be studied as a sensitivity, if requested by the PRG. The list of outages to be studied must be agreed upon by the PRG and listed in the report.

4. Fault Clearing Time

- a. Faults on the transmission lines being evaluated will be cleared in accordance with guidelines provided by the appropriate members of the PRG.

- b. Backup clearing time for stuck breaker operation will be provided by the appropriate members of the PRG.
5. Series Capacitors

Particular attention should be paid to modeling the correct performance of series capacitors. The protective schemes (i.e., bypass arc gaps, zinc oxide varistor) on the series capacitors vary widely and consequently can affect the system performance differently. The series capacitors must be modeled as they will perform in actual use.
 6. Evidence of System Stability

The system will be considered stable if the following conditions are met:

 - a. Machine Synchronism

All machines in the system remain in synchronism as demonstrated by the relative rotor angles.
 - b. System Damping

A stability simulation is deemed to exhibit positive damping if a line defined by the peak of the machine-relative, rotor-angle swing curve will intersect a second line connecting the valley of the curves with an increase in time. Corresponding lines on bus voltage swing curves will also intersect with an increase in time. Duration of a stability simulation is ten seconds unless a longer time is required to ascertain stability.
 - c. Transient Voltage Criteria
 - i. Major transmission bus voltages and machine terminal voltages should meet the appropriate guidelines following the disturbance. The PRG shall review and approve a list of the buses to be monitored.
 - ii. System transient voltage performance must meet the WECC Criteria at a minimum.
 - d. Stability Plot List

A standardized stability plot list shall be included with the study plan. This list must be approved by the PRG to ensure all meaningful quantities are monitored.

5.5.4. Post-transient Governor Power Flow Study

Post-transient power flow analysis shall be done when requested by the PRG. This analysis must be consistent with the “Voltage Stability Assessment Methodology” and “Voltage Stability Criteria, Undervoltage Load Shedding and Reactive Reserve Monitoring Methodology” documents. The analysis must

demonstrate conformance of the Plan of Service with the NERC Reliability Standards and WECC Criteria.

5.5.5. Remedial Actions

All RAS required to obtain the Accepted Rating must be described in detail and modeled as they will be applied in operation.

5.5.6 Loss of Entire Corridor Analysis²⁰

The detailed study and reporting of impacts due to Extreme Events, particularly “loss of entire corridor” events, shall be a part of the path rating analysis performed in the PRG and documented in the Phase 2 Rating Report. The corridor(s) and facilities in the corridor(s) for this analysis will be specified in the study plan approved by the PRG. This analysis allows WECC and all interconnected parties to be made aware of the impacts related to an outage of multiple transmission lines in the same corridor. This analysis is most important to high-capacity EHV transmission lines and their potential reliability impact to the Western Interconnection.

5.6. Documentation of Study Conclusions

The purpose of the Project Review Group Phase 2 Rating Report is to document the study results and conclusions and to demonstrate how a Project affects the overall system performance as defined by WECC requirements. The project sponsor is responsible for ensuring that the report demonstrates conformance with NERC Reliability Standards and WECC Criteria.

1. The report documenting the Accepted Rating must also provide a general background about the existing system or Project. The background could include historical information, a general Project description, Project need and use, and Project participation. The central elements of a Phase 2 Rating Report are: Plan of Service (including milestones) specified for the Phase 2 studies and a statement that the Plan of Service meets NERC Standard and WECC Criteria;
2. Corrective actions and/or Mitigation Plan, if needed, to support the Accepted Rating
3. Assumptions used in the Rating Study, including load levels, existing and future resources, and other projects upon which the Accepted Rating relies.

The corrective actions and/or Mitigation Plan shall ensure that issues identified will continue to be addressed in Phase 3 and appropriate steps taken in a timely manner to mitigate impacts prior to operation of the new project. Mitigation of impacts can include operating the Path associated with the Project at levels below the Accepted Rating with PRG approval.

²⁰ Mitigation of the impacts due to Extreme Events is not required to achieve an Accepted Rating.

6. Process Examples

The following process scenarios are intended to provide guidance on how a project sponsor could proceed through the Path Rating Process for Projects of various complexities.

6.1. Expediting the Process – Project with no Comments Received

As explained above in Section 3.3 (Expediting the Process), this scenario is illustrative only. All requirements of the Path Ratings Process described in Section 3 remain the same and all timelines for the individual steps still apply. The following is simply a description of how several steps of the process may be followed concurrently.

6.1.1. Phase 1

1. Member A has conducted internal studies and determined that installing a generation shedding scheme will increase the Accepted Rating of its path. The lead time to order and install the necessary equipment is three months.
2. One month later, Member A completes additional studies and submits a comprehensive report to all TSS, PCC, and OC members announcing the proposed increase in the rating of its path. The cover letter advises TSS, PCC, and OC members of Member A's desire to expedite the process and requests expressions of interest in joining a Project Review Group (PRG). Since the equipment will be installed within three months, Member A should also copy these notices to members of the Operating Practices Subcommittee (OPS) and the Technical Operations Subcommittee (TOS) to facilitate the review process.
3. The Project has entered and remains in Phase 1.
4. During the 60-day period, there are no comments on the proposed rating or expediting the process and no expressions of interest in a PRG.

6.1.2. Phase 2

Since all requirements to enter Phase 3 have been met, this Project proceeds directly from Phase 1 into Phase 3. Member A notifies the PCC chair that all requirements to enter Phase 3 have been met.

6.1.3. Phase 3

1. The PCC chair, upon determination that the Project has met all requirements to enter Phase 3, notifies all TSS, PCC, and OC members that the Project has entered Phase 3, and that the comprehensive report is considered to be the Phase 2 Rating Report. The Path associated with the Project has an Accepted Rating.

2. If Member A has installed the necessary equipment, the new Accepted Rating can be used immediately - 60 days after submitting its report and notifications to WECC.

6.2. Project with Minor Comments

6.2.1. Phase 1

1. Member A lists a new transmission line in the WECC Data Collection Process. The Project is now in Phase 1.
2. Member A then submits a Comprehensive Progress Report to all TSS, PCC, and OC members with a letter requesting Phase 2 status. The Report includes a full Project description suitable for modeling the Project in WECC base cases. The cover letter also requests expressions of interest in a PRG (hoping there will be no interest expressed for formation of a PRG).
3. The Report shows no criteria violations at the Planned Rating and details how the Project will curtail to maintain the Accepted Rating of an existing Path with a known simultaneous rating conflict.
4. Within the 60-day review period, Member B requests that some additional contingencies in member A's system be studied, and that the voltage and frequency at several of Member B's load buses be monitored.
5. Member A conducts the requested studies and provides the study results to Member B, requesting confirmation within an agreed-upon time frame that they have no objections to the Planned Rating.
6. Member B confirms within the stated time period that they are satisfied and do not express an interest in joining a PRG.
7. No other members express an interest in forming a PRG.

6.2.2. Phase 2

Since all requirements to enter Phase 3 have been met, this Project proceeds directly from Phase 1 into Phase 3. Member A notifies PCC, TSS, and OC members that the project's Comprehensive Progress Report is considered to be the Phase 2 Rating Report and that the Project has met all requirements to enter Phase 3. PCC will have 30 days to comment regarding conformance with these procedures.

6.2.3. Phase 3

Based on the resolution of all comments, and no interest in formation of a PRG and no comments from PCC, the PCC chair notifies PCC, TSS, and OC members that the Project has entered Phase 3 and the Path associated with this Project is granted an Accepted Rating.

6.3. Complex High-Impact Project

6.3.1. Phase 1

1. Member A lists a new transmission line in the WECC Data Collection Process. The Project is now in Phase 1.
2. The Planning Coordination Committee finds that the Project conforms to the Project Coordination Objectives.
3. Member A then submits a Comprehensive Progress Report to all TSS and PCC members with a letter requesting Phase 2 status. The report includes a full Project description suitable for modeling the Project and it is represented in WECC base cases.
4. The report shows no criteria violations at the Planned Rating for numerous contingencies within Member A's system and details how the Project will curtail to maintain the Accepted Rating of an existing Path with a known simultaneous rating conflict.
5. Within the 60-day review period, Member B requests that some additional contingencies in Member A's system be studied and that the voltage and frequency at several of Member B's load buses be monitored.
6. Member A conducts the requested studies and provides the study results to Member B. Member A found some problems and agrees to address those issues in Phase 2. Member A notifies the TSS chair that the Project has met all requirements to enter Phase 2.

6.3.2. Phase 2

1. The TSS chair, in consultation with WECC staff, verifies that all requirements have been met. The TSS chair notifies all PCC and TSS members that the Project has entered Phase 2A of the Path Rating Process and the Path associated with the Project is conferred a Planned Rating.
2. Member A writes to all members of PCC, TSS, and OC, requesting expressions of interest in participating in a PRG, and allows at least 30 days response time. To increase participation, Member A also reaches out to members that may be interested to request participation. Some interest is expressed and meetings are scheduled.
3. The PRG meets several times. The members also identify a number of additional studies and potential simultaneous limits that they wish to be addressed. Member A develops the study plan and the base cases. The PRG members approve the study plan (which includes at a minimum the study timeline, milestones, other Projects in Phase 2B and Phase 3) and the Foundational Base Case. The PRG agrees that the Project study meets the

- requirements to enter Phase 2B. Member A notifies the PCC chair and WECC staff within five working days after the date the PRG approved the study plan and the Foundational Base Case.
4. During the studies, simultaneous limits are discovered and studies are continued over the next year. Member A modifies the Project to partially mitigate the simultaneous limits and identifies the curtailments necessary to mitigate remaining simultaneous operating problems.
 5. At the last meeting of the PRG, all members are satisfied except for Member C who feels that additional study work is required.
 6. Member A submits a Phase 2 Rating Report to all members of TSS, PCC, and OC without performing the additional work requested by Member C.
 7. No protests from the members of the PRG (including Member C) are received within 30 days and all PCC members' concerns regarding conformance with the procedure have been addressed. Since no member raise any objections, Member A notifies the PCC chair that the Project has met all requirements to enter Phase 3.

6.3.3. Phase 3

When the PCC chair determines that all requirements for entering Phase 3 have been met, the PCC chair notifies all TSS, PCC, and OC members that the Phase 2 Rating Report has been accepted and the Project has entered Phase 3. The Path associated with the Project has an Accepted Rating.

6.4. Project With Protest

6.4.1. Phase 1

1. Member A lists a new transmission line in the WECC Data Collection Process. The Project is now in Phase 1.
2. Member A then submits a Comprehensive Progress Report to all TSS and PCC members with a letter requesting a Phase 2 status. The Report includes a full Project description suitable for modeling the Project in WECC base cases.
3. The Report shows no criteria violations at the Planned Rating for numerous contingencies within Member A's system.
4. Within the 60-day review period, Member B requests that some additional contingencies in Member A's systems be studied, and that the voltage and frequency at several of Member B's load buses be monitored.

5. Members A and B agree to form a PRG and address the concerns in Phase 2. Member A notifies the TSS chair that the Project has met all requirements to enter Phase 2.

6.4.2. Phase 2

1. The TSS chair, in consultation with WECC staff, verifies that all requirements have been met. The TSS chair notifies all PCC and TSS members that the Project has entered Phase 2A of the Path Rating Process and the Path associated with the Project is conferred a Planned Rating.
2. Member A writes to all members of the PCC, TSS, and OC, requesting expressions of interest in participating in a PRG, and allows at least 30 days response time. Some interest is expressed and meetings are scheduled.
3. A PRG is formed and meets several times. The members also identify a number of additional studies and potential simultaneous limits that they wish addressed. Member A develops the study plan and the base cases. The PRG members approve the study plan that includes, at a minimum, the study timeline, milestone, other Projects in Phase 2B and Phase 3 and the Foundational Base Case(s). The Project study meets the requirements to enter Phase 2B. Member A notifies the PCC chair and WECC staff within five working days after the PRG approves the study plan and the Foundational Base Case.
4. During the studies, a criteria violation in Member B's system is discovered under high simultaneous transfers. Member A proposes to mitigate the problem by paying for the installation of a shunt capacitor on Member B's system. Member B does not like the idea.
5. Member A drafts a review group report proposing the shunt capacitor mitigation. After review and editing, a majority of the PRG accepts the report with the shunt capacitor mitigation. Member B votes against the report. Member B also submits a minority report.
6. The report, including the minority report submitted by Member B, is submitted to the PCC with a request for Phase 3 status.
7. Member B files a protest within 30 days claiming the proposed mitigation is unacceptable.
8. The PCC withholds acceptance pending resolution of Member B's protest. The PCC raises no concerns regarding conformance with the procedure. The PCC chair informs Members A and B that they must agree to resolve the protest either between themselves, with assistance of the TSS or PCC, using

- the WECC Dispute Resolution Procedures in the WECC Bylaws, or with outside assistance.
9. At the request of either Member A or Member B, the PCC chair holds a discussion at a PCC meeting. Based on the discussion, the PCC votes to affirm that Member A's proposed mitigation was acceptable in accordance with the Reliability Criteria. Member B does not agree with the PCC vote.
 10. The parties choose arbitration and accept WECC assistance in providing an arbitrator and associated support. Both parties state their cases per the process set up by the arbitrator. The arbitrator accepts Member A's proposed resolution.
 11. The results are sent to the PCC chair and, since all PCC members' concerns regarding conformance with this procedure have been addressed, Member A notifies the PCC chair that the Project has met all requirements to enter Phase 3.

6.4.3. Phase 3

1. When the PCC chair determines that all requirements for entering into Phase 3 have been met, the PCC chair notifies all TSS, PCC, and OC members that the protest has been resolved. The Phase 2 Rating Report is accepted by the PCC and the Project enters Phase 3.

The Path associated with the Project now has an Accepted Rating.

2. Members A and B implement the mitigation as described in the Phase 2 Rating Report.
3. Member A begins commercial operation at the rating set in the Phase 2 Rating Report.

6.5. Rating Determined By Alternative Method

6.5.1. Phase 1

1. Member A has conducted internal studies and determined the Proposed Rating of its flow-limited path using some method other than the Maximum Flow Test (MFT).
2. Member A completes additional studies and submits a comprehensive report to all TSS, PCC, and OC members announcing the Proposed Rating of its path. In the mailing, Member A includes a description of the alternative method they used and what the proposed method is intended to accomplish. The cover letter requests Phase 2 status and expressions of interest in joining a PRG.

3. The Project has entered Phase 1. During the 60-day period, the only comments received are questions about the alternative method used. Several members express interest in a PRG. Since formation of a PRG has been requested, questions about the alternative method will be addressed in the Phase 2 process. The Project sponsor notifies the TSS chair.

6.5.2. Phase 2

1. After verification with WECC staff that no comments were received about the deficiency of the comprehensive report, the TSS chair notifies all PCC and TSS members that the Project has entered Phase 2A of the Path Rating Process and the Path associated with the Project is conferred a Planned Rating.
2. Member A informs the PCC, TSS, and OC that a PRG is being formed and gives details about the alternative method that will be used in the Rating Studies.
3. The PRG agrees that the only issue concerns the alternative methodology and no member of the PRG requested any simultaneous studies. The PRG agrees that the Project can proceed to Phase 2B. Member A notifies the PPC chair and WECC staff within five working days.
4. The PRG meets and all the affected parties concur that the project sponsor may use this method for determining the path's rating.
5. At the last meeting of the PRG, all members are satisfied.
6. Member A submits a Phase 2 Rating Report to all members of the TSS, PCC, and OC.
7. No protests from the members of the PRG are received within 30 days and all PCC members' concerns regarding conformance with this Path Rating Process have been addressed, Member A notifies the PCC chair that the Project has met all requirements to enter Phase 3.

6.5.3. Phase 3

When the PCC chair determines that all requirements for entering Phase 3 have been met, the PCC chair notifies all TSS, PCC, and OC members that the Phase 2 Rating Report has been accepted and the Project has entered Phase 3. The Path associated with the Project has an Accepted Rating.

6.6. Similarly Situated Projects

6.6.1. Relationship between Projects in Phase 2A, 2B, and Phase 3

The following diagram shows four Projects in various stages of studies in Phases 2A, 2B, and 3 based on the definition of "Similarly Situated Projects."

Similarly-Situated Projects -- At any point in time, if any two Projects are together in Phase 2B of the Path Rating Process, they are Similarly Situated and have a responsibility to mitigate interaction they have with each other until both become operational.



1. Project X and Project Y are Similarly Situated.
2. Project Y enters Phase 2B after Project X and has the burden of performing the simultaneous study that includes Project X.
3. Project X does *not* have the burden of (but is not precluded from) performing the simultaneous study that includes Project Y.
4. Project X and Project Y have to consider the impacts on each other and share in the responsibility of mitigating the impacts (Planned Ratings are not protected).
5. Projects X, Y, and Z have the burden of mitigating the impacts on Project W in Phase 3 (Accepted Ratings are protected).
6. Project Z is in Phase 2A, and must take Projects W, X, and Y into account in its studies.

7. Principle Scenarios

7.1. Neutrality of Path Definition

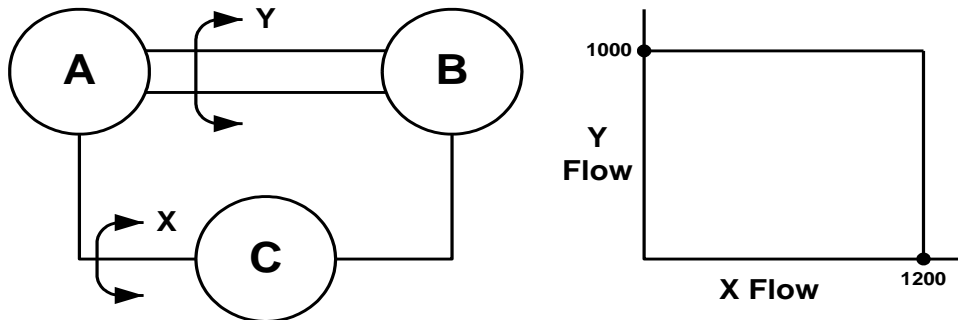
7.1.1. Principle to Illustrate:

Section 4.3.8: "When a new facility interacts with an existing Path, two options are available to address this interaction. One option is to include the new facility in the existing Path and manage the expanded Path as a single unit. The second option is to define the new facility as a new Path and define the relationship with the existing Path in a nomogram." and

"In either case, projects sponsors are required to determine if the proposed Project would constitute a subset of an existing Path. Ideally, this is done as early in the Path Rating Process as possible. If the proposed Project is determined to be a subset of an existing Path, the project sponsor must re-rate the Path within the Path Rating Process."

7.1.2. Existing Situation:

A and B have a rating in the A to B direction (Path Y) and have established a rating of 1000 MW on Path Y and 1200 MW on Path X.

**7.1.3. Change to the Existing Situation:**

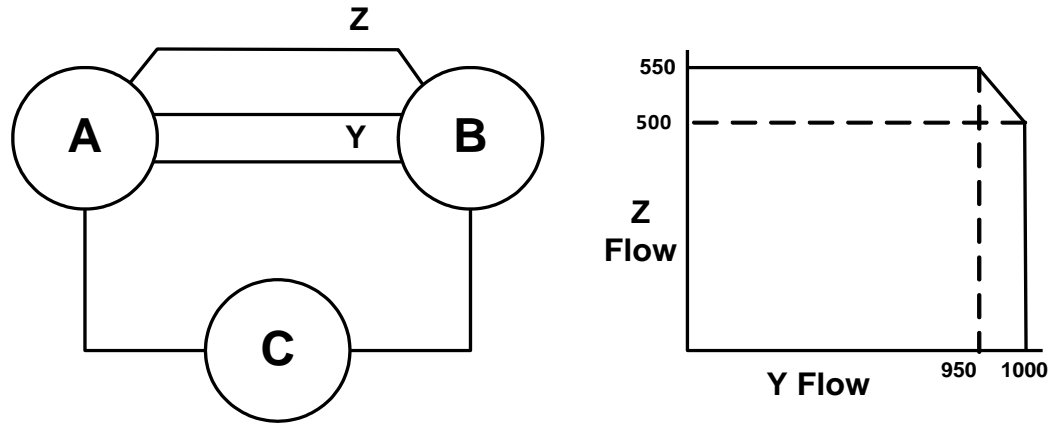
1. Owner D builds Line Z between B and A.
2. Line Z has a non-simultaneous rating of 550 MW.
3. Owner D has not decided in Phase 1 to include Line Z as part of Path Y for rating purposes.
4. Owner D conducts the two tests in Appendix D and determines the percentage change in power flow with addition of Line Z. The information was provided to the PRG. The PRG determines that Line Z is a subset of Path Y.
5. Owner D re-rates the existing Path Y.
6. From the MFT analysis it is found that the maximum possible flow across Z + Y is 1500 MW.

7.1.4. Alternative 1:

Line Z is combined with Path Y for rating purposes and the rating of the combined path under the MFT is 1500 MW.

7.1.5. Alternative 2:

1. Owner D does not want to include the new line with Path Y for rating purposes, but rather chooses to be a separate path, and the PRG determines that the Path Y does not have to be rerated to include Line Z.
2. Line Z remains a separate path and establishes a nomogram with a non-simultaneous limit of 550 MW. Line Z (Owner D) must make arrangements with Path Y to keep the combined Z + Y schedule at or below 1500 MW.



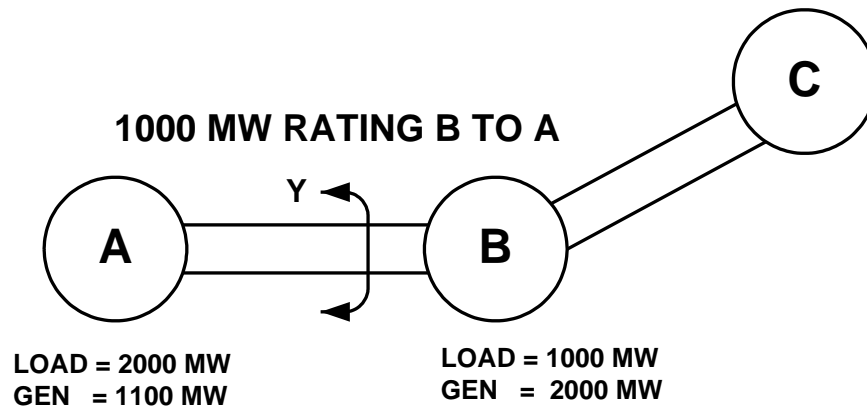
7.2. Reverse Flow

7.2.1. Concept to Illustrate:

Section 4.3.9: "It may be impossible to achieve a desired MFT if one is trying to rate a line in a direction counter to prevailing flow. Parties faced with such a circumstance could still schedule transactions over the path in the opposite direction using a net scheduling approach. Once the rating of a Transmission Path has been established, scheduled transactions over the path are permitted in either direction providing the net schedule at any time does not exceed the path rating in either direction. For example, if the path rating has only been established in one direction, schedules are still permitted in both directions as long as the net schedule is in the same direction as the path rating direction and does not exceed the path rating."

7.2.2. Existing Situation:

1. System A is resource deficient by 900 MW.
2. System B has surplus generation of 1000 MW.
3. System C is energy deficient at various times (primarily hydro).
4. System A has a high-load-factor system and always imports at least 500 MW from System B.
5. Maximum achievable flow from B to A on Y is 1000 MW, which meets Reliability Criteria. Using the MFT, the maximum rating is 1000 MW.



7.2.3. Change to Situation:

System D builds a 500 MW plant adjacent to system A.

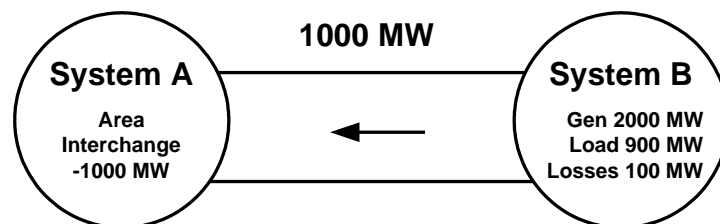
7.2.4. Application of Principle:

System D arranges to schedule up to 500 MW in the A to B direction as long as the net schedule is in the rated direction (B to A) and does not exceed that rating. Since A is always importing, D will always have a schedule to net against. If the situation changes such that A does not import, then it will be possible to establish an A to B rating using the MFT.

7.3. Flow-Limited Ratings – Flow-Limited By Available Resources (Using MFT Method)

7.3.1. Principle To Illustrate:

Section 4.3.3 Accepted Rating is limited by a shortage of available resources; reliability limit not reached.



7.3.2. Existing Situation:

1. System B, being resource limited, has a maximum of only 1000 MW of generation surplus to its system.

2. The path A-B is a two-line intertie system with nominal capability of 1200 MW per line.
3. The outage of either line in path A-B or any other outage in system A or B does not result in a criteria violation.

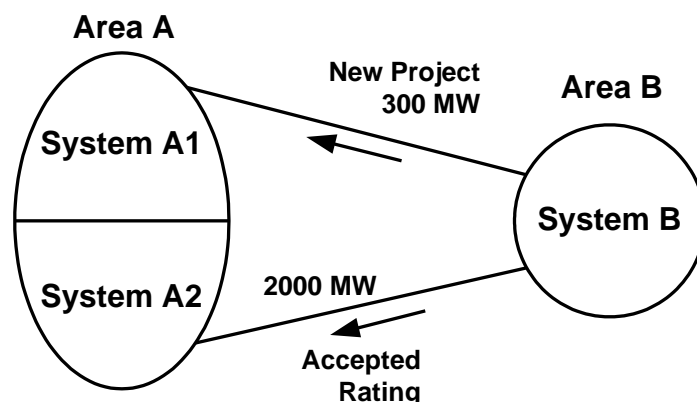
7.3.3. Application of Principle:

Path A-B is given a 1000 MW Accepted Rating although it possibly could be rated higher if more resources were available in System B. The path A-B has passed the MFT and the rating achieved is called a Flow-Limited Rating and is protected.

7.4. Flow-Limited Ratings – Flow-Limited By Low Impedance Parallel Path

7.4.1. Principle to Illustrate:

Section 4.3.3 Accepted rating on the New Project is limited by the existing system reaching a limit before the New Project reaches its limit.



7.4.2. Existing Situation:

The Accepted Rating of path A2-B (low impedance path) is thermally limited at 2000 MW.

7.4.3. Change to Existing Situation:

1. The New Project is being planned as a higher impedance path with a nominal rating of 500 MW.
2. With the addition of the New Project, due to the network and location of resources, path A2-B will overload when the New Project is increased above 300 MW.

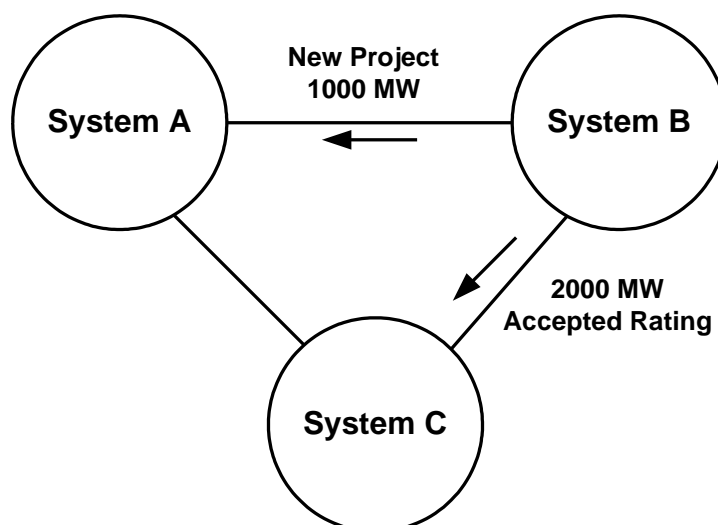
7.4.4. Application of Principle:

Path A1-B is given a flow-limited Accepted Rating of 300 MW and is protected. It may be possible to uprate path A1-B in the future if a higher flow can be demonstrated after completion of appropriate studies and review.

7.5. Accepted Rating Protection - Reliability Criteria Violation

7.5.1. Principle to Illustrate:

Section 4.3.4. "A new project shall not cause a reduction in an Accepted Rating of another Path (e.g., because of a reliability criteria consideration) unless mitigating or compensating measures are provided."



7.5.2. Existing Situation:

Path B-C has an Accepted Rating of 2000 MW limited by a criteria violation for contingencies on that path.

7.5.3. Change to Existing Situation:

1. The New Project on path A-B has completed studies and proposed a Planned Rating of 1000 MW.
2. System C determines that the capability of path B-C has been reduced due to a contingency on path B-C that no longer meets the Reliability Criteria (for example, low swing voltage in system A). It also shows that path B-C meets the Reliability Criteria at the Accepted Rating prior to addition of the new Project.
3. System C claims its protected rating on path B-C has been impacted and should be mitigated.

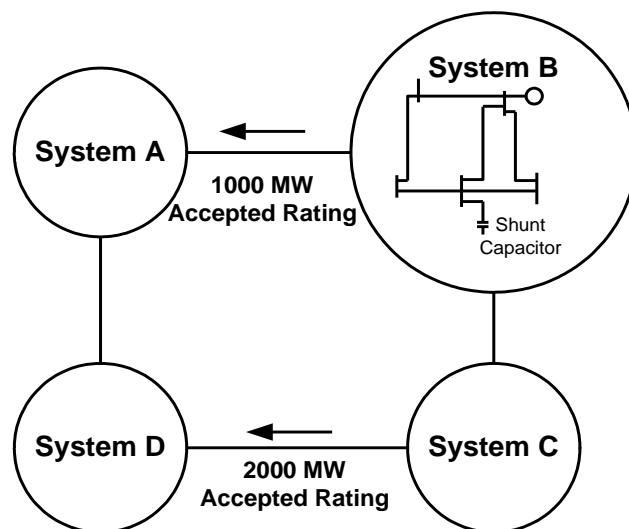
7.5.4. Application of Principle:

Path A-B must mitigate the adverse impact on path B-C by reducing the rating of path A-B or by other means (addition of shunt reactive, addition of series capacitors, etc.)

7.6. Accepted Rating Protection - Reliability Criteria Violation. Acceptable Reduction in Accepted Rating Caused By Another Party

7.6.1. Principle to Illustrate:

Section 4.3.4. "... if a facility is retired from service (generator, shunt reactive equipment, RAS, etc.) all path ratings that rely on the facility must be reviewed and reduced to the extent the System Impacts of such retirement are not mitigated." Further, "if a path's Accepted Rating relied upon the facilities that are not part of the path's Plan of Service, and if those facilities are retired, modified, or never built, the Accepted Rating is subject to review in the same manner as if changes had occurred in the path's Plan of Service."



7.6.2. Existing Situation:

The Accepted rating for path B-A is 1000 MW and the Accepted Rating for path C-D is 2000 MW.

7.6.3. Change to Existing Situation:

1. System B announces that it is planning to remove a shunt capacitor in its system and shows that path A-B meets the Reliability Criteria and the Accepted Rating has not changed, nor are there any Reliability Criteria violations for contingencies in System B.
2. However, System C determines that the removal of the shunt capacitor in System B causes path C-D to violate the Reliability Criteria and claims that the rating should be protected.
3. System B establishes that the shunt capacitor was installed before path C-D received its Accepted Rating and that the rating study relied upon that capacitor.

7.6.4. Application of Principle:

System C is not entitled to retain its Accepted Rating because of the change made by System B. In essence, System C was making use of the shunt capacitor

to support its Accepted Rating on path C-D. System B is not responsible for mitigating the reduction of the Accepted Rating of path C-D.

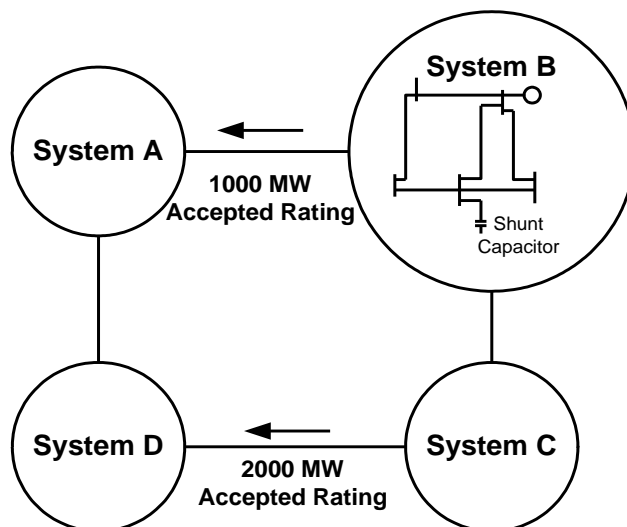
7.7. Accepted Rating Protection - Reliability Criteria Violation. Retention of Accepted Rating for Facility Removal by Another Party

7.7.1. Principles to Illustrate

Section 2.3: “Transmission paths shall complete the path rating process specified in this procedure and obtain an Accepted Rating if any of the following criteria apply: ...

4. A facility (generator, series, or shunt reactive equipment; Remedial Action Scheme; etc.) that an Existing or Accepted Rating depends on is modified²¹ or retired from service, without regard to whether the facility is owned by the same system as the rated path.”

Section 4.3.4. “... if a facility is retired from service (e.g., generator, shunt reactive equipment, Remedial Action Scheme, etc.) all path ratings that rely on the facility must be reviewed and reduced to the extent the System Impacts of such retirement are not mitigated...”



7.7.2. Existing Situation

The Accepted Rating for path B-A is 1000 MW and the Accepted Rating for path C-D is 2000 MW.

²¹ If the modified RAS is functionally equivalent to the existing RAS and is approved by the RASRS, then the Path does not need to be rerated.

7.7.3. Changes to Existing System

1. System B announces that it is planning to remove a shunt capacitor in its system and shows that path A-B meets the Reliability Criteria and the Accepted Rating has not changed, nor are there any Reliability Criteria violations for contingencies in System B.
2. However, System C determines that the removal of the shunt capacitor in System B causes path C-D to violate the Reliability Criteria and claims that the rating should be protected.
3. System C establishes that System B installed the shunt capacitor as part of the Plan of Service for path A-B, as documented in the Phase 2 Rating Report.

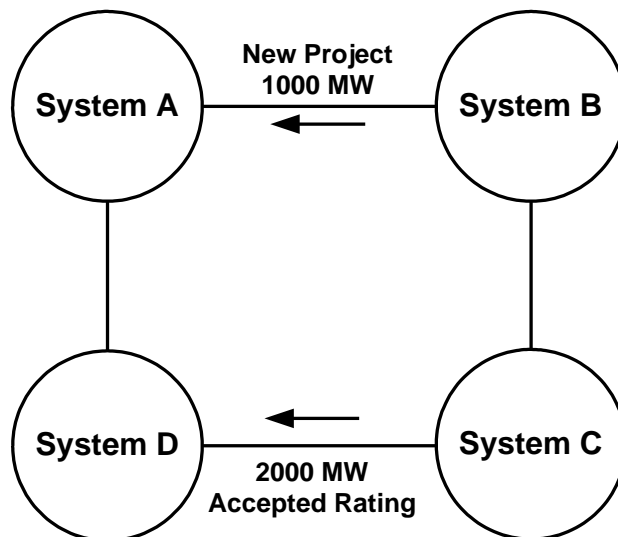
7.7.4. Application of Principle

System B must mitigate the Adverse Impact on path C-D by reducing the rating of Path A-B or by other means (retention or replacement of the shunt capacitor, etc.).

7.8. Accepted Rating Protection - Failure to Meet Maximum Flow Test (MFT) - Retention of Accepted Rating as a Result of Changes Made By Another Party

7.8.1. Principle to Illustrate:

Section 4.3.4. "A transmission path's Accepted Rating will not be lowered because its maximum achievable flow is reduced due to system changes made by others..."



7.8.2. Existing Situation:

Path C-D has an Accepted Rating of 2000 MW and is limited by the MFT (no Reliability Criteria violation).

7.8.3. Change to Existing Situation:

1. The New Project on path B-A proposes a Planned Rating of 1000 MW. Phase 2 studies show acceptable performance.
2. System C determines that the maximum achievable flow on path C-D has been reduced to a maximum of 1500 MW due to the New Project. System C also shows that prior to the New Project it could load path C-D to its Accepted Rating of 2000 MW.

7.8.4. Application of Principle:

Path C-D retains the protection for its Accepted Rating of 2000 MW. The New Project on path B-A gains an Accepted Rating of 1000 MW. The Simultaneous limit is 2500 MW. By the time the New Project commences operation, the owners of path B-A and path C-D must make operating agreements to ensure path C-D is kept whole in scheduling rights (2000 MW) while not violating simultaneous transfer limits between paths B-A and C-D. Alternatively, the New Project may change its Plan of Service to mitigate the impacts on path C-D.

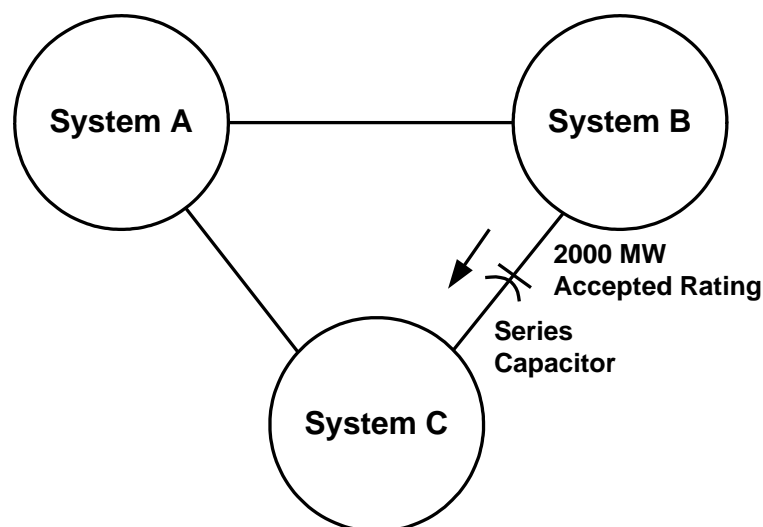
7.9. Accepted Rating Protection - Failure to Meet Maximum Flow Test (MFT) - Reduction of Accepted Rating as a Result of Changes Made By Path Owner/Operator**7.9.1. Principle to Illustrate:**

Section 2.3: "Transmission paths shall complete the path rating process specified in this procedure and obtain an Accepted Rating if any of the following criteria apply: ...

4. A facility (generator, series, or shunt reactive equipment; Remedial Action Scheme; etc.) that an Existing or Accepted Rating depends on is modified²² or retired from service, without regard to whether the facility is owned by the same system as the rated path."

Section 4.3.4. "... If a facility is retired from service (e.g., generator, shunt reactive equipment, Remedial Action Scheme, etc.) all path ratings that rely on the facility must be reviewed and reduced to the extent the System Impacts of such retirement are not mitigated..."

²² If the modified RAS is functionally equivalent to the existing RAS and is approved by the RASRS, then the Path does not need to be rerated.

**7.9.2. Existing Situation:**

Path B-C has an Accepted Rating of 2000 MW.

7.9.3. Change to Existing Situation:

1. Owners of path B-C remove the series capacitor that is part of path B-C.
2. System B completes studies that show that path B-C will no longer load to its Accepted Rating.

7.9.4. Application of Principle:

The owners of path B-C re-rate their path to establish a new lower Accepted Rating.

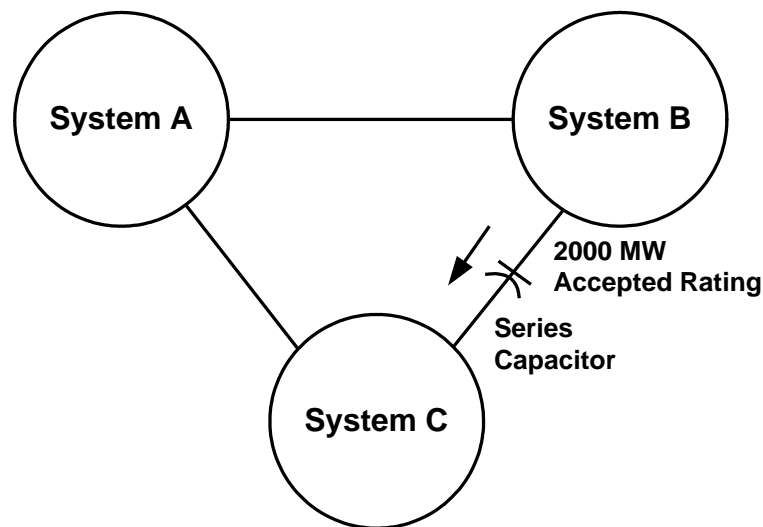
7.10. Accepted Rating Protection - Failure to Meet Maximum Flow Test (MFT) - Reduction of Accepted Rating as a Result of Changes Made By Both the Path Owner/Operator and Other Parties**7.10.1. Principle to Illustrate:**

Section 2.3: "Transmission paths shall complete the Path Rating Process specified in this procedure and obtain an Accepted Rating if any of the following criteria apply: ...

4. A facility (generator, series, or shunt reactive equipment; Remedial Action Scheme; etc.) that an Existing or Accepted Rating depends on is modified²³ or retired from service, without regard to whether the facility is owned by the same system as the rated path.."

²³ If the modified RAS is functionally equivalent to the existing RAS and is approved by the RASRS, then the Path does not need to be rerated.

Section 4.3.4. "... if a facility is retired from service (e.g., generator, shunt reactive equipment, Remedial Action Scheme, etc.) all path ratings that rely on the facility must be reviewed and reduced to the extent the System Impacts of such retirement are not mitigated..." Further, "...However, if a path's Accepted Rating relied upon the facilities that are not part of the path's Plan of Service, and if those facilities are retired, modified, or never built, the Accepted Rating is subject to review in the same manner as if changes had occurred in the path's Plan of Service..."



7.10.2. Existing Situation:

1. Path B-C has a previously-established Accepted Rating of 2000 MW.
2. Owners of path B-C perform new studies that show path B-C will now load to only 1900 MW due to the development of parallel systems. There are no reliability problems at this flow.

7.10.3. Change to Existing Situation:

1. Owners of path B-C remove the series capacitor that is part of path B-C.
2. System B completes studies that show that path B-C will load to only 1400 MW with the series capacitors removed. There are no reliability problems at this flow.
3. The decrement in rating due to the removal of the series capacitors is 500 MW.

7.10.4. Application of Principle:

The owners of path B-C rerate their path to establish a new lower Accepted Rating. The owners of path B-C cannot assume the original rating of 2000 MW is

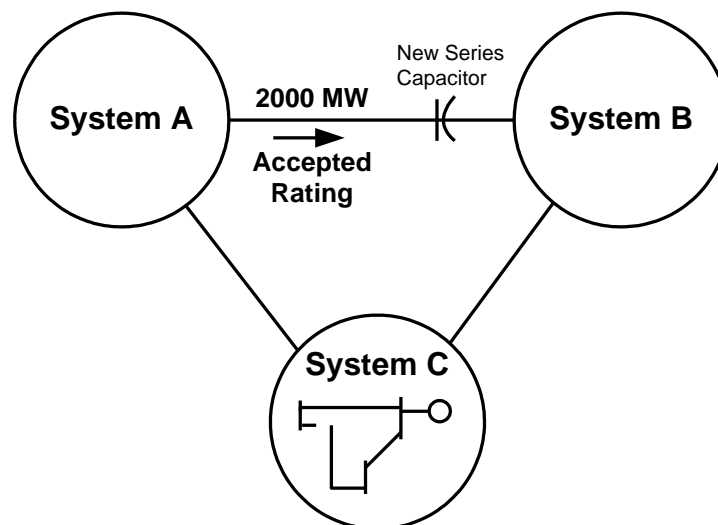
still valid simply because the flow reduction to 1900 MW was not in their control (due to parallel system changes). The new Accepted Rating is 1400 MW unless:

- 1) they can establish that the reduction was due to Adverse Impacts caused by specific actions of other systems that should be mitigated in accordance with these procedures, and
- 2) mitigation for the 100 MW flow reduction is implemented (see Section 7.7.).

7.11. Accepted Rating Protection - Increase in Accepted Rating Caused By Path Owner/Operator

7.11.1. Principle to Illustrate:

Section 4.3.4. "Transmission path owners that make changes to their system that increase the flow on a path with a Flow-Limited Rating can receive a higher Accepted Rating consistent with the MFT."



7.11.2. Existing Situation:

Path A-B has an Accepted Rating of 2000 MW and is limited by the MFT (no Reliability Criteria violations).

7.11.3. Change to Existing Situation:

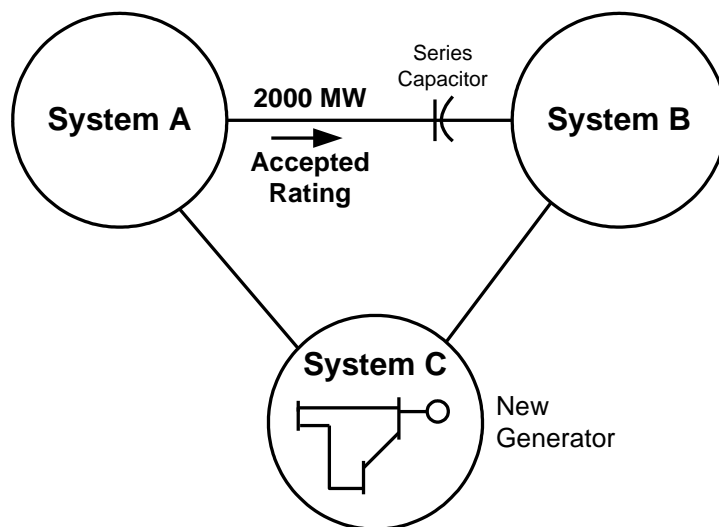
The owners of path A-B complete studies showing that the series capacitor they have planned to add to path A-B will increase the Accepted Rating of that path to 2500 MW.

7.11.4. Application of Principle:

Path A-B owners may obtain a higher Accepted Rating for path A-B if they can demonstrate increased flow due to a project they have planned and satisfy the other requirements of this Path Rating Process.

7.12. Accepted Rating Protection - Increase in Accepted Rating Caused By Another Party**7.12.1. Principle to Illustrate:**

Section 4.3.4. "Transmission Path owners that make changes to their system that increase the flow on a Path with a Flow-Limited Rating can receive a higher Accepted Rating consistent with the MFT. This same principle applies if the flow on the Path is increased by a project initiated by another party; although in that case, it should be recognized that the higher Accepted Rating relies upon and is subject to the operation of the other party's facilities." Further, "if a path's Accepted Rating relied on facilities that are not part of the Path's Plan of Service, and if those facilities are retired, modified, or never built, the Accepted Rating is subject to review in the same manner as if changes had occurred in the Path's Plan of Service."

**7.12.2. Existing Situation:**

Path A-B has an Accepted Rating of 2000 MW and is limited by the MFT (no Reliability Criteria violations).

7.12.3. Change to Existing Situation:

The owners of Path A-B complete studies showing that the addition of the new generator in system C would allow an increase in the Accepted Rating of Path A-B to 2500 MW.

7.12.4. Application of Principle:

Path A-B owners may obtain a higher Accepted Rating for Path A-B if they demonstrate increased flow due to a project planned by another party (i.e., the new generator in system C) and satisfy the other requirements of these procedures. The OTC under this new Accepted Rating will be dependent on the operation of the new generator.

Approved by Planning Coordination Committee

July 15, 2014

Appendix A: Rating Methods Discussion and Background

The following explanatory sections address several major issues in the transmission rating process. The intent is to guide transmission studies toward a uniform basis for ratings.

Affected Path Stress Levels

The nature of AC electrical networks is such that the loss of a loaded transmission line in one path impacts all affected paths. Each affected path will pick up a portion of the power that was flowing in inverse proportion to its impedance relative to the other affected paths. This ability of paths to affect each other has led to the development of nomograms that describe the simultaneous capacity relationships between affected paths.

The sponsor of a new rating has an obligation to address, and potentially mitigate, all criteria violations on affected paths that are identified by affected parties. This could imply multiple studies being run with every potentially affected path fully loaded. However, that would be an unrealistic and unreasonable study burden, both on the sponsor and on the Project Review Group (PRG) participants that are responsible for identifying problems. Therefore, WECC requires using a screening test procedure as a minimum study requirement. Screening studies must be performed that identify all affected paths that pick up an increment of 10 percent or more (based on that affected path's rating) for an outage on the path being rated with all phase shifters in a non-regulating mode.

This screening test is not intended to be used as a margin criterion nor does it imply that a change of 10 percent is required before mitigation is appropriate. The determination as to whether mitigation is required is made independently as described elsewhere herein. Once these affected paths are identified, both parties (the sponsor of the new rating and the owner of the affected facility) need to jointly decide how to determine the simultaneous capability of both paths. There are several possible outcomes of this determination: no simultaneous studies are required, joint studies will be performed, the sponsor will perform the studies with input from the affected party, or the affected party will perform the studies.

The obligation of the project sponsor to perform screening studies does not remove the responsibility that the owners of affected paths have to identify for themselves the impact that a new facility or rating will have on their systems. All members need to make a determination for themselves as to whether they are impacted and need to ensure that proper levels of stress are represented on their Transmission Paths in all applicable studies.

Latent Capacity

Transfer capability is considered "latent" when it can be acquired by improving an existing path without adding new lines to the path. Some examples of possible improvements include:

- Installing shunt devices that improve the voltage profile and/or system damping;
- Placing existing unused equipment into service;
- Implementing a remedial action scheme; or
- Adding new generation.

Questions have been raised whether Latent Capacity should be protected similar to the Accepted Rating. For the reasons listed below the protection of Latent Capacity is not allowed. They are:

- The planning process for new facilities would become extremely complicated. New projects would have to deal, not only with existing owners' rights, but also with claimed Latent Capacity rights. Planning studies would have to be done with base cases that use fictitious devices to represent the system in an ideal state with no Latent Capacity left.
- There are no published Latent Capacity numbers. Claims to Latent Capacity would have to be demonstrated by some other procedure. This would produce an unacceptable burden of new work with little benefit.
- There are no published plans for placing future equipment in service. Planners would not know how to study future systems to ensure that no utility is negatively affected.

One of the major objectives promulgated in the rating process is that an Accepted Rating could be used in operation. Thus the principles of realism, demonstration of flow, and no use of fictitious devices, have been developed. In this context, the determination of Latent Capacity violates some or all of these principles. Latent Capacity does not exist until improvements are made and therefore cannot be used in operation.

For planning, regulatory and other reasons, members may find that identifying and documenting Latent Capacity would be useful. Some possible uses are:

- Knowledge of Latent Capacity may promote appropriate decisions in generator siting; facilitate Project Coordination; or assist in fulfilling transmission access requests.
- Latent Capacity that has been adequately reviewed and documented may gain expedited review if the TSS determines that the original documentation is still applicable.

At their discretion, project sponsors may identify and document the Latent Capacity in the Phase 2 Rating Report.

Latent Capacity is not protected; it cannot be used in operation; and it is not recognized nor incorporated by others in their rating studies. The only means of protecting Latent Capacity is to have a committed Project and pursue that Project through the Path Rating Process.

Maximum Flow Test (MFT)

The ability of a path to acquire flow within an electric system is an intrinsic property of the electric system. The actual flow on a path is a result of the impedance ratios of the transmission lines in the electric system and the circumstances of geographic load and generation patterns, phase shifter operation, etc. Adverse unscheduled flow performance reflects a mismatch between scheduling practice (which is a commercial decision and from an electric point of view, arbitrary) and this intrinsic property.

The Planning Coordination Committee (PCC) requires that the rating process must include an examination of flow distributions to recognize physical properties of the system and, at least to some extent, should address potential unscheduled flow impacts. A reasonable way to address unscheduled flow is to establish Transmission Path Ratings at a level where no system reliability problems exist and schedules will be limited by the maximum flow that can occur on the path under realistic conditions.

The Rating Methods Task Force (RMTF), now dissolved, gave careful consideration to how a rating should be related to scheduled and/or actual flows. For several reasons, the RMTF decided that ratings should be developed on the basis of actual flows rather than schedules. First, the RMTF's position is that a rating should reflect a path's ability to carry flow. (The relationship between actual flow and scheduled flow is an unscheduled flow issue. Additionally, assigning path capabilities to schedules rather than actual flow actually rewards those paths that maximize unscheduled flows, thus penalizing parallel paths.²⁴) Second, associating a rating with a schedule implies that the path should have that rating only when that particular schedule is in place. This would severely limit the usability of the rating. And third, there are too many scheduling entities and combinations of schedules that produce the same flow on a given path for it to be practical to state a rating in terms of schedules.

The RMTF developed procedures and guidelines based on a path's ability to carry power and the project sponsor's ability to demonstrate adherence to NERC Reliability Standards and WECC Criteria. To prove adherence to the Criteria, the project sponsor must demonstrate through simulation that power will flow equal to the desired rating and meet all applicable Reliability Criteria.

²⁴ Including affected paths.

1. Flow-Limited Ratings

The rating of a non-flow controlled Transmission Path should be capped by the flow that can be achieved with realistic generation and load patterns (no use of fictitious devices or operating practices).

The preferred method to calculate a flow-based rating limitation is the MFT. This test consists of developing a power flow test case that depicts a reasonable condition which produces a flow on the path at least equal to or greater than the proposed rating.

MFT attributes:

- a. The MFT must not use fictitious devices or have overloaded transmission facilities.
- b. Considerable latitude is allowed in the development of the test case. A reasonable load and generation dispatch pattern, which is able to support the rating, is appropriate.
- c. Since the Accepted Rating is limited by the MFT, any capacity above the MFT is Latent Capacity.

2. Realistic Simulation

The RMTF believed considerable latitude is appropriate in the assumptions used to build the power flow case that sets the upper limit on the flow and the rating. The only requirement is that the case must represent a realizable geographic load and generation pattern within recognized operating procedures and be accepted by the PRG for that path. It is acknowledged that the likelihood of the particular load/resource pattern occurring in actual system operation may be low.

In allowing this latitude, the RMTF recognized that there may be many hours in the year when the actual load and generation distribution may not result in the actual flow approaching the rating, even if the path is scheduled to its limit. This mismatch between schedule and flow does create unscheduled flow. However, the elimination of fictitious devices and capping the rating at the maximum optimistic flow that can be obtained represents an effort to address unscheduled flow issues in the planning and rating process.

3. Alternative Methods

With the concurrence of all affected parties to a rating, the project sponsor may apply some test other than the MFT to demonstrate that unscheduled flow impact is within an acceptable level. If the project sponsor proposes to use some test other than the MFT, the sponsor should notify the PCC and explain the alternative test in sufficient detail prior to completing Phase 2.

4. Phase Shifter Operation

If a path has flow control elements, such as phase shifters, then its rating must be within the range of loading that can be achieved with realistic generation and load patterns without violating the capabilities of the devices. Also, the project sponsor must have procedures to assure the devices will be operated consistent with the principles on which the path was rated.

5. Reverse Flow

It may be impossible to meet an actual flow test when trying to rate a line in a direction counter to prevailing flows. Parties faced with such a circumstance should develop a net scheduling/allocation approach. It should be remembered that, once the rating of a transmission path has been established, scheduled transactions over the path are permitted in either direction providing the net schedule at any time does not exceed the path rating. For example, if the path rating has only been established in one direction, schedules are still permitted in both directions as long as the net schedule is in the same direction as the path rating direction and does not exceed the path rating.

6. Allocation

Allocation of rights on a path is a commercial issue that the owners of the path may need to resolve; however, it does not affect the rating of the path. The allocation method need not bear any resemblance to the rating method.

Flow Test Exemption

A transmission path's Accepted Rating is established in accordance with the processes set forth previously in this document. The majority of transmission facilities in WECC have ratings that are limited by reliability constraints that will be referred to as system-limited. A few EHV transmission facilities in WECC will have ratings that are limited by the highest flow on the path under realistic conditions and are not system-limited. These paths and their ratings will be referred to as flow-limited. A flow-limited path is restricted, not by a reliability problem, but by the impedance of the path, lack of generation, load, etc.

A path's Maximum Achievable Flow (MAF) is the highest flow that can be obtained under realistic conditions where a reliability limit is not reached. Because of system changes, the MAF may change over time; it may become less than the Accepted Rating. The following principles guide how Flow-Limited Ratings are protected:

1. Meet WECC Criteria

Having an Accepted Rating does not exempt a company from having to operate the system in a manner that meets NERC Reliability Standards and WECC Criteria. If it is demonstrated that a violation of these requirements occurs when a Transmission

Path flow is less than its Accepted Rating, changes must be made to ensure the system will not be operated under those conditions. An MFT exemption applies strictly to Flow-Limited Ratings.

2. System Changes Made by Others

A Transmission Path's Accepted Rating will not be lowered because the MAF on the path is reduced due to system changes made by others (i.e., the path can no longer meet the MFT). The rating should not be reduced for the following reasons:

- a. Existing path owners should not incur a reduced rating due to changes made by other systems that provided no benefit to the path owner.
- b. Existing path owners did not have control of the decision to make the system changes.
- c. The system is still being operated reliably.
- d. Existing path owners and those who have rights on that path need some assurance the rating of the path will not be reduced due to changes made by others.

The potential drawback to this principle is scheduling the Path to the same level as before the system changes could presumably cause increased unscheduled flow.

3. System Changes Made by Path Owners

A Transmission Path's Accepted Rating will be lowered if its owner makes changes to the system that reduce the path's flow. The Accepted Rating will be reduced by the amount the flow was decreased. The path owners should recognize that they may be required to go through the Path Rating Process when making their decision to change their system.

The potential drawback to this principle is there may be cases where an owner decides not to make an improvement to its system that would benefit the interconnected system because the owner does not want to take a reduction in the Accepted Rating of a path.

4. Remote Systems Indifferent to Path Definition

When an existing Path's flow is reduced by a new parallel line, remote systems should be operationally indifferent to whether the new line is defined in or out of the existing Path.

If a new project is built parallel to an existing Transmission Path, the new project's sponsor may decide not to be included in the existing Path. Regardless of the sponsor's decision, the existing Path will not have its Accepted or Existing Rating reduced and the Path rating(s) will be established in such a way that an entity outside of both Paths will be indifferent to whether the new project is included in the existing Path or not.

Fictitious Elements

WECC has established the principle that fictitious elements are not to be used in either simultaneous or non-simultaneous rating studies.

The concept of prohibiting fictitious elements does not pertain to planned facilities; i.e., those facilities that are expected to be in-service at the time represented in the rating study. Planned facilities may be used to obtain an Accepted Rating; however, that rating may only be used when those facilities are in-service.

If there are changes to the planned facility's project plan or schedule, then the section on Monitoring Project Progress in the Path Rating Process will apply as if the change was made to the Project associated with the Path being rated. In these cases, it may be required to repeat or update the requirements for Phase 2 of the Path Rating Process.

For example, an entity that is building a new transmission line may use rating studies that include a future generator. If the generator is delayed, it may be necessary to repeat the rating studies to obtain a new Accepted Rating without the generator and/or to establish the Accepted Rating at the new in-service date of the generator.

Fictitious elements are facilities or operation procedures used in rating studies that are modeled unrealistically or that do not exist. Examples of fictitious elements are:

- Generators — a generator that does not exist at the time of rating, will not be on-line during the timeframe for which the path rating is being sought, or the dispatch is unrealistic, as determined by the PRG
- Load — unrealistic load conditions, such as load projections unsupported by those used in planning resources in the same time frame or modeling off-peak load in one area and on-peak load in another area under similar system conditions in the same study case
- Lines — change to the impedance of a line unless such changes are part of Plan of Service for the new Project undergoing the Path Rating Process
- Phase shifters — unplanned phase shifter or operation beyond its physical capability
- Shunt elements — add a non-existent or unplanned SVC
- Series elements — add unplanned series capacitors to a line
- Opening/switching lines — open a line that is normally closed unless it is part of the Plan of Service for the new Project
- Remedial action schemes — institute a scheme with no agreement from the provider or other affected parties

Fictitious elements may change and distort study results. At one extreme, fictitious elements may have little or no effect on the resultant ratings, and thus need not be

represented. At the other extreme, they may grossly exaggerate the capability of the path being rated, either in terms of ability to meet the performance criteria or to increase the flow limit of the path.

Because the intent of the rating process is to develop an Accepted Rating that can be used in operation, it is necessary to reject the use of fictitious elements in rating studies. The Accepted Rating that is granted by the rating process can only be used when all facilities that were represented in the rating studies are in service.

The prohibition against the use of fictitious elements does not apply to reporting of Latent Capacity. Because the determination and reporting of Latent Capacity is strictly for information purposes, the owners may model the system in whatever manner they choose.

Resource Modeling Assumptions

The modeling assumption levels of each resource modeled in a ratings study base case would be presented to the technical study group (Project Review Group) for their acceptance:

Level 1: Existing Generation

Only generation that exists, is under construction, or is committed with a planned in-service date within the time frame of the study.

Level 2: Signed Agreement

Generation with a signed Interconnection Agreement, executed Transmission Service Agreement, and the in-service date is before the time of study.

Level 3: Study Process

Resources that currently are undergoing the interconnection Open Access Transmission Tariffs Process such as the Generator Interconnection System Impact Study Process, a Transmission Service Request analysis is underway, or other appropriate state application process.

Level 4: Additional Generation Resources

Additional generation that is required to achieve acceptable flows in the initial power flow case. Project sponsors are permitted to include resources that are identified in public reports including: an acknowledged Integrated Resource Plan or a discussion of the resource potential, development timeframe, and evidence of feasibility.

The project sponsor should describe each resource by location, size, and fuel type and in sufficient detail to track whether the Plan of Service has been met. It may be the most appropriate to use only a percentage of the identified resources as can be judged by the PRG to be acceptable.

Use of Resource Modeling Levels

Each of the resource levels would be applicable to base cases as noted on the following table:

Project Phase 2 Study Cases	Resources			
	Level 1	Level 2	Level 3	Level 4
In service in 1 to 2-Years	•			
In service in 3-5-Years	•	•	•	
In service in 6-10-Years and beyond	•	•	•	•

The above modeling assumptions provide a guide for developing the initial power flow cases. In addition, the initial power flow case should only be considered as a starting point and not as the definitive case for determining the required transmission upgrades.

The individual PRGs should retain the flexibility to vary from the above Table. Levels 1 through 4 resources can be modeled, as agreed to by the PRG in the study case, as long as it is feasible for these resources to be on-line during the timeframe for which the path rating is being sought. For example, for a new or increased path rating to be effective in year four, Level 1 through 4 resources that can be in service in the fourth year (or earlier) can be used if approved by the Project Review Group. The resource assumptions will be clearly listed in the study report. If the resource assumptions, on which the Planned (or Accepted) Rating had relied, did not materialize, the path owner(s) must demonstrate that the Path Rating can still be supported.

System Representation

One of the objectives of the rating methods is to allow WECC members to establish accurate, fair, and equitable ratings. System representation (the way transmission facilities, generators, etc. are modeled) plays a key role in fulfilling this objective.

For rating studies, members should use the full loop and the most recent WECC standard power flow and stability base cases in their studies. The advantages of using the standard base cases are that members are familiar with them and every system representation should have similar amounts of detail, accuracy, and modeling (if the member follows the published system representation guidelines).

If a member replaces the representation of its system with a different representation (presumably with more details and more accurate data) and if the rating depends on this new representation, the member must demonstrate that the new representation is appropriate and be willing to submit the new representation to all future WECC base

cases. In the unlikely event that the new representation affects the established Transfer Capabilities of other paths adversely, the member must resolve the adverse impacts with those whose path capabilities are affected during the Phase 2 review process.

Delay, Cancellation, or Changes to Resources Potentially Affecting Ratings

1. Some Projects may be impacted by changes in resource developments as Projects proceed through Phase 2 and during Phase 3. Resources that Accepted Ratings are based on may be delayed, cancelled, or replaced with other resources. Also, modeling assumptions may ultimately prove to be incorrect (such as different machine models or customer interconnection facilities). Many generation resources assumed for the six-to-10 year planning horizon have a shorter development lead time than the major transmission lines required to deliver the output power to the load centers. In fact, development of some generation resources may not even commence until after transmission Projects have completed Phase 2 and provided evidence that these transmission Projects are feasible. Although these resources are not part of the project sponsor's Plan of Service, the Path Accepted Rating depends on them, so they should logically be treated as if they were part of the Plan of Service.
2. The anticipation is that actual resources that support the Planned and/or Accepted rating may change from those assumed at the beginning of Phase 2. Projects may vary by location, size, simulation models (e.g., wind). Project sponsors should be able to continue through Phase 2 with their initial resource assumptions as long as replacement resources would have similar impacts on the system as those that were modeled in the Phase 2 studies. Further, project sponsors will be able to maintain Phase 3 status (Accepted Ratings) while making substitutions of resources and models as long as the replacement resources and models would have similar impacts on the system as those that were modeled in the Phase 2 studies.
3. The anticipation is that all resources assumed in Phase 2 for service may not be on line at the time that the transmission Projects are energized. During Phase 3, project sponsors will be given latitude to submit schedules for bringing Projects on and these schedules may span several years. Project sponsors will be able to maintain Phase 3 status (Accepted Ratings) by providing evidence that progress is being made as provided for in Phase 2 of this Path Rating Process.
4. The WECC SOL Methodology study process shall be used to "phase in" ratings or review the rating as substitutions of resources and different modeling assumptions are developed, as necessary, to maintain Phase 3 status at an Accepted Rating. This phase in or review would be treated as seasonal operating studies.
5. Sponsors of future transmission projects are provided the opportunity within this Path rating Process to request benchmarking of Accepted Ratings. Therefore, PRGs

of Projects in Phase 3 need not challenge whether an Accepted Rating is still valid as there is already an avenue in this Path Rating Process to allow potentially affected members to undertake this challenge.

6. Sponsors of future transmission projects are provided the opportunity within this Path Rating Process to request benchmarking of Existing Ratings. In order to verify that the rating that has been established for the path and can still be supported.

Appendix B: Simultaneous Studies, Similarly Situated Projects, and Combined Project Studies

Simultaneous Studies

All Paths associated with Projects with Planned Ratings must consider each other as appropriate in their planning studies. Once a Project has entered Phase 2 its associated Path has attained a Planned Rating.

To aid in the understanding of certain obligations that some Projects have to each other, Phase 2 is separated into Phases 2A and 2B with a bright line. Projects in Phase 2A must consider Projects in Phase 2B for inclusion in their study plans. Phase 2B is used to identify those Phase 2 proposed projects that have completed and obtained approval by the PRG of a study plan and the first base case needed to perform simultaneous studies. Phase 2A Projects that cross this bright line will be moved to Phase 2B.

The following describes generally the differences between Projects in Phase 1, Phase 2A and Phase 2B; and the transition from Phase 2A to Phase 2B:

1. Non-simultaneous Studies for Projects in Phase 1 are run on base cases that have not been reviewed by any group in WECC.
2. To transition from Phase 1 to Phase 2A, a proposed Project will have already provided data to WECC in accordance with the process for completion of Phase 1. The data are not necessarily included in WECC base cases for the Annual Study Program. Such data are used as information for other projects.
3. Projects in Phase 2B will need their study plans and base cases reviewed and accepted by the PRG; and therefore, will need to cover all elements required to be included for the Simultaneous Study.
4. Based on PRG requests, multiple simultaneous analyses may need to be performed, requiring multiple simultaneous base cases. However, the Foundational Base Case(s) that will establish this bright line is the first base case that would be ready for the first simultaneous assessment, as agreed to by the PRG.
5. Once the PRG is formed and the study plan and Foundational Base Cases approved by the PRG, the Project would move from Phase 2A to Phase 2B. Therefore, Phase 2A is the formation phase, while Phase 2B is the study phase.
6. As determined by PRG, a Project that transitions from Phase 2A to Phase 2B will consider all Projects already in Phase 2B and Phase 3 in its base case development. The PRG has the discretion to decide which Projects in Phase 2B and Phase 3 to include in the base cases because the proposed Project may not have interaction with all such Projects. While this approach gives the project sponsor flexibility to determine the projects to be included in the simultaneous study, it may

carry some risk of re-studying if the Projects in Phase 2B or Phase 3 that were not included in the study should interact with the proposed Project.

7. Projects already in Phase 2B will not have to go back and re-study the effect of including Projects that later enter Phase 2B, but they may choose to do so for the purpose of evaluating interactions and mitigation solutions.

A Project entering Phase 2B will need to consider Projects already in Phase 2B. However, the process is not intended to be a queue. If interaction is identified by either of the Project studies, mitigation measures will be mutually agreed upon. For example, for two proposed Projects (X and Y), Project X is in Phase 2B when Project Y enters Phase 2B. Project X's study plan will not include Project Y. Upon meeting the requirements for Phase 3, Project X enters Phase 3 without studying Project Y. If Project Y finds an interaction with Project X (or Project X finds an interaction with Project Y), mitigation measures will be mutually agreed upon before either Project can be placed in service.

Similarly Situated Projects

At any point in time, if any two Projects are together in Phase 2B, they are Similarly Situated and have a responsibility to mitigate interaction they have with each other until both become operational. Once a Project enters Phase 3, it will not be Similarly Situated with new Projects entering Phase 2B. Similarly Situated Projects must consider each other on an equal basis.

- Any interaction identified within the group of Similarly Situated Projects must be resolved in a mutually agreed upon manner by the affected Projects and the PRG(s).
- Similarly Situated Projects will need to coordinate the logistics of performing the requisite studies. For example, if a Project associated with Path A and a Project associated with Path B both interact with Path C, then the project sponsors will need to perform the following simultaneous studies: Path A vs. Path C, Path B vs. Path C, and Paths A and B vs. Path C.

Combined Project Studies

Some Projects that are Similarly Situated may impact the non-simultaneous rating of each other's Path and in some instances more than one Project may be seeking a non-simultaneous rating on the same path. In either case, each Project will need to perform their respective simultaneous studies individually and also perform a Combined Project Study with all affected Similarly Situated Projects modeled in the joint study. The need for conducting individual and combined studies is to cover cases in which all Projects move forward or not, and to address the inherent time gaps in Project operating dates. Each Project has to be examined individually in the event that one of the Similarly Situated Projects goes in service prior to other Similarly Situated Projects or is

cancelled. As an example, this could happen if one of the Projects is a new line and the other is an upgrade of an existing line where the upgrade is completed long before the new line is in service. The individual studies ensure that individual Projects can be placed in service and operated reliably. The Combined Project Study shall demonstrate reliable operation in the event all Projects are placed in service.

Project sponsors, together with PRG members, will decide whether there is a need for a Combined Project Study, especially if the project sponsors are performing path rating studies on different paths. For example, a Combined Project Study may not be required if no meaningful interaction exists when each path is at its non-simultaneous rating. Project sponsors are responsible for vetting the need of a Combined Project Study with their respective PRGs after they have been classified as Similarly Situated.

A Combined Project Study is required to assess the ability of two or more Similarly Situated Projects to achieve their respective non-simultaneous path ratings on a combined basis. This study requires project sponsors to perform a joint study, modeling their respective plans of service with actual power flows at their non-simultaneous ratings on the Paths to be rated. Some of the Projects that are Similarly Situated may impact the same Path. In that case, each Project must do simultaneous studies separately and also do simultaneous analyses under a Combined Project Study with both Projects in the study.

In cases where Projects propose non-simultaneous rating increases on the same Path, the power flow on the Path should be demonstrated at the combined non-simultaneous rating increase (e.g., two Projects seeking Path rating increases of 500 MW and 1,000 MW should be modeled with 1,500 MW of flow). If the resulting power flow is less than the full combined non-simultaneous ratings, the parties will mutually agree on how to address the interaction. Additionally, the Combined Project Study must include all of the simultaneous analyses that were identified in their respective individual study plans.

Appendix C: Phases 1–3 Templates

The following templates are intended for use by the TSS Chair and for the project sponsor to provide the needed information to navigate the process.

Expediting the Process

Dear [Project Sponsor]:

After consulting the Path Rating Process, Section 3.3, the Expedited Rating Process combines Phase 1 and Phase 2 activities. Listed below are a few items in "Red" that [Project Sponsor] needs to address. Please let me know if you have any questions or comments.

Sincerely,

[TSS chair]

Expedited Rating Process - (Note: Project remains in Phase 1 until completed; the Project does not achieve Phase 2 status)

- Step 1. The final Comprehensive Progress Report (CPR) should include non-simultaneous and simultaneous analysis. The final CPR will be submitted to the Technical Studies Subcommittee (TSS) and the Planning Coordination Committee (PCC), having TSS and PCC review performed concurrently: the TSS 60-day review of the CPR and the PCC 30-day review on the conformance of the process.
- Step 2. After the TSS and PCC review of the final CPR, the Project will achieve Phase 3 (if no issues are identified).
 - If the CPR included non-simultaneous and simultaneous analysis and no one requested interest to participate in a PRG, [Project Sponsor] needs to send a letter to the TSS and PCC stating that all concerns/comments have been addressed and requesting the PCC to grant Phase 3 status.
- Step 3. If issues arise that can't be resolved, the Project will need to go through Phase 2 and form a PRG.

Phase 1 to Phase 2 Transition Template

Dear **Project Sponsor**:

To facilitate the transition from Phase One to Phase Two, I would appreciate if you could provide a response to the Action Items that I have listed below that are shown in Section 3.2.3 in the Path Rating Process. Also, I would appreciate it if you could draft a Phase 2 Approval Letter for the **Project Name**. I have attached an example for your reference. If you have any questions, please let me know.

Sincerely,

[TSS chair]

WECC Project Coordination and Path Rating Processes - Section 3.2.3 - Completion of Phase 1

1. The Planning Coordination Committee (PCC) has completed its assessment of the Project's conformity with the Project Coordination Review Objectives (applies only to those projects identified by PCC in which project coordination interest has been expressed).

Action Item: Insert date the PCC issued an acceptance letter of the Project Coordination Report or a response why a Project Coordination Report was not required or issued.

Project Sponsor Response:

2. The project sponsor has submitted a full Project representation to WECC for inclusion in WECC base cases.

Action Item: Provide confirmation that a full Project representation has been provided to WECC.

Project Sponsor Response:

3. The project sponsor has distributed a Comprehensive Progress Report accompanied by a letter to the Technical Studies Subcommittee (TSS) and PCC requesting Phase 2 Status for the Project.

Action Items: 1). Insert date when CPR was distributed by WECC for 60-day review.
2). Insert date when comments on Phase One CPR were due.

Project Sponsor Response: 1). and 2).

4. If the above criteria have been satisfied and no objections have been received within 60 days of WECC's receipt of the request to enter Phase 2, the project sponsor(s)

will so notify the TSS chair and provide evidence that the Project has satisfied all requirements.

Action Item: Please provide a list of any comments or objections received during the 60-day review and how [Project Sponsor] addressed these comments or objections. Were [Project Sponsor's] responses to the satisfaction of the entity that submitted the comments?

Project Sponsor Response:

Appendix D: Testing Path Independence

This appendix describes the two screening tests to be used to determine whether a path is independent of another path. These tests apply if the project sponsor has not decided in Phase 1 or in Phase 2A to include the proposed Project as a subset of an existing Path (or provided technical explanation to the contrary). The results of the tests are to be provided to the PRG to aid in determining if a proposed Project is part of the same path. The most efficient time for the project sponsor to conduct these tests would be in Phase 1 so the results can be included as part of the Comprehensive Progress Report, and available to the TSS before the formation of the PRG.

If the proposed Project is determined to be a subset of an existing Path, the project sponsor is required to re-rate the Path within the Path Rating Process. A Project that is a subset of an existing Path is not precluded from defining a separate path or from seeking a separate Path Rating. A project sponsor can also use a different methodology to determine whether the proposed Project is part of an existing Path, provided that the methodology has been accepted by TSS and PCC:

To determine whether a proposed path is independent of an existing path, the project sponsor must perform two flow tests as outlined below.

The justification for using two tests is as follows. If a new Project is small relative to the path being tested, then Test 1 should clearly indicate a dependency between the two as the existing system should pick up a large percentage of the power scheduled on the new Project. Test 2 would not provide a good indicator since a small Project would not pick up much "loop flow" from the existing system. If a new Project is large relative to the path being tested, then Test 1 would not show much effect since most of the Project's flow would tend to stay on the Project, but Test 2 should show a dependency if a large percentage of the existing path's schedule now flows on the new Project.

Test 1:

1. Start with a pre-Project WECC base case.
2. Add the proposed Project to the case to create a post-Project base case. When adding the Project, do not initially schedule any flow on the new Project.
3. Schedule a fixed amount of power on the proposed Project (e.g., 100 MW or in the case of a Project with flow control devices, the Projects rated flow). If there are flow control devices included as part of a new Project, they may be used to control flow on the new Path to the schedule on that Path, or they may be bypassed, at the project sponsor's discretion. However, the flow control devices cannot be used, for purposes of this test, to artificially create "loop flow" on other Paths. If the flow control devices have enough control range, the new Path will be independent of all other paths.

4. If more than 25-to-40 percent of the scheduled power flows on the existing path being tested, then the proposed Project is deemed to be a subset of the existing path. If the proposed Project is deemed to be a part of an existing Path, then the proposed Project must re-rate the existing Path as part of its Path rating studies. This independent Path test is NOT optional. Depending on the outcome of the independent Path test, the development of an independent rating could be an optional second analysis.

If the independent Path test is performed and the new Project is determined to be part of another Path, then the Path that the Project is a part of MUST be rerated as part of the Path Rating Process. In this case, the development of an independent rating is optional. If a Project that is part of another Path develops an independent rating, then there will be two ratings developed as part of the Path Rating Process, as follows:

- the independent rating, and
- the rerate of the existing Path that the new Project is a part of.

If the independent Path test is performed and the new Project is determined to *not* be part of another Path, then an independent Path rating for the Project is required as part of the Path Rating Process

5. The project sponsor also has the option of developing an independent rating for the proposed Project. If an independent rating is developed, the project sponsor must also determine if any interactions (e.g., nomograms) exist between the proposed Project and the existing Path.

Test 2:

1. Start with a pre-Project WECC base case.
2. Add the proposed Project to the case to create a post-Project base case. When adding the Project, do not schedule any flow on the new Project. If there are flow control devices included as part of a new Project, they may be used to control flow on the new Path to the schedule on that Path (e.g., zero MW) or they may be bypassed at the Project sponsor's discretion. However, the flow control devices cannot be used, for purposes of this test, to artificially create "loop flow" on other paths. If the flow control devices have enough control range, the new Path will be independent of all other Paths.
3. If the new Project picks up more than 55-to-65 percent of the power that was flowing on the existing Path being tested, then the proposed Project is deemed to be a subset of the existing Path.
4. If the proposed Project is deemed to be a part of an existing path, then the proposed Project must re-rate the existing Path as part of its Path rating studies. This independent Path test is NOT optional. Depending on the outcome of the independent Path test, the development of an independent rating could be an optional second analysis.

If the independent path test is performed and the new Project is determined to be part of another Path, then the Path the Project is a part of **MUST** be rerated as part of the Path Rating Process. In this case the development of an independent rating is optional. If a Project that is part of another Path develops an independent rating, then there will be two ratings developed as part of the Path Rating Process, as follows:

- the independent rating, and
- the rerate of the existing Path that the new Project is a part of.

If the independent Path test is performed and the new Project is determined to *not* be part of another path, then an independent path rating for the Project is required as part of the Path Rating Process

5. The project sponsor also has the option of developing an independent rating for the proposed Project. If an independent rating is developed, the project sponsor must also determine if any interactions (e.g., nomograms) exist between the proposed Project and the existing Path.

Appendix E: Treatment of Projects Sent Back To Earlier Study Phases

The Path Rating Process state that:

- A Phase 2A or 2B status may be lost if a Project in Phase 2 shows no evidence of any activity for a period of time after the achievement of Phase 2 status.
- An Accepted Rating status may be lost if a delay in meeting any Project milestones by 12 months or more occurs or if a change in the Project's Plan of Service adversely impacts the Accepted Rating.

This Process provides for the PRG to determine if the Project status will revert back to Phase 2 with a Planned Rating or remain in Phase 3 with an Accepted Rating.

- Proposed Projects in Phase 2B that are sent back due to inactivity as listed in Section 3.4, Table 1 will no longer be in the same "Similarly Situated" group. A Simultaneous study to consider them with this group of the Phase 2B Projects is then not a requirement for the remaining Projects in the group.
- A proposed Project in Phase 2B or Phase 3 that undergoes significant scope changes (e.g., changes in termination points or changes in configuration that affect the interaction with the system) will be moved back to Phase 2A and will no longer be in the same "Similarly Situated" group.
- Projects in Phase 2B are not required to (but can) re-study the interaction with another Project that is sent back from Phase 3 to Phase 2B with agreement by the PRG that the Phase 3 Project scope remains essentially the same. This is because Projects in Phase 3 would have 1) already been included in the base cases for the later Projects; and 2) the later Projects would have mitigated the impacts on Phase 3 Projects. So moving a Project from Phase 3 back to Phase 2B would not impact the studies required for the other Projects in Phase 2B (or the base cases to be developed in Phase 2A).
- If a Phase 3 Project is moved back as the result of a major change in Project scope, then the project sponsor and the PRG should discuss which phase the proposed Project will revert back to. As determined by the PRG, the Project may revert back to any earlier Phase. Reverting back to Phase 2A may require re-forming the PRG, redeveloping the study plan, and developing new base cases. If no consensus is reached in the PRG, then the minority report will be included as an appendix in the PRG report. Major changes in a Project's scope can result in changes in the proposed Project's own Path Accepted Rating, Simultaneous

interaction of other Existing Paths or Accepted Paths, or Impact Accepted Rating(s) of other Path(s). See Section 7 for more examples.

- For a Phase 3 Project with minor changes in scope and no increase in Accepted Rating (e.g., changes involving series compensation levels or RAS, which resulted in no criteria violation at the previous studied system conditions), the Project can be sent back to Phase 2B as determined by the PRG. This change will place the Project's Accepted Rating at risk. The project sponsor must test its Accepted Rating based on its new Project scope against its original Accepted Rating. If the study shows there is no adverse impact to the Accepted Rating then the Project can retain its Phase 3 status.

If there is an adverse impact on the Accepted Rating, the Project must stay in Phase 2B and is required to mitigate impacts on Phase 3 Projects and will be similarly situated with other Projects in Phase 2B. If the mitigation undertaken is a lowering of the Project's Accepted Rating, then the Project can retain its Phase 3 status at the lowered Accepted Rating. All Similarly Situated Projects will need to perform studies to test their ratings against the new Accepted Rating of this Phase 3 Project.



WECC Progress Report Policies and Procedures

WECC Progress Report Policies and Procedures

Table of Contents

1. Introduction.....	113
2. Policies	113
3. Waiver of “Significant Impact” Status	114
4. Procedures.....	115
5. Progress Reports.....	116
5.1. Initial Progress Report	116
5.2. Comprehensive Progress Report.....	116
5.3. Supplemental Progress Reports	119
5.4. Review of Progress Reports	119
6. Informal Reports Presented at TSS Meetings	120

1. Introduction

This document is intended to provide the policies and procedures for notification and reliability assessment requirements related to projects planned within the Western Interconnection. WECC members are expected to be in full compliance with this WECC document on Progress Report Policies and Procedures.

2. Policies

Entities sponsoring new generation are project sponsors and may be WECC members or non-WECC members. Insofar as a non-WECC member sponsoring a generation project requests interconnection to the Western Interconnection, the WECC member accountable for generation interconnection administration (Interconnecting Utility) shall take reasonable steps as the Interconnecting Utility to facilitate, and when applicable, shall assist in the implementation of the policies and procedures specified herein.

Projects subject to these policies and procedures include:

- All generation projects (200 MW or greater) connected to the transmission system through step-up transformers. In the context of these policies and procedures, such projects include, but are not limited to, new generation plants, generation repower or upgrades that may significantly alter the operation of the generation facilities.
- All new and upgraded transmission facilities with (voltage levels over 200 kV). Such projects include, but are not limited to, new transmission facilities, transmission re-designs or upgrades, permanent removal of existing transmission facilities, or other changes (e.g., operating procedures) that may significantly alter the operation of the transmission facilities.
- Any facilities below these thresholds that may have a significant impact on the reliability of the Western Interconnection.

The project sponsor or Interconnecting Utility shall begin providing appropriate notification of projects in accordance with the procedures stated herein to WECC soon after the project sponsor has made the project public.²⁵ The project sponsor or Interconnecting Utility is encouraged to make the project public at the earliest possible date.

²⁵ A project sponsor can make a project public via trade journals, news releases, public notice in a newspaper, information released in an open public forum, issuance of a significant permit (air quality or water rights) by a government agency to the project sponsor or notification to the interconnecting utility that the project will be moving beyond the system impact study phase.

The project sponsor or Interconnecting Utility shall perform technical studies to ensure the reliable operation of the Western Interconnection when the project is placed in service. The project sponsor or Interconnecting Utility shall provide comprehensive progress reports of the technical studies to WECC in accordance with the procedures stated herein. In the event WECC members have reliability-related concerns with a project, the project sponsor or Interconnecting Utility shall be responsible for addressing the concerns under the auspices of WECC's Technical Studies Subcommittee (TSS) in accordance with the procedures outlined herein. Project sponsors are encouraged voluntarily to solicit interest in forming a study review group as the venue for performing the technical studies and developing the comprehensive progress report.

3. Waiver of “Significant Impact” Status

The sponsor(s) of transmission projects with operating voltages²⁶ 200 kV and above and are not seeking a path rating may request waivers of the WECC Project Coordination Process. The request must either provide documentation of how the project is being coordinated in another forum, or provide an explanation of why the project is not expected to have any significant impact to the operation of the WECC interconnected electric system. Project sponsors can request the waiver according to the following process:

1. The project sponsor includes a list of projects for which waiver is requested in a separate section in its Annual Progress Report to the TSS with a copy to WECC staff. If the request for waiver is needed before the next Annual Progress Report is to be submitted, the project sponsor submits a request to WECC staff with copy to TSS.
2. The following project information shall be included, as a minimum:
 - a. Project name
 - b. Project purpose
 - c. Brief Project description, including expected termination points
 - d. Expected date of release to operations
 - e. Expected operating voltage
 - f. Either:
 - i. Description of how the Project, has been coordinated through a transmission planning forum, such as a Subregional Planning Group (SPG), the Transmission Expansion Planning Policy Committee (TEPPC),

²⁶ For transformer banks the operating voltage refers to the low side of the transformer bank.

or some other appropriate forum²⁷. The description should include references to any transmission studies performed.

OR

- ii. Explanation of why the Project is not expected to have a significant impact on the operation of the WECC interconnected electric system.

The following questions may be considered in determining whether a project has significant impact to the WECC interconnected system:

- Are there any impacts to other systems – have studies demonstrated?
- Is there any impact on flow of energy on other systems?
- Are any WECC transfer paths impacted?
- Is some kind of flow control device needed or required as a part of the project?
- Is the project connected to other utilities systems?
- Do disturbances impact other entities?

3. WECC staff posts the list of projects and notifies the PCC, TEPPC, and TSS. The waiver is granted unless a letter from a WECC member opposing the waiver is received within 30 days.
4. Any WECC member(s) that believes the project should not be granted a waiver must submit a letter to the PCC chair with a copy to the project sponsor and WECC staff within 30 calendar days of the posting of the list. The letter must outline the reason(s) for not granting the waiver and include a request that the project proceeds with the Project Coordination Process.
5. WECC staff posts the letter opposing the waiver and notifies the PCC, TEPPC, and TSS.
6. The PCC chair determines if the waiver will be granted within 20 calendar days of posting the letter opposing the waiver. If the project sponsor is also the PCC chair, such determination will be made by the PCC vice chair.

4. Procedures

The following procedures cover requirements for reporting project status and technical studies. The purpose of these project progress and study reports is to encourage early communication of plans and to maintain flexibility for changes during the period of advanced planning. These reports should contain enough meaningful data to stimulate

²⁷ If the project is being coordinated through a transmission planning forum, the sponsor shall provide an open invitation for participation to all WECC members and other interested stakeholders.

constructive discussion with the intent to share information and experience with WECC members.

5. Progress Reports

5.1. Initial Progress Report

Soon after a project is made public, the project sponsor or Interconnecting Utility shall submit, in electronic form if possible, the Initial Progress Report to the WECC Technical staff and to TSS members. The content of the Initial Progress Report will depend on the design status of the system upgrade, addition, or project, but at a minimum should include:

1. A brief physical description of the project, including points of interconnection, equipment capacities and voltages, and expected ratings.
2. The planned operating date.
3. The project status, including where the project is situated in the planning process and a tentative schedule for completion.
4. Facility owner(s) name, a contact person including title or position, address, telephone number and email address that can answer questions and comments or direct them to persons who can provide responses.

To the extent applicable, the project sponsor or Interconnecting Utility should coordinate the Initial Progress Report submittal requirements with data reporting requirements of the Project Coordination Process.

5.2. Comprehensive Progress Report

The purpose of the Comprehensive Progress Report is for the project sponsor to demonstrate that the project sponsor has met its obligations to be compliant with the NERC Reliability Standards and WECC Criteria.

After the project is made public, at a point that would allow opportunity for WECC member review and input, the project sponsor or Interconnecting Utility shall submit the Comprehensive Progress Report to the WECC Technical staff and TSS members. The project would be considered in compliance with these procedures if the Comprehensive Progress Report was submitted at a point in the development process that would allow changes to the Plan of Service, if so indicated by WECC member review and input.

The content of the Comprehensive Progress Report should include, at a minimum (1-5):

1. The requirements specified under the Initial Progress Report.
2. A one-line and geographic diagram of the project showing points of interconnection, metering points, adjacent path locations, and control area boundaries.
3. Models and data that can be used by transmission planning software programs.²⁸ This may include a block diagram, transfer functions, equations, and complete descriptions of the software modeling needed to study the new facility using power flow and transient stability computer programs. This information is not required if the necessary models are already available in the power flow and stability programs.
4. A project milestone schedule that covers the current period through initial operation of the project. This schedule should be sufficiently detailed to allow for monitoring by the TSS members.
5. A summary of transmission studies performed, or information on where the transmission studies can be located. With respect to impacts on other systems, the specific contingencies in the following table must be evaluated:

Figure 1: Contingencies and Performance Requirements for Assessment of Impacts on Other Systems

Contingency	Performance Requirements on Other Systems
Failure of a circuit breaker associated with a Remedial Action Scheme to operate when required, following: 1) the loss of any element without a Fault; or 2) a permanent phase-to-ground Fault, with Normal Clearing, on any transmission circuit, transformer or bus section.	<ul style="list-style-type: none"> ○ All facilities shall be operating within their thermal, voltage and stability limits, and Cascading or uncontrolled separation shall not occur. ○ Planned or controlled interruption of electric supply to customers (load shedding), the planned removal from service of certain generators, and/or the curtailment of contracted Firm (non-recallable reserved) electric power transfers is allowed.

²⁸ Modeling guidelines can be found in the WECC Data Preparation Manual

Contingency	Performance Requirements on Other Systems
A non-three-phase Fault with Normal Clearing on common mode Contingency of two adjacent circuits ²⁹ on separate towers.	All facilities shall be operating within their thermal, voltage and stability limits, and cascading or uncontrolled separation shall not occur. Planned or controlled interruption of electric supply to customers (load shedding), the planned removal from service of certain generators, and/or the curtailment of contracted Firm (non-recallable reserved) electric power Transfers is allowed.
A common mode outage of two generating units connected to the same switchyard.	Cascading shall not occur.

If the sponsor is planning to go through the Path Rating Process, then the Comprehensive Progress Report must also include the following (6-11):

6. A statement describing the Transfer Capability associated with the project, including the impact on other systems, the impact on existing transfer path ratings, and the project sponsor's compliance with the NERC Reliability Standards and WECC Criteria. This statement should include a declaration that indicates if the project will require (or not require) obtaining an accepted³⁰ transmission path rating (or rerating).
7. A description of the interconnected-system conditions and or requirements on which the proposed Transfer Capability rating is based and/or required by the project.
8. The operating conditions including flows on key transmission lines and paths, load levels, and generation status that allow the project to operate within the guidelines defined in the NERC Reliability Standards and WECC Criteria.
9. The potential impacts to transmission facilities including non-simultaneous ratings and simultaneous path interactions. It is not the purpose of the Comprehensive Progress Report to identify mitigation measures or requirements to mitigate.

²⁹ Adjacent Transmission Circuits are two transmission circuits with separation between their center lines less than 250 feet at the point of separation with no Bulk Electric System circuit between them. Transmission circuits that cross, but are otherwise separated by 250 feet or more between their centerlines, are not Adjacent Transmission Circuits. Transmission circuits that are separated by less than 250 feet for no more than three miles, but are otherwise separated by 250 feet or more between their centerlines, are likewise not adjacent circuits.

³⁰ Project sponsors or responsible parties desiring to obtain an accepted path rating (or path rerating) should comply with the detailed procedure contained in the Project Coordination and Path Rating Processes.

10. A representative list of power flow and stability cases run that demonstrate the project sponsor's compliance with NERC Reliability Standards and WECC Criteria.
11. Representative power flow outage results and stability plots that demonstrate the project sponsor's compliance with NERC Reliability Standards and WECC Criteria.

5.3. Supplemental Progress Reports

The project sponsor or Interconnecting Utility shall submit the Supplemental Progress Report to WECC staff and the TSS chair every year in which an Initial Progress Report or Comprehensive Progress Report is not submitted. These reports shall be filed annually for projects where there have been no significant changes in Plan of Service, capacity, or in-service dates since the Comprehensive Progress Report was filed. These reports must also include non-significant additions or revisions to the projects. The Annual Supplemental Progress Reports, at a minimum shall include:

1. The requirements specified under Initial Progress Report and any additions or changes related to these requirements.
2. Changes to any or all items specified under the previously submitted Comprehensive Progress Report.

In the event of major design changes or project delays that may alter a projects impact on the overall system, a complete (updated) Comprehensive Progress Report must be submitted, in accordance with the procedures for Comprehensive Progress Reports.

5.4. Review of Progress Reports

The following process shall be used for the review of progress reports:

1. The project sponsor or Interconnecting Utility shall submit the appropriate progress report in accordance with the respective procedure by March 1 of each year.
2. WECC staff shall compile and send a report to all TSS members that shows the date and status of the last Comprehensive Progress Report for the various projects and the name of the person who should receive requests for this report.
3. Members are encouraged to review as many progress reports as possible. Comments and/or questions concerning progress reports must be directed to the person named by the project sponsor or the responsible party. Copies of correspondence relating to the project sponsor's compliance with NERC

Reliability Standards and WECC Criteria, Policies, and Procedures should be sent to the TSS chair or his designated representative.

4. If a progress report is not submitted, or if concerns related to the project have not been resolved, any reviewing member may request that the TSS review the project in question by addressing a letter to the TSS chair. Such requests for TSS review shall be submitted only after extensive efforts have been made by the reviewing party and the reporting party to resolve the concern.
5. If a TSS review is requested, the TSS chair shall appoint an ad hoc committee to review the project in question. The ad hoc committee shall report its findings to the TSS on whether the project in question warrants further review.
6. If further review is necessary, the TSS may then request the project sponsor or Interconnecting Utility to provide TSS members with studies addressing the reviewing members' concern or demonstrating the project sponsor's compliance with NERC Reliability Standards and WECC Criteria, Policies, and Procedures.
7. The TSS chair will solicit written and verbal comments from TSS members regarding their review of the progress reports to determine conformance of the project's performance with NERC Reliability Standards and WECC Criteria, and the project sponsor's conformance with WECC Policies and Procedures. The outcome of the TSS review will provide the basis of the annual TSS review of progress reports to the PCC. The TSS chair will present results of the annual TSS review to the PCC at its final meeting of year.

Despite any review for compliance with NERC Reliability Standards that may be performed under processes described herein, the project sponsor retains the sole responsibility for compliance with NERC Reliability Standards.

6. Informal Reports Presented at TSS Meetings

TSS members shall provide brief written or verbal informal project update reports during each TSS meeting.

The TSS chair shall select one or more major projects of current interest to TSS members to be reported on at each TSS meeting. These more formal presentations should be no longer than 15 minutes each, with additional time allowed for questions and answers.

The presentations can be oral and/or written and should contain at a minimum:

1. Map showing location, ownership, and voltage.
2. Schematic diagram including major equipment ratings.

3. Area load, generation, and interchange schedules used in technical studies.
4. Transfer capability associated with the project and/or effects on other Transfer Capabilities.
5. Evidence of compliance with the NERC Reliability Standards and WECC Criteria.
6. Description of the interconnected-system conditions and/or requirements on which the proposed Transfer Capability Rating is based and/or required by the project.

Approved by Planning Coordination Committee

July 15, 2014