

NORTHERN TIER TRANSMISSION GROUP

Annual Planning Report – 2007

April 2, 2008



Preface

This report was prepared by Comprehensive Power Solutions, LLP, as part of its facilitation and coordination work for the Northern Tier Transmission Group. The members and other stakeholders participating in the effort to provide coordinated, efficient and effective planning for expansion of transmission within the Northern Tier footprint have been helpful in developing the content of this report.

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To ensure efficient, effective, coordinated use and expansion of the members' transmission systems in the Western Interconnection to best meet the needs of customers & stakeholders.

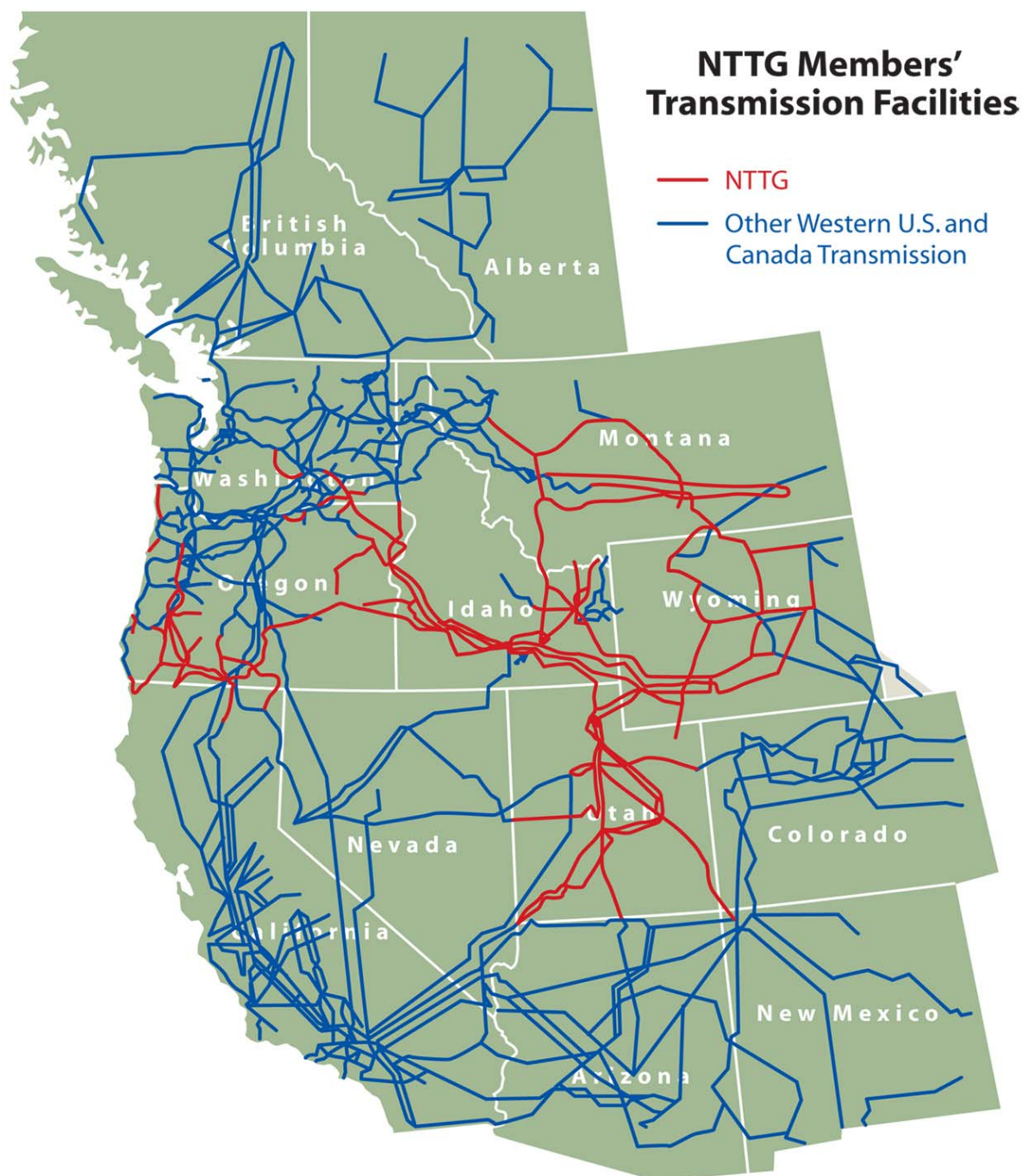


Figure 1: Map of Northern Tier Member Transmission Lines

Contents

Preface.....	i
Contents.....	iii
Figures	iv
Summary.....	1
Background.....	2
The Northern Tier Transmission Group	4
NTTG – Chronology of 2007 Activities.....	5
Transmission Queue – NTTG Companies	6
The Northern Tier Fast-Track Planning Process	7
The NTTG Fast-Track Projects	8
NTTG Project Development Timelines	10
The Sub-Regional Planning Process	11
Relationships among Planning Entities in the West.....	12
Regional and Sub-Regional Planning Timelines.....	14
Details of the Northern Tier Transmission Projects	15
Hemingway to Boardman Transmission Project	16
Hemingway to Captain Jack Transmission Project.....	17
Southwest Intertie Project (SWIP) North.....	18
Mountain States Transmission Intertie Project	19
Gateway West Transmission Project	20
Gateway South and TransWest Express	21
Gateway Central Transmission Project.....	22
NorthernLights Transmission Project – Inland Project.....	23
Internet Links and Other References	24
Regional Planning.....	24
Sub-Regional Planning	24
Northern Tier Transmission Group Members.....	24
Integrated Resource Plans	25
Additional Information for Northern Tier Transmission Projects.....	25

Figures

Figure 1: Map of Northern Tier Member Transmission Lines	ii
Figure 2: Structure of the Northern Tier Transmission Group.....	4
Figure 3: Northern Tier Transmission Request Queue	6
Figure 4: Northern Tier Fast-Track Project Map with Potential Resource Additions.....	8
Figure 5: Map of Fast-Track Transmission Showing Voltage & Points of Connection.....	9
Figure 6: Development Timelines for Northern Tier Projects	10
Figure 7: Three-level Planning Process in the Western Interconnection	12
Figure 8: Timelines for Regional & Sub-Regional Planning	14
Figure 9: Proposed Transmission Projects as of December 2007	15
Figure 10: Map of Hemingway-to-Boardman Transmission Project	16
Figure 11: Map of Hemingway to Captain Jack Transmission Project.....	17
Figure 12: Map of Southwest Intertie Project (SWIP)	18
Figure 13: Potential Route of MSTI (Dashed Line)	19
Figure 14: Map of the Gateway West Transmission Project.....	20
Figure 15: Map of Gateway South and TransWest Express Proposed Study Areas	21
Figure 16: The Gateway Central Transmission Project	22

Tables

Table 1: Existing and Prior Regional Transmission Studies	2
Table 2: Chronology of NTTG Activities in 2007	5
Table 3: Fast-Track Project Data	9

Summary

The Northern Tier Transmission Group was formed in the autumn of 2006 to establish a sub-regional planning process that would meet the needs of its members by coordinating the operation and expansion of transmission to serve customers and wholesale power markets. Northern Tier is also intended to meet the mandate set forth in the Federal Energy Regulatory Commission's Order No. 890, to provide greater transparency to regional transmission planning.

Northern Tier is a combined effort of transmission providers, state regulatory agencies, and other stakeholders.

This document is a first annual report on the organization, structure, activities, accomplishments and future plans for coordination and planning of transmission within the geographic footprint defined by the members' systems.

Following an overview of Northern Tier, this report describes the development and execution of a Fast Track Project Process to expedite needed transmission additions without waiting for design and development of a more permanent Biennial Planning Process.

A primary intent in forming the Northern Tier Transmission Group was to implement needed transmission projects and initiatives quickly, without being held back by the time-consuming and delaying processes that plagued development of RTO West and GridWest. The objective was to develop required organizational structures as needed, but in parallel with production of work products.

The Fast Track Project Process was used in 2007 to identify projects needed for reliability and to meet Transmission Service Requests. The Fast Track Process, open to stakeholder input and participation, was pursued at the same time that a more formalized Northern Tier Transmission Group Sub-Regional Planning process was designed to dovetail with the Western Energy Coordinating Council's Regional Planning Process. Other transmission providers, which would join the Northern Tier Transmission Group over time, were developing their own projects that, with their membership, would be included in the Northern Tier portfolio.

Development of these synchronous planning processes, designed to meet requirements of the Federal Energy Regulatory Commission's Order 890, are now complete but would have delayed needed transmission planning. 2007 saw the development of individual transmission providers' Order 890, Attachment K, filings, which defined their individual processes, and the development of Northern Tier's Biennial Planning Process.

The Northern Tier Projects are comprised primarily of 500 kV lines designed to connect the energy resource-rich regions of the Inland Northwest with the customer loads of the Pacific Northwest and Southwest, and the growing demands of Intermountain population centers.

Background

Between 2001 and 2006, a series of transmission planning processes took place in the Western Interconnection. Among these were the SSG-WI (Seams Steering Group – Western Interconnection) framework, and the RMATS (Rocky Mountain Area Transmission Study), which led to creation of the Rocky Mountain Sub-regional Planning Group. The Western Governors Association, in addition to the RMATS initiative, promoted the CDEAC (Clean and Diversified Energy Advisory Committee) and the WGA Study (Conceptual Plans for Electricity Transmission in the West).

Table 1: Existing and Prior Regional Transmission Studies

WGA: Conceptual Plans for Electricity Transmission in the West
SSG-WI: Seams Steering Group – Western Interconnection
NTAC: Canada-NW-California Transmission Study
Colorado Long-Range Transmission Planning Study
Nevada State Office of Energy – T4 Wind Project
RMATS: Rocky Mountain Area Transmission Study
Montana-Northwest Transmission Equal Angle Report
West of Hatwai System Upgrade Projects
Canada-to-Northwest Intertie Expansion
WECC Coordinated Phase Shifter Operation
Western Interconnection 2006 Path Utilization Study (Dept. of Energy)
CDEAC: Clean and Diversified Energy Advisory Committee Initiative

A Northern Tier Transmission initiative was announced on October 11, 2006, and its initial meeting was held November 8, 2006. Northern Tier was initiated by members of the Grid West regional transmission organization that remained following a number of departures in 2006, in order to carry on several beneficial initiatives that were underway, including coordinated sub-regional planning, common assured transfer capability methods and coordination, and a diversity interchange for area control errors. Its participants were involved in the RMATS project, which identified several needed expansion projects that now form the core of the Northern Tier Transmission Projects, as well as the ACE Diversity Interchange initiative.

The Northern Tier initiative led to formal creation of the Northern Tier Transmission Group as a sub-regional planning group and a part of the Western Energy Coordinating Council's Transmission Expansion Planning Policy Committee efforts.

The Transmission Expansion Planning Policy Committee was, like the Northern Tier Transmission Group, formed in response to the direction the federal government was taking in the FERC's Order 890 promulgating regional and sub-regional transmission planning. The objectives of Order 890 were to promote coordination, openness, transparency, information exchange, interconnection-wide participation, and dispute resolution.

In early 2007, the Northern Tier transmission providers undertook two parallel planning initiatives: Task 1, to identify Fast Track projects, and a concurrent Task 2, to develop a biennial planning process in conjunction with the regional planning process being established by the Transmission Expansion Planning Policy Committee and the planning processes being set up by the other sub-regional groups within the Western Interconnection.

In 2007, Northern Tier completed the Task 1 Fast Track Project Identification and, for Task 2, completed the Biennial Planning Process Charter and Planning Agreement, and established the organizational structure to carry out the task. Execution of the Biennial Planning Process began in January of 2008 and is expected to produce the first Northern Tier Transmission Group Biennial Planning Report in the fall of 2009. This report describes the Task 1 Fast Track Project Process and its results, as well as the integration of transmission initiatives already in development by providers joining the Northern Tier Transmission Group.

The Northern Tier Transmission Group

NTTG focuses its efforts on the evaluation of transmission projects that move power across the sub-regional bulk transmission system servicing load in its footprint. The transmission providers belonging to Northern Tier serve nearly 2.7 million retail customers with over 27,500 miles of high voltage transmission lines. These members provide service across much of Utah, Wyoming, Montana, Idaho and Oregon, and parts of Washington and California.

NTTG is committed to coordinating sub-regional planning efforts with adjacent sub-regional groups and other planning entities. It is expected that the Western Electricity Coordinating Council will continue to be responsible for coordinating and promoting electric system reliability across the Western Interconnection through its role in regional reliability planning and facility rating, and by providing economic planning services to its members through its Transmission Expansion Planning Policy Committee.

NTTG performs both reliability and economic planning coordination, and has started by identifying projects that have been previously studied and which spurred interest from members within the NTTG service area. NTTG works with the WECC Planning Coordination Committee for reliability planning, the WECC TEPPC for economic planning, and is working to implement a framework for cooperation with neighboring sub-regional planning entities.

Stakeholder participation is important to the processes of the Northern Tier Transmission Group and all interested parties are encouraged to attend and contribute to the many stakeholder meetings conducted by the transmission use, planning and cost allocation committees, and in preparing, developing and analyzing planning studies. A chronology of 2007 activities is provided in Table 2, below.

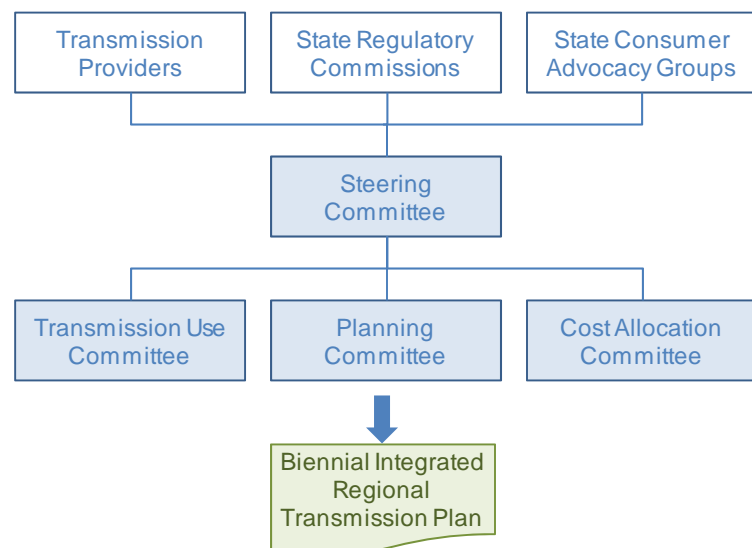


Figure 2: Structure of the Northern Tier Transmission Group

NTTG – Chronology of 2007 Activities

Table 2: Chronology of NTTG Activities in 2007

Jan	9	Transmission Use Committee meeting
	30	Area Control Error Diversity Interchange presentation
	31	Public stakeholder meeting
Feb	16	FERC issues Order 890. Among other things, it requires a 'straw man' proposal outlining a process for complying with the planning principals adopted in the Final Rule.
Mar	13	Transmission Use Committee meeting
	14	Public stakeholder meeting to initiate development of the Straw Proposal.
	15	Order 890 Final Rule posted in the Federal Registry.
	23	Initial conference call to begin coordinating sub-regional planning with other groups in the Western Interconnection, discuss order 890 compliance.
Apr	4	Northern Tier co-chair discussed the group's efforts to comply with Order 890 with the Committee on Regional Electric Power Cooperation (CREPC).
	6	Public meeting with the Northwest Transmission Advisory Committee and Columbia Grid to discuss Order 890 compliance requirements and approaches to integration and cooperation.
	10	Northern Tier participated with the Western Electricity Coordinating Council in a public meeting to discuss planning roles and relationships among regional, sub-regional and transmission provider planning groups.
	14	Planning & Stakeholder meeting
	16-May 7	Open comment period for the Northern Tier Straw Proposal
May	23-24	Northern Tier public stakeholder meeting for final walkthrough and review of the Northern Tier Straw Proposal.
	29	Northern Tier Straw Proposal posted on the Northern Tier Web site and on the transmission providing members' OASIS sites.
Jun	13	Northern Tier presentation at FERC Technical Conference, Park City, Utah
Jul	9	Public stakeholder meeting – Planning
	10	Transmission Use Committee meeting
Aug	20	Public stakeholder meeting – Planning
Oct	22	Public stakeholder meeting – Planning
Nov	7	Public stakeholder meeting
	13	Public stakeholder meeting – Planning
	16	Cost Allocation meeting
Dec	17	Joint Cost Allocation & Planning meeting

Transmission Queue – NTTG Companies

The Northern Tier Transmission Group's member transmission providers elicit requests for transmission service from generation builders, electricity users and others in the first quarter of each year in accordance with their Open Access Transmission Tariffs. Figure 3, below, shows the amounts of capacity requested in the 2007 solicitation, along hypothetical paths between different regions within the Northern Tier footprint.

Most of these requests are for service beyond current and forecasted Assured Transfer Capability, given the existing transmission system and planned loads and resources.

To meet these needs in a timely fashion, a "Fast-Track" planning process was established and a set of transmission additions were identified.

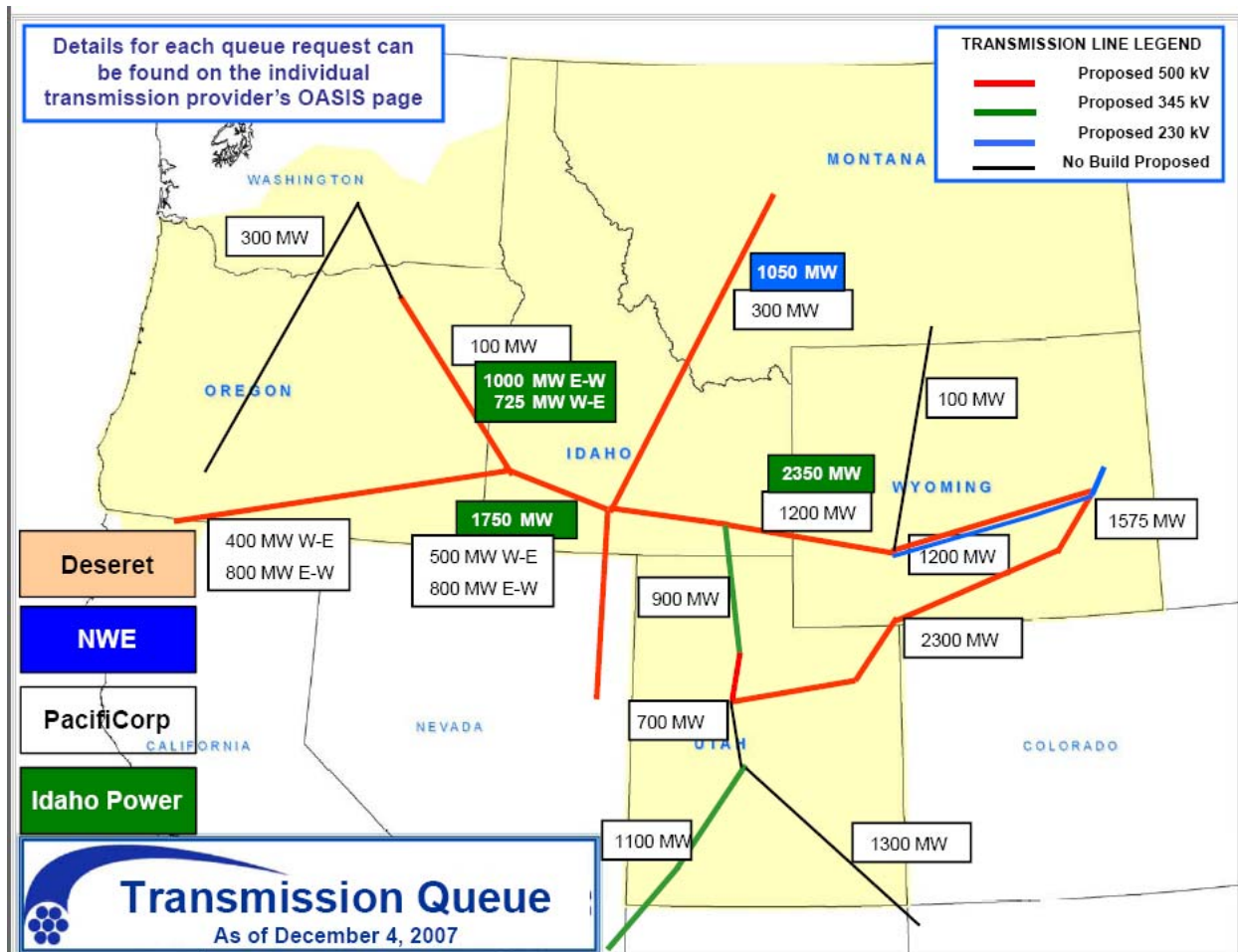


Figure 3: Northern Tier 2007 Transmission Request Queue

The Northern Tier Fast-Track Planning Process

Here are the steps followed in the fast-track planning process:

- 1) Review, with stakeholders, past transmission provider studies and additional data to identify congested transmission that impedes efficient and reliable operation of the grid
- 2) Collect and review information available from the Western Electricity Coordinating Council and others regarding future projects that affect the Northern Tier footprint
- 3) Review the RMATS and SSG-WI congestion studies, and historical Available Transmission Capacity and utilization data from the Northern Tier Transmission Use Committee
- 4) Acquire, review and align loads and resources and Integrated Resource Plan data for member transmission providers, augmenting and revising to accommodate shareholder input
 - a) Update and finalize 5-, 10- and 15-year load projections
- 5) Tabulate Available Transmission Capacity and Transmission Service Requests from member transmission providers
- 6) Aggregate load and resource needs, locating them geographically and compare to existing transmission path capabilities to determine if additional transmission construction is needed
- 7) Review expansion requirements with stakeholders
- 8) Identify hub and spoke candidates
- 9) Review RMATS and other studies' recommended capacity expansions
- 10) Northern Tier transmission providers select transmission expansion candidates, identifying Fast Track Projects by June 30, 2007
- 11) Each project sponsor develops a technical study plan that:
 - a) Identifies interested parties
 - b) Identifies affected parties
 - c) Invites participation in study efforts
 - d) Coordinates with other regional and sub-regional planning groups
 - e) Establish meeting times and locations, coordinated via Northern Tier with other sub-regional planning groups and the Western Electricity Coordinating Council
 - f) Defines a technical studies process to be integrated with the WECC Regional Planning Review and Three-Phase Rating Process
- 12) Each project sponsor performs required WECC Regional Planning Review Process studies, Phase I, Phase II rating studies, and submit to Northern Tier Planning Committee to review and present to stakeholders
- 13) Northern Tier facilitates project implementation and coordination with the Western Electricity Coordinating Council and other sub-regional planning groups.
- 14) Cost Allocation Committee processes Fast-Track Projects in the 2008 Biennial Planning Process as a pilot project

The NTTG Fast-Track Projects

Figure 6, below, is a map of the Western Interconnection showing the set of transmission improvements designed by the Northern Tier transmission providers to accommodate projected needs for future capacity. The lines comprise the 'Fast-Track Projects' which provide for pressing development needs and constitute the first iteration of the Northern Tier planning process.

The primary benefit of the Fast-Track expansion plan is the timely connection of substantial and diverse resource development in the sparsely populated Mountain States with population centers along the West Coast and in the Desert Southwest. In addition, the interties will allow significant diversity transactions among the distinctly different climate, weather and resource regimes of the Western Interconnection.

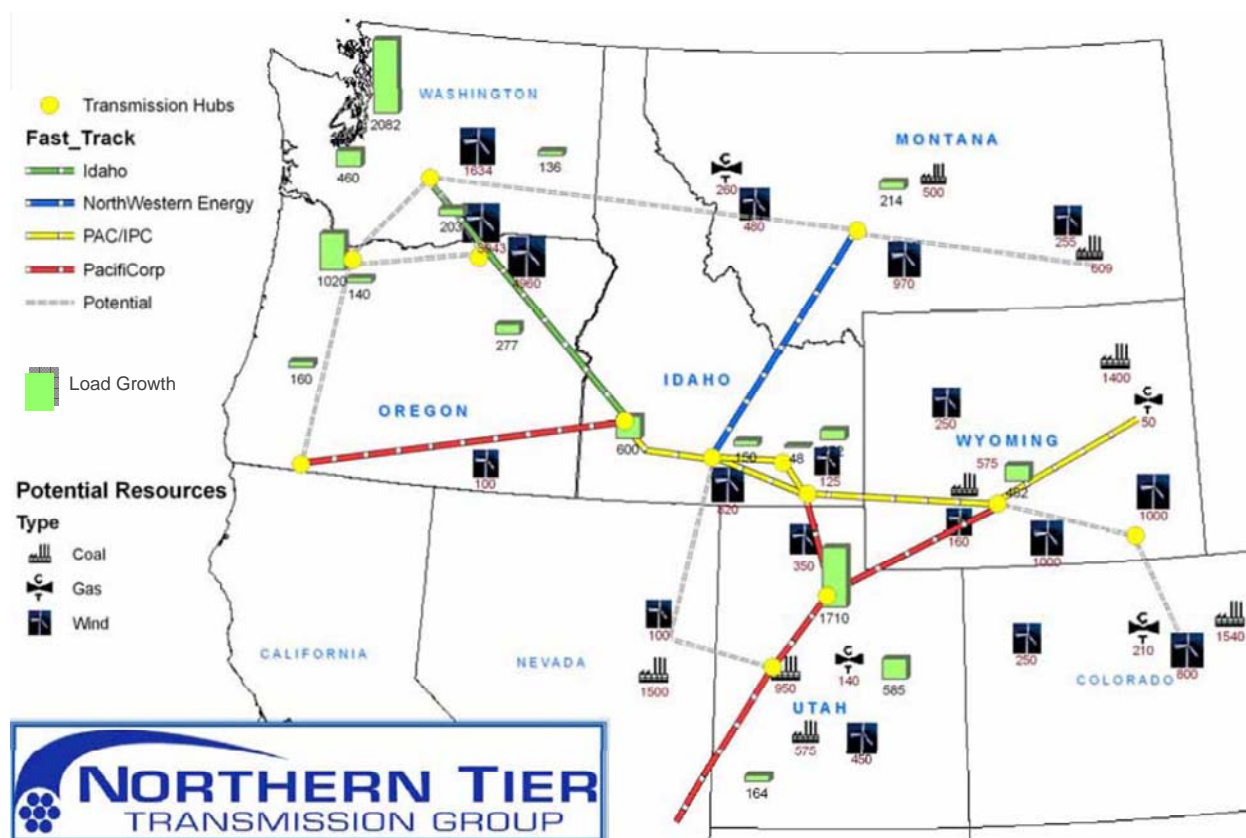


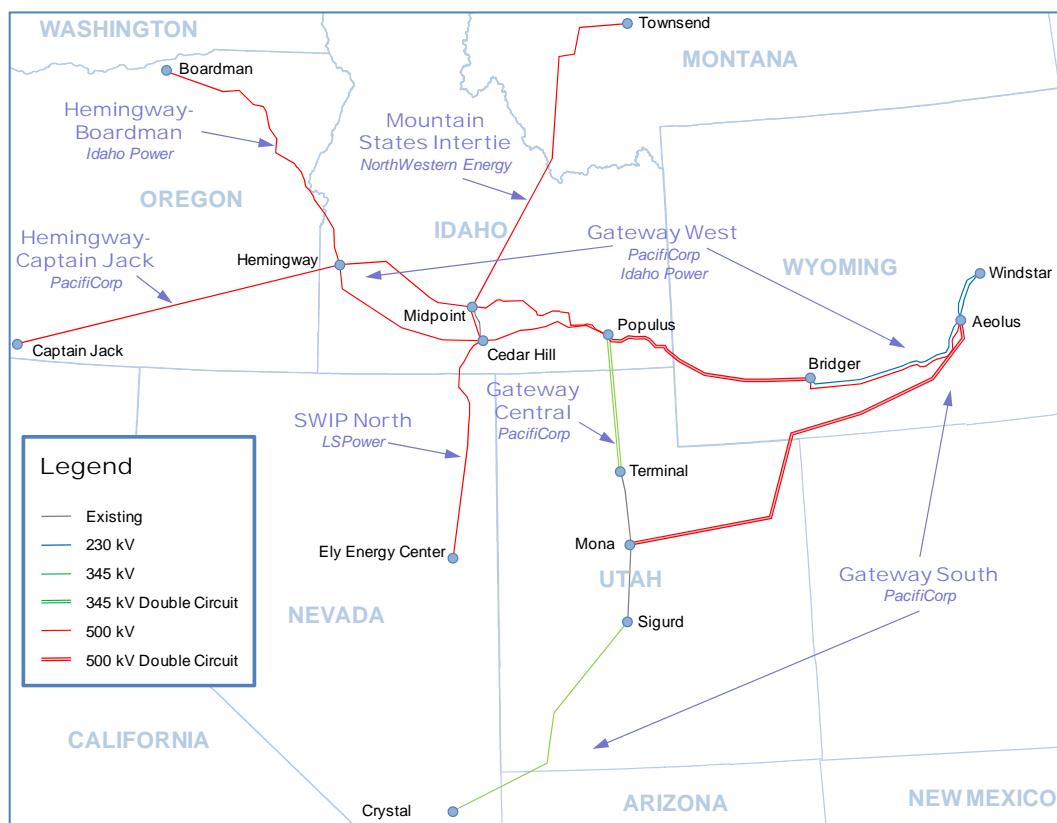
Figure 4: Northern Tier Fast-Track Project Map with Potential Resource Additions

The table and map on the next page show the principal projects in the Fast-Track Program, their points of termination, voltages, potential routes, current status and anticipated completion dates.

Table 3: Fast-Track Project Data

Project Name	Voltage (kV)	States	Length (Miles)	WECC Rating Phase	Permit Status	In-Service Year
Gateway South	500/345	WY, UT, NV	450±	In Phase 1	Applications Submitted	2014
Gateway West	500/230	WY, ID,OR	650	In Phase 1	Applications Submitted	2012
Gateway Central	345	ID, UT	136	In Phase 1		2010
Hemingway-Boardman	500	ID, OR	230	In Phase 1	Applications Submitted	2012
Hemingway-Captain Jack	500	ID, OR	320	In Phase 1		2014
Mountain States Transmission Intertie	500	MT, ID	460	Phase 1 Complete	In Permitting Process	2013
SouthWest Intertie Project - North	500	ID, NV	230	In Phase 1	Active in Siting	2011

Figure 5: Map of Fast-Track Transmission Showing Voltage & Points of Connection



NTTG Project Development Timelines

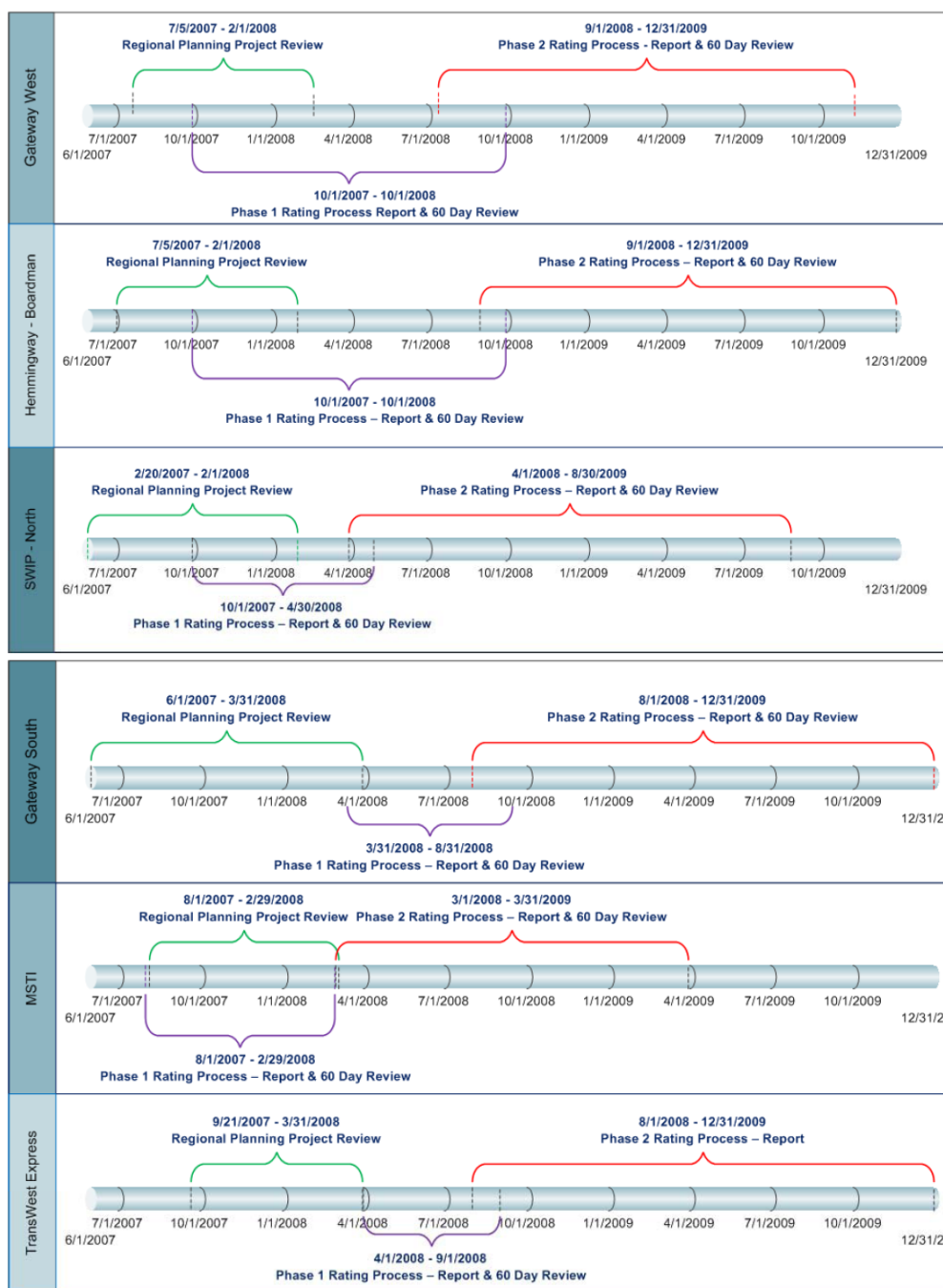


Figure 6: Development Timelines for Northern Tier Projects

The Sub-Regional Planning Process

In addition to and in parallel with their Fast-Track Project activities, the Northern Tier Transmission Group and its member transmission providers developed, in 2007, individual Attachment K planning processes and a two-phase sub-regional Northern Tier Biennial Planning Process. Initiated in January, 2008, the steps of the Biennial Planning Process include:

Phase 1: Northern Tier Transmission Group Planning Process

1. Annual Planning Process – identify needs, least cost expansion project alternatives, technical benefits, and project costs.
2. Planning Committee – identify expansion beneficial projects with sponsor-recommended cost and benefit allocations.
3. Cost Allocation Committee – reviews identified projects, applies principles and recommends likely cost allocation.
4. Planning Committee – develops and circulates a Draft Annual Expansion Plan.
5. NTTG Steering Committee – approves the draft expansion plan.
6. Final Annual Expansion Plan – includes likely cost and benefit allocation estimates for the given planning assumptions.
7. Planning Estimates – for expansion projects, congestion and re-dispatch, and additional assured transfer capability, costs and cost allocations are prepared by the Economic Study Process with input from the Transmission Use Committee.
8. Customer Decision Process – customers, other stakeholders and interested parties are informed of and asked to comment on the plan and its estimated impacts, costs and benefits.
9. Formal Open Access Transmission Tariff Service Request Process – customers make network transmission and point-to-point transmission requests via the transmission providers' Open Access Transmission Tariffs and planning for firm needs and reliability is undertaken by members.

Phase 2: Transmission Provider Project Implementation Process

1. Transmission providers and project sponsors will finance projects, facilitate permitting, and implement their formal Open Access Transmission Tariff processes.
2. Service Request Aggregation Process – Northern Tier Transmission Group may facilitate open seasons or coordinate requests made of individual transmission providers as appropriate and requested.
3. Steering Committee – may initiate coordinated queues and consolidated transmission service request processes in the future.

4. Transmission Providers' Formal Open Access Transmission Tariff Process
5. Transmission Providers – undertake transmission construction, including detailed planning, permitting and building.
6. Transmission Providers – each undertakes its own regulatory approval and rate process.

Relationships among Planning Entities in the West

Transmission planning in the Western Interconnection has evolved to incorporate three distinct levels activity: Transmission providers, sub-regional transmission groups, and regional planning entities. The relationships among regional, sub-regional and individual transmission providers are shown in the following diagram:

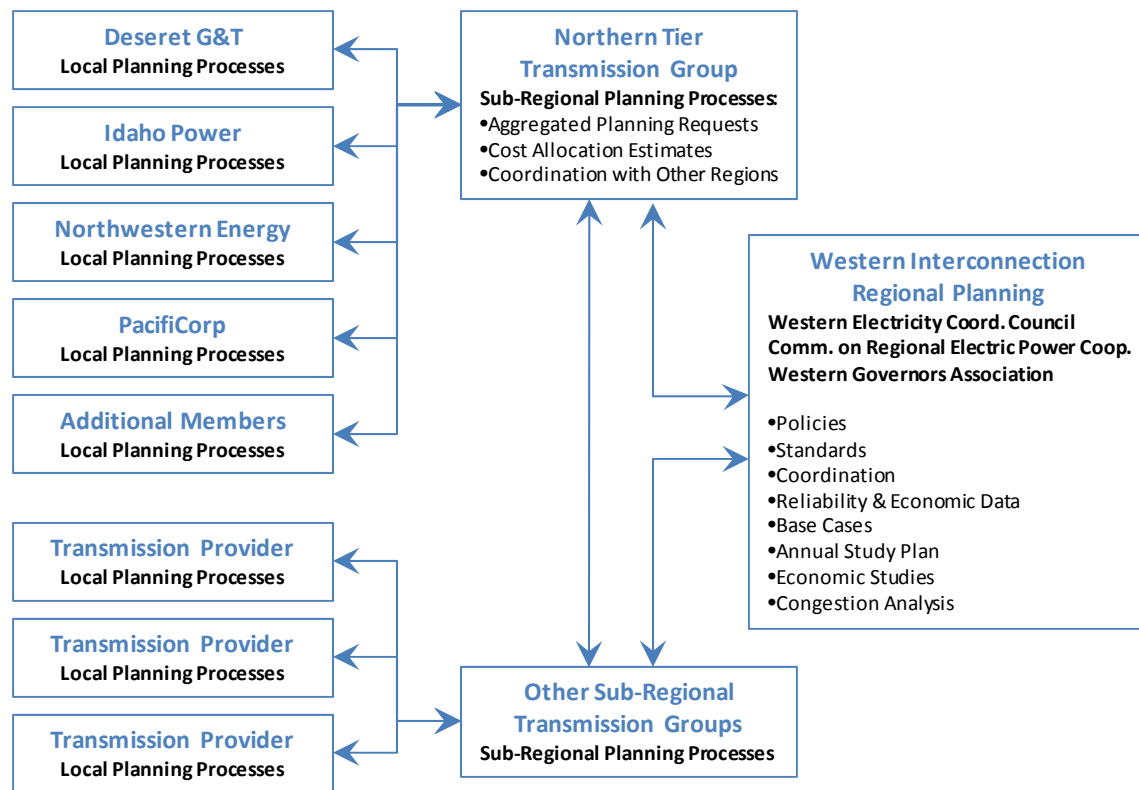


Figure 7: Three-level Planning Process in the Western Interconnection

Individual transmission providers were once (for the most part) fully-integrated generation, transmission and distribution utilities that, with deregulation, have now changed focus to provide equal access to all markets and customers.

The transmission providers each develop and maintain an Open Access Transmission Tariff that receives and acts on requests for transmission service in accordance with a well-defined procedure. The transmission providers also assess future load and resource developments to

plan the evolution of an efficient transmission system, and undertake reliability analysis and improvements.

Where service requests and other identified needs call for the development of transmission that involves participation of multiple transmission providers within a sub-regional transmission group's footprint, the planning and analysis of improvements are coordinated at the sub-regional level. Projects that span greater distances are planned, analyzed and developed in coordination with other sub-regional groups or at the regional WECC level.

Regional and Sub-Regional Planning Timelines

The Northern Tier Transmission Group's planning timelines are designed to coordinate with those of the Western Electricity Coordinating Council, with a two-year cycle for transmission expansion and reliability and a one-year economic study cycle that examines preliminary plans for the first year of the biennial cycle, and draft plans for the second year of the preceding cycle.

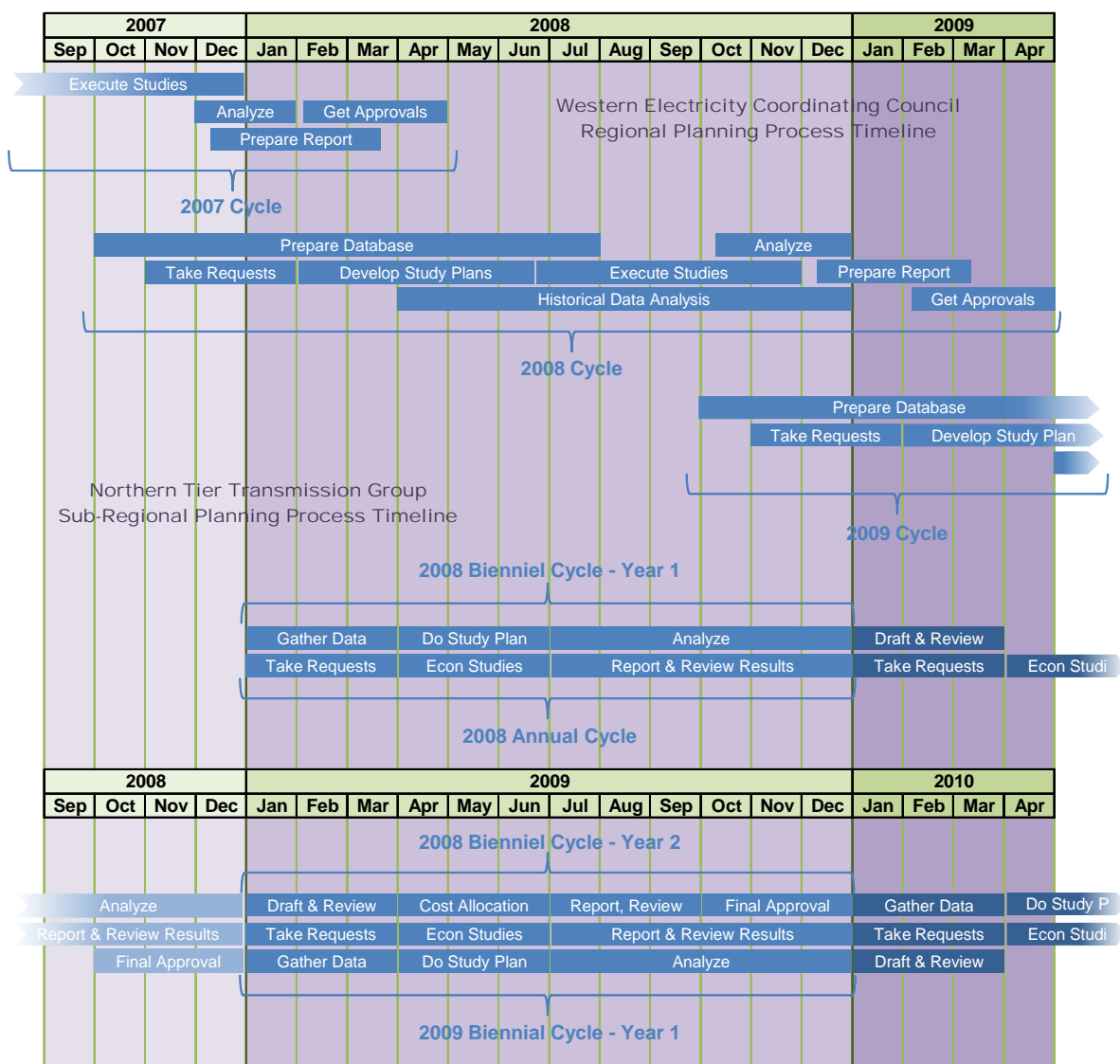


Figure 8: Timelines for Regional & Sub-Regional Planning

Details of the Northern Tier Transmission Projects

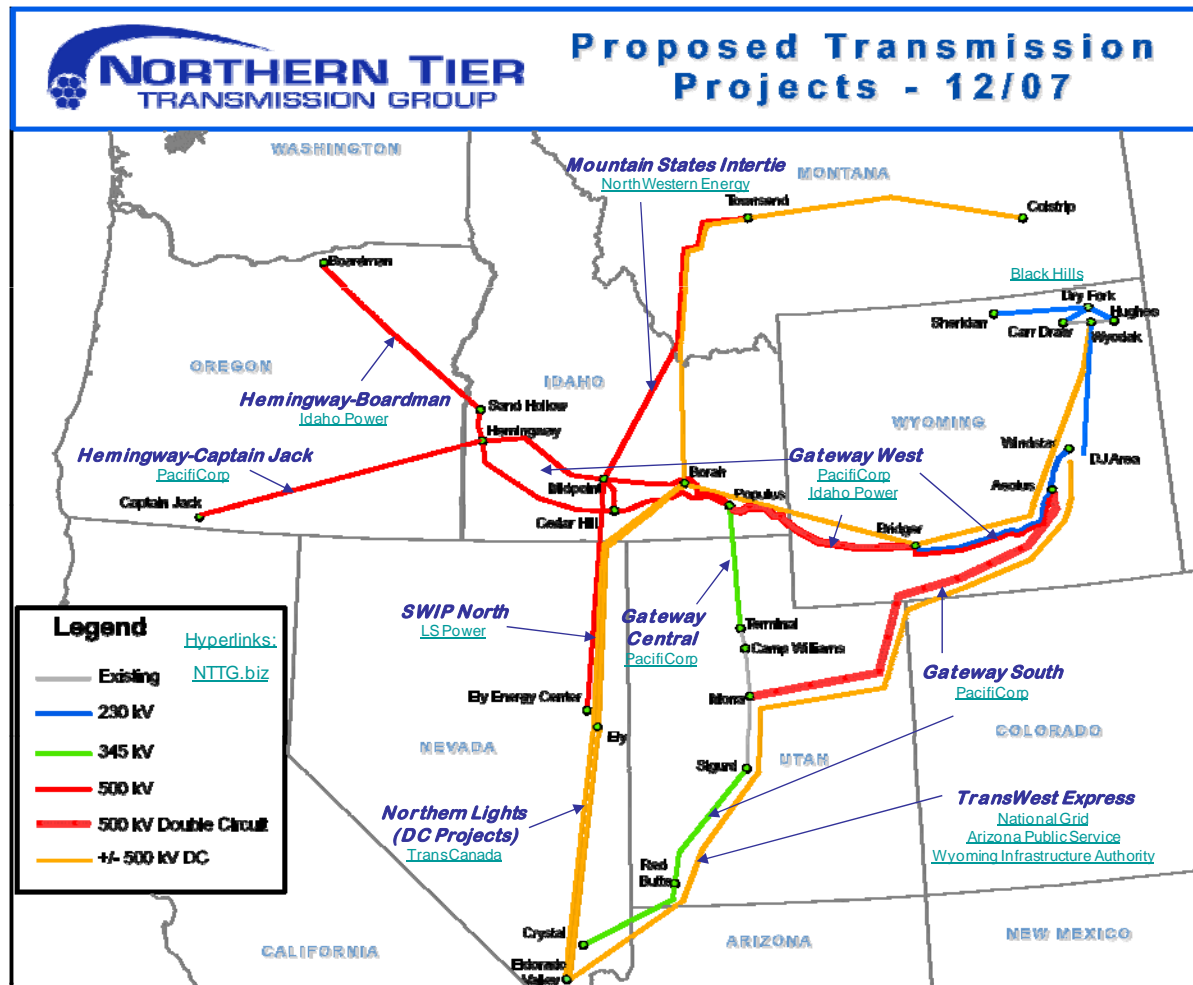


Figure 9: Proposed Transmission Projects as of December 2007

The following pages provide maps and descriptions of major components of the Northern Tier Transmission Group's projects. Following these overviews, in the table of References, are links to Web pages containing additional information for the projects.

Note: At the time of this report, the Sigurd-Crystal segment of the Gateway South was being evaluated in the WECC Phase 1 Rating Process as a 500-kV line.

Hemingway to Boardman Transmission Project

The project consists of a single-circuit 500-kV transmission line with a proposed bi-directional rating of 1000 MW stretching about 230 miles from Hemingway substation (formerly Melba) southeast of Boise, Idaho, to a new substation being planned near Boardman, in north-central Oregon.

This project, sponsored by Idaho Power, is designed to provide for anticipated service-area load growth and to meet transmission service requests. By 2017, Idaho Power forecasts an additional 800 MW of Idaho native load. Further, Idaho Power is obligated, pursuant to its Open Access Transmission Tariff, to plan and expand its transmission system based on needs of its network customers and eligible customers that agree to expand the Idaho Power transmission system.

Constraints on the existing Idaho to Northwest transmission path (Path 14) prevent Idaho Power from meeting transmission requests currently in its queue. Path 14 is currently rated at 1,200 MW with a summer operating transfer capability of 1090 MW west-to-east, and is fully subscribed.

The Hemingway-to-Boardman Transmission Project was initiated in response to a transmission request submitted by Idaho

Power's merchant group and was identified in Idaho Power's 2006 Integrated Resource Plan to access Pacific Northwest energy resources to serve Idaho Power's growing customer needs.

The Rocky Mountain Area Transmission Study (RMATS) of 2004 evaluated many expansion scenarios, with the Phase 1 Report including a Midpoint-to-Oregon transmission path as a recommended transmission path to support the development of Wyoming resources beyond the RMATS study footprint, providing an estimated annual savings of \$516 million.

A Regional Planning Review Group was established and held its first meeting on September 7, 2007, with additional stakeholder meetings on October 17 and November 13. Meeting notices, presentations and minutes were posted on Idaho Power's OASIS Web site (<http://www.oatioasis.com/ipco/index.html>).



Figure 10: Map of Hemingway-to-Boardman Transmission Project

Hemingway to Captain Jack Transmission Project

Northern Tier Transmission Group member PacifiCorp is sponsoring the development of a 500-kV transmission line from the Hemingway substation at Melba, Idaho (southeast of Boise), to the Bonneville Power Administration's Captain Jack substation near Bonanza in Northern California. The single-circuit line will span approximately 320 miles and is planned to be in service in 2014.

The existing Midpoint-to-Summer Lake 500 kV line between South Central Idaho and Southern Oregon will add a terminus at the Hemingway substation. The lines will provide a robust pathway for energy between the Pacific Coast and the Inland West.



Figure 11: Map of Hemingway to Captain Jack Transmission Project

Southwest Intertie Project (SWIP) North

The Southwest Intertie Project is being developed by LS Power, LLC, under the name Great Basin Transmission, LLC, in cooperation with Idaho Power, which holds the permits. Great Basin purchased an exclusive option to build the SWIP from Idaho Power, which has studied the project for a number of years.

The project is being approached in two segments, with the SWIP North segment being part of the Northern Tier Transmission Group's Fast-Track Project. SWIP North is a 500-kV single-circuit line that will be built between the Midpoint substation in South Central Idaho and the White Pine Generating Station near Ely, Nevada.

The initial proposed rating for the Midpoint-White Pine line is 2,000 MW in each direction, subject to results of the WECC Phase 1 Comprehensive Progress Report. The line is proposed to be in service in 2011.

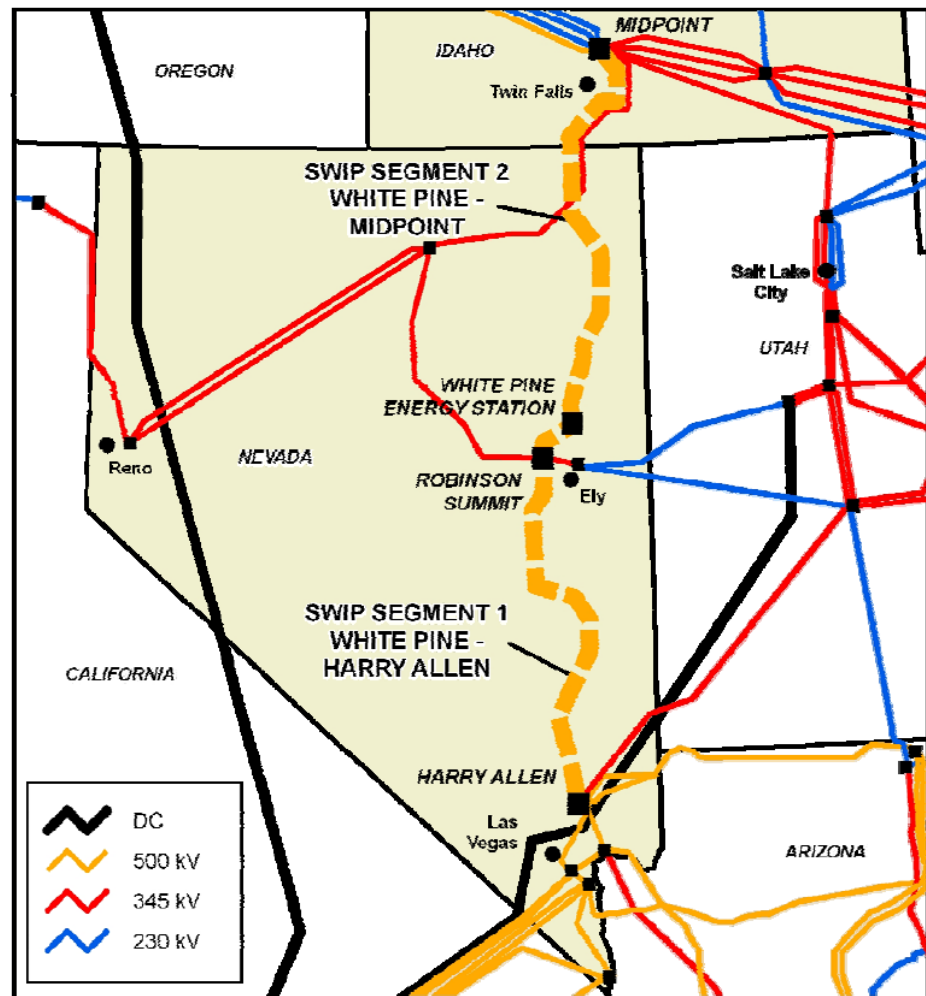


Figure 12: Map of Southwest Intertie Project (SWIP)

Mountain States Transmission Intertie Project

The Mountain States Transmission Intertie (MSTI, pronounced 'misty') is sponsored by Northwestern Energy and will provide a 500-kV link of approximately 460 miles between a new Townsend substation in Southwestern Montana and the Midpoint substation in South Central Idaho. An intermediate connection will be made at the existing Mill Creek substation.

The MSTI will be built to meet transmission service requests and to relieve constraints on the region's existing transmission system. The project will also improve transmission system reliability, meet growing electricity demand in the region, provide regional energy diversification and make a positive economic impact on the area. The project is planned to be in service in 2013, and has a proposed north-south rating of 1,500 MW and a prospective south-north rating of 950 MW.

The Townsend substation will tie into two existing 500-kV east-west interties approximately mid-way between the existing Broadview and Garrison substations. The new line will have series compensation and a phase-shifting transformer to control power flow. Series capacitors will be located at the Midpoint substation, while a substation for the phase-shifting transformer and additional series capacitors will be built near the Mill Creek substation.

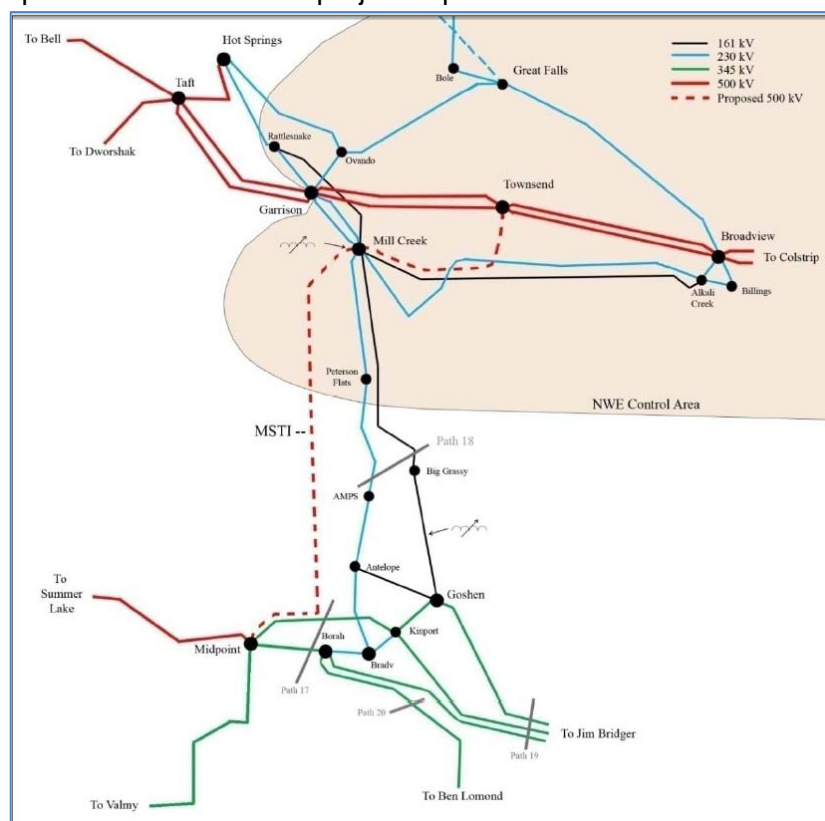


Figure 13: Potential Route of MSTI (Dashed Line)

Northwestern Energy initiated both the WECC Regional Planning Process and Path Rating Process in 2007. NWE submitted the Final Regional Planning Project Report to complete the Regional Planning Process in March 2008 after a 30-day comment period. In early April, NWE will finalize and submit its Comprehensive Progress Report to the Western Electricity Coordinating Council for the required 60-day comment period to complete the Phase 1 Path Rating Process.

Gateway West Transmission Project

The Gateway West Transmission Project is sponsored by Idaho Power and PacifiCorp, and is planned to provide for growth in load within the service territory of the two companies. The project will also meet their obligation to plan for and expand their transmission systems based on the needs not only of native load customers but network customers and eligible customers that agree to expand the transmission system.

The project was announced in May of 2007. It is a part of PacifiCorp's broader Energy Gateway initiative, which also encompasses the Gateway South and Gateway Central Transmission Projects. The project is comprised of a number of new substations and a new, primarily 500-kV pair of lines from a new Windstar substation near the Dave Johnston power plant in Eastern Wyoming to the Hemingway substation near the western border of Idaho.

The project has a proposed combined rating of 3,000 MW, and will parallel three existing WECC-defined bulk power transmission paths: TOT 4A (Path 37), Bridger West (Path 19), and Borah West (Path 17). Besides the terminating Windstar and Hemingway substations, new stations will be built at Aeolus (to integrate new generation resources and to provide connection with the Gateway South Project), Populus (to connect with Path C transmission into Utah), and at Cedar Hill (to tie the more southern of the two lines into the Midpoint substation for increased reliability).

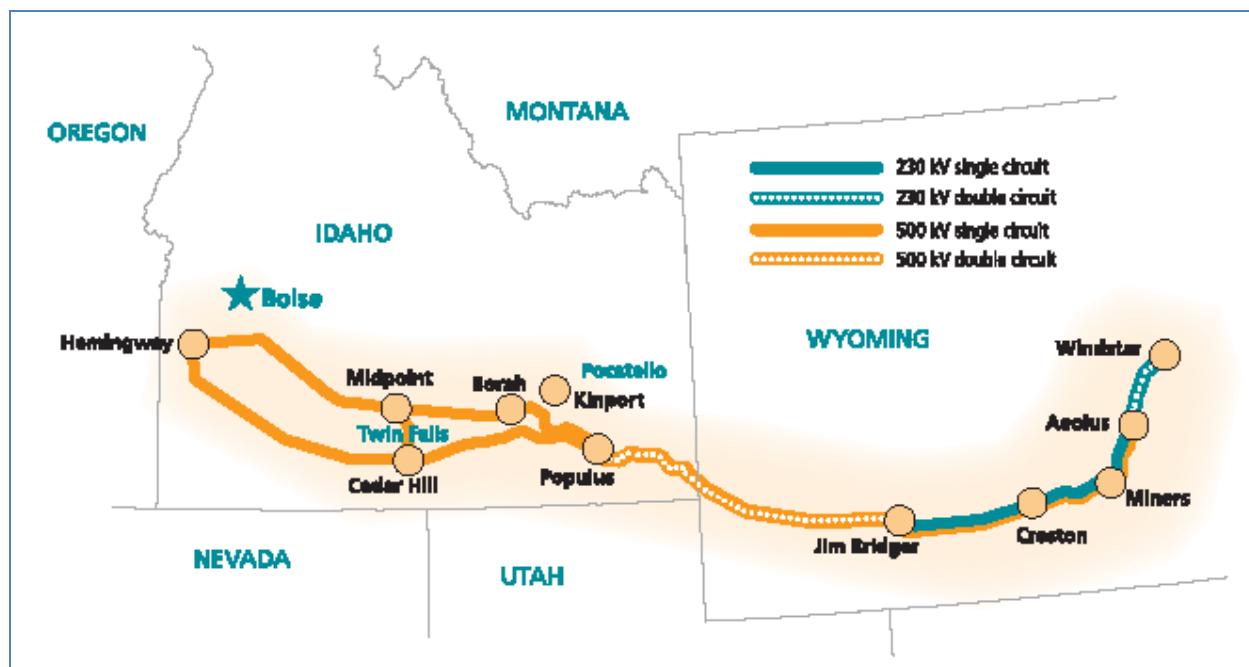


Figure 14: Map of the Gateway West Transmission Project

Gateway South and TransWest Express

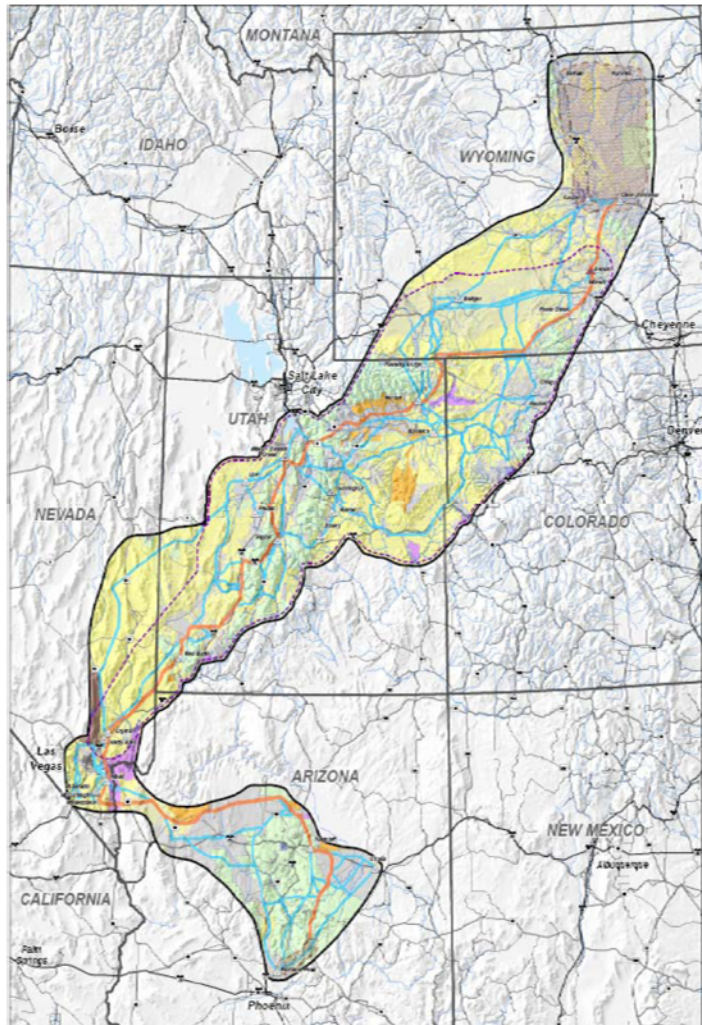
The Gateway South Transmission Project is part of PacifiCorp's Energy Gateway initiative and proposes new high-voltage transmission between Wyoming and Southern Nevada. Arizona Public Service, the Wyoming Infrastructure Authority and National Grid are proposing a similar line from Wyoming through Southern Nevada and prospectively on to the Phoenix, Arizona area.

Recognizing a number of common interests and similar planning and development requirements, the participants in the two projects an interim agreement in August of 2007 to pursue initial development while more complex technical and regulatory issues were considered.

The joint effort undertook a common project team implementation strategy and resource deployment, led by National Grid, coordinating Regional Planning and Rating Review processes, coordinating environmental permitting, and engaging in a common stakeholder and public outreach.

Each project would undertake its own right-of-way filings, WECC rating process and regulatory filings.

The Gateway South project calls for a 500-kV line from the proposed new Aeolus substation in Southeast Wyoming to the Mona substation in Central Utah, to be completed by 2013. A 345-kV line will be built from the existing Sigurd substation (about 50 miles south of Mona), through the Red Butte substation in the southeast corner of Utah, to the Crystal substation north of Las Vegas, Nevada, with completion scheduled for 2012.



Gateway Central Transmission Project

PacifiCorp is sponsoring a double-circuit 345-kV transmission line from a new Populus substation near Downey, Idaho, 136 miles south to the existing Terminal substation near the Salt Lake International Airport west of Salt Lake City, Utah. The line is being developed in two segments that will link north of Ogden, Utah, at the Ben Lomond substation. The southern segment is planned to be in service in March of 2010, while the northern segment is targeted for June, 2010.

The line is intended to increase the ability to deliver electricity to the fast-growing population along the Wasatch front of Utah in an efficient and cost-effective manner.

The new transmission lines and expanded substations will also provide for improved reliability and operational flexibility with future generation resources, including renewable resources such as wind



Figure 16: The Gateway Central Transmission Project

NorthernLights Transmission– Inland Project

NorthernLights is a TransCanada initiative that proposes three major high-voltage direct current (HVDC) transmission lines linking low cost, environmentally attractive fossil fuelled and renewable generation with growing loads in the Pacific Northwest, Nevada, Arizona and California.

The NorthernLights initiative consists of two projects – the Celilo Project between Northern Alberta and the Bonneville Power Administration's Big Eddy substation next to the high voltage direct current inverter station at Celilo near The Dalles, Oregon, and the Inland Project connecting Montana and Wyoming generation to Las Vegas and electricity users in Southern California and the Desert Southwest.

The Celilo Project is being developed in coordination with the Western Electricity Coordinating Council and the ColumbiaGrid regional transmission group.

The Inland Projects consist of two HVDC transmission lines to Las Vegas, with one line beginning in Wyoming and the other in Montana. Several major inter-regional high voltage transmission paths are already interconnected at substations in the Southern Nevada area.

The lines will connect wind generation resources in Montana, Wyoming and other western states with growing loads in Southern Nevada, Arizona and California.

Extension of the Inland Project lines to southern California and Arizona is contemplated as market conditions evolve.

Current plans call for the two 500-kV direct current lines to be energized in 2014. It is anticipated that they will carry up to 3,000 megawatts each and cost between \$1.5 and \$2.0 billion to construct.



Internet Links and Other References

Regional Planning

- [Western Electricity Coordinating Council](http://www.wecc.biz)
(http://www.wecc.biz)
 - [Transmission Expansion Planning Policy Committee](#)
Western Interconnection economic transmission expansion planning support
 - [Planning Coordination Committee](#)
Evaluate transmission design and expansion, recommend criteria for reliable operation
- [Committee on Regional Electric Power Cooperation](http://www.westgov.org/wieb/site/crepcpage/)
(http://www.westgov.org/wieb/site/crepcpage/)
A committee of the Western Governors Association's Western Interstate Energy Board

Sub-Regional Planning

- [Northern Tier Transmission Group](http://www.nttg.biz)
(http://www.nttg.biz)
- [ColumbiaGrid](http://www.columbiagrid.org)
(http://www.columbiagrid.org)
- [WestConnect](http://www.westconnect.com/planning.php) (and Sub-Groups)
(http://www.westconnect.com/planning.php)
 - Colorado Coordinated Planning Group
 - National Renewable Energy Laboratory
 - Sierra Pacific Planning Group
 - Southwest Area Transmission

Northern Tier Transmission Group Members

- [Deseret Generation & Transmission](http://www.oasis.pacificorp.com/oasis/dgt/main.html)
(http://www.oasis.pacificorp.com/oasis/dgt/main.html)
- [Idaho Power Company](http://www.oatioasis.com/ipco/index.html)
(http http://www.oatioasis.com/ipco/index.html)
- [Northwestern Energy](http://www.oatioasis.com/NWMT/index.html)
(http://www.oatioasis.com/NWMT/index.html)
- [PacifiCorp](http://www.oasis.pacificorp.com/oasis/ppw/main.htmlx)
(http://www.oasis.pacificorp.com/oasis/ppw/main.htmlx)
- [Utah Associated Municipal Power Systems](http://www.uamps.com)
(http://www.uamps.com)

Integrated Resource Plans

- [Idaho Power Company](http://www.idahopower.com/energycenter/irp/2006/)
(<http://www.idahopower.com/energycenter/irp/2006/>)
Idaho Power is currently developing its 2008 Integrated Resource Plan, and preliminary information will be made available on its Web site as it is evolved.
- [NorthWestern Energy](http://www.northwesternenergy.com/display.aspx?Page=Default_Supply_Electric&Item=16)
(http://www.northwesternenergy.com/display.aspx?Page=Default_Supply_Electric&Item=16)
NorthWestern does not produce an 'Integrated Resource Plan', *per se*, but they maintain and make available an "Electric Default Supply Resource Procurement Plan."
- [PacifiCorp](http://www.pacifiCorp.com/Navigation/Navigation23807.html)
(<http://www.pacifiCorp.com/Navigation/Navigation23807.html>)
PacifiCorp's currently posted plan was completed in May of 2007, and development of the 2008 IRP is currently underway.

Additional Information for Northern Tier Transmission Projects

- Hemingway to Boardman
- Hemingway to Captain Jack
- [Gateway Central](http://www.pacifiCorp.com/Article/Article79647.html)
(<http://www.pacifiCorp.com/Article/Article79647.html>)
- Gateway South
- [Gateway West](http://www.idahopower.com/newsroom/projnews/Gateway/)
(<http://www.idahopower.com/newsroom/projnews/Gateway/>)
- [NorthernLights](http://www.transcanada.com/company/northernlights.html)
(<http://www.transcanada.com/company/northernlights.html>)
- [Mountain States Transmission Intertie](http://www.msti500kv.com/default.htm)
(<http://www.msti500kv.com/default.htm>)
- Southwest Intertie Project - North
- [Transwest Express](https://transwest.azpssoasis.com/)
(<https://transwest.azpssoasis.com/>)