

Draft

**WEST
CONNECT**

Enhancing wholesale
electricity markets

2009

WestConnect Transmission Plan

A Report Detailing the
Electrical Transmission System Expansion Plan
Within the WestConnect Planning Area
2010-2019

January 18, 2010

A Report Prepared by:

K. R. Saline & Associates, PLC
160 N. Pasadena, Suite 101
Mesa, AZ 85201-6764
Phone: 480-610-8741
Fax: 480-610-8796
www.krsaline.com



Draft

ACKNOWLEDGEMENTS

WestConnect would like acknowledge and thank the following entities for their participation in the 2009 WestConnect Plan, as without their contributions and efforts this report would not be possible:

ARIZONA PUBLIC SERVICE COMPANY
BASIN ELECTRIC COOPERATIVE
BLACK HILLS ENERGY
BLACK HILLS POWER
CATS SUBREGIONAL PLANNING GROUP
CENTRAL ARIZONA PROJECT
COLORADO COORDINATED PLANNING GROUP
DINE POWER AUTHORITY
EL PASO ELECTRIC COMPANY
GREAT BASIN TRANSMISSION
IMPERIAL IRRIGATION DISTRICT
PLATTE RIVER POWER AUTHORITY
PUBLIC SERVICE COMPANY OF COLORADO
PUBLIC SERVICE COMPANY OF NEW MEXICO
SALT RIVER PROJECT
SACRAMENTO MUNICIPAL UTILITY DISTRICT
SIERRA PACIFIC RESOURCES / NEVADA POWER COMPANY
SIERRA SUBREGIONAL PLANNING GROUP
SOUTHERN CALIFORNIA EDISON
SOUTHWEST PUBLIC POWER GROUP
SOUTHWEST TRANSMISSION COOPERATIVE
SUNZIA TRANSMISSION PROJECT
SOUTHWEST AREA TRANSMISSION
TRANS-ELECT DEVELOPMENT COMPANY
TRANSMISSION AGENCY OF NORTHERN CALIFORNIA
TRANSWEST EXPRESS, LLC
TRI-STATE GENERATION AND TRANSMISSION
TUCSON ELECTRIC POWER / UNISOURCE ENERGY SERVICES
WESTERN AREA POWER ADMINISTRATION - DESERT SOUTHWEST REGION
WESTERN AREA POWER ADMINISTRATION - SIERRA NEVADA REGION
WESTERN AREA POWER ADMINISTRATION - ROCKY MOUNTAIN REGION

Draft

FOREWORD

This report has been prepared on behalf of the WestConnect subregional planning participants. It was prepared in accordance with a contract between K.R. Saline and Associates, PLC (“KRSA”) and WestConnect. Although it is considered a public document, other parties’ use of the report is at their own risk. Neither KRSA nor WestConnect accepts any duty of care to such third parties.

KRSA is appreciative of the cooperation and support of the WestConnect planning participants throughout the inaugural WestConnect subregional planning process. Their attendance at subregional planning meetings, performance of technical studies, and contribution of data and information for this report has been exemplary. This indicates their continued commitment to improve and perfect the open, transparent and stakeholder-driven subregional planning process that was in place prior to institution of the WestConnect planning process.

In the course of developing this report, KRSA has exercised due and customary care but has not, except as specifically stated, independently verified information provided by others. No other warranty, express or implied, is made in relation to the conduct of KRSA or any specific content of this report. KRSA assumes no liability or responsibility for any loss resulting from errors, omissions or misrepresentations on the part of others.

Any recommendations, opinions or findings stated in this report are based on circumstances and facts as they existed at the time the work was performed. Any changes in the circumstances and facts on which this report is based could affect the recommendations, opinions or findings contained herein. No part of this report may be exported, modified or deleted to change the content or context, without the express written permission of WestConnect and KRSA.

Draft

TABLE OF CONTENTS

ACKNOWLEDGEMENTS	II
FOREWORD	III
TABLE OF CONTENTS	IV
LIST OF FIGURES	VI
LIST OF TABLES	VI
LIST OF EXHIBITS	VII
LIST OF APPENDICES	VII
EXECUTIVE SUMMARY	1
OVERVIEW	3
PLANNING AUTHORITY	3
HISTORY OF THE WESTCONNECT PLAN	4
PURPOSE AND FRAMEWORK OF 2009 PLAN	5
DATA COLLECTION PROCESS	7
SUMMARY OF THE WESTCONNECT TRANSMISSION PLAN	8
2008 WESTCONNECT TRANSMISSION PLAN RECAP	8
2009 WESTCONNECT TRANSMISSION PLAN SUMMARY	8
SIGNIFICANT CHANGES BETWEEN THE 2008 AND 2009 WESTCONNECT TRANSMISSION PLANS	9
PLAN SORTED BY VOLTAGE CLASS	11
PLAN SORTED BY IN-SERVICE DATE	13
PLAN SORTED BY STATE TRAVERSED	17
INTERSTATE, MARKET AND MERCHANT TRANSMISSION AND GENERATION PROJECTS	23
SUNZIA TRANSMISSION PROJECT	23
DINÉ NAVAJO TRANSMISSION PROJECT	24
HARCUVAR TRANSMISSION PROJECT	25

Draft

HIGH PLAINS EXPRESS INITIATIVE	27
TRANSWEST EXPRESS	28
SOUTHWEST PUBLIC POWER RESOURCES - THREE TERMINAL PLAN	29
WYOMING-COLORADO INTERTIE	30
TRANSMISSION AGENCY OF NORTHERN CALIFORNIA – PROJECT ZETA	31
CONCLUSIONS	33
2009 SUMMARY	33
RECOMMENDATIONS	35

Draft

LIST OF FIGURES

FIGURE 1 - WESTCONNECT PLANNING AREA TRANSMISSION LINES (DEPICTED IN ORANGE)	3
FIGURE 2 – TRANSMISSION LINE COST DISTRIBUTION BY VOLTAGE CLASS	12
FIGURE 3 – NUMBER OF PLANNED TRANSMISSION LINE PROJECTS AND INVESTMENT COST BY YEAR	14
FIGURE 4 – NUMBER OF CONCEPTUAL TRANSMISSION LINE PROJECTS AND INVESTMENT COST BY YEAR	15
FIGURE 5 - PLANNED TRANSMISSION LINE INVESTMENT BY STATE	17
FIGURE 6 – CONCEPTUAL TRANSMISSION LINE INVESTMENT BY STATE	18

LIST OF TABLES

TABLE 1 – CURRENT WESTCONNECT PLANNING MANAGEMENT COMMITTEE MEMBERS	4
TABLE 2 – OVERVIEW OF REPORTED WESTCONNECT PROJECTS	9
TABLE 3 – OVERVIEW OF MAJOR PROJECTS 2009 WESTCONNECT PLAN CHANGES	10
TABLE 4 – WESTCONNECT PLAN VOLTAGE CLASS SUMMARY – PLANNED TRANSMISSION LINE PROJECTS	11
TABLE 5 – WESTCONNECT PLAN VOLTAGE CLASS SUMMARY – CONCEPTUAL TRANSMISSION LINE PROJECTS	11
TABLE 6 – WESTCONNECT IN-SERVICE DATE SUMMARY – PLANNED TRANSMISSION LINE PROJECTS	13
TABLE 7 – WESTCONNECT IN-SERVICE DATE SUMMARY – CONCEPTUAL TRANSMISSION LINE PROJECTS	14
TABLE 8 – WESTCONNECT STATE LOCATION SUMMARY – PLANNED TRANSMISSION LINE PROJECTS	17
TABLE 9 – WESTCONNECT STATE LOCATION SUMMARY – CONCEPTUAL TRANSMISSION LINE PROJECTS	18
TABLE 10 - HIGH PLAINS EXPRESS PARTICIPANTS	27

Draft

LIST OF EXHIBITS

WESTCONNECT TRANSMISSION PLAN GUIDELINES	EXHIBIT 1
LISTING OF WESTCONNECT TRANSMISSION PLAN SORTED BY VOLTAGE CLASS	EXHIBIT 2
LISTING OF WESTCONNECT TRANSMISSION PLAN SORTED BY IN SERVICE DATES	EXHIBIT 3
LISTING OF WESTCONNECT TRANSMISSION PLAN SORTED BY STATE	EXHIBIT 4
MAPS OF WESTCONNECT TRANSMISSION PLAN	EXHIBIT 5
PLAN CHANGES BETWEEN 2008 AND 2009	EXHIBIT 6

LIST OF APPENDICES

ARIZONA PUBLIC SERVICE COMPANY	APPENDIX A
BASIN ELECTRIC COOPERATIVE	APPENDIX B
BLACK HILLS ENERGY	APPENDIX C
BLACK HILLS POWER	APPENDIX D
CATS SUBREGIONAL PLANNING GROUP	APPENDIX E
CENTRAL ARIZONA PROJECT	APPENDIX F
DINE POWER AUTHORITY	APPENDIX G
EL PASO ELECTRIC COMPANY	APPENDIX H
GREAT BASIN TRANSMISSION	APPENDIX I
IMPERIAL IRRIGATION DISTRICT	APPENDIX J
PLATTE RIVER POWER AUTHORITY	APPENDIX K
PUBLIC SERVICE COMPANY OF COLORADO	APPENDIX L
PUBLIC SERVICE COMPANY OF NEW MEXICO	APPENDIX M
SACRAMENTO MUNICIPAL UTILITY DISTRICT	APPENDIX N
SALT RIVER PROJECT	APPENDIX O
SIERRA PACIFIC RESOURCES / NEVADA POWER COMPANY	APPENDIX P

Draft

SOUTHERN CALIFORNIA EDISON	APPENDIX Q
SOUTHWEST PUBLIC POWER GROUP	APPENDIX R
SOUTHWEST TRANSMISSION COOPERATIVE	APPENDIX S
SUNZIA TRANSMISSION PROJECT	APPENDIX T
TRANS-ELECT DEVELOPMENT COMPANY	APPENDIX U
TRANSMISSION AGENCY OF NORTHERN CALIFORNIA	APPENDIX V
TRANSWEST EXPRESS, LLC	APPENDIX W
TRI-STATE GENERATION AND TRANSMISSION	APPENDIX X
TUCSON ELECTRIC POWER / UNISOURCE ENERGY SERVICES	APPENDIX Y
WESTERN AREA POWER ADMINISTRATION - DESERT SOUTHWEST REGION	APPENDIX Z
WESTERN AREA POWER ADMINISTRATION - SIERRA NEVADA REGION	APPENDIX AA
WESTERN AREA POWER ADMINISTRATION - ROCKY MOUNTAIN REGION	APPENDIX BB
CONCEPTUAL PROJECTS WITHOUT SPONSORS	APPENDIX CC

Draft

EXECUTIVE SUMMARY

This 2009 WestConnect Transmission Plan is the third subregional transmission plan coordinated and assembled on behalf of WestConnect subregional planning participants and stakeholders. The WestConnect Transmission Plan area encompasses eight states and three subregional planning areas. Participants include fifteen transmission owners and twenty-eight project sponsors. The 2009 WestConnect Transmission Plan report is intended to provide a comprehensive overview of the large number of planned and conceptual transmission projects proposed within the planning area.

2009 was another active year in transmission planning for the WestConnect footprint. It marked the publishing of this third annual Transmission Plan Report which includes numerous project additions, delays and removals. A number of new EHV transmission projects were incorporated to the Plan, including the Great Basin Transmission Southwest Intertie project as well as a number of projects that were modified or whose in-service dates delayed, but which remained in the Plan. During 2009, WestConnect improved upon the online data entry portal for transmission project submittals. The 2009 planning process incorporated a modification to the submittal deadline which allowed project sponsors to supply requested information in a manner more consistent with their own annual transmission planning processes.

The 2009 WestConnect Transmission Plan includes 147 planned new or rebuilt/upgraded transmission line projects with a combined length of approximately 5,968 miles, 54 planned transmission substations, 34 planned transmission class transformers, and 20 other planned transmission enhancement projects, with an estimated total capital cost of \$7.4 Billion. Additionally, the 2009 WestConnect Transmission Plan includes 45 conceptual new or rebuilt/upgraded transmission line projects with a combined length of approximately 5,332 miles, 5 conceptual transmission substations, 5 conceptual transmission class transformers and 2 other planned transmission enhancements, with an estimated total capital cost of \$6.1 Billion. Combined, the 2009 WestConnect Plan includes over 11,000 miles of new/upgraded transmission lines, and other facilities, that require a total capital investment of more than \$13.5 Billion. These projects include transmission lines and substations being built and transformers being installed in Arizona, California, Colorado, Nebraska, New Mexico, Nevada, South Dakota, Texas and Wyoming.

Planned and conceptual interstate projects continue to dominate the WestConnect Plan statistics due to the scope and scale of the projects. Additionally in 2009, the data received reflected a significant improvement in the accuracy of project participant identification. This vastly improved the reporting of project participation.

During 2009, efforts to address the recommendations within the 2008 WestConnect Plan included the activities outlined below:

Draft

1. The annual data collection process was examined and the data collection window modified to allow the Plan to more directly align with annual utility study work results.
2. Suggestions were made to encourage more frequent utilization of the TPM database and support the migration of the WestConnect database to WECC, as part of broader regional transmission planning efforts.
3. WestConnect Planning noticed increased attention to detail within the TPM database.
4. WestConnect Planning completed the video tutorial tools to allow for increase tool proficiency.
5. Reporting consistency and accuracy continues to improve each year, resulting in a WestConnect Plan with improved detail and relevance.
6. WestConnect continues to encourage the use of the TPM system as a mechanism for providing the most accurate and up-to-date information on projects to interested stakeholders through all mechanisms possible, including utilization during stakeholder meetings.

Improvement in the WestConnect planning function, specifically the quality of the final Plan, is a continuing goal. The following recommendations are offered for the WestConnect Planning Management Committee's consideration in support of WestConnect's effort to meet this goal:

1. Annual revisions to the WestConnect Plan should remain a minimum requirement, and consideration should be given to more frequent updates through the TPM system to keep stakeholders abreast of changes in the Plan.
2. The detail and accuracy of the WestConnect Plan is dependant entirely upon the quality of data entered through the TPM system. Continuing to improve the quality should remain a goal.
3. WestConnect Planning members should encourage other Project sponsors to include their projects to the Plan to provide even a more comprehensive and detailed picture of transmission projects planned for the WestConnect planning area.
4. The Planning Management Committee should consider permitting public review of the Plan data through guest accounts with "read-only" access.
5. WestConnect Planning should work to ensure seamless transition of the Plan data to the WECC database through coordination and direct project development involvement.

OVERVIEW

This section provides an introduction and overview of the 2009 WestConnect Transmission Plan report. Included in the overview is a description of the authority for WestConnect planning, a summary of the history of the WestConnect Transmission Plan, the purpose and framework of the 2009 Plan and the data collection process for this report.

PLANNING AUTHORITY

This 2009 WestConnect Transmission Plan (“Plan”) is the third subregional transmission plan coordinated and assembled on behalf of WestConnect subregional planning participants and stakeholders. The authority for



preparation of the Plan is derived from the May 2, 2007 WestConnect Project Agreement for Subregional Transmission Planning (“STP Agreement”).¹ The subregional planning process used to develop and coordinate the transmission plans contained in this Plan is documented in a companion report entitled, “2009 WestConnect Transmission Planning Report.”

Figure 1 - WestConnect Planning Area Transmission Lines (depicted in orange)

This Plan includes the ten-year transmission plans of the fifteen parties that have signed the WestConnect STP Agreement (**Table 1**). The 2009 Plan also includes transmission plans of other parties that have proposed, studied, presented and sought stakeholder comments on their respective transmission projects during the 2009 subregional planning processes active within the WestConnect Planning Area (**Figure 1**). A Transmission Plan Guide has been developed to establish the prerequisite requirements for inclusion of transmission projects in WestConnect Transmission Plans. The Transmission Plan Guide is enclosed as **Exhibit 1** to this report.

¹ The Project Agreement for Subregional Transmission Planning is available at - <http://www.westconnect.com/filestorage/050207RegionalPlanningProjectAgreementExecutionCopy.pdf>

Draft

Arizona Public Service	Sacramento Municipal Utility District
Basin Electric Power Cooperative	Salt River Project
Black Hills Power	Southwest Transmission Cooperative
El Paso Electric	Transmission Agency of Northern California
Imperial Irrigation District	Tri-State Generation and Transmission Association
Nevada Power Co. / Sierra Pacific Resources	Tucson Electric Power Company
Xcel Energy / Public Service Co. of Colorado	Western Area Power Administration
Public Service Co. of New Mexico	

Table 1 – Current WestConnect Planning Management Committee Members

HISTORY OF THE WESTCONNECT PLAN

The 2009 WestConnect Transmission Plan is the third annual report documenting the transmission plan within WestConnect planning area, and addresses the 2010 through 2019 period. The first WestConnect Transmission Plan report was completed in 2007. Below is a brief overview of the history of the WestConnect Plan.

2007 WESTCONNECT PLAN

On December 4, 2007 the first draft of the 2007 WestConnect Transmission Plan was released and noticed via email, website announcement and posting to the WestConnect website, for a two-week public review and comment period. During the review period, Westconnect Planning received comments from eleven stakeholders. The comments were complied and posted for subsequent comment.² These comments were addressed and integrated into the final draft 2007 WestConnect Transmission Plan Report.

On January 9, 2008, the final draft of the 2007 WestConnect Transmission Plan Report was released to the public. On January 17, 2008 the 2007 WestConnect Transmission Plan Report³ was unanimously approved by the Planning Management Committee (“PMC”) at the WestConnect Annual Meeting in Las Vegas with changes reflected within the 2007 WestConnect Transmission Plan Errata.⁴

2008 WESTCONNECT PLAN

On December 11, 2008 the first draft of the 2008 WestConnect Transmission Plan was released (via email, website announcement and posting to the WestConnect website) for a two-week public review and comment

² 2007 Draft WestConnect Plan - Complied Comments located at - http://www.westconnect.com/filestorage/Comments_on_the_Draft_WestConnect_Transmission_Plan_Report.doc

³ 2007 WestConnect Transmission Plan Report - http://www.westconnect.com/filestorage/WestConnect_Transmission_Plan_FINAL.pdf

⁴ 2007 Errata - http://www.westconnect.com/filestorage/2007_Annual_Meeting_Errata_v2.pdf

Draft

period. During the review period, Westconnect Planning received comments from six stakeholders. The comments were compiled and posted for subsequent comment.⁵ These comments were addressed and integrated into the final draft 2008 WestConnect Transmission Plan Report.

On January 12, 2009, the final draft of the 2008WestConnect Transmission Plan Report was released to the public. On January 14, 2009 the 2008 WestConnect Transmission Plan Report⁶ was unanimously approved by the PMC at the WestConnect Annual Meeting in Las Vegas with the changes reflected within the 2008 WestConnect Transmission Plan Errata.⁷

PURPOSE AND FRAMEWORK OF 2009 PLAN

The purpose of the 2009 Plan is to provide an updated and comprehensive overview of the transmission plans within the WestConnect planning area. Each proposed transmission project described in this Plan is separate and stands on its own. A description of each proposed transmission project is provided in the Appendix associated with the project's sponsor and participating parties. The WestConnect Transmission Plan views all of the proposed projects as a coordinated transmission system expansion plan for the entire WestConnect planning area. Therefore, this document presents the transmission projects contained in the Plan from a system perspective, without regard to sponsorship or ownership.

This third annual WestConnect Transmission Plan is supported by the planning processes and stakeholder involvement described in the *2009 WestConnect Transmission Planning Report*. The Plan has been assembled into three sections: Summary of WestConnect Transmission Plan, Exhibits, and Appendices. Each section is integral to understanding the Plan and how it was compiled.

The summary of the WestConnect Transmission Plan examines the assembled transmission plans, makes general conclusions, and presents aggregated data for the entire WestConnect planning area. This first section consists of a narrative describing the Plan, with supporting summary tables and charts. It also provides of a summation of the Plan from voltage classification, in service date and location (by state) perspectives.

⁵ 2008 Draft WestConnect Plan - Complied Comments located at -

<http://www.westconnect.com/filestorage/2008%20Plan%20Comment%20Report.xls>

⁶ 200 WestConnect Transmission Plan Report -

http://www.westconnect.com/filestorage/Final_2008_Plan_Complete.pdf

⁷ 2008 Errata - <http://westconnect.com/filestorage/2008%20Annual%20Meeting%20Errata.pdf>

Draft

The second section of the Plan consists of a series of Exhibits. **Exhibit 1** is a WestConnect Transmission Plan Guideline⁸ developed to establish prerequisites for inclusion of transmission projects in future WestConnect Transmission Plans. **Exhibits 2, 3 and 4** provide presentations, in tabular form, of the WestConnect Transmission Plan sorted by voltage class, in service date and state traversed, respectively. **Exhibit 5** consists of a series of maps that depict the WestConnect Transmission Plan geographically. Many of the proposed transmission projects have not yet been through a siting process to establish a specific route. Therefore, the maps do not provide route-specific information.

The third section of this report consists of appendices that report the material supplied by individual utilities or transmission project sponsors in support of this 2009 WestConnect Transmission Plan. Each appendix contains a short summary of the indicated utility's projects followed by information pertaining to each project as provided by that utility. The projects are indicated to be either planned projects or projects that are only in the conceptual stages. Projects are listed within each utility's appendix in order of expected in-service date without regard to whether the project is planned or conceptual, although the status of each is noted.

A number of industry terms and acronyms are used in this report. Common industry terminology and acronyms are defined in the companion *2009 WestConnect Planning Report*, at **Exhibit 18**. Also included in the *2009 WestConnect Planning Report*, at **Exhibit 7**, is a listing of the references and sources used throughout this document to research specific items in detail outside the scope of this report.

⁸ http://www.westconnect.com/filestorage/Transmission_Plan_Guide.pdf posted on the WestConnect website on October 24, 2007 and presented at the WestConnect Planning Workshop on November 1, 2007.

Draft

DATA COLLECTION PROCESS

The information in the 2009 WestConnect Transmission Plan was gathered through two methods: The annual WestConnect Planning Workshop; and the WestConnect Transmission Project Management (“TPM”)⁹ System.

WESTCONNECT ANNUAL PLANNING WORKSHOP

A public WestConnect Planning Workshop was held on November 4, 2009 at the Salt River Project’s PERA Club in Tempe, Arizona. Transmission providers and subregional planning groups presented information regarding their respective transmission expansion plans and related planning activities. Merchant transmission and generation developers also reported on their respective development plans.

The Workshop provided an informal setting in which to promote effective discussion of each presentation.¹⁰ Prior to the Workshop each presenter was provided with instructions for presentations and questions to be addressed during the presentation, referencing the 2008 WestConnect Transmission Plan:

- Highlight changes from the 2008 Plan, focusing on deletions and additions.
- Provide a summary of planned transmission upgrades.

Each presentation was followed by a period of open discussion with an opportunity for questions and comments from the audience.

WESTCONNECT TRANSMISSION PROJECT MANAGEMENT SYSTEM

The information included in this 2009 WestConnect Transmission Plan represents the direct input of each project’s primary sponsor. WestConnect accomplished this data collection process through the development of the TPM database, an online project data entry portal. This portal allows project sponsors to enter vital information for each project in their ten-year plan. WestConnect took the following steps to obtain the information:

- 2008 WestConnect Plan information was imported to TPM.
- Project sponsors were requested to verify and update information on the TPM website.
- WestConnect ran Structured Query Language (“SQL”) queries to gather reporting information.

⁹ The WestConnect Transmission Project Management system is located at www.westconnectplan.com

¹⁰ The WestConnect Workshop agenda and presentation materials are located at <http://westconnect.com/planning.php>

Draft

SUMMARY OF THE WESTCONNECT TRANSMISSION PLAN

This section provides an overview of transmission planning across the entire WestConnect planning area. Included in this summary are all new and upgraded transmission lines planned for the next ten years, and the total estimated capital cost of the transmission projects. A complete detailed listing of each transmission project by name, estimated cost, and length in miles, sorted by voltage class, year of planned in-service and state traversed is found in **Exhibits 2, 3 and 4**, respectively. A series of maps provided in **Exhibit 5** depict the Plan geographically.

2008 WESTCONNECT TRANSMISSION PLAN RECAP

The 2008 WestConnect Transmission Plan included 147 planned new or rebuilt/upgraded transmission line projects with a combined length of approximately 5,291 miles, 48 planned transmission substations, 29 planned transmission class transformers, and 17 other planned transmission enhancement projects. The total estimated capital cost of these projects was \$10.5 Billion. Additionally, the 2008 WestConnect Transmission Plan included 42 conceptual new or rebuilt/upgraded transmission line projects with a combined length of approximately 5,006 miles, 3 conceptual transmission substations, 3 conceptual transmission class transformers, and 2 other conceptual transmission enhancements, with an estimated total capital cost of \$6 Billion.

2009 WESTCONNECT TRANSMISSION PLAN SUMMARY

The 2009 WestConnect Transmission Plan includes 147 planned new or rebuilt/upgraded transmission line projects with a combined length of approximately 5,968 miles, 54 planned transmission substations, 34 planned transmission class transformers, and 20 other planned transmission enhancement projects, with an estimated total capital cost of \$7.4 Billion. Additionally, the 2009 WestConnect Transmission Plan includes 45 conceptual new or rebuilt/upgraded transmission line projects with a combined length of approximately 5,332 miles, 5 conceptual transmission substations, 5 conceptual transmission class transformers and 2 other planned transmission enhancements, with an estimated total capital cost of \$6.1 Billion. Combined, the 2009 WestConnect Plan includes over 11,000 miles of new/upgraded transmission lines, and other facilities, that require a total capital investment of more than \$13.5 Billion. These projects include transmission lines and substations being built and transformers being installed in Arizona, California, Colorado, Nebraska, New Mexico, Nevada, South Dakota, Texas and Wyoming. Projects that do not have accurate cost estimates or line length data at this point in the planning process are included in the project totals, but not in the line length or cost projections. This information is summarized in **Table 2**, below.

Draft

Type of Project	Number of Planned Projects	Planned Project Mileage	Planned Estimated Investment (2009 Dollars)	Number of Conceptual Projects	Conceptual Project Mileage	Conceptual Estimated Investment (2009 Dollars)	Total Estimated Cost (2009 Dollars)
<i>Substation Projects</i>	54	N/A	\$ 218,501,406	5	N/A	\$ -	\$ 218,501,406
<i>Transmission Line Projects</i>	147	5,968	\$ 6,997,033,271	45	5,332	\$ 6,056,080,886	\$ 13,053,114,157
<i>Transformer Projects</i>	34	N/A	\$ 149,800,445	5	N/A	\$ 12,991,263	\$ 162,791,708
<i>Other Projects</i>	20	N/A	\$ 95,900,000	2	N/A	\$ 27,709,000	\$ 123,609,000
Total Projects	255	5,968	\$ 7,461,235,122	57	5,332	\$ 6,096,781,149	\$ 13,558,016,271

Table 2 – Overview of Reported WestConnect Projects

SIGNIFICANT CHANGES BETWEEN THE 2008 AND 2009 WESTCONNECT TRANSMISSION PLANS

Changes occur in the transmission planning process for a variety of reasons, including economic conditions and load forecast adjustments. The intent of this section is not to question the reasons for the changes, but rather to summarize the major transmission planning changes that occurred between the 2008 and 2009 planning years. Four primary types of changes occurred: Expected in-service dates changed; projects were added to the Plan; projects were removed from the Plan; and projects were placed in-service during 2009.

The following table highlights the major project additions, deletions and status changes reflected in the WestConnect Transmission Plan for 2010-2020. A more detailed listing of the differences between the 2008 and 2009 WestConnect Transmission Plans, sorted by the type of change, is found in **Exhibits 6-1 through 6-8**.

Draft

Project Name	Voltage	Plan Modification
Vail - Irvington (New Substation) - South Loop	345kV	Added to Plan
Willow - Winchester 345kV Line	345 kV	Added to Plan
Bicknell 345/230 kV Transformer Replacement	345 kV	Added to Plan
Vail 345/138kV Transformer T4	345 kV	Added to Plan
Vail 345/138kV Transformer T3	345 kV	Added to Plan
WEST TRACY TO FORT SAGE 345 KV LINE	345 kV	Added to Plan
Ojo 345/115 kV Transformer Replacement	345 kV	Added to Plan
Second Yah-Ta-Hey 345/115 kV Transformer	345 kV	Added to Plan
Arrow - Archer - Cheyenne Transmission Project	345 kV	Added to Plan
Greenlee 2nd 345/230 kV Transformer	345 kV	Added to Plan
Winchester - Vail Double Circuit 345kV Line	345 kV	In-Service changed to 2014 from TBD
EAST TRACY TO BLACKHAWK TO MIRA LOMA 345 KV	345 kV	In-Service changed to 2012 from 2013
Rio Puerco Phase 2	345 kV	Cost change from \$10 million to \$13.5 million

Table 3 – Overview of Major Projects 2009 WestConnect Plan Changes

Draft

PLAN SORTED BY VOLTAGE CLASS

Transmission projects, including transmission lines, substations and transformers, contained in the 2009 WestConnect Transmission Plan, sorted by voltage class and “planned” or “conceptual” status, are shown in **Exhibit 2**. The transmission line projects, sorted by voltage class and indicating the number of projects, miles of transmission line and estimated capital cost are summarized in the tables below:

Voltage Class	Number of Planned Transmission Line Projects	Length (Miles)	Estimated Cost (2009 Dollars)
500 kV DC	0	0	\$0
500 kV AC	18	2,726	\$4,517,373,000
345 kV	9	562	\$467,191,000
230 kV	60	2,061	\$1,819,614,483
Below 230 kV	60	619	\$192,854,788
Total	147	5,968	\$6,997,033,271

Table 4 – WestConnect Plan Voltage Class Summary – Planned Transmission Line Projects

Voltage Class	Number of Conceptual Transmission Line Projects	Length (Miles)	Estimated Cost (2009 Dollars)
500 kV DC	1	800	\$0
500 kV AC	6	3,116	\$5,300,000,000
345 kV	10	766	\$522,000,000
230 kV	23	622	\$224,204,000
Below 230 kV	5	28	\$9,876,886
Total	45	5,332	\$6,056,080,886

Table 5 – WestConnect Plan Voltage Class Summary – Conceptual Transmission Line Projects

Currently, there are twenty-five planned or conceptual 500 kV transmission projects within the WestConnect planning area. WestConnect planning participants will build or upgrade a total of 6,642 miles of 500 kV AC or 500 kV DC transmission lines at an estimated cost of over \$9.8 Billion over the next ten years. This portion of the Plan accounts for 75% of the Plan’s total transmission investment.

This voltage class is predominately shaped by three major projects; the High Plains Express Transmission Project, the SunZia Project and Project Zeta. The 500 kV AC conceptual High Plains Express Transmission Project originates in Wyoming and is routed through Colorado and New Mexico to an undetermined terminus in Arizona. The SunZia Project is a 500 kV AC transmission line that is planned to originate in Central New Mexico and traverse Southern New Mexico before terminating in Southeastern Arizona. Project Zeta is a Northern California 500 kV AC

Draft

transmission line that is intended to deliver resources to load centers in central California. Each of these three projects is discussed in detail in the *Interstate, Market and merchant Transmission and Generation Projects* section of this report. The remaining nineteen projects are of the more traditional 500 kV transmission project variety. A complete listing of 500 kV projects is found in **Exhibit 2-1**.

There are nineteen planned or conceptual 345 kV transmission projects within the WestConnect planning area. WestConnect planning participants plan to construct or upgrade a total of 1,328 miles of 345 kV transmission lines at an estimated cost of \$989 Million over the next ten years, accounting for 8% of the Plan's

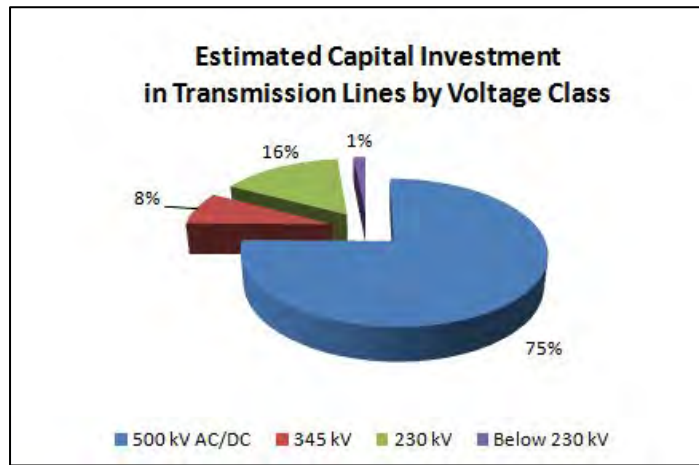


Figure 2 – Transmission Line Cost Distribution by Voltage Class

total estimated transmission investment. A majority of the 345 kV lines will be built in Colorado to help serve local load, interconnect new generation and renewable resources, and export excess resources to load growth areas outside of Colorado. It is anticipated that some of these projects could serve as the Colorado collector system for the High Plains Express Project. A complete listing of 345 kV projects is found in **Exhibit 2-2**.

There are currently eighty-three planned or conceptual 230 kV transmission projects, and sixty-five planned or conceptual transmission projects below 230 kV within the WestConnect planning area. Approximately 2,683 miles of new or rebuilt/upgraded 230 kV transmission lines are in planned or conceptual stages to be built within the next ten years at an estimated cost of more than \$2 Billion, accounting for 16% of the Plan's total estimated transmission investment. The majority of the 230 kV lines will be built in Arizona and Colorado to improve local transmission service. Complete listings of 230 kV projects are found in **Exhibits 2-3 through 2-6**.

Approximately 647 miles of new or rebuilt/upgraded 115, 138 and 161 kV transmission lines are in the planned and conceptual stages, and are slated for construction within the next ten years at an estimated cost of \$203 Million. These projects account for 1% of the Plan's total transmission investment. The majority of the 115-161 kV transmission lines will be built in Southern Arizona and West Texas to help serve local load growth. **Exhibits 2-7 through 2-11** contain detailed listings of the 138 kV and 115 kV projects planned for the WestConnect planning area.

Draft

PLAN SORTED BY IN-SERVICE DATE

The 2009 WestConnect Transmission Plan transmission projects, grouped according to “planned” or “conceptual” status and sorted by projected in-service date, are listed in **Exhibit 3**. The following table summarizes the transmission line projects by in-service date, showing the number of projects, miles of line and estimated capital cost.

In- Service Year	Number of Planned Transmission Line Projects	Estimated Cost (2009 Dollars)
2008	5	\$11,639,619.00
2009	10	\$207,417,892.00
2010	30	\$571,341,820.00
2011	21	\$979,886,146.00
2012	9	\$735,569,000.00
2013	14	\$535,665,000.00
2014	20	\$2,897,508,842.00
2015	11	\$451,441,500.00
2016	7	\$241,937,000.00
2017	8	\$182,249,452.00
2018	5	\$141,448,000.00
2019	3	\$21,929,000.00
2020	1	\$10,000,000.00
TBD	3	\$9,000,000.00
Total	147	\$6,997,033,271.00

Table 6 – WestConnect In-Service Date Summary – Planned Transmission Line Projects

Figure 3 displays the number of projects and estimated investment by planned in-service date. A notable change from the 2008 Plan is the large reduction in the number of projects without specific in service dates (indicated by “TBD”), shown in the final column. WestConnect transmission planning membership worked diligently throughout 2009 to determine probable in-service dates for all planned transmission projects.

Draft

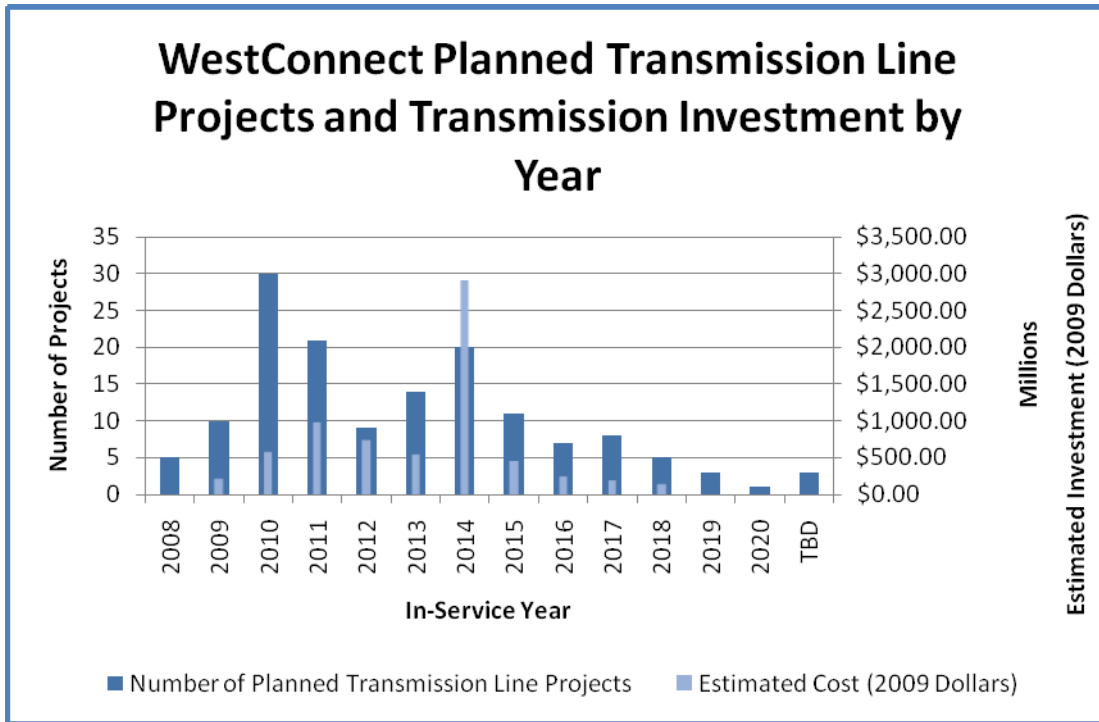


Figure 3 – Number of Planned Transmission Line Projects and Investment Cost by Year

The following table summarizes the conceptual transmission line projects by in-service date, showing the number of projects, miles of line and estimated capital cost.

In- Service Year	Number of Conceptual Transmission Line Projects	Estimated Cost (2009 Dollars)
2008	0	\$0.00
2009	0	\$0.00
2010	0	\$0.00
2011	1	\$2,139,284.00
2012	2	\$133,604,000.00
2013	2	\$0.00
2014	6	\$184,337,602.00
2015	5	\$680,000,000.00
2016	2	\$29,000,000.00
2017	2	\$5,000,000,000.00
2018	1	\$27,000,000.00
2019	0	\$0.00
2020	0	\$0.00
TBD	24	\$0.00
Total	45	\$6,056,080,886.00

Table 7 – WestConnect In-Service Date Summary – Conceptual Transmission Line Projects

Draft

Figure 4 displays the number of conceptual projects and estimated investment by projected in-service date. Notable is the projected \$5 Billion investment, shown in 2017, for the High Plains Express Project. Also notable is the large number of projects without specific in service dates that are shown in the final column. In general, these projects address identified long-term needs, but lack specific timelines.

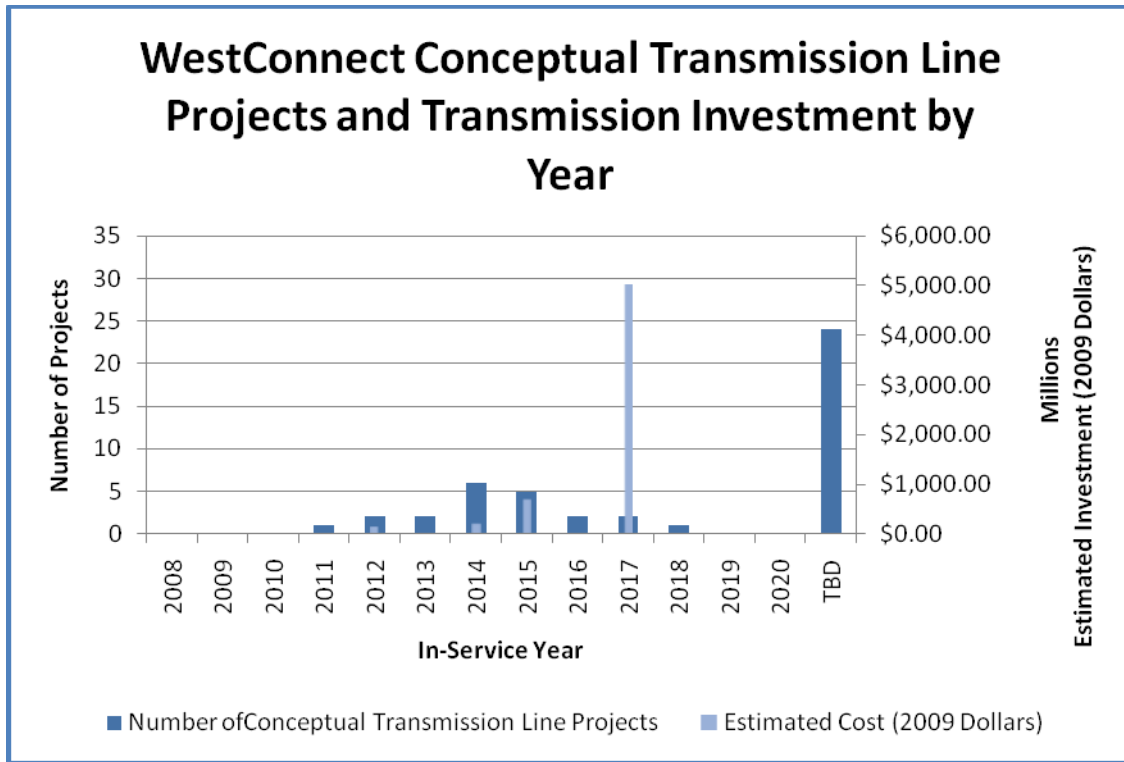


Figure 4 – Number of Conceptual Transmission Line Projects and Investment Cost by Year

Draft

Draft

PLAN SORTED BY STATE TRAVERSED

The 2009 WestConnect Transmission Plan transmission projects, grouped according to “planned” or “conceptual” status and sorted by state(s) traversed are shown in **Exhibits 4-1 through 4-12**. The following tables summarize the planned and conceptual transmission line projects by state traversed, showing the number of projects, miles of transmission lines and estimated capital cost. Projects that traverse more than one state are shown as multi-state transmission projects. Such projects are subject to the siting requirements and processes of each state traversed. States impacted by such interstate projects are identified in a separate category in **Exhibit 4-13**.

The table below summarizes the planned transmission line projects within the WestConnect planning area during the next ten year based upon the state or states the transmission lines traverse.

State(s) Traversed	Number of Planned Transmission Line Projects	Length (Miles)	Estimated Cost (2009 Dollars)
Arizona	70	1,538	\$1,620,427,093
California	10	691	\$1,627,200,000
Colorado	19	1,105	\$942,036,000
Nevada	6	460	\$1,021,000,000
New Mexico	12	154	\$97,171,789
Texas	19	96	\$37,307,389
South Dakota	0	0	\$0
Wyoming	6	404	\$117,491,000
Multi-State	5	1,520	\$1,534,400,000
Total	147	5,968	\$6,997,033,271

Table 8 – WestConnect State Location Summary – Planned Transmission Line Projects

The chart in **Figure 5** displays the percentage of planned transmission line investment by state(s) traversed. Notable are the large percentages of planned capital investment in the States of Arizona and California, as well as the percentage associated with multi-state transmission line projects. Together, these projects account for 68% of the planned

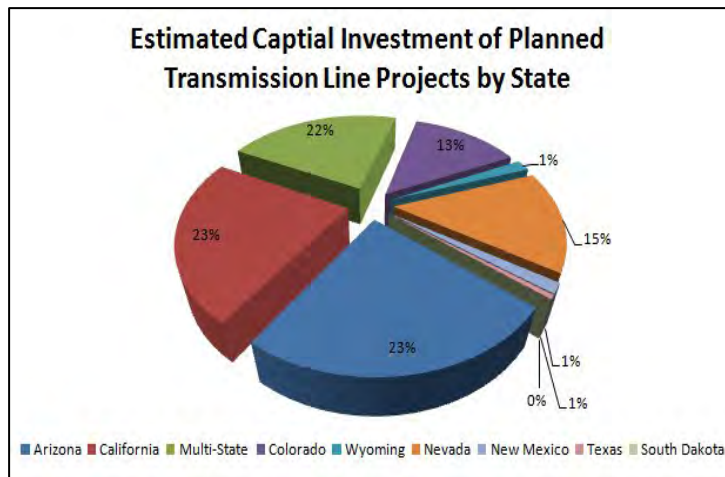


Figure 5 - Planned Transmission Line Investment by State

Draft

transmission line investment over the next ten years.

The table below summarizes the conceptual transmission line projects within the WestConnect planning area over the next ten years based on state or states traversed.

State(s) Traversed	Number of Conceptual Transmission Line Projects	Length (Miles)	Estimated Cost (2009 Dollars)
Arizona	30	780	\$9,876,886
California	2	73	\$66,000,000
Colorado	8	798	\$507,600,000
Nevada	2	311	\$378,000,000
New Mexico	0	0	\$0
South Dakota	0	0	\$0
Texas	0	0	\$0
Wyoming	0	0	\$0
Multi-State	3	3,370	\$5,094,604,000
Total	45	5,332	\$6,056,080,886

Table 9 – WestConnect State Location Summary – Conceptual Transmission Line Projects

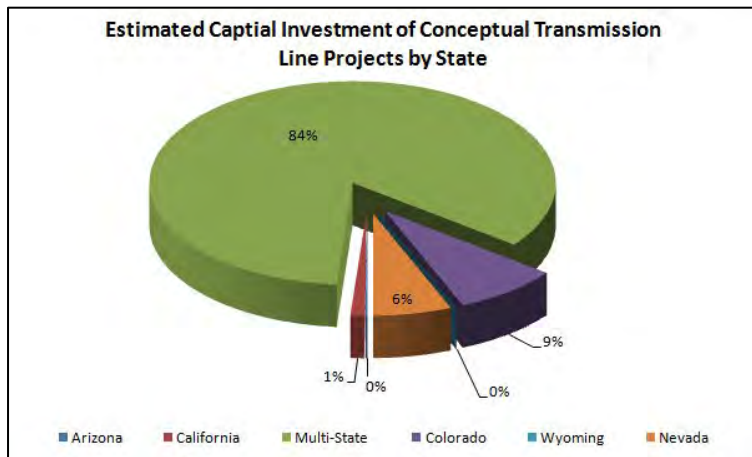


Figure 6 – Conceptual Transmission Line Investment by State

The chart in **Figure 6** displays percentage of conceptual transmission line investment by state(s) traversed. The large percentage of the total projected investment that is associated with multi-state transmission projects prominent. It should be noted this chart is heavily influenced by the conceptual High Plains Express Project.

The following paragraphs discuss, in greater detail, the changes between the 2008 and 2009 WestConnect Transmission Plans on a state-by-state basis.

WESTCONNECT TRANSMISSION PROJECTS IN ARIZONA

Draft

The 2008 WestConnect Transmission Plan included ninety-eight planned or conceptual transmission line projects projected to go into service within the State of Arizona over the 2009-2018 time period. These projects involved approximately 2,377 miles of new or rebuilt/upgraded transmission lines and an estimated cost of \$2 Billion.

The 2009 WestConnect Plan includes ninety-nine planned or conceptual transmission line projects projected to be put into service within Arizona over the 2010-2019 time period. These projects involve approximately 2,318 miles of new or rebuilt/upgraded transmission lines and an estimated cost of \$1.6 Billion. Changes to the 2009 WestConnect Plan occurred primarily in southeastern Arizona. The Arizona projects are depicted on maps provided as **Exhibit 5, Maps 1, 4, 9 and 10**.

WESTCONNECT TRANSMISSION PROJECTS IN CALIFORNIA

The 2008 WestConnect Transmission Plan included twelve planned or conceptual transmission line projects projected to go into service within the State of California over the 2009-2018 time period. These projects involved approximately 764 miles of new or rebuilt/upgraded transmission lines and an estimated cost of \$1.7 Billion.

The 2009 WestConnect Plan includes the same group of projects as the 2008 Plan, with no change in approximate length or estimated cost. The California projects are depicted on maps provided as **Exhibit 5, Maps 1, 3 and 8**.

WESTCONNECT TRANSMISSION PROJECTS IN COLORADO

The 2008 WestConnect Transmission Plan included twenty-four transmission projects projected to go into service within the State of Colorado over the 2009-2018 time period. These projects involved approximately 1,683 miles of new or rebuilt/upgraded lines and an estimated cost of just under \$1.4 billion.

The 2009 WestConnect Plan includes twenty-seven transmission line projects projected to be put into service within the State of Colorado over the 2010-2019 period. These projects involve approximately 1,903 miles of new or rebuilt/upgraded lines and an estimated cost of just over \$1.4 Billion. The principal changes between 2008 and 2009 are the additions of the Burlington-Wray, Big Sandy-Lincoln-Midway, and Central Wyoming Transmission Improvements projects. The Colorado projects are depicted on maps provided as **Exhibit 5, Maps 1, 2 and 6**.

Draft

WESTCONNECT TRANSMISSION PROJECTS IN NEVADA

The 2008 WestConnect Transmission Plan included seven planned or conceptual transmission line projects projected to go into service within the State of Nevada over the 2009-2018 time period. These projects involved approximately 481 miles of new or rebuilt/upgraded transmission lines and an estimated cost of just over \$1 Billion.

The 2009 WestConnect Plan includes eight planned or conceptual transmission line projects projected to be put into service within the State of Nevada over the 2010-2019 period. These projects involve approximately 771 miles of new or rebuilt/upgraded transmission lines and an estimated cost of \$1.4 billion dollars. The principal change between 2008 and 2009 is the addition of the conceptual West Side Tie Project. The Nevada projects are depicted on maps provided as **Exhibit 5, Maps 1, 3, 4 and 11**.

WESTCONNECT TRANSMISSION PROJECTS IN NEW MEXICO

The 2008 WestConnect Transmission Plan included sixteen planned or conceptual transmission line projects projected to go into service within the State of New Mexico over the 2009-2018 time period. These projects involved approximately 230 miles of new or rebuilt/upgraded transmission lines and an estimated cost of \$97 Million.

The 2009 WestConnect plan includes twelve planned or conceptual transmission line projects projected to go into service within the state of New Mexico over the 2010-2019 period. These projects involve approximately 154 miles of new or rebuilt/upgraded transmission lines and an estimated cost of just over \$97 million. The principal changes between 2008 and 2009 are the removal of the Person-Kirtland Air Force Base, Montano-North, and Corrales Bluff – Southern projects, and the upgrade to the Willard-Algodones project. The New Mexico projects are depicted on maps provided as **Exhibit 5, maps 1, 4 and 5**.

WESTCONNECT TRANSMISSION PROJECTS IN SOUTH DAKOTA

The 2008 WestConnect Transmission Plan did not include any transmission line plans within the State of South Dakota. The 2009 WestConnect Plan also indicates no planned or conceptual transmission line projects located in South Dakota.

Draft

WESTCONNECT TRANSMISSION PROJECTS IN WEST TEXAS

The 2008 WestConnect Transmission Plan included nineteen planned or conceptual transmission line projects projected to go into service within the West Texas portion of the planning area over the 2009-2018 time period. These projects involved approximately 96 miles of new or rebuilt/upgraded transmission lines and an estimated cost of \$37 Million.

The 2009 WestConnect Plan includes the same Plan projects with no change in approximate length or estimated cost. The West Texas projects are depicted on maps provided as **Exhibit 5, Maps 1, 4 and 7.**

WESTCONNECT TRANSMISSION PROJECTS IN WYOMING

The 2008 WestConnect Transmission Plan included five planned or conceptual transmission line projects projected to go into service within the State of Wyoming over the 2009-2018 time period. These projects involved approximately 347 miles of new or rebuilt/upgraded transmission lines and an estimated cost of \$36 Million

The 2009 WestConnect Plan includes six planned or conceptual transmission line projects projected to go into service within the State of Wyoming over the 2010-2019 period. These projects involve approximately 404 miles of new or rebuilt/upgraded transmission lines and an estimated cost of over \$117 Million. The principal changes between 2008 and 2009 are the addition of a 230kV and a 115kV project. The Wyoming projects are depicted on maps provided as **Exhibit 5, Maps 1 and 2.**

WESTCONNECT TRANSMISSION PROJECTS TRAVERSING MULTIPLE STATES

Projects that traverse multiple states require extensive planning efforts that usually take place over periods of several years and can cost hundreds of millions dollars. These multi-state transmission projects are typically high profile project that are critical to the long-term WestConnect Plan. The following section of this report, *Independent Transmission and Generation Projects*, includes a brief discussion of each the multi-state transmission projects in the 2009 Plan. Below is a summary of the data, supplied to WestConnect concerning these projects, in 2008 and in 2009.

The 2008 WestConnect Transmission Plan reported seven planned or conceptual transmission line projects that traverse multiple states and were projected to be put into service over the 2009-2018 time period. These projects involved approximately 4,319 miles of new or rebuilt/upgraded transmission lines and an estimated cost approximately \$6.6 Billion.

The 2009 WestConnect Plan includes eight planned or conceptual transmission projects that traverse multiple states and are projected to be put into service over the 2010-2019 period. These projects involve approximately

Draft

4,890 miles of new or rebuilt/upgraded transmission lines and an estimated cost over \$6.6 Billion. The principal change between 2008 and 2009 is the addition of the Southwest Intertie Project (“SWIP”). The multi-state projects are depicted on maps provided as **Exhibit 5, Maps 1 through 4.**

Draft

INTERSTATE, MARKET AND MERCHANT TRANSMISSION AND GENERATION PROJECTS

In the Western Interconnection, interstate transmission is essential to enabling access to the wholesale market for power purchases and sales. Interstate and market-driven transmission projects facilitate a more robust and viable wholesale market. Interstate and merchant transmission projects complement utilities electric infrastructure and allow for additional import/export points. Such projects are essential for local load-serving entities and new merchant power plants. These projects permit access to the wholesale market without reliance on transmission services over existing transmission providers' systems, which may have limited long-term available transmission capacity. This section of the 2009 WestConnect Plan report highlights the status of eight such proposed projects that affect the WestConnect planning area during the next ten years. Vital details of each project are included with in the WestConnect Plan appendices.

SUNZIA TRANSMISSION PROJECT

SunZia consists of up to two 500 kV interstate transmission lines spanning 460 miles between Arizona and New Mexico, sponsored by Southwestern Power Group. The expected power transfer capacity of SunZia is estimated at over 3 gigawatts ("GW"), or higher, with the direct current ("DC") option. An overview map showing the general routing of the line is included as **Appendix T-2**. As stated in the June 2, 2008 SunZia press release¹¹, "SunZia will provide new delivery paths to electricity markets for existing and developing energy resources, primarily renewable resources such as wind, solar and geothermal projects in both states. Through strategic interconnections, customers in Arizona, New Mexico, Nevada and California will have access to these new resources to help meet their local power needs. SunZia will also substantially improve the efficiency and reliability of power transfers across the transmission grid in the West."

SunZia reports that it is involved in the regional and subregional planning process through the following forums and activities:

- *Western Electricity Coordinating Council ("WECC")* — Regional Project Planning was initiated on December 15, 2006. A draft Regional Planning Project Report ("RPPR") was issued on March 16, 2007, and a final RPPR was issued to WECC on May 17, 2007. WECC issued acceptance of RPPR on July 12, 2007.

¹¹ [SunZia Southwest Transmission Project Press Release](#), WestConnect Website, June 2, 2008

Draft

- *Subregional Planning* — Regular project updates are provided to Southwest Area Transmission (“SWAT”) and its subcommittees.
- *Open Season* — An Open Season was announced on December 15, 2006, and attracted thirty interested parties. An initial meeting was held on February 16, 2007. A participation agreement was signed by five parties and reported on June 2, 2008.¹²

WestConnect Planning did receive a ten year plan submittal for this project. The project details have been incorporated into the WestConnect Plan summary.

During 2009 SunZia initiated the Environmental Impact Statement (“EIS”) process. The first set of public scoping meetings was held in 9 locations in New Mexico and Arizona. Due to a public comment response of, “expand study area and additional routes”, a second set of scoping meetings was held in 3 New Mexico locations. The second scoping period closed in late November 2009, and responses should be available early in 2010. Additionally, SunZia submitted the Comprehensive Progress Report (“CPR”) to the WECC Planning Coordination Committee (“PCC”), Technical Study Subcommittee (“TSS”), and the Council Members for review and comment in late April 2009. WECC approved Phase 2 status and rating of 3000 MW in late July 2009 and Phase 2 Technical Studies were initiated in late August 2009. Phase 2 should be complete in June 2010.

SunZia will continue the project development and planning processes begun during 2008 and 2009. SunZia will continue to participate in stakeholder meeting and will provide updates at SWAT and WestConnect meetings in 2010.

DINÉ NAVAJO TRANSMISSION PROJECT

The Navajo Transmission Project (“NTP”) is a merchant 500 kV transmission line project with an approximate total length of 478 miles. The line will extend from a new substation located near the Four Corners Power Plant in northwestern New Mexico to the Marketplace Substation south of Boulder City, Nevada. The new Desert Rock coal fired power plant will interconnect to the line in New Mexico near Four Corners. The NTP will be constructed in three segments that traverse Arizona. An overview map showing the general routing of the project is included as **Appendix G-2**.

¹² Information related to the SunZia Open Season is available at - <http://www.sunzia.net/news.php>

Draft

- *Segment 1* – 198 mile 500 kV single circuit transmission line from Desert Rock Generating Facility in northwestern New Mexico to the proposed Red Mesa West Substation in northern Arizona. The WECC path rating process began in January 2006 for Segment 1 of NTP. Segment 1 will begin construction in 2009 and the planned in-service date for Segment 1 is the fourth quarter of 2011.
- *Segment 2* – 62 mile 500 kV single circuit transmission line from a new Red Mesa West substation to the existing Moenkopi Substation. This segment generally parallels an existing Glen Canyon to Flagstaff 345 kV transmission line corridor. The project schedule is yet to be determined.
- *Segment 3* – 218 mile 500 kV single circuit transmission line from the existing Moenkopi Substation to the existing Marketplace Substation. Segment 3 generally parallels an existing Moenkopi to El Dorado 500 kV transmission line corridor. The project schedule is yet to be determined, but the Arizona Certificate of Environmental Compatibility (“CEC”) will terminate in 2010 if not extended.

NTP has participated at stakeholder meetings, including the WECC processes, the Arizona Biennial Transmission Assessment (“BTA”) and WestConnect Planning Workshops. WestConnect received a ten-year plan submittal for the first segment of this project. Therefore, only the first segment project details have been incorporated into the WestConnect Transmission Plan summary.

On September 22, 2008, the NTP received a final Bureau of Land Management (“BLM”) Record of Decision (“ROD”) and right of way (“ROW”) grant for the transmission lines through BLM lands. This decision was followed on October 8, 2008 with the Bureau of Indian Affairs (“BIA”) issuing a ROD for the transmission lines traversing Indian lands. However, later in 2009 the Interior Board of Land Appeals (“IBLA”) and Interior Board of Indian Appeals (“IBIA”) want the EIS for NTP to identify energy sources, including renewable, and reflect new information regarding impacts to endangered species and critical habitats. They assert that NTP is a connected action with the Desert Rock power plant. BLM and BIA have withdrawn their ROD while the concerns are addressed.

HARCUVAR TRANSMISSION PROJECT

Harcuvar Transmission Project (“HTP”) is a proposed 230 kV transmission project located approximately 60 miles west of the Palo Verde Hub, sponsored by Central Arizona Water Conservation District (“CAWCD”). An overview map showing the general routing and is included as **Appendix F-2**. The proposed project is a result of the Central Arizona Project’s (“CAP”) desire to improve its system reliability and Southern California Edison’s (“SCE”) desire to construct the now cancelled Palo Verde – Devers 2 (“PVD-2”) transmission line. The project could provide access to Arizona renewable generation, as well as providing transmission access to the Palo Verde Hub and to California.

Draft

The project will utilize existing federal right of way and designated utility corridors for a majority of its route. Nevertheless, HTP is dependent upon the presence of the planned PVD-2 500 kV line and the following new transmission elements:

- Interconnection to both Palo Verde to Devers 500 kV lines at a proposed Salome Substation with participation and ownership in the PVD-2 transmission line from the tie back to the Palo Verde Hub.
- Five miles of new 230 kV transmission line from the Salome Substation to CAWCD's existing Little Harquahala Substation.
- A new 115/230 kV double circuit transmission tie between the existing CAWCD Bouse Hills and Little Harquahala Substations (following the existing Central Arizona Project right-of-way).

WestConnect Planning did receive a ten year plan submittal for this project. The project details have been incorporated into the WestConnect Plan summary.

Studies for HTP are being managed by the Colorado River Transmission ("CRT") subregional planning study group. In 2008, feasibility study work for HTP was completed with a number of study scenarios based upon a power flow case approved by the nine CRT study team participants. The results of these feasibility studies are outlined in the Harcuvar presentation¹³ for the BTA Workshop.

HTP representatives, through the CRT subcommittee presented and provided updates through multiple open stakeholder forums, including CRT and SWAT Renewable Transmission Task Force ("RTTF") subcommittee meetings and the Arizona BTA and WestConnect workshops. On November 7, 2008 HTP announced an open season to solicit project participants interested in renewable and fossil fuel generation interconnection.¹⁴ The open season revealed nine entities representing over 2,500 mega-watts ("MW") of generation interconnection interest.

The next step for HTP group is finalization and formalization of parties' interest. The HTP group will establish technical specifications for both the transmission and generation interconnection and work with SCE and Western Area Power Administration ("WAPA") to initiate interconnection feasibility studies. Prior to the project entering WECC Regional Planning Phase 2, formal Memorandum of Understanding ("MOU"s) and funding processes will need development and approval. With the completion of the MOUs, detailed engineering and ROW acquisition can begin in early 2010.

¹³ [2008 BTA Workshop I, Harcuvar Presentation, May 22, 2008](#)

¹⁴ HTP Open Season Announcement -

http://www.westconnect.com/filestorage/HTP_Open_Season_Announcement.pdf

Draft

HIGH PLAINS EXPRESS INITIATIVE

The High Plains Express (“HPX”) Initiative is a participant led, multi-state, 500 kV transmission plan spanning Wyoming to Arizona. Currently, Xcel Energy and Trans-Elect Development Company are co-managing the participant’s efforts and committee coordination. An overview map showing the general routing and interconnection points for this project are included as **Appendix L-3**.

The HPX Initiative is a proactive plan for the expansion and reinforcement of the transmission grid in the states of Wyoming, Colorado, New Mexico and Arizona. The goal of the High Plains Express Initiative is to develop a high-voltage backbone transmission system that will enhance reliability, provide economic benefits to consumers, increase access to renewable and other diverse generation resources within regional energy resource zones, and complement and coordinate with other regional transmission projects.

High Plains Express currently has eleven participants, including state organizations, identified in the table below.

Xcel Energy	Colorado Springs Utilities
Public Service Company of New Mexico	Black Hill Corporation
Tri-State Generation and Transmission	Wyoming Infrastructure Authority
Western Area Power Authority	New Mexico Renewable Energy Transmission Authority
State of Colorado – Governor’s Energy Office	Trans-Elect Development Company
Salt River Project	

Table 10 - High Plains Express Participants

WestConnect Planning did receive a ten year plan submittal for this project. The project details have been incorporated into the WestConnect Plan summary.

During 2008, the High Plains Express project completed a preliminary technical and economic feasibility study for a 3,500 MW project with two separate 500 kV transmission lines. A preliminary feasibility study final report was issued in June 2008.¹⁵

¹⁵HPX Feasibility Study located at -

http://www.rmao.com/wtpp/HPX/HighPlainsExpress%20First%20Stage%20Feasibility%20Report%2006_08.pdf

Draft

In 2009, the High Plains Express Initiative performed more advanced feasibility evaluations that included geographic study areas, sequential development, operational modeling, public regulatory policies, further quantification of costs and benefits, cost recovery mechanisms, business structures, and continued stakeholder involvement. The High Plains Express Initiative has entered into WECC Phase 2 studies that are expected to be completed in the fourth quarter of 2009. All reports and work summaries for stakeholder meetings and Final Land Acquisition reports should all be finalized in the first quarter of 2010.

TRANSWEST EXPRESS

The TransWest Express Transmission project is conceptualized as a 600 kV bi-polar transmission line from Wyoming to the Eldorado Valley in Southern Nevada. The proposed 600 kV DC line would be approximately 765 miles in length and have a rating of approximately 3,000 MW, with a targeted in-service date in 2014. An overview map showing the general routing of the line is included as **Appendix W-2**. WestConnect Planning did receive a ten year plan submittal for this project. The project details have been incorporated into the WestConnect Plan summary.

In July 2008, acquisition of the rights to the TransWest Express Transmission Project by Anschutz Corporation has resulted in National Grid and Wyoming Infrastructure Authority (“WIA”) choosing to withdraw from the TransWest Express project and Arizona Public Service (“APS”) choosing to reduce its involvement. Anschutz Corporation formed TransWest Express, LLC which is the current sponsor of the TransWest Express Project. TransWest Express completed the WECC Regional Planning Process Review (“RPPR”) in May 2008¹⁶ including project stakeholder meetings and input from regional and sub-regional groups. TransWest Express also completed a conceptual technical analysis that included review and refinement of design parameters, evaluation of alternative configurations for TransWest Express and Gateway South projects and conceptual scope development and cost estimates.¹⁷ Additionally, in 2008 TransWest Express completed an economic analysis of the western United States called *The West’s Renewable Energy Future*.¹⁸

In October 2009, TransWest Express completed Phase 1 of the WECC Comprehensive Progress Report for the TransWest Express project. Pre-Scoping Agency meetings for NEPA Review were completed in September 2009.

¹⁶ TransWest Express reports are available at <https://transwest.azpsosis.com/Reports.aspx>

¹⁷ Ibid

¹⁸ *The West’s Renewable Energy Future* available at

http://transwestexpress.net/downloads/The%20West's%20Renewable%20Energy%20Future%20Final%20Draft%2007_28_08.pdf

Draft

Preparation of the EIS is under way with Public Scoping anticipated in 2010. TransWest Express will continue to actively participate in regional planning efforts and stakeholder meetings.

SOUTHWEST PUBLIC POWER RESOURCES - THREE TERMINAL PLAN

Santa Cruz Water and Power District ("SCWPD") included three transmission projects associated with a Southwest Public Power Resources ("SPPR") group generation project. The combined projects are referred to as the Three Terminal Plan ("TTP"). SPPR is a diverse group of thirty-nine entities spread widely across Pinal County and other locations in Arizona that are participating in resource development. SCWPD is a participant in SPPR's resource development and associated transmission improvement efforts. WestConnect did receive a ten year plan submittal for this project. The project details have been incorporated into the 2009 WestConnect Plan summary.

The TTP transmission project is needed to interconnect SPPR's Generation Project No. 1, located in Pinal County, and deliver power to the SPPR participants. The SPPR Generation Project No. 1 is tentatively planned as a 2-on-1 combined cycle gas-fired generating plant rated at approximately 620 MW. An overview map showing the general routing and interconnection points of this transmission project are included as **Appendix R-2**. The TTP project will be developed in a phased approach with a complete project in-service date of 2014. TTP consists of the following transmission elements:

- *Circuit-1: Santa Rosa/Test Track – ED5 230 kV*
 - From Santa Rosa to Thornton Road, a second circuit will be added on the Southeast Valley ("Abel") 500 kV line at 230 kV.
 - From Thornton Road to ED5, a portion of Western's Casa Grande to Empire to Saguaro 115 kV line will be converted to a double-circuit 230 kV line. Western's circuit will continue to operate at 115 kV.
- *Circuit-2: ED5 – Marana 230 kV*
 - The remaining portion of Western's 115 kV line from Empire to Saguaro and its 115 kV line from Saguaro to Marana Tap will be converted to a double circuit 230 kV line. Western's circuit will continue to operate at 115 kV.
- *Circuit-3: ED5 – Pinal Central 230 kV*
 - Western's ED5 to ED4 to ED2 115 kV line will be converted to a double circuit 230 kV line. Western's circuit will continue to operate at 115 kV.
 - The SPPR TTP has participated in multiple stakeholder forums throughout 2008, including the SATS subcommittee meeting and the Arizona BTA and WestConnect workshops.

Draft

Power flow studies were filed with Arizona Corporation Commission (“ACC”) Staff on June 30, 2008, for that portion of the TTP project that would be subject to Condition 23 of Decision No. 68093. In addition, extensive resource planning studies, several purchased power solicitations and a comprehensive siting study have been performed. Detailed power flow analyses have been performed for three short-listed generation sites. Preliminary short circuit and stability analyses have been performed for two of the potential sites. Results of these additional studies will remain confidential pending final site selection. The SPPR Group members who are also participants in the Southeast Valley (“SEV”) transmission project have requested that Salt River Project (“SRP”) perform a study of new generation in the general vicinity of Pinal Central and the planned TTP transmission project. SRP reported at the 2008 BTA Workshop II¹⁹ ²⁰ that any needed studies would be performed by the Central Arizona Transmission Study – High Voltage (“CATS-HV”) study group.

SPPR will continue project development, including the interconnection and siting processes. SPPR anticipates filing a formal interconnection request with Western Area Power Administration – Desert Southwest Region. In the second quarter of 2009, SPPR anticipates filing formal siting documents with the Arizona Corporation Commission. SPPR will continue to provide timely updates and will continue to participate in regional stakeholder meetings and forums throughout 2010.

WYOMING-COLORADO INTERTIE

The Wyoming-Colorado Intertie (“WCI”) project is a partnership among WIA, Trans-Elect Development Company (“Trans-Elect”), and WAPA that was formed to consider the expansion of transmission capacity along the Wyoming-Colorado border. The WCI project is a 180-mile long 345 kV transmission line that would link the high quality wind resources of southeastern Wyoming to Colorado loads across the TOT 3 transmission constraint²¹. It is planned for approximately 900 MW of capacity and is expected to be in-service 2013-2014.

WCI is active in open stakeholder meetings and forums including the WECC process, Colorado Coordinated Planning Group (“CCPG”) meetings and WestConnect workshops. WestConnect Planning did receive a ten year plan submittal for this project. The project details have been incorporated into the WestConnect Plan summary. An overview map showing the general routing and interconnection points of this transmission project are included as **Appendix U-2**.

¹⁹ Transcripts of May 22-23, 2008 Workshop I are available at the ACC Docket Control

²⁰ Staff and KRSA Workshop II presentation <http://www.cc.state.az.us/divisions/utilities/electric/biennial.asp>

²¹ TOT3 is also known as WECC Path 36

Draft

During 2008, Feasibility studies relative to power flow analysis, permitting requirements, corridor analysis, ROW acquisition and project cost study work have been completed. November 2005, Western posted a solicitation of interest in the Federal Register to gain a measure of interest in the project on behalf of the partnership. On the basis of the robust response to the Western posting, the parties were sufficiently encouraged to proceed with studies that culminated in an "Open Season"²² process for transmission capacity that was held in 2008. The Open Season concluded with 70% of the line's capacity subscribed to wind developer shippers via a FERC-compliant Open Season process. In 2009, the WCI project received FERC approval of the Open Season results.

In 2010, the WCI project will continue to stay involved in stakeholder meetings and forums and will provide updates. Additionally, the WCI-planned activities include the following:

- Phase 2 WECC Path Rating approval process;
- Completion of interconnection studies and agreements for interconnecting at Pawnee and Laramie River Station;
- Posting of remaining 265 MW of capacity via the WCI's Open Access Transmission Tariff ("OATT");
- Route selection, permitting, and right-of-way acquisition.

TRANSMISSION AGENCY OF NORTHERN CALIFORNIA – PROJECT ZETA

The Transmission Agency of Northern California ("TANC") and its members are currently evaluating three transmission projects as part of the TANC Transmission Program, which will enhance the operations and reliability of the COTP and the northern California electric system. The largest of these projects is Project Zeta. As TANC proceeds with the development of this program, its planning process satisfies applicable principles included in FERC Order 890 as well as other planning requirements with which it must comply. The WECC Regional Planning Process provides an open forum for both WECC members and nonmembers alike, including various regional planning groups. In addition, TANC has established a Technical Review Committee open to interested parties.

Two unique elements comprise the ZETA Project of TANC's Transmission Program: ZETA North and ZETA South. They are described in detail below:

- *Zeta North* - The ZETA North section consists of two new 500-kV overhead transmission lines in separate corridors that are proposed for development between a new substation near Ravendale, California and a

²² "Open Season" is a FERC mandated process of allowing participation in a transmission project's capacity.

Draft

new substation near Round Mountain, California, a distance of about 90 miles. From the proposed substation near Round Mountain, a new transmission line will be developed toward the Southwest, interconnecting to the COTP's existing Olinda Substation. These lines are necessary to increase system reliability and provide additional transmission capacity between northeastern California and the Olinda Substation.

- ZETA South - As a continuation of the ZETA North Project, a new 500-kV overhead transmission line is being planned for development between the existing Olinda Substation and a new substation to be located near the COTP's existing Tracy Substation. This project includes the development of a new substation in the Dillard Road area near Highway 99, which will interconnect the ZETA South project with the electric system of the Sacramento Municipal Utility District.²³

An overview map showing the general routing and interconnection points of this transmission project are included as **Appendix V-2**.

During 2008, TANC Transmission Program created a subregional planning project review group and held four meetings. Participants include: TANC and the participating TANC Members, Western Area Power Administration, Pacific Gas & Electric, Nevada Energy, the California ISO, the US Bureau of Reclamation, the California Department of Water Resources and Bonneville Power Administration.

The TANC Transmission Program ("TTP") Regional Planning Project Report was provided to the members of the WECC PCC and the TSS on January 26, 2009. A period of 30 days was provided to solicit comments on the report. During this comment period the PCC members were provided the opportunity to review and comment on the project's conformity with the Regional Planning Guidelines. TANC states that it did not receive any comments during this time. On March 12, 2009 the TTP was granted Regional Planning Report acceptance by WECC.²⁴

In 2010, the TTP project will continue to stay involved in stakeholder meetings and forums, and provide them updates.

²³ Information related to Project Zeta obtained from <http://www.tanc.us/content/blogsection/7/48/>

²⁴ TTP Letter of Acceptance from WECC
http://www.wapa.gov/transmission/pdf/ttp_regional_planning_studies_2%5B1%5D.pdf

Draft

CONCLUSIONS

The WestConnect Transmission Plan area encompasses eight states, three subregional planning areas, fifteen transmission owners and twenty-eight project sponsors. The intent of the 2009 WestConnect Transmission Plan report is to provide a summary of the planned and conceptual transmission projects with the WestConnect planning area. The following conclusions provide a summary of the WestConnect Transmission Plan for the period 2009 through 2019 and recommendations on the continuing improvement of the WestConnect Transmission Plan.

2009 SUMMARY

2009 was another active year in transmission planning for the WestConnect footprint. It marked the publishing of this third annual Transmission Plan Report which includes numerous project additions, delays and removals. A number of new EHV transmission projects were incorporated to the Plan, including the Great Basin Transmission Southwest Intertie project as well as a number of projects that were modified or whose in-service dates delayed, but which remained in the Plan. During 2009, WestConnect improved upon the online data entry portal for transmission project submittals. The 2009 planning process incorporated a modification to the submittal deadline which allowed project sponsors to supply requested information in a manner more consistent with their own annual transmission planning processes.

The 2009 WestConnect Transmission Plan includes 147 planned new or rebuilt/upgraded transmission line projects with a combined length of approximately 5,968 miles, 54 planned transmission substations, 34 planned transmission class transformers, and 20 other planned transmission enhancement projects, with an estimated total capital cost of \$7.4 Billion. Additionally, the 2009 WestConnect Transmission Plan includes 45 conceptual new or rebuilt/upgraded transmission line projects with a combined length of approximately 5,332 miles, 5 conceptual transmission substations, 5 conceptual transmission class transformers and 2 other planned transmission enhancements, with an estimated total capital cost of \$6.1 Billion. Combined, the 2009 WestConnect Plan includes over 11,000 miles of new/upgraded transmission lines, and other facilities, that require a total capital investment of more than \$13.5 Billion. These projects include transmission lines and substations being built and transformers being installed in Arizona, California, Colorado, Nebraska, New Mexico, Nevada, South Dakota, Texas and Wyoming. Projects that do not have accurate cost estimates or line length data at this point in the planning process are included in the project totals, but not in the line length or cost projections

Planned and conceptual interstate projects continue to dominate the WestConnect Plan statistics due to the scope and scale of the projects. Additionally in 2009, the data received reflected a significant improvement in the accuracy of project participant identification. This vastly improved the reporting of project participation.

Draft

During 2009, efforts to address the recommendations within the 2008 WestConnect Plan included the activities outlined below:

1. The annual data collection process was examined and the data collection window modified to allow the Plan to more directly align with annual utility study work results.
2. Suggestions were made to encourage more frequent utilization of the TPM database and support the migration of the WestConnect database to WECC, as part of broader regional transmission planning efforts.
3. WestConnect Planning noticed increased attention to detail within the TPM database.
4. WestConnect Planning completed the video tutorial tools to allow for increase tool proficiency.
5. Reporting consistency and accuracy continues to improve each year, resulting in a WestConnect Plan with improved detail and relevance.
6. WestConnect continues to encourage the use of the TPM system as a mechanism for providing the most accurate and up-to-date information on projects to interested stakeholders through all mechanisms possible, including utilization during stakeholder meetings.

Improvement in the WestConnect planning function, specifically the quality of the final Plan, is a continuing goal. The following recommendations are offered for the WestConnect Planning Management Committee's consideration in support of WestConnect's effort to meet this goal:

1. Annual revisions to the WestConnect Plan should remain a minimum requirement, and consideration should be given to more frequent updates through the TPM system to keep stakeholders abreast of changes in the Plan.
2. The detail and accuracy of the WestConnect Plan are dependant entirely upon the quality of data entered through the TPM system. Continuing to improve the quality should remain a goal.
3. WestConnect Planning members should encourage other Project sponsors to include their projects to the Plan to provide even a more comprehensive and detailed picture of transmission projects planned for the WestConnect planning area.
4. The Planning Management Committee should consider permitting public review of the Plan data through guest accounts with "read-only" access.
5. WestConnect Planning should work to ensure seamless transition of the Plan data to the WECC database through coordination and direct project development involvement.

Draft

RECOMMENDATIONS

Improvement in the WestConnect planning function, specifically the quality of the final Plan, is a continuing goal. The following recommendations are offered for the WestConnect Planning Management Committee's consideration in support of WestConnect's effort to meet this goal:

1. Annual revisions to the WestConnect Plan should remain a minimum requirement, and consideration should be given to more frequent updates through the TPM system to keep stakeholders abreast of changes in the Plan.
2. The detail and accuracy of the WestConnect Plan are dependant entirely upon the quality of data entered through the TPM system. Continuing to improve the quality should remain a goal.
3. WestConnect Planning members should encourage other Project sponsors to include their projects to the Plan to provide even a more comprehensive and detailed picture of transmission projects planned for the WestConnect planning area.
4. The Planning Management Committee should consider permitting public review of the Plan data through guest accounts with "read-only" access.
5. WestConnect Planning should work to ensure seamless transition of the Plan data to the WECC database through coordination and direct project development involvement.

WestConnect proposes to continue measuring self-improvement of its Plan based upon PMC adoption of these recommendations.