

WestConnect Overview and Planning Status

BTA Workshop

Arizona Corporation Commission

Phoenix, AZ

June 03-04, 2010



WestConnect

- Exists by Agreement(s) Among Transmission Owners (TOs) in the Western Grid Dating from 2001
- Purposes:
 - Continue investigation of feasibility of cost-effective wholesale market enhancements
 - Work cooperatively with other Western Grid Organizations and market participants
 - Address seams issues in appropriate forums

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WestConnect

Arizona Public Service

El Paso Electric

Imperial Irrigation District

NV Energy

- Nevada Power Company

- Sierra Pacific Power Company

Public Service Colorado

Public Service New Mexico

Sacramento Municipal Utility District

Salt River Project

Southwest Transmission Cooperative

Transmission Agency of Northern California

Tri-State G & T Association

Tucson Electric Power

Western Area Power Administration

- Rocky Mountain Region

- Desert Southwest Region

-Sierra Nevada Region

-CRSP Management Office

TOTALS Jan. 2009

46,000 MW of Load

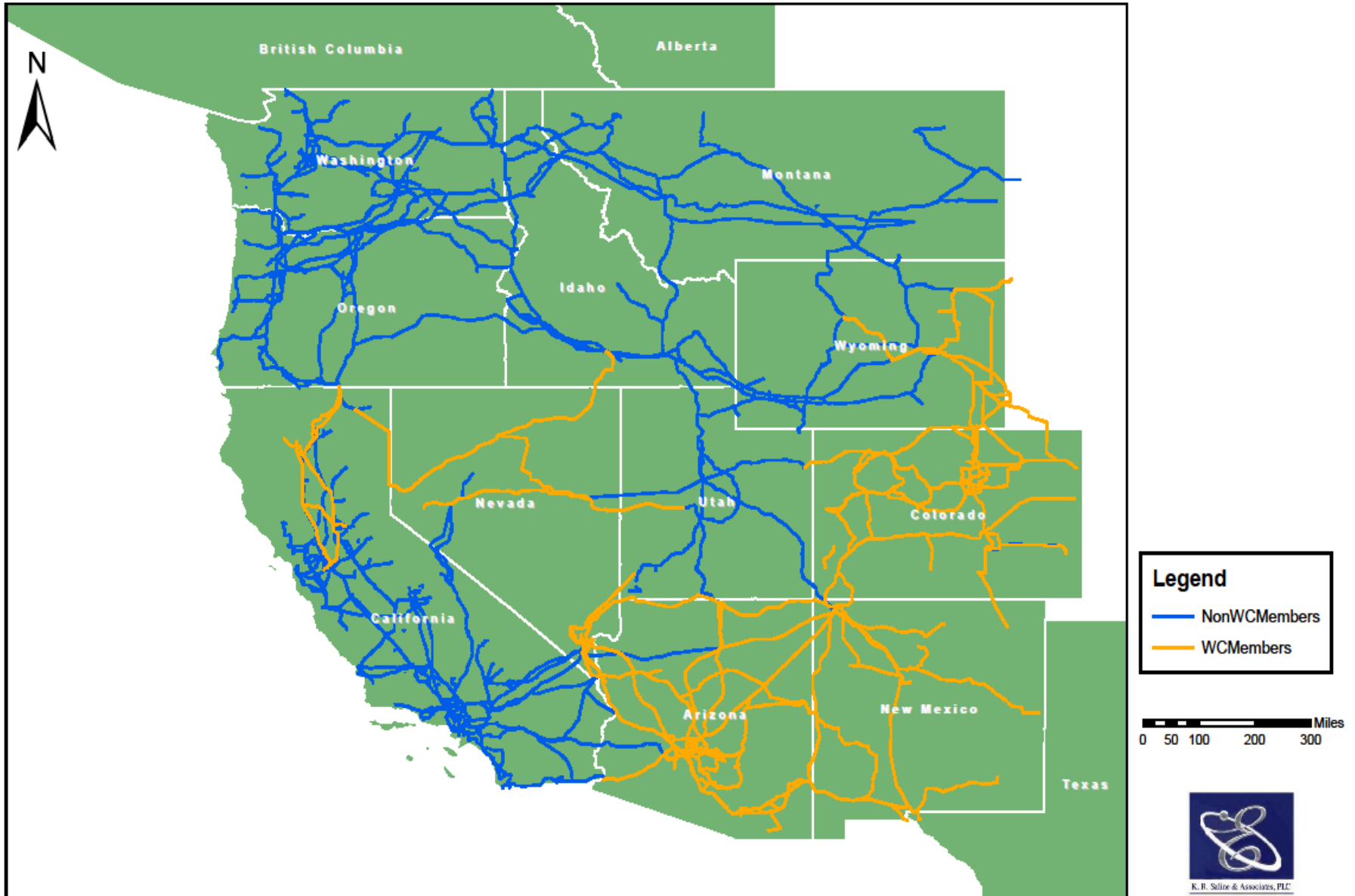
34,000 Miles of Transmission Line

7.0 Million Retail Customers Served

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WestConnect Transmission Footprint

EXISTING AND PROPOSED TRANSMISSION 230kV AND ABOVE



WestConnect Accomplishments

- **Annual ATC Workshop**
 - Disclosure of long-term TTC and potential changes from planned facilities
- **wesTTrans Common OASIS**
- **Subregional Planning**
 - CATS, SWAT, CCPG and formation of SSPG
 - Quarterly SPG Coordination Meetings
- **WECC Seams Issues Process**
- **Development of Annual WestConnect Transmission Plan and Planning Report**

WestConnect Active Work Groups

- **Large Generator Interconnection Process WG**
- **Energy Imbalance Service WG**
- **Virtual Balancing Authority Area WG**

- **Regional Planning Management Committee**
- **Regional Pricing Management Committee**

- **Other Activities**
 - **Area Control Error (ACE) Diversity Interchange (ADI)**
 - **Joint Initiatives**

WestConnect Regional Planning

- **WestConnect Project Agreement for Subregional Transmission Planning Executed May 02, 2007**
 - **Created Planning Management Committee (PMC)**
 - **Envisioned retaining consultant services to serve as planning staff**
 - **Defines cost shares, rights and responsibilities of participants**
 - **Requires completion of Annual Plan and Planning Report**



WestConnect Planning Management Committee

Arizona Public Service

Basin Electric Power Cooperative

Black Hills Power Company

El Paso Electric

Imperial Irrigation District

NV Energy

Public Service Colorado

Public Service New Mexico

Sacramento Municipal Utility District

Salt River Project

Southwest Transmission Cooperative

Transmission Agency of Northern California

Tri-State G & T Association

Tucson Electric Power

Western Area Power Administration

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2010-2019 Plan Organization

- Approved by PMC April 26, 2010
- Plan organized by Planned and Conceptual projects
- Plan sorted by Voltage Class
- Plan sorted by In-Service Date
- Plan sorted by State
- Maps of Plan and WestConnect Google Map (Website)
- Changes between 2008 and 2010 Plan

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Transmission Plan Guide

- Plan will include ten year transmission projects of:
 - Entities that have signed WestConnect Project Agreement for Subregional Transmission Planning, OR
 - Other entities whose projects meet the following prerequisites
- Prerequisites for inclusion:
 - New transmission projects with nominal system voltage 100 kV or greater.
 - Located within WestConnect Planning Area or interconnecting WestConnect to adjacent Subregional planning areas
 - Studied in accordance with federal and state regulatory requirements
 - Demonstrated performance compliant with NERC and WECC reliability planning criteria
- Provided a peer review of projects occurred during the WestConnect subregional planning process

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2010 Plan Summary

Transmission Project Categories

Transmission Projects	Planned	Conceptual	Estimated Cost (2009 \$M)
New Lines and Line Upgrades	148	41	13,731
Substations	58	7	256
Transformers	34	5	163
TOTAL	240	53	\$ 14,150

Estimated Cost Represent 90% of the Submitted Projects.

WestConnect Members Planned Lines by State

State	No. Line Projects	Total Miles	Estimated Cost (2009 \$M)
Arizona	71	1,573	1,747
California	6	110	150
Colorado	21	1,103	984
Nevada	6	460	1,021
New Mex.	12	154	97
Texas	19	96	37
Wyoming	7	564	168
Multi-State	6	2,195	3,661
TOTAL	148	6,255	\$ 7,865

Estimated Cost Represent 90% of the Submitted Projects.

WestConnect Members Conceptual Lines by State

State	No. Line Projects	Total Miles	Estimated Cost (2009 \$M)
Arizona	31	830	10
California	2	73	66
Colorado	3	354	317
Nevada	2	311	378
New Mex.	0	0	0
Texas	1	7	0
Wyoming	0	0	0
Multi-State	2	2,570	5,095
TOTAL	41	4,145	\$ 5,866

Estimated Cost Represent 90% of the Submitted Projects.

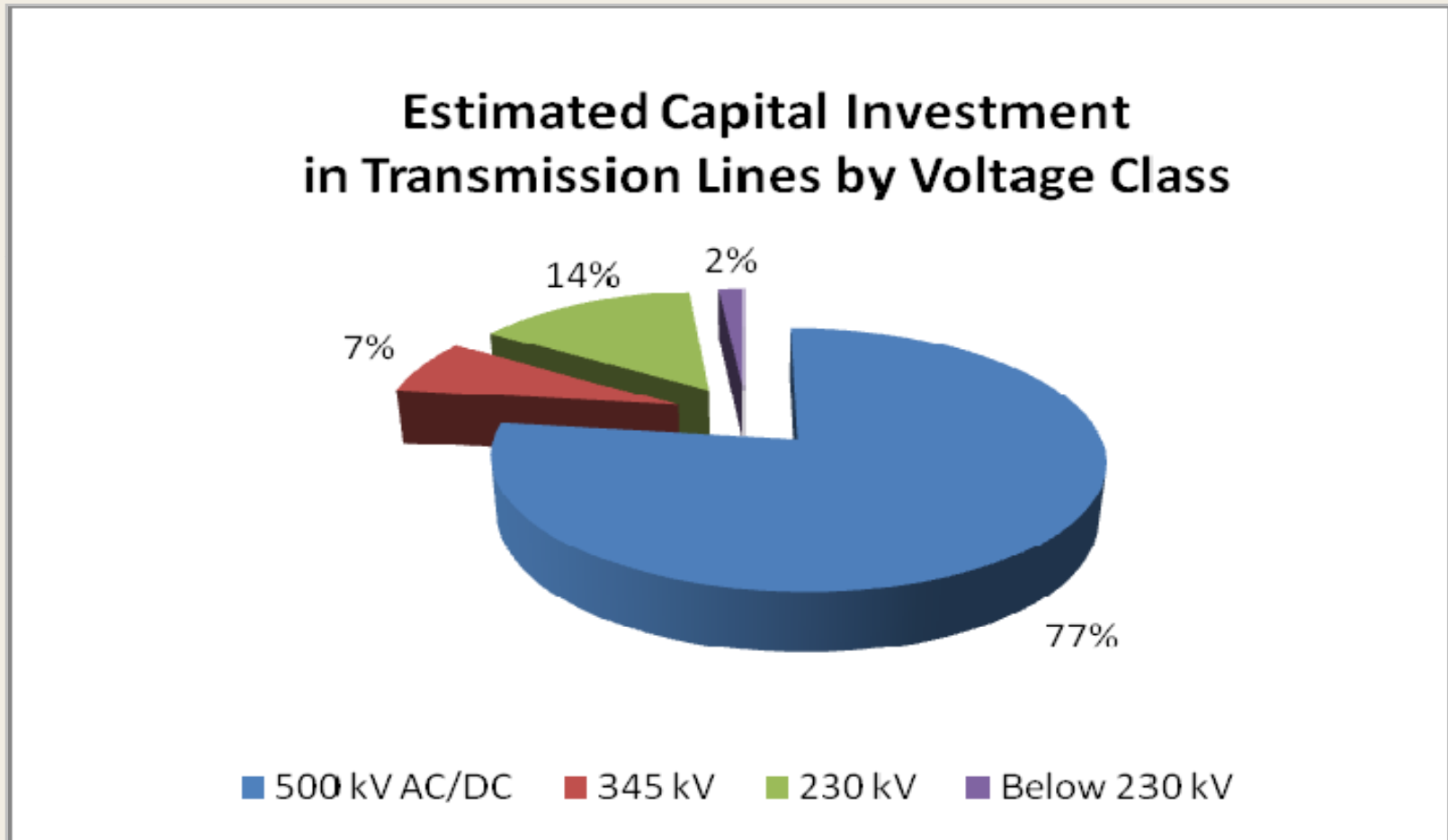
Transmission Line Comparison 2008 Plan vs. 2010 Plan

	2008	2010	Change
Planned	147	148	+1
Conceptual	42	41	-1
Total No. Projects	189	189	0
Planned	5,291	6,255	+964
Conceptual	5,009	4,145	-864
Total Miles	10,300	10,400	+100
Planned	6,999	7865	+866
Conceptual	5,985	5,866	-119
Total Estimated \$M	\$ 12,984	\$ 13,731	+ \$747

Estimated Cost Represent 90% of the Submitted Projects.

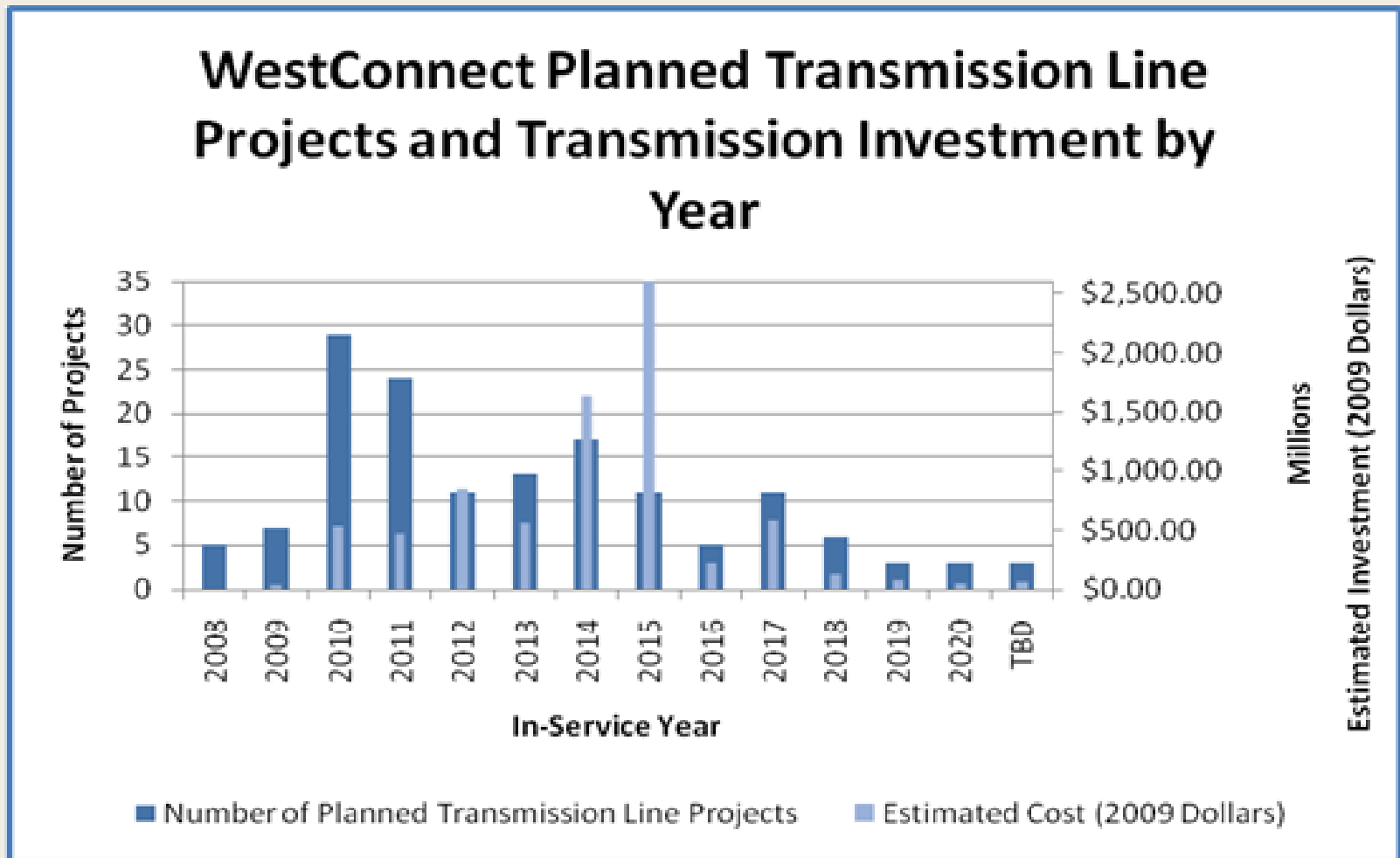
2010 Plan

Transmission Line Cost



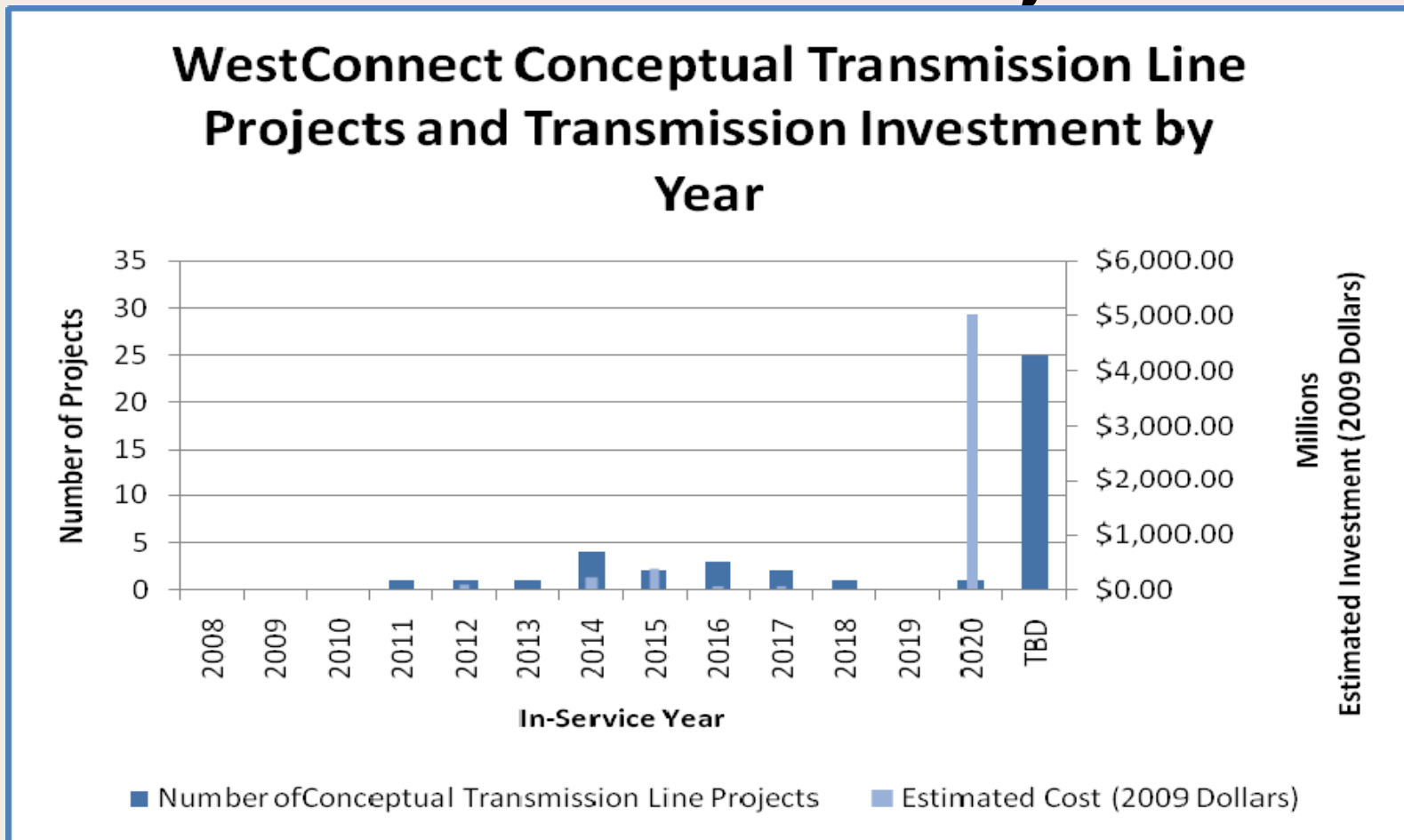
Estimated Cost Represent 90% of the Submitted Projects.

2010 Planned Transmission Line Projects



Estimated Cost Represent 90% of the Submitted Projects.

2010 Conceptual Transmission Line Projects



Estimated Cost Represent 90% of the Submitted Projects.

Conclusions

- Scope and scale of interstate projects continue to dominate the WestConnect Plan statistics
- Use of TPM Database has improved the quality of data reported
- The number of projects without in-service dates reduced significantly from 2007 and 2008
- The number of projects only changed by +1 Planned and -1 Conceptual from the 2008 Plan

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What is ADI?

- ADI stands for *Area Control Error (ACE) Diversity Interchange*.
- ADI is the pooling of individual Area Control Errors (ACE) to take advantage of control error diversity (sign differences associated with the momentary generation/load imbalances of each control or balancing area).

Benefits of ADI

- By pooling ACE, participants are able to:
 - Reduce control burden on individual control areas through the ADI “equal share” allocation method;
 - Reduce generator movement;
 - Reduce sensitivity to intermittent resource output; and,
 - Improve Control Performance and reduce CPS2 violations.

What ADI is not

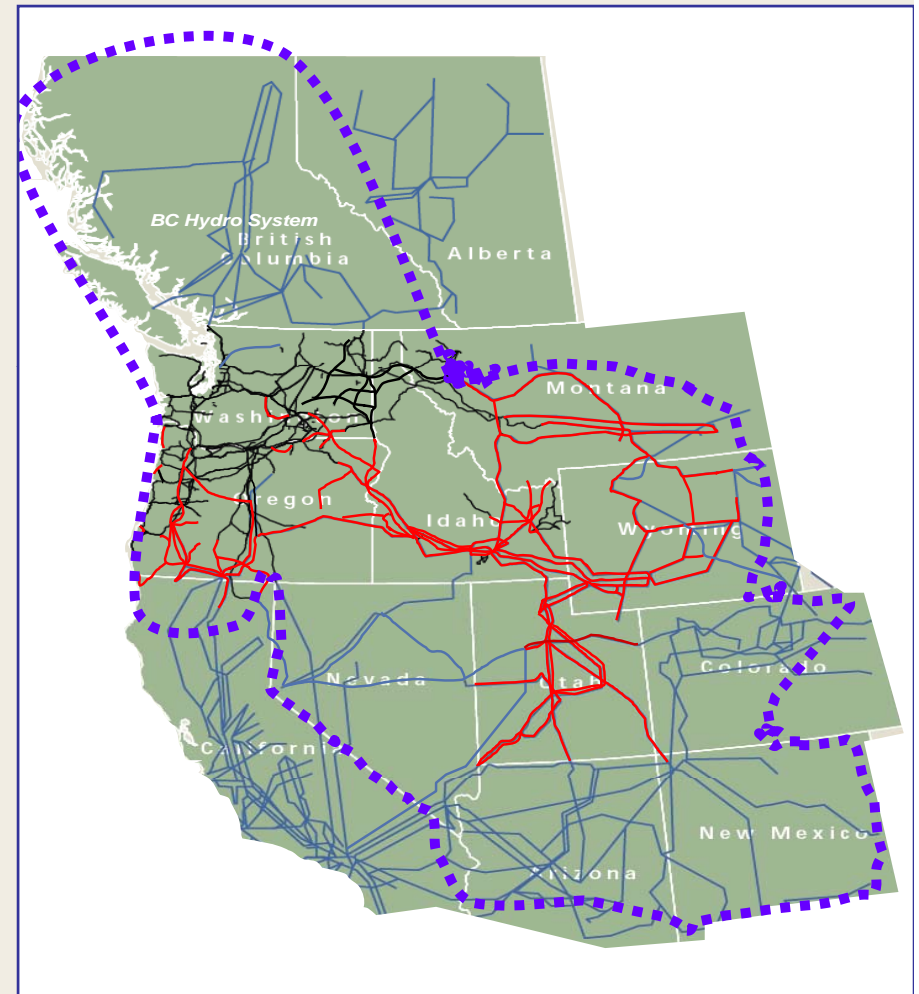
- An ancillary service;
- A process that will impact the terms and conditions of transmission or energy service;
- An energy sale nor does it necessitate the purchase of transmission;
- A commercial activity;
- A tool for making economic dispatch decisions; or,
- A burden on other areas.

Second Phase of ADI

- Participating Control Areas include:

- **Arizona Public Service**
- Bonneville Power Administration
- British Columbia Transmission Corporation (and the Host)
- Idaho Power Company
- NaturEner
- **PS New Mexico**
- **Nevada Power**
- NorthWestern Energy
- PacifiCorp – East
- PacifiCorp – West
- Puget Sound Energy
- **Salt River Project**
- Seattle City Light
- **Sierra Pacific**
- Tucson Electric
- **PS Colorado (Xcel)**

- Expanded evaluation (real-time screen shot) and reporting tools.
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ADI Currently Suspended

- Global Suspension is in effect – all participants affected
- Participants modifying individual EMS so full ADI correction is accommodated
- Result will be that ADI participants, as a whole, will net to zero at all times
- Settlements methodology among participants not yet agreed upon



Joint Initiatives Overview

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ColumbiaGrid Membership

Avista

Bonneville Power Administration

Chelan County PUD

Grant County PUD

Puget Sound Energy

Seattle City Light

Snohomish County PUD

Tacoma Public Utilities

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Northern Tier Transmission Group Membership

Participating Utilities

Deseret Power Electric Cooperative

Idaho Power Company

Northwestern Energy

PacifiCorp

Portland General Electric

Utah Associated Municipal Power Systems

Participating State Regulatory Utility Commissions

Idaho Public Utility Commission

Montana Public Service Commission

Oregon Public Service Commission

Utah Public Service Commission

Wyoming Public Service Commission

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State Consumer Advocacy Groups

Montana Consumer Counsel

Joint Initiatives Activities

- Intra-Hour Transmission Reservations & Scheduling
 - Created “*Pro Forma*” Business Practices with enough flexibility for individual system needs
 - Seeking creation of a standardized product
 - More automation needed in the WestConnect area
- Intra-hour Transmission Accelerator Platform (ITAP)
- Dynamic Scheduling System (DSS)

I-TAP

- Facilitate intra-hour bilateral transactions within and outside of BA's area through electronic platform that provides information, communications links, and user interfaces
 - Not limited to intra-hour, but anticipate that this is where it will provide greatest benefit

I-TAP

- Automated Information Exchange
 - Information regarding state of participating systems, including individual generator's ability and prices to move up (inc) or down (dec)
 - Leads to greater visibility regarding needs, opportunities, and costs
- Automated Mechanisms to access system flexibility swiftly and efficiently
 - Communications links
 - Links to OASIS
 - Links to e-TAG author and approval

I-TAP

- **16 Parties signed Agreement of Interest**
 - Bonneville Power Administration
 - Columbia Energy Partners
 - Grays Harbor PUD
 - NaturEner
 - PacifiCorp
 - Puget Sound Energy
 - Snohomish County
 - WAPA - CRSP-EMMO
 - Chelan County PUD
 - Grant County PUD
 - Idaho Power
 - NorthWestern Energy
 - Portland General Electric
 - Seattle City Light
 - Tri-State
 - Xcel Energy

I-TAP

- RFP was issued November 11, 2009
- RFP responses received February 3, 2010
- Vendor interviews held late February, 2010
- Pursuing Agreement(s) with OATI, Inc.
- Go live implementation as early as December, 2010

Dynamic Scheduling System (DSS)

- A more efficient way to implement dynamic schedules
 - Participants can establish dynamic schedules between any number of BAs at any scheduling granularity, depending upon need and capability
 - Minimal changes to existing processes and procedures
 - a *one-time* DSS implementation replaces the month's it takes today to negotiate and make system changes and accommodates all future dynamic schedules

DSS Process Overview

- The DSS is a communications infrastructure that exchanges dynamic signals via e-Tag and ICCP links
 - Before the scheduling period, participants will create DYNAMIC type e-Tags reflecting their dynamic schedules.
 - During the operating hour, webDynamic will use the composite e-Tag provided data to distribute MW requests to BAs with obligations to requesting participants.
 - After the scheduling period, webDynamic will update the e-Tag with the correct integrated quantity.

Advantages of DSS

- DSS facilitates
 - Development of intermittent resources
 - More efficient use of generating resources
 - Potential reduction in imbalance charges
 - Potential market opportunities that may result in lower portfolio costs
 - NERC and WECC standards and business practices

DSS Status Update

- 19 parties have executed participant and vendor contracts

- Arizona Public Service Company
- BCTC
- BPA
- Grant County PUD
- Idaho Power
- Imperial Irrigation District
- NaturEner, USA
- Northwestern Energy
- NV Energy
- PacifiCorp
- Portland General
- PowerEx
- Public Service of New Mexico
- Puget Sound Energy
- Seattle City Light
- Salt River Project
- Tri-State G&T
- WAPA
- Xcel Energy

WestConnect Contacts and Information

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