

WestConnect Activities Overview

Joint Planning Meeting

Denver, CO

August 17, 2011



Discussion Topics

- WestConnect Overview & Membership
- Regional Pricing Experiment
- Joint Initiatives
- Virtual Control Area
 - Work Group Activities
 - Western Wind & Solar Integration Study
- Energy Imbalance Service Work Group

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WestConnect

- Executed Restated MOU Among Transmission Owners (TOs) in the Western Grid – Effective January, 2007
- 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

Nevada Power Company

Public Service Colorado

Public Service New Mexico

Sacramento Municipal Utility District

Salt River Project

Sierra Pacific Power Company

Southwest Transmission Cooperative

**Transmission Agency of Northern
California**

Tri-State G & T Association

Tucson Electric Power

Western Area Power Administration

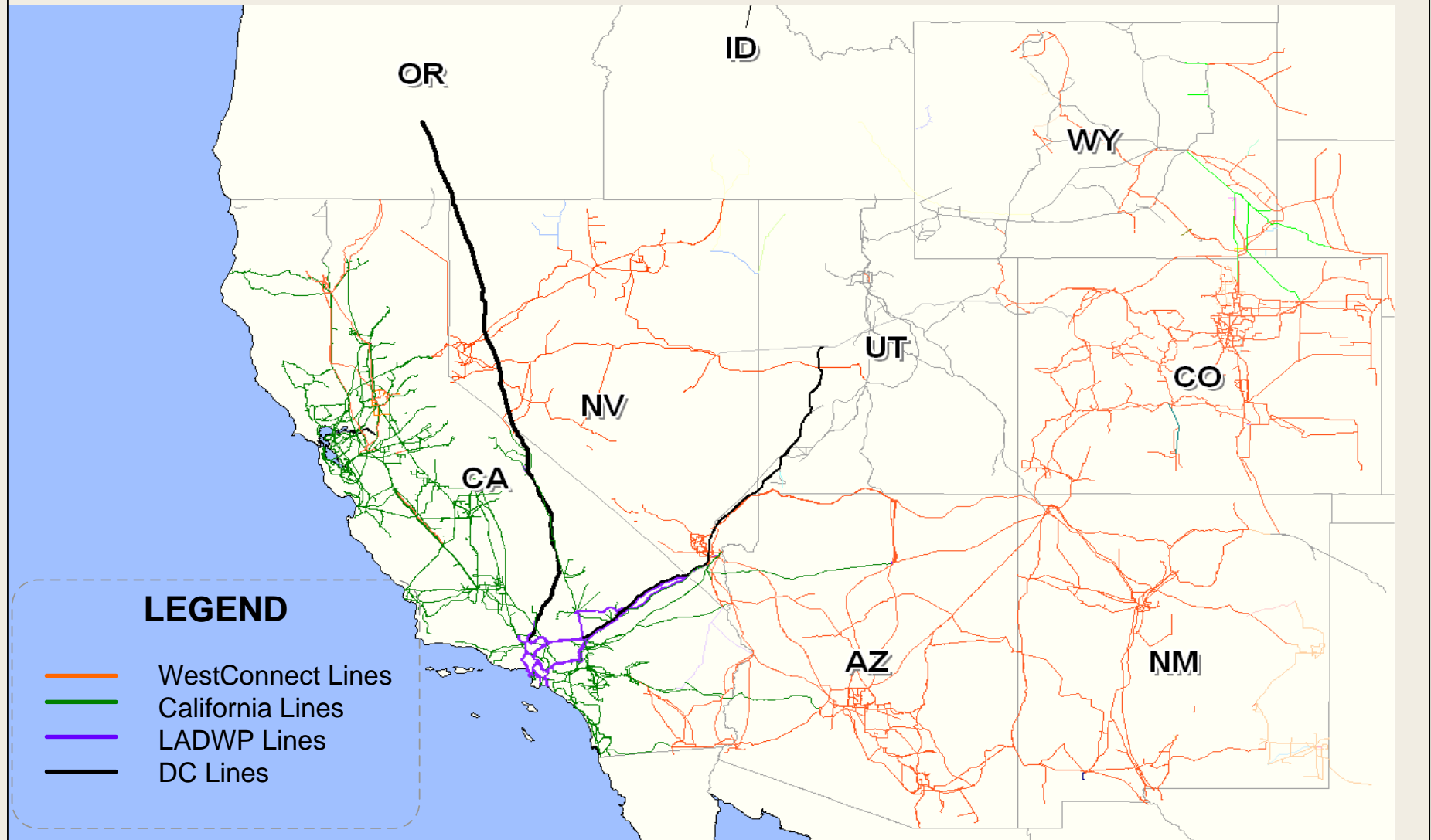
- Rocky Mountain Region
- Desert Southwest Region
- Sierra Nevada Region
- CRSP Management Office

TOTALS Jan. 2009

46,000 MW of Load

32,000 Miles of Transmission Line

7.0 Million Retail Customers Served



WestConnect Accomplishments

- **Annual ATC Workshop**
 - Disclosure of long-term TTC and potential changes from planned facilities
- **westTTrans 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**
- **Developed Regional Pro Forma Conditional Firm Service Business Practice**
- **WestConnect Regional Pricing Experiment**

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**

Regional Transmission Pricing

- Status:
 - Began two-year Experiment on July 1, 2009
 - Modest usage of the service
 - Participants received FERC approval to extend Experiment for an additional two years until June 30, 2013
 - Administrative Fee will increase to \$ 0.95 / MWh (from current fee of \$ 0.08) in the first year of extension, and may increase to \$ 1.25 / MWh if volumes do not increase
 - Transmission Customers pay Administrative Fee

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The Experiment

- 2-Year Pilot
- Eliminates transmission rate pancaking for limited transactions. The Regional Rate will be the highest posted OATT rate in the path.
- Continues to pancake ancillary services and losses.
- Retains participants' posted OATT rates.
- Start-up/implementation costs borne by Transmission Customers (thru OATI).
- Can be implemented through wesTTrans platform.
- Did not Require FERC filing for NJs.
- No State approval required.
- Fail-safe clause for NJs.
- Revenue distributed pro rata based on posted rates

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Price Components

- The Regional Rate will be the highest posted OATT rate in the path.
- Ancillary Service 1 remains pancaked
- Ancillary Service 2 assessed only at sink
- Losses remain pancaked: Monetized at Palo Verde Index price for date of transaction
- Administrative adder of \$ 0.95/MWh (potentially increasing to \$ 1.25/MWh) July 1, 2012

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WestConnect Pricing Experiment Participants

Arizona Public Service

Black Hills Colorado

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

- Rocky Mountain Region

- Desert Southwest Region

- Sierra Nevada Region

- CRSP Management Office**



Joint Initiatives

Facilitated by:

- Columbia Grid
- Northern Tier Transmission Group
- WestConnect

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Joint Initiatives Goal

- Encourage and facilitate Western Interconnection parties to develop and implement high-value cost-effective regional products
- Broader focus than integration of variable generation, but immediate wind and solar integration issues provide significant motivation

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Current Focus

- Current work streams
 - Intra-Hour Transmission Purchase and Scheduling
 - Intra-Hour Transaction Accelerator Platform (I-TAP)
 - Dynamic Scheduling System
 - MOD-029 Implementation Coordination

Intra-hour Transmission Purchase and Scheduling

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Intra-Hour Transmission Scheduling

- Majority of participating TSPs/BAs have implemented standardized intra-hour schedules as of July 1, 2011
 - ✓ Avista, BPA, Chelan, Grant, Idaho Power Company, NV Energy, PacifiCorp, Portland General Electric, Xcel Energy/PSCo, Puget, SRP, Seattle, SWTransco, Tacoma, WAPA
- WestConnect TSPs/BAs are implementing with more restrictions than TSPs/BAs in other areas

Intra-Hour Transmission Scheduling

- Other TSPs/BAs will implement as soon as they receive regulatory approvals
 - ✓ APS, NorthWestern, PNM

Standardization – Step One

- Requests for new intra-hour e-Tags (INC) can be submitted
- Requests for intra-hour adjustments to existing e-Tags (INC/DEC) as soon as the TSP or BA establishes sufficient tools/automation (may be after 7/1/11)
- No transaction limitation (by any party, for any reason, import/export/wheel-through)
- Intra-hour requests must be submitted between XX:00 and XX:15 for the second half of the current hour

Standardization – Step One

- Intra-hour requests will default to 10-minute duration straddle ramps
- Intra-hour requests will be for a duration of 30 minutes but will be integrated over the full hour for interchange accounting purposes
- No bumping (access to intra-hour scheduling is subject to availability on a first-come first-serve basis and the participating TSPs have indicated they will not displace an existing hourly or intra-hourly schedule to "make room" for a subsequent intra-hour request even if that request is utilizing higher priority transmission service)

Standardization/Caveats

- Focused on intra-hour scheduling opportunities for unanticipated events, NOT going to half-hour scheduling
- Relies on more flexible use of existing transmission products (no new intra-hour product)
- Requires automation

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Virtual Control Area

Three-pronged approach:

1. ACE Diversity Interchange
2. Western Wind & Solar Integration Study – will provide analysis of combined balancing area authority operations
3. Analysis of reserves sharing pool modifications

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Virtual Control Area

- WestConnect TOs participating in the Ace Diversity Interchange (ADI) program
 - Xcel Energy (PSCO)
 - SRP
 - APS
 - PNM
 - TEP
 - NV Energy

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Western Wind & Solar Integration Study

- Phase 1 completed in 2010
- Phase 2 being developed
 - Analysis of cycling impacts on thermal generation
 - O & M costs
 - Emissions
 - Other Impacts
 - Refined wind and solar availability forecasts

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Energy Imbalance Service Work Group

- Formed to provide education and potential future recommendation on EIS options
- SPP Seminar on EIS market
- SPP site visit
- Complementary to WECC Efficiency Dispatch Toolkit benefit/cost analysis

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Energy Imbalance Service Work Group

- Current efforts focused on assistance in individual BA & TP analysis of WECC EIM Proposal and benefit/cost analysis

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WestConnect Contacts and Information

- WestConnect (www.westconnect.com)
- Charles Reinhold – Project Manager
 - reinhold@ctcweb.net
 - 208-253-6916

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I-TAP

(Intra-hour Transaction Accelerator Platform)

OATI webExchange

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

Project Background

- Project awarded to OATI in March 2010
- Project Kick-Off meeting August 2010
- Approval of webExchange functional specification December 2010
- Detailed application design completed February 2011
- First Prototype of trading components demonstrated on May 2011
- Development environment open for webExchange subscribers on July 2011
- Currently finalizing the webExchange application development
- webExchange Production Operation on November 2011
- Currently 17 signatories of OATI webExchange agreement

webExchange Essentials

- Powerful web-based system delivering all functionality needed to purchase, schedule, and tag energy
- Full user flexibility and control over trading actions
 - Filtering and sorting available
 - View configuration controlled by user
 - Credit handled by each subscriber

webExchange Automation

- Users exercise full control over trade candidate selection and trade execution, but at much faster speeds because of automated system
- Wide use of templates to narrow search parameters
- Quick Scheduler mode allows for quick assessment of both existing and potential transmission positions

webExchange Transmission and Scheduling Functions

- Assists in analyzing trades prior to contacting the counterparty
- Improves accuracy of price discovery by providing transmission cost and cost-of-losses information (where applicable)
- Performs simultaneous transmission procurement from multiple providers
- Creates NERC e-Tags

Communication Tools

- Alert system allows users to set search parameters and be notified when the criteria is met
- Users can utilize a built in chat service to communicate with counterparties
 - Chat can be performed within a specific transaction

Managing / Systems

- Users manage their own credit / trading partners
- webExchange is designed to provide an audit trail for all user actions and relevant data
- webExchange is designed to communicate with other systems via programmatic interfaces

Project Status Update

- Project timeline:
 - Unit Test completed
 - 08/15/2011
 - Acceptance testing at OATI facilities
 - 09/26/2011 – 09/30/2011
 - Face-to-face training at OATI facilities
 - 10/10/2011 – 10/14/2011
 - Several training sessions via Web Cast
 - 10/17/2011 – 10/21/2011
 - Production environment preparation
 - 10/24/2011 - 11/07/2011
 - Production migration and start of operations
 - 11/07/2011
 - Market trials . To be defined:
 - Tentative: 11/07/2011 – 11/11/2011

Contact Information

- OATI can provide all commercial information for subscribing to webExchange
 - sales@oati.net
 - 763-201-2000

DSS

(Dynamic Scheduling System)

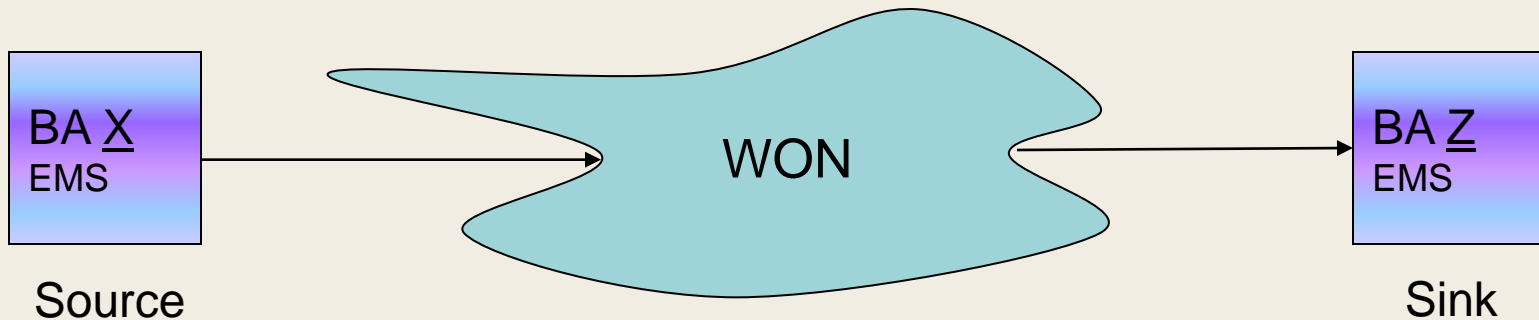
Dynamic Scheduling System (DSS)

- 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

Conventional Dynamic Schedule Exchange

Dynamic Signal Transfers

EMS to EMS Connection, Fixed Point to Point, Fixed Data Points,
Using ICCP on the WON



EMS = Energy Management System, SCADA, ACE, AGC

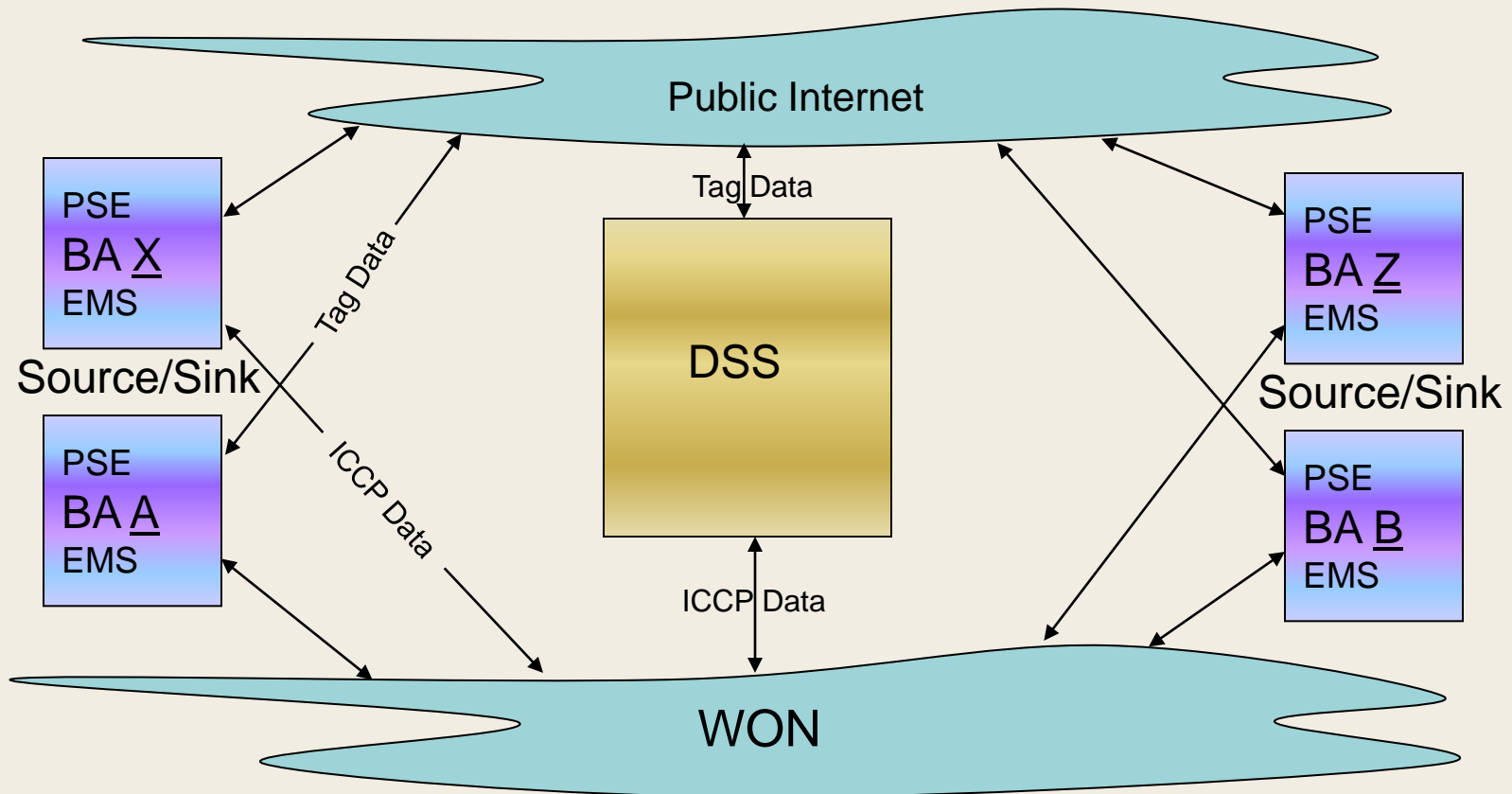
ICCP = Inter-Control Center Protocol

WON = WECC Operational Network

DSS Schedule Exchange

Using DSS webDynamic Application

Multiple Dynamic Signal Transactions between Multiple BAs
Etag Driven



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 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.

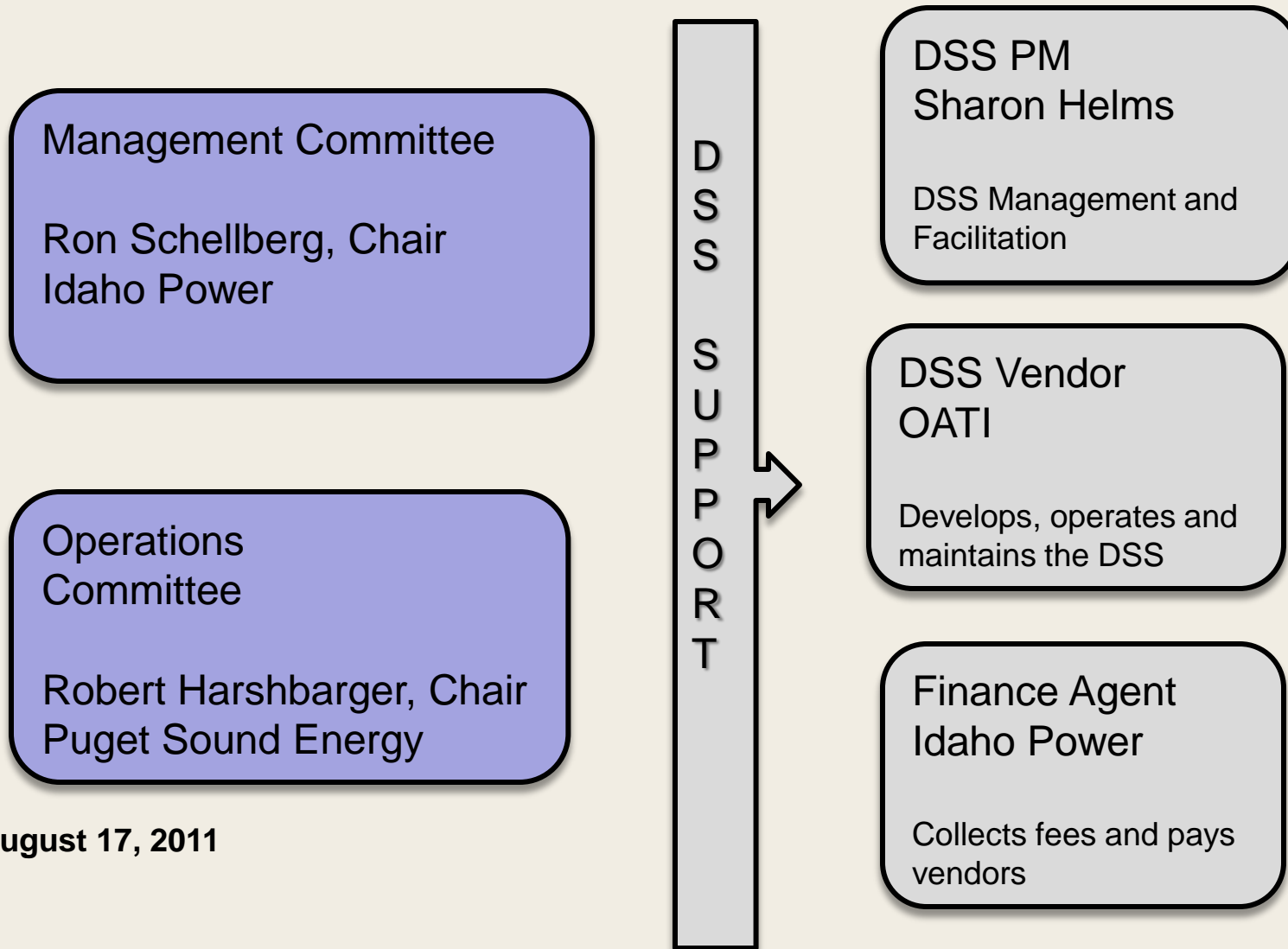
Advantages of DSS

- 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 Participation

- 18 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
 - 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

DSS Structure



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Timeline

- DSS Production Testing Complete
- DSS “Implementation Date” established !
(March, 2011)
- New participants welcome

ATC MOD Implementation Coordination

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ATC MOD Implementation Coordination

- New Strike Team has been formed
- NERC issued a notice revising MOD-029 to allow TPs to use historic path rating for flow limited paths
- Strike Team meeting periodically for roundtable discussions and updated on NERC action
- Small Drafting Team formed to develop Issue Paper and Draft SAR

Joint Initiatives Contacts

- Products and Services Co-Facilitators
 - Charlie Reinhold (480-215-0299)
 - Kristi Wallis (206-726-1699)
- Infrastructure Facilitator
 - Sharon Helms (503-644-6262)
- Joint Initiative materials posted on CG website

www.columbiagrid.org

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