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Transmission Operations and Planning Working Group Flip Charts, RMR/CRSP session in Loveland

STRUCTURE OF TODAY'S WORKING GROUP

Page 1

AGENDA

- I. Define agenda – *(NOTE: Agenda Items II, III and IV were created based on the discussion that occurred in the define the agenda session)*
- II. Operations
 - 6 fixes
 - Hydro/Transmission option
 - Consolidation benefits
- III. Planning
 - Order 1000 + others
 - EDTF participation
 - Data sharing
 - Climate
- IV. How we pay/Cost impacts

Page 2

Cross Cutting *(NOTE: These Crosscutting Issues were created based on the discussion that occurred in the Define the Agenda session)*

- Leadership?
- Legal Authorities
- Cost
- Process

AGENDA ITEM I: DEFINE THE AGENDA

Page 3

I.1

- 21st Century Grid
 - We're shooting in dark – grid is an evolving machine
 - What do we want, by when
 - Priorities in memo not same as customers
 - Grid working pretty well
 - Western → core mission

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- 10 yr. reliability and delivering to core customers

Page 4

I.2

- Western should participate in physical ops; leadership in:
 - NERC in CIP
 - Neighboring BA's
- Agree, but these issues haven't adequately been scoped
- Six meetings not nearly enough to scope

Page 5

I.3

- BOR prepared statement
- Ability to follow RE is limited by contractual and operating constraints
- Costs associated with ramping up and down
- Already working with others on how to support RE

Attached note regarding reclamation talking points and design of transmission service:

- BOR is the largest producer of hydropower in the west
- Rec's mission is to deliver water and power and its guiding legislation requires them to make water and power deliveries to irrigation customers a priority and retain control of those deliveries. Power deliveries to preferences customers are the next priority and mixed in with that are environmental commitments and orders that impact the timing and quantity of deliveries. Within these requirements, reclamation is working with the other agencies and increase renewable generation and integration.

Page 6

I.4

- TW Express
 - Spending \$ to build transmission
 - Only project in NEPA project, ~\$25 mm into paying
 - WY wind to Southwest
 - \$3.2 billion for TIP program
 - TW selected
 - Development agreement w/ Western

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I.5

- Western up to ½ of TW
- What is Chu memo heading to?
 - Will it influence TIP
- Xcel

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- Seeing fast change in utility business achieving reliability well. What can we do to use existing system better?

Page 8

I.6

- What can WAPA do?
 - Encourage WAPA to engage in WestConnect and WEXCC and elsewhere where strong presence
 - Env. Data Task Force process, WAPA could help in testing EDTF processes
 - Work together on data site and studies
 - WECC BCC data

Page 9

I.7

- Tri-State
 - WAPA –
 - 7,000 in MRO
 - 10,000 in WI
 - 5% of energy in West
 - WAPA does participate
 - Resources optimized long ago by BOR/WAPA
 - Western customers pay 100% of their costs
 - Economic times → costs are consequential
 - Beneficiary pays

Page 10

1.8

- No issue w/ WAPA working w/ TW, just don't want customers to pay
- How will things get paid for?
 - Involve all utilities
 - \$300 mm in Loveland over last 10 years
 - ...\$300 more next ten
 - Far more outages on IOU system than WAPA
 - Integrating RE works if you have a buyer

Page 11

I.9

- "Leadership" "Collaboration"
 - WAPA, Tri State, Xcel, all need to bat at the table
- WAPA is primarily an operating entity
- Blackout – don't take your eye off the ball WAPA, operating is most important
- Incremental resources come from DOE, WAPA should get non-reimbursable funds
- Customers should be top priority

Page 12

I.10

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- Recommendations should be in the nature of areas where you want to do further analysis rather than conclusory
- Join IOU efforts in West across boundaries
 - Consolidate BA reduce cost?
 - Advantage to customers of participating in EIM type services
 - Share real time info across BA

Page 13

I.11

- Order 1000
 - Leader in process an integral part to advantage customers
- Another Participant View: (Graham – WRA)
 - How can we enhance public-private partnerships, e.g. should public funds support public policy goals
 - Climate change could affect electricity system
- How do Western participation funds get assigned to a project

AT THIS POINT WE CREATED THE AGENDA AND CROSS CUTTING ITEMS SHOWN on PAGES 1 and 2.

AGENDA ITEM II: OPERATIONS

Page 14

II.1

Operations

- 1) What is the 21st century grid? What should it look like
 - Evolving process
 - Not just engineering
 - What attributes are we looking at?
 - More blackouts + larger ones in recent years
 - Everyone required at N-1
 - Not caught by day ahead, not caught by anyone

Page 15

II.2

- 21st c – intermittent facing grid related constraints, what flex need to handle RE?
- “leadership” – PMA huge footprint
 - Serving customers in context of larger grid
 - Just sitting at table + listening not enough
- Agree – not part not acceptable but WAPA is vocal
- Active participation is the goal

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II.3

- Maybe WAPA could do more but DOE needs to put \$ where mouth is
-
- RE adding complication and cost
 - Growth – reached max on transformers, service getting interrupted
 - More complicated → (doesn't equal) more reliability
-
- Leadership – WAPA addressing issues of today, assert a WAPA perspective out 20 years
 - WAPA present at SPSG but rel. silent

Page 17

II.4

- Similarities to Bell Labs going from analog to digital
- Will need more data
- Need more automation of operation
- WAPA and others need to “lead”
- Need to get R&D mobilized
- MOU w/ BOR –
 - Showed good leadership on DOE's part, funding also brought to issues
 - Cost not borne by existing customers
 - Possible model?

Page 18

II.5

- All utilities struggle with cost/how to pay
- Speed and timing of driving forces is driving need to leadership
- All utilities, looking for people + abilities
- Leadership means – participate in discussions, assume leadership at the appropriate moment, vital info at right time, strategically placed personnel in the right venues

Page 19

II.6

- Xcel has large stake in wind, how do you assign costs for bringing coal up/down, are you sharing what you learn?
 - Working with AbTech to get all costs included in modeling studies
 - Are sharing data
 - Work w/NREL to get data incl. coal cycling costs
 - WWSIS has coal cycling and other integrations costs (out in a couple months)

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II.7

- “leadership”
 - Looking at problems square in the face in a way that respects customers and addresses problems that need to be solved for system at large
 - WAPA cannot decide or design the future. It is about watching developments and being able to respond to them in defense of its customers

Page 21

II.8

- What do we need to do differently?
 - WAPA has taken leadership roles over the years
 - What needs to be fixed?
-
- Define those areas where Western needs to be more engaged
-
- Narrow down to a couple of issues and dig in over time
 - WAPA no load growth responsibility
 - Where WAPA has common concern

Page 22

II.9

- Salazar clean energy frontier
- Way that we approached at BoR
 - What can we do
 - What resources do we have
 - Who should pay
 - What has most value

-
1. “leadership” = open access but constrained
 - You’re doing small fixes
 - Need to look ahead at problems of future

Page 23

II.12 (II.10 & II.11 were renamed as III.1 and III.2 because they belonged in the Planning discussion)

2. Hydro, transmission, operations optimization
 - What’s been done?
 - Have seen tangible benefits for consumers
 - Specific legal/operational constraints in RMR/CRSP
 - How will climate affect operations going forward

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Page 24 & 25

II.13 – II.14

3. What's been done?
 1. Experimented with tools to operate in a tighter band
 2. 26 MW of "new" capacity by optimizing. BOR looking at T2 as a system, will work w/Western. One system that will work reclamation wide. Looking at generators we get most bang for buck. About 2 mis. Out. Install next, operational in about 4 years
 3. Look at aging equipment as opportunities
 4. Contractual arrangements ensure delivery, optimization occurs given that
 5. Manage BA to ensure reliable delivery; new responsibilities affect operations
 6. Spend time to optimize for power marketing, GT Max Argonne evolved tools, used at CRSP to help with management
 7. Have to watch system carefully to address flow requirements; optimize given those constraints
 8. CRSP has enviro commitment and affects how much and when

Page 25 & 26

II.15 & II.16

Coordinated operations of RMR/DSW

1. Benefits from power purchases
2. Joining operations; DSW and RMR: compliance activities increasing at each, costs needed to be incurred either way. Avoided cost of about \$8 mm, migrating to common SCADA. Feel with save \$ by having common tools and platforms
3. Operations review effort underway
4. Partnered w/ BOR in WY on SCADA and saved \$\$
5. Optimize output of yellowtail w/ BoR

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II.17

Legal Authorities

1. Need to be taken into account in all recommendations
2. Mission of Western must be reflected
3. Legal authorities of Western, BOR, records of decision re: BOR environmental regulations

Page 28 & 29

NOTE: following two pages labeled as II. (through II.16), they are a summary of the specific "fixes" that could be helpful

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Summary of operations

6. "specific fixes"
 1. Work together to implement September 8 black-out recommendation (include generators)
 2. Work together to focus on needs from DOE/Fed Government
 3. Western should act as a facilitator to solve customer problems
 4. Evaluate incremental operational improvements with due diligence
 5. Pumped storage
 6. BOR MOU a model?

AGENDA ITEM III: PLANNING

Page 30

III.1

- Train wreck:
 - ERCOT – 10,000 MW wind but Tx lagged by 7 Yrs
 - Legislature stepped ultimately
- Last 10 years
 - Requiring employees do more with less
 - Employees can only do so much
- 10 year transmission plan
 - What is going into 10 year plan that looks out further?

Page 31

III.2

- Western formulates a 10 year plan based on input from customers, produces project ideas to discuss with customers, done on a regional basis
- Doing enough?
 - Looking across RMR, DSW, CRSP
- Engaged in WECC TEPPC, WestConnect beyond 10? Participate at WECC
- Engaged in Order 1000.

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III.3

- Right of ways and corridors, what happened to that effort?
 - Settlement reached with west wide corridors
 - # of corridors reduced

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- Point is
 - Tx planning in the public interest has required condemnation in the point, won't we need it in the future?

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III.4

- One view: Western has power of eminent domain but tries not to exercise it
- EDTF – what is it?
 - Environmental data task force – way to implement environmental risks into Tx planning, to give planners likely risk associated w/routes

Page 34

III.5

- EDTF recommendations posted in WECC 10 year plan. It is voluntary
- Xcel using it in a test
- Western opportunity: looking for projects to use EDTF to see if it is real and usable to inform route selection

Page 35

III.6

- Does Western have authority to do joint planning?
 - 10 year plan uses customer input
 - Open access tariff
 - Sub-regional planning groups
 - Regional planning – inform neighbors

Page 36

III.7

- WAPAP can wholly own specific assets
 - WP15 was special animal authority given b/c CA crisis
 - Joint planning very successful
- Participating in siting is a different matter
- EDTF is not siting effort
- Getting involved in EDTF, will it draw resources away from maintenance, etc.

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III.8

- Can try it on a voluntary basis
- Data there so incremental cost should be small, benefits in saved time and \$

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- Don't know much benefit to Western

-
- Data sharing
 - LTPT, MDTF would like to see Western planning data from Western 10 year plan
 - Transmission planning info sometimes provided from western to planning venues

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III.9

- Operations:
 - Would current data sharing allow for EIM capability? Western involved in: DSS, ITAP, ADI, ½ hour scheduling, FERC RM10-11 mandates 15 minute scheduling
- Data planning:
 - Coordination on order 1000
 - Are there benefits for your customers there
- Resource constraints (People + \$)
 - Drive difference of opinion

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III.10

- Climate and hydro system: Western could and should be a leader
 - Heat waves
 - Water availability (drought)
 - Environmental catastrophes (Katrina)
 - Fire danger impacts
- Reflect these factors in cost and reliability

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III.11

- Economic impacts are also factors affecting demand and should be reflected
- Should use existing studies to get a handle on potential impacts

AGENDA ITEM IV: COST ISSUES

Page 41

IV.1


- Beneficiary/user pays
- Order 1000 cost allocation issues

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- One view: long term benefits should be included in the definition of benefits

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We are all interconnected

1. Planning
 - a. Order 1000
 - b. EDTF
 - c. Info/Data
 - i. Planning
 - ii. Operational
 2. Operations
 - a. Consolidation benefits
 - b. Transmission/hydro Res
 - c. Large area
 - d. Fixes
- 
- The diagram consists of a right-facing curly bracket that groups items 'a', 'b', and 'c' of the 'Planning' section. To the right of the bracket is a rectangular box containing the text 'Western Participation'.

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Transmission Operations and Planning Working Group Notes, RMR/CRSP session in Loveland

Objectives:

- gather input from customers and stakeholders in an open forum.
- capture diversity of views and allow customers to aid in defining the process
- value added opportunities and ideas
- identifying what Western is doing well
- improving Western's collaboration and integration with our neighbors
- improving the existing infrastructure, e.g. 10yr plan, complying with Reliability Standards
- indentifying focal points of workshop

TOP lead off speakers:

Speaker 1 – Regarding the Memo specifically on the 21st century grid, “WAPA is shooting in the dark and missing the point.” The grid is an evolving Machine. WAPA’s focus should be on maintaining the PMA mission. Appreciate the opportunity for discussion and diversity of points of view leads to innovations, but six meetings are not enough and the issues have not been adequately scoped.

Speaker 2 – Spoke about the mission and the BOR charter for Water Project use and Preference Customers. He stressed the BOR mandates on water schedules, water availability, and environmental constraints, as well as system limitations, e.g. Colorado Big Thompson Project has small pools, low elevation, smaller units, and limited capacity. “BOR cannot backup variable or renewable resources.... Cannot load follow... and increased costs and maintenance associated with [ACE] regulation.”

Speaker 3 – Mainly talked about the opportunities moving forward with various funding programs available and the need for WAPA to be a leader in moving the individual projects forward and increased transmission. Regarding Sec. Chu’s memo, speaker unsure if the tone was “good or bad” and is concerned about the impacts to the TIP program.

Speaker 4 – Spoke to WAPA’s continuing excellence in existing transmission services. Concerned about WAPA’s lack of leadership in the future regarding new transmission and partnerships to increase (moving forward) the efficiencies on the existing grid: citing the need for “Stronger planning involvement” and to “Show up to the table.” Two examples where WAPA has not had a strong presence:

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WECC – BCC participation (Data Sets and Planning Studies) and the Environment Data Task Force (EDTF), a testing ground for new process. Challenged WAPA to lead the industry in R&D, leveraging WAPA’s extensive transmission system and diversity of resources for test projects to increase efficiencies, and not just covering the “reliability bases”.

Speaker 5 – WAPA is good at incorporating proven technologies. WAPA is reliable. WAPA’s mission is to market firm hydro-power to preference customers. WAPA then sells excess transmission services to the industry in order to keep rates low. Unfortunately rates are above market. We do not believe WAPA needs to be a leader nor should it be a testing ground for the next generation, unless the DOE is going to appropriate funds for it. Pointed out the ease of Renewable Energy integration with WAPA. All new additions and upgrades should be “Beneficiary based”. “*The day to day operation is most important and WAPA needs to stick to its mission.*”

Speaker 6 – called for an increase in public/private partnerships with the Federal Government’s help towards the goals; *namely DOE dollars to facilitate Renewable Energy and integration.*

BUILT AGENDA BASED ON ABOVE DISCUSSION ...

AGENDA

Operations:

- 21st century grid: evolving process, not just engineering.
 - o Complex system configuration, requiring automated processes to quickly correct issues without human operator intervention
 - o September 8th Blackout and NERC report
- Hydro-power & transmission
 - o Optimization
 - o Issues with RMR/CRSP
- Leadership

Planning:

- WAPA’s leadership role
- FERC Order 1000

Costs:

- Beneficiary pays
- Public funds

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Operations

Regarding Operations and Leadership, there were lots of comments and discussion back and forth about the definition of Leadership and what should be WAPA's role. There was a sense that WAPA was not driving any agenda and was afraid to be the leader. *The people that did show up to the Table did not have the training or authority (empowerment) to make any decisions.* Both BOR and TSGT challenged that theme, focusing on WAPA's lack of resources, not just the diminished hydro capacity, but WAPA is understaffed. Both reiterated about the costs of such Leadership and programs, "who's to pay for these?" Alan Glazer (FEUS) voiced his opinion that WAPA should act as the facilitator to help solve customer problems, not necessarily lead the resolution.

Regarding the Sept. 8th Blackout, numerous opinions were voiced that DOE and Congress were not backing growth and improvements. Most of the concern revolved around closing down coal plants and the forced Renewable Energy Integration, lack of public funds and WAPA *trying to do more with less.* It was stressed that WAPA needs to follow through with the recommendations highlighted in the NERC Blackout Report, including DOE funding for tools and manpower. Someone mentioned that WAPA should include Independent Power Providers (IPPs) in the collaboration process.

Regarding Operations and Optimization, Western spoke of the RMR Consolidation and savings thru avoided costs. The BOR explained about an experiment it had conducted with the Army Corp of Engineers to Optimize unit commitment (referred to as MOU), through which they realized an additional 26MW of "new" capacity. This T2 algorithm established one system across the BOR and was operational within 1 year of certification and total plant build out was 4 years.

Planning

Under both umbrellas of Planning and Ops Leadership came up the discussion of Right of Way (ROW) and WAPA's use of Imminent Domain. Several discussions and calls for DOE and Congress to revisit WAPA's mission and role and redefine "How we go about building the Future." Many expressed the opinion that the DOE should have greater powers in ROW, sighting of transmission lines and Bulk Electric System Equipment. Others brought up all the environmental constraints faced by the BOR, WAPA, and CRSP, specifically in relation to the Colorado River and legal mandates versus hydro production. The discussion of the legal quandary in relation to the Water Projects resulted in some suggestions for DOE/BOR Legal entities to attend the Planning Sessions (e.g. 10yr, etc) early in the process, to facilitate the endeavor.

Participant questioned the role WAPA has in the Regional Planning process saying, "If it takes 10 years for a project to get built, then WAPA needs to be looking 20 years out and attending those meetings/discussions." (Once again referring to the EDTF and Data Sharing.)

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Costs

Regarding Costs and the Beneficiary Pays (re: FERC Order1000) point of view, the discussion revolved around three common themes, 1) DOE appropriations for projects that increase reliability for the greater good, 2) vague interpretations of Beneficiary so that costs are “socialized” more for the region the upgrade will benefit, and 3) strict definition of the Beneficiary in each and every project, so that incremental costs do not get allocated to customers that did not need nor want the upgrade. No consensus was reached.

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Design of Transmission Services Working Group Flip Charts, RMR/CRSP session in Loveland

Slide 1:

- DOTS Agenda
- Integration of VERs
- Rate Pancaking
- EE and DR
- EV
- Storage

Slide 2

Design of Transmission Service (cont. Agenda)

- Protection of rights and costs of existing customers
- Improvements to existing service offerings
- Definition of beneficiary
- Coordinate transmission system proposal

Slide 3

Coordinated Transmission System (CTS)¹ Proposal

- CTS – Single Rate for combined transmission system
- Reallocation of revenues causes issues with development
- Complicated to set up
- Need leadership and dedicated staff
- FERC Regulation

Slide 4

Coordinated Transmission System (cont.)

- Benefits:
 - Joint system might handle new construction more effectively
 - More efficient dispatch

¹ Yellow Highlighted material added for clarification.

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- Centralized dispatch required?
- Obstacles:
 - No one wants to give up dispatch
- What roles should Western Play?

Slide 5

Coordinated Transmission System (cont.)

- How would Western's willingness to participate help?
- Provide adequate time to consider and develop

Proposal for RMR region²

- Finding logical boundaries is difficult
- Concern about being hurt by combining systems
- Dissimilarities between service areas

Slide 6

(Coordinated transmission systems cont.)

- Energy density compared to sparse areas
- EIM not possible because of density issue
- RTO not possible because of density issue
- Don't eat the value of benefits by the bureaucracy
- Consumers that don't benefit should not pay
- Providing different rates not all negative

Slide 7

(Coordinated transmission systems cont.)

- Risk of going to coordinated transmission systems – no going back
- Explore the benefits of coordinated transmission systems

Slide 8

- Definition of Beneficiary
- Pay for what you use

² Brief discussion of RMR region

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- Reserve transmission – you pay
- Schedule transaction – you pay
- Difficult to design projects main goal and benefits it provides
- Just because a project provides benefits does not mean that it is needed
- Western system not only built to benefit WAPA customers
- Western system was built to deliver to benefit WAPA preference customers

Slide 9

Integration of VERs

- What is the point of this issue?
- Western queue reform for supporting VER
- Safe harbor tariff not required to facilitate transmission transactions
- Western consider dynamic scheduling
- Integration tariff
 - Hard to do cost causation
- Preferred solution –Dynamic schedule out of WACM

Slide 10

(VER Integration cont.)

- Establish dynamic line ratings and equipment
- These costs are paid for by preference customers
- Real time information exists on the transmission system:
 - Oasis
 - Flows – but only for reliability entities
 - Lines 100 kV and above have real time data available
- Better use of existing transmission
- Does Western offer flexible products? Answer: yes

Slide 11

(VER Integration cont.)

- Not everyone runs advanced applications
 - Western runs advanced applications
- Need for new flexible gas fired resources?
 - Is this a Western issue?

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- Does Western have a role in securing flexible resources?
- Should LSE be responsible for Ancillary Services (AS)?
 - Not WAPA
- Incentives should be provided for rural areas to support flexible/alternative resources to support VER.

Slide 12

(VER Integration cont.)

- Are there existing resources at dams that could be used to support VERs?
 - Very limited
- Pumped hydro alternatives?
- More development opportunities
- Using plants to provide flexibility causes premature retirement
- More dams are unlikely?
- Don't want to put cost on customers
- Developing flexible resources to support VERS is part of our future.

Slide 13

(VER Integration cont.)

- FERC rules regarding ancillary services need to change regarding rates charged for customer (i.e. different rates for different customers)
- Western charges premium for providing regulation services to non wester customers
- Western is doing 30 min schedules now. Why aren't people taking advantage of this?
 - Not offered in adjacent electrical systems.

Slide 14

Improvements of Existing service offerings

- Day ahead – throw out ATC estimates early
- See what is available for whole next day – non firm basis
- Risk tolerance that transmission providers think is reasonable.

Slide 15

Storage

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- Western Should consider energy storage opportunities
 - Thermal storage (water heaters)
- Trials at BPA, PJM
- Fast regulation- fast acting regulation resources
- A lot of untapped resources
- Is this a Western Issue?
- Could be used to support renewable energy resources
- Maybe Western could benefit

Slide 16

Rate Pancaking

- May support additional resources and economics
- Opposed t single Transmission rate for all of WAPA
- Look at solutions that don't increase costs to existing customers
- WestConnect experiment
 - Virtually no transactions
 - Offer non-firm only
- Low capacity factor resources can't overcome first wheel
- Combining systems might work better

Slide 17

Electric Vehicles

- Incentivizing EV –can we even do this?
- This is a retail rate issue
- Retail customers can't resell power
- Don't put this cost on customers
- EVs don't work in rural areas
- EV may have unintended consequences
 - e.g. tax revenue impact – for existing systems

Slide 18

EE, DR, EV

- In non-organized markets, these don't make it
- Is there a way to tap into DR resources?

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- Possibility for some loads
- DR in Basin managed way below Western level
- Example: Mt. Elbert Pump DR
- Scheduling process makes use of DR very difficult

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Design of Transmission Services Working Group Notes, RMR/CRSP session in Loveland

Defining the Future Workshops

Loveland, CO

July 31, 2012

DOTS Workshop

First Speaker – Unreserved Use Penalties Business Practices – how to secure transmission without being over conservative. Interested in seeing if other folks want to pursue different markets (5 min buys/sells, etc.).

Second Speaker – Integration of VERS; they feel Western is already working on it but has limitations. Only 2 plants out of 17 hydro plants provide regulation. Glen can only operate at scheduled flows, so it doesn't have reg either. EIM, losses seem to be way too high. Hard to imagine how we will save money. As for Transmission, Tri-State had highest rate in the region. System is not built for transferring power back and forth to a market. They put out RFP for 67 MW of wind integrated to WAPA's system and it is being built. Western/transmission is not to blame for integrating wind. Western's rate is such a small piece (10%) of Tri-State's supply, so it really won't influence market that much. Electric vehicles proposal shows a misunderstanding of system out here. Not that it shouldn't be done, but not by Western at wholesale level. As for Rate pancaking, they understand that if they save money, someone else has to pay and that's not right. Need to resurrect discussions regarding joint transmission. Western has demonstrated on East side that it can work.

Third Speaker - Wants to commend Western/DOE for taking on this effort. Western's infrastructure is aging. Has been active in integrating renewable energy. Encouraging from an independent developer's standpoint.

Fourth Speaker – Looking for legislation for how to look at energy. Need better understanding of markets. Important to have stakeholders stays engaged. How do we continue to work together in new and fresh ways? Leverage ways to help each other out. Efficient energy use is very important especially when it comes to water. Electric vehicles are a retail issue that has to be solved.

Fifth Speaker - Customers are paying for infrastructure via mil levy. They understand keeping the environment clean is important, but it needs to be looked at from business sense. Can't go against PMA's mission in doing so. What is problem we are trying to address? How do we fairly share the costs with those causing it? Need to maintain local control. Don't want overriding policy that will increase their costs.

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Sixth Speaker – Unintended consequence is what he wants to address. Folks in rural areas depend on WAPA benefit. Imminent domain issue is huge and people push back when you want to put lines in their backyards. WAPA has way to get things done. MATL line provides path for wind, but it has restricted some of their other lines which means more costs for them. Pancakes are an impediment, but it's so costly to expect the rural coops to pay for it.

Seventh Speaker – System is not as fully utilized as it could be. How can we make more effective use of the system we have vs. building new transmission? There is load growth in the west. Renewables are coming on line and compliment generation. Appreciates history of how we got to where we are, but wants to look to the future to see where we want to be. Need to spend money wisely and operate system to maximize it. DOE needs to help fund some of this.

Eighth Speaker – Cost sensitivity. Every single dollar is paid for by the customer base, both preference and transmission. Leadership comes with accountability, but Western will take no responsibility for cost. It will come back to the customers. FERC had wrong idea that Transmission services are used for integrating VERS. They are really generating services using BOR and CORP facilities. The priority of water releases is not for power. There are constraints that are not controlled by Western, but by Interior. These issues are very complicated. They are not opposed to integrating wind for their members load, but not for speculative markets. Coordinated transmission system efforts have always been stifled by problems with pricing.

AGENDA AND DISCUSSION OF DOTS GROUP

1. Coordinated Transmission System (one view from consumer perspective):
 - a. There are always winners and losers. The cost benefit due to load density is a lot tighter in this region.
 - b. Entities have to dedicate staff to negotiate outcome.
 - c. Planning system additions may be a benefit to this. New construction may be handled more constructively.
 - d. Don't have to have central dispatch. Separate from operations. Could be prerequisite to central benefit.
 - e. Western is not large supplier, so Tri-State doesn't think they are in proper position to take leadership role. They should be participant. With the Tri-State's and PSCo's taking lead.
 - f. What should the footprint look like? PSCo and WACM BAs? CRSP and LAP transmission systems?
 - g. Entities that have been successful have been those that have similar systems. When they combined they didn't look much different, just bigger footprint. When we tried it here in the west, the entities were vastly different. Some of those differences may be less now. Dense systems vs. sparse rural systems. If we try to do too much, it may not work.
 - h. WAPA's system meets the needs of its preference customers and may not meet the needs of others without upgrades.
 - i. Discounts are allowed under the Tariffs, but they aren't used.
 - j. WestConnect Tariff set up to eliminate pancaking, but it's not used much.

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2. Improvements of existing services offerings (Another view):
 - a. Like to see if TP's business practices can be changed so that traders can see non-firm ATC sooner for day ahead.
3. Definition of "Beneficiary" at utility level, transactional vs. societal:
 - a. User of the service
 - b. Members pay for what they use/integrate
 - c. Firewall between services
 - d. Projects can have multiple benefits.
 - e. The primary reason WAPA's system was built was to deliver federal allocations. But it has taken on other purposes, i.e. network and point-to-point of others. Preference customers don't want to pay higher costs because of changes to system.
4. Storage
 - a. Two-way communication on thermal devices such as space and water heaters. Opportunities for energy storage to create new purpose/value for regulation. Oct 1 starting new service for fast reacting regulation with PJM.
 - b. This may not be a Western issue since Western doesn't have load. It's more for the utilities.
 - c. Hard to leap from wholesale to retail rates.
 - d. Could be used to support BAs.
5. Integration of VERS
 - a. Does Western need to keep their safe harbor tariff?
 - b. Western Queue reform for supporting VER.
 - c. Western should consider more Dynamic scheduling so they don't have to provide the balancing.
 - i. This requirement is already in some of WAPA's Regulation rate schedules (UGP, RMR/CRSP, DSW).
 - d. Could WAPA install dynamic line rating equipment to optimize system by getting real-time data in order to get better use of the system.
 - i. WECC has processes.
 1. Real-time, 2 second, flows are given to "Reliability" functions. Helps with congestion management.
 2. Unscheduled flow mitigation.
 - e. Can/does WAPA offer flexible products, i.e. conditional firm? Yes!
 - f. Somebody needs to build new flexible gas-fired generation for regulation.
 - i. What is WAPA's role in this, if any? Shouldn't LSE that needs the green power be responsible for the balancing/regulation costs?
 - ii. RMR is running out of regulation. When they have to buy regulation, all customers pay the same rate with those costs included.
 1. Entities are going to have to start bringing regulation to the table.
 - iii. Are there existing resources that could be used to support VER, i.e. Pumped-hydro alternatives?

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1. Mt. Elbert is key plant for providing regulation today. By giving so much flexibility we've used up the plant in half its life.
 2. Again, who pays? Right now FERC says you can't charge different rates. Rules may need to be changed to address different rates for different customers.
 - a. RMR charges "premium" for variable generation (nameplate assessment).
 - b. What other types of rates should be out there.
 - i. Should WAPA offer ramping, load following, regulation as separate services?
 3. Reserve sharing groups are good model for cooperative efforts.
 - g. Currently RMR is offering 30 minute scheduling, but we don't see much utilization of that service. We are ready to go to 15 minute scheduling. It's mainly for wheel through service, not necessarily for entities sinking load in the BA.
 - i. If other entities don't offer it too, it's not much help.
6. Rate Pancaking
- a. Can stop project development. If there was some kind of discount, it would help developers.
 - b. Generally, it would cause too much of a cost shift between Projects to develop one transmission rate for all of WAPA. It could possibly work if another product was developed.
 - c. Look for solutions that don't increase costs to existing customers.
 - i. Even if you don't have increased costs, the fact that a combined denominator will be lower than individual denominators, it will put upward pressure on the rate.
 1. If it would bring new service, wouldn't it be a positive? No, because you can't discriminate by only offering to new customer.
 - ii. WestConnect – FERC approved experiment. Not being utilized that much. We should continue to watch that effort and see if we can improve it.
 - d. Generally, the VERs can't withstand a single wheel, let alone pancaked wheels.
 - e. Some of this can be resolved by combining transmission systems.
7. Is there a way to tap into Demand Response Resources?
- a. Possibility for some loads already on the system.
 - b. Mt. Elbert pump
8. Electric Vehicles
- a. Retail function, not wholesale function.
 - b. With cost based rates, if Western was to offer incentive, the costs would have to be shifted somewhere.
 - c. Does this impact WAPA's resale provisions?
 - d. EV are not useful in rural areas where WAPA sells firm power. It's more of an urban utility issue.
 - e. May have unintended consequences.

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New Transmission Authorities Working Group Flip Charts, RMR/CRSP session in Loveland

Page 1

ROADMAP

- About 1222
- Process wish list
- Evaluation factors
- Concerns and recommendations
 - transparency

2

CONCERNS & RECOMMENDATIONS

- Cost to staff pre-agreements
- Taking jobs from private sectors
- Project 'as proposed'
- Regional planning and redundancy?
- 100% 3rd party funding?
- milestones good - vary per project + schedule and budget
- * require reporting of events a la creditworthiness checks
- liabilities to PMA for participation
 - land ownership for land acquired by condemnator
 - concern of hitting ratepayers, be sure to address that
- Mixed messages on policy

3

PROCESS WISH LIST

- Rules of road
 - ownership - facilities and capacity
 - % funding
 - liability
 - process/decisions/steps e.g. EIS before next phase
 - who finances construction and any restrictions
 - What does WAPA bring to table?
 - cap vs. sunset

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- 1222 vs. Contrib. Funds Act
- [What really happens and what does Western do?](#)
- Pre-funding vs. no pre-funding
- Wish: start-up fund

EVALUATION

[\[how necessary are these?\]](#)

4

1. Whether project is in public interest
 - sub-regional (local) planning for new facilities or via 10-year plans for upgrades
 - consistent with risk to PMA
 - yes/no vs. weighted
 - sub-regional vs. satisfy all
 - planning as biggest criterion
2. Whether project will facilitate [reliable](#) delivery of 'renewable' power
 - roll into public interest
 - [is hydro included? + renewable are considered in regional planning](#)
3. Benefits + impacts in each state [to end-use consumers](#)
 - concerns with state vs. state
 - benefits to PMA
 - if upgrade, have contacted PMA
4. Technical viability of project (consider engineering, electric, geographic)
5. Financial viability

5

FINANCIAL VIABILITY

- Does PMA accept any liability (substitute criterion?)
- Add proponent's viability

Business plan to include:

- land acquisition plan
- services sought
- terminal status (WECC, interconnection queue, etc.)

* Evaluation consistent with service? Develop vs. operate

6

- design
 - design services

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- sub-regional planning + WAPA planning
- WECC path rating (new + upratings)
- system impact studies
- develop
- (EIS)
 - (possible permitting)
 - land acquisition
- construct
 - manage/assist with EPC contract or part
 - procure
 - construct
- operate
 - full or incremental - likely piecemeal
- maintain
 - vegetation management, inspections
- own
 - may play into acquisition (PMAs have joint ownership limitations)

7

| SERVICE | RISK/\$/EVALUATION |
|--|--|
| Design <ul style="list-style-type: none"> ● Participating in planning (Western, sub-regional) ● system impact ● actual design | Possible liability for design - mitigation by contract |
| Construct <ul style="list-style-type: none"> ● EPC help | Each different |
| O&M <ul style="list-style-type: none"> ● full or incremental ● vegetation management ● inspections | |
| Own <ul style="list-style-type: none"> ● limitations on joint ownership ● NERC liability ● lawsuits | |

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8

- Evaluation rigor should be consistent with risk to PMA
 - due diligence = look at developer + history + experience
 - if just prepaid design services + no risk, who cares about financial viability
 - standardized format helps
 - liability profile where condemnation sought
 - construction failures/bankrupt projects - mitigating half-built projects (insurance, developer credit)
 - *New criterion --> not eligible under Contrib. Funds Act --> not Reclamation proj.

SUMMARY OF 1222 for REPORT OUT

1. What is Section 1222 (2005)
 - a. Purpose
 - b. 3rd party funding
 - c. No impact on customers
 - d. For upgrades and new lines
 - e. Results to date
2. What costs/liabilities imposed on customers?
3. Expectations/obligations
 - a. WAPA – services, eminent domain, +
 - b. Developer – ownership/capacity, JPP, ROW
4. Evaluation criteria
 - a. Need driven by liabilities assumed by WAPA
 - b. Single vs. multiple applicants
 - c. Defined evaluation criteria
 - i. Public interest
 - ii. Renewables nexus
 - iii. Footprint impacts - \$ and environmental
 - iv. Technical
 - v. Financial
 - vi. Others – business plan/budget/progress – qualified parties

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New Transmission Authorities Working Group Notes, RMR/CRSP session in Loveland

The following notes from the New Transmission Authorities session focus on stakeholder questions and comments as the session facilitators have separately provided an outline of the proceedings.

BACKGROUND

The focus of this concurrent session was specifically on Section 1222 of EAct 2005. Section 1222 gives the Secretary of Energy the authority to have the Western Area Power Administration (Western) and the Southwestern Area Power Administration (Southwestern) upgrade existing transmission lines or build new transmission lines at the request of and with the funding of third party transmission developers. The eligibility requirements for Section 1222 projects are set forth in EAct 2005 but the evaluation factors were established in a Federal Register Notice (FRN) and may be changed by the Secretary. After seven years, very few applications have been made under Section 1222 and this workshop session is intended to solicit input from Stakeholders on the Section 1222 program in general and the application process in particular. DOE intends to use the Stakeholder input to optimize the application process through changes to the evaluation criteria. Western's requested level of involvement may range from design to planning to National Environmental Policy Act (NEPA) compliance to construction to operation to maintenance to ownership. The Section 1222 program is separate from the Transmission Infrastructure Program (TIP) which was authorized by the 2009 Recovery Act and gave Western borrowing authority for transmission projects.

STAKEHOLDER QUESTIONS and COMMENTS

- Doesn't the Contributed Funds Act allow Western to accomplish the same thing?
- A recent Section 1222 application to Southwestern for the Clean Line Plains & Eastern Project required staff time that was then not available for Southwestern's core mission but will, by default, increase existing customer rates.
- What does DOE feel is lacking in Western's authorities and activities that is discouraging Section 1222 applications?

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- A third party developer paying Western for design and construction services displaces private sector employment.
- What does a third party developer gain from involving Western via Section 1222 other than Western's ability to condemn private property under Eminent Domain?
- The application process is costly and time consuming and the risk that NERC or FERC rule changes could occur that would make a project infeasible before the process is complete is a deterrent.
- Line additions should allow future participation by entities not a party to a Section 1222 application in the spirit of developing a more flexible and reliable national grid.
- Does the application process allow Western to review proposals in a broader regional perspective?
- Applicants should also participate in the existing regional transmission planning process.
- Other than the funding source, TIP and Section 1222 seem to be redundant and the two programs stretch Western's staff resources.
- Section 1222 allows Western to accept 100% financing from a third party developer but does not absolutely require 100% financing. This leaves the door open for unfunded costs to impact Western's existing customer rates.
- Section 1222 allows the costs of a project to be allocated to vaguely defined additional beneficiaries. All project beneficiaries need to be identified in the application process to ensure that Western's existing customers are not unwillingly identified as additional beneficiaries after the fact.
- Reclamation law requires that Western own facilities constructed on property acquired under eminent domain. Will Western's existing customers bear the liability for such facilities funded by a third party developer but owned by Western?
- Will Western's existing customers end up bearing the unfunded costs of a project if the Section 1222 applicant goes bankrupt?
- Does an existing Western owned facility upgraded under Section 1222 have to be entirely owned by Western? The split ownership rules are unclear.
- Section 1222 doesn't mention a preference for the type of resource served by new transmission but the evaluation criteria set forth in the FRN give preference to projects that would facilitate the development of renewables. Does this preclude projects not specifically linked to a generating resource?
- Why is the total of all Section 1222 third party funding capped at one hundred million dollars?

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- Will applications have to be consistent with the existing regional transmission plans?
- Western's staff time spent on applications prior to approval needs to be reimbursed by someone other than existing customers.
- A requirement for third party developers to provide up front funding for staff time is chilling to Section 1222 applicants.
- Why do third party funds need to be scored if no appropriated funds are involved?
- The level of effort and detail involved in an application evaluation should be commensurate with the level of financial risk posed to Western by that application.
- The Section 1222 application evaluation process should be more transparent than the TIP optimization meetings were.
- Will seed funding be available for the Section 1222 application process similar to that provided for TIP?
- Western needs to see other agreements between the applicant and other parties that are germane to the application so that project viability can be evaluated.
- Is Western compelled to approve applications that meet eligibility requirements and the evaluation criteria?
- Evaluation criteria could be graded on a sliding scale rather than pass/fail.
- Will evaluation criteria be weighted?
- "Public interest" is a subjective phrase. Could the existing regional transmission planning process be used to gage what is best in the public interest?
- Is regional transmission planning approval required before a Section 1222 application is approved?
- Uprates of existing lines should be treated differently than construction of new lines in the application process.
- Could Western identify potential transmission projects that third party developers would then apply for?
- If funding is coming from third party developers, why should there be any evaluation criteria except for when there are multiple applications for the same project?
- The reliable delivery of existing large hydroelectric generation is not considered facilitation of renewable resources under Section 1222. This oversight needs to be addressed.
- Regional benefits and impacts should be evaluated rather than state by state benefits and impacts to avoid interstate politics.
- Should Western also consider end user benefits and impacts?

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- Why would Western bother evaluating the financial viability of an application if the applicant is only asking Western to provide design services?
- The financial viability criteria should differ with the requested level of Western involvement.
- Western may not condemn property and then transfer ownership to a third party. If Western acquires an easement by condemnation, could Western retain ownership of the easement while transferring ownership of constructed facilities to a third party transmission developer?
- There are liabilities associated with condemnation and Western's existing customers will bear the financial risk of those liabilities.
- Will there be a standard application format?
- DOE does not request enough funding for Western's core mission as it is. The added burden of administering the Section 1222 application process will exacerbate Western's underfunding.
- Any project that can be accomplished under the Contributed Funds Act should not involve a Section 1222 application.
- A developer's creditworthiness and prior experience should be considered in the process.
- Should development milestones be identified in applications and, if so, what should they be?
- Assuming milestones are identified, reporting requirements should be included in any final agreement with Western having the right to withdraw from a project if milestones are not met.