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## **Transmission Operations and Planning, SNR – Folsom: Flip Charts**

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### **Agenda Tailored to the Sierra Nevada Region**

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Agenda

- I. Condition of system today
- II. Coop and coord re: operations
- III. VER integration issues
- IV. Planning coordination and cooperation

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Overarching Questions (Crosscutting across the agenda items)

1. Beneficiary pays
2. What is beyond statutory authority
3. What is western doing today
4. Gaps/Opportunities/Dangers
5. What can Western do?

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6. Bureau (BOR) operations interface
7. Is Western the right entity
8. Track/Identify Costs
9. Track cost savings

### **Agenda Item I. Condition of System Today**

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- Sac Valley upgrades, customer funded O&M program (folsom loop)
- O&M funding program through advanced funding be recognized and used for planning + upgrade cost allocation
- 10 year

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- 10 year
  - Adequate funding since 1997. Customer funded program BOR getting cuts, so customers established programs getting \$ to projects
  - Shasta and Tracy substation cost \$113 mm
- Don't see a SNR problem

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- NERC standards changed, cost \$9.4 mm. Customer group responded and funded
- Close, cooperative working group
- Registered TOP, wish others would emulate
- Part of WestConnect, SSPC- coordinate with all neighbors – check for gaps

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- Sac voltage support project
  - Strong partnership b/w WAPA, DOR, Members, SMUD
- Funding process is open, transparent process
- Bushy fire response

## **Agenda Item II. Cooperation and Coordination: Operations**

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II.

- Western coordinates w/adjacent Bas
- Western rep at WECC OC
- Is W participation in these region forums (e.g. RC), coordinating w/ adjacents, tools
- W largest in BANC, share data – outage management, protection scheme, every standard requirement, robust relationship

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- Maintain freq. and voltage is highest priority
- Highest reliability at lowest possible cost
- Tight relationship b/w Western and SMUD
- More coordination on when release water to match load to max benefit of H2O

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- SMUD, Western, BOR in partnership: when water released.
- Path 66: AC from N.Cal to NW working together PG&E, TANC, western, Pacificorp to maintain
- BOR has optimized water flows to highest value

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- BOR must coordinate quarterly w/Western actually exceed NERC requirement
- Would other regions of Western benefit if real time same as SNR?
- NERC audits? 4<sup>th</sup> row
- ∅ findings of rel. compliance problems
- We could all coordinate better

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- Clearly everyone can do better, but Western is in compliance
- Are there gaps that could be addressed to make things better?
- WAPA big effort to coordinate transactions to save on tx costs, happens b/c find mutual benefit

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- Amt capacity made available by customers was 4x more on-peak, than off-peak yesterday
- Colorado River get a flat product thus not as high a value
- Western coordinate w/customers re: DR? Yes, look at EE, DR, and CPP in coordination w/Western

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- When schedule, peak taken down before scheduling, a retail function.
- Western initiated IRP, incl. stick to get compliance of reduced allocation

### **Agenda Item III. VER Integration Issues**

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III.

- Western already doing: reliability based controls, DSS, intra-hour year ago (30 min), ITAP, ACE diversity interchange (ADI) all to help with integration
- Participating in eval of EDT

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- Argonne study of EIM

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- Internal analysis of what EIM would cost
- More formal eval (critical decision path)
- PUC EIM participation
- Competition for use of Tx system
- TIP: MATL, PVEDS
- RM10-11 compliance (may be limitation)

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- LADWP perspective on DSW
  - As Mohave shut down, LA getting out of Navaho, 4 corners (Edison sold share)
  - Larger engines shutting down
- How is Western engaged in planning for those shut down?
- >10,000s of VER, without sub-hourly scheduling, etc., won't customers see increased cost?

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- What if low water continues, aren't customers going to face higher cost if don't invest in more modernization
- Drought in CA not so bad now
- Beneficiaries pay means RE generators should pay
- Generators should provide firm costs

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- RE beneficiary of generator, pay for the grid
- Look to future but don't destroy the present
- Shorter schedule time doesn't fix power not showing up on time
- Even though not drought now, more dry years? Hedge bet and make sure others available
- RE std go up according to some policy makers

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- Each RE firm at source will make it expensive
- Want to leverage resources from around the West to keep cost of RE integration down
- Greater geographic diversity and short term scheduling → address VER generation changes

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- NREL study a prod cost model, was not a capacity resource benefit. All benefit was when lot of gas running, putting in EIM → coal increase, savings

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- still need reserves, only way around this is to form an RTO
- \$1 Bn savings is prod. Cost savings, doesn't include all infrastructure and human capital cost
- Western is being proactive in PUC EIM work

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- DOG should look at all the alternatives, while it looks at EIM
- Model assumes bidders pay SRMC, bidders bid > SRMC London Econ study, bidders pay SRMC + 20%
- If EIM, require SRMC

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- RTO in PJM not producing benefits promised
- Believe EIM will lead to RTO
- Capacity market payments to satisfy what did by PJM, gen complained that you not rec'g revenue sufficient to operate, FERC supported

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- Is there something else that Western should be doing beyond what doing now?
  - No takers for 30 min scheduling
  - Getting close to physical capacity of operators
  - Start participating in 30 minutes
- SNR region
  - Limited ability to provide additional service
  - Jury out on EIM, can get 80% benefit for 20% cost?

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- Is this really WAPA role to integrate more VER, to implement EIM
- Statutory authorities to implement jury still out
- No opportunity for use of existing for more var. generation (BOR), can't provide benefits without taking benefits from customers

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## Agenda Item IV. Planning Coordination and Cooperation

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### IV. Planning Coop. and Coord

- WECC rep through its representative
- Limited 1-1 Western rep
- SPSG futures – 20 year Western’s role appears passive
- Will western help BLM with its Tx expertise?
- Does Western submit study requests

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- Western does participate. What incremental effort?
  - Western s/b a leader in providing tech expertise + plng. + policy guidance
- Gray area
  - Mission creep, who pays
  - Western s/b involved + they are but Western serving as a tech consultant is scope creep

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- TIP carefully constructed to protect western customers
- Responded to path 15 (stemming from COTP authority)
- Predictability and certainty regarding costs, who tracks, how to roll into a beneficiary pays

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### Order 1000 compliance

- WECC participating in WestConnect
- Compliance is the bottom line
- TANC participates in WestConnect
- How will coordination among regions happen
- Western should be engaged

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- Western engaged in inter regional
- Once WECC planning results in plan, how will plans be executed upon? Opportunity for Western to contribute

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- Stakeholders in the RTEP are asking this question

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- Want to be clear that Western is involved – one view
- 2<sup>nd</sup> view – Western could be doing more. Not saying Western should drive. Should show leadership
  - “leadership” = rep all customers in footprint b/c tax funding
- Outside Western statutory authority

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- “leadership” =
  - Western should attend plng for purpose of rep. customers
  - Some roles are DOE roles, not Western roles
- Another view
  - Specific authority to customers
  - Broader authority as a v. large PMA that works collaboratively with lots of entities

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- “we” = governance committee in the WestConnect part
- Western can’t be a leader in the sense of assuming control.
- Tax funding for western? No
- Western is in compliance w/Order 1000 and NERC

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- “leader” = pro-active but customers s/b relied upon to direct pro-activity
- “leader” = participate
- Western hired Argonne to critique NREL’s EIM
- Argonne pointed to flaws

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- Yet Western announced going forward w/ EIM w/ budgeting for EIM
  - Budget based on what it would cost if implemented in 2015
- Western is taking leadership where they should
- In SNR they are leaders in each of plng groups acting within their authority – 10 yr plng, reliability
- Outside footprint participate but don’t lead

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- EIM w/in Western assumed full participation, etc. s/b honest about what you can afford

## Overview of Discussions to be reported to Plenary by TOPS participant representatives

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Overview

- I. condition of system today
  - SNR – nothing is broke
  - Do more? Need to solve the western statutory authority issue
  - Define: leadership = role of Western in existing processes (doing good job)
    - Participate in right forums or
    - A more “global”/long view and long view on rates
- II. Coordination/cooperation of operations
  - In SNR – B of R “real time” dispatch is optimized now – limited resource for variable resources in water operation today (B of R)
  - EE/RDS/D side mgmt./etc
    - Already in retail side in California and “much” is being done now
    - With the CA mandates
- III. VER – integration
  - Western/ISO/BANC are doing much today (1100 ports shared)
  - Western is at table now on EIM and need to see what the outcome of the EIM process wrt hydro generation not available in current SNR footprint
  - Issue w/modeling of EIM NOW!
    - Increase “coal” production
    - How broadly implement an EIM – (foot print size)
- IV. Planning coordination and cooperation
  - All well on planning in WestConnect
  - SCUR = in W/BANC/NW Power Pool, CTPG, etc
  - Order 1000 planning
    - Encourage move “inter-regional” planning western actively engaged
    - WECC 20 yr planning
      - Western is engage but need ‘more’ engaged



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## Transmission Planning and Operations, SNR – Folsom: Breakout session notes

The format for this breakout session was to have selected customers and stakeholders give statements and input on the topic of Transmission Planning and Operations. After the selected customers and stakeholders gave their comments, the floor was opened up to the rest of the meeting participants. After all participants were given a chance to speak, the meeting facilitators developed a set of proposed agenda items for the rest of the breakout session based on the comments and statements previously given. The proposed agenda items were presented to the group for approval.

### Opening Statements/Comments:

1. Selected Customers/Stakeholder:

- a. First Speaker: In order to facilitate a discussion of Transmission Planning and Operations, it is important to better define the footprint and resource. The CVP is a multipurpose project. Water constraints are very restrictive and a very contentious issue. Affects how project is run. The power is water driven. The CVP is a valuable resource for both the water and power customers. California is different from the rest of the country. It is leading the way with renewables. Customers rely on Western's 2004 Power Marketing Plan which has contracts with 20-year terms. They have the advantage of the peaking capacity of project. Customers have planned their resource mix based on operation of project. We feel that Western is already engaged and taking a leadership role in various planning groups (such as NWPP) and infrastructure upgrades. We are concerned with the dollar impact (greater than 50 million/year) that the Energy Imbalance Market (EIM) will have on BPA. Integration of renewable energy does not work well. Customers rely on the long term certainty provided by the CVP resource they receive under the marketing plan. Don't upset the apple cart.
- b. Second Speaker: Lots of demands are put on Reclamation's facilities. By statute, delivery of water is Reclamation's number one priority. Water dictates power production. Reclamation tries its best to meet the requests from both Western and BPA while meeting its mission and working within constraints – namely environmental. Reclamation wants to help DOE to define the future... but it must keep meeting its own mission and continue to work with both power and water users. Existing contracts and commitments need to be honored. Flood control must remain as a priority. Reclamation understands its role. Project purposes are first. Preference power customers are next. Going forward, any additional costs are going to have to be tracked and transparent. Customers will need to understand any increase in costs.

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- c. Third Speaker: Looking at longer term planning (a 20 year outlook). The grid is going to have to change for the integration of variable resources. EPA regulation changes and natural gas availability will drive the need for the integration of more flexible resources. How renewables are integrated will affect costs. Fifteen minute scheduling/dispatch and an EIM should be considered. Western needs to coordinate with all other TOs and understand how its grid works in conjunction with overall grid. More engagement from Western is needed.
  
- d. Fourth Speaker: The pre meeting reading material identified DOE's goals. The tone of the reading material seems to infer that Western is not meeting any of the identified goals. In fact, Western has been meeting these goals. The customers are trying to identify what the problem actually is. We don't want to destroy the present by defining the future. The unit cost of CVP energy will go up when integrating renewables. If CVP generation is used to firm a variable resource, it will drive Western's effective rate above market cost. Why would customers continue to use Western power? Western will become unable to repay its debt. We are concerned that the variable resource generators will get a free ride or that costs for integrating such resources will be socialized on the backs of the current transmission rate payers. Renewable generators can't use the roads for free. They must pay the full cost of getting the renewable resource to the market. If not, they need to go to Congress to get the laws changed. Ham and eggs analogy: The chicken is involved, but pig is committed. Renewable generators can't free load.
  
- e. Fifth Speaker: The CAISO tariff has been revised to accommodate variable resources. The challenges that are shared include communications and data system operations. The September 8<sup>th</sup> incident indicates the need for better communication beyond our own borders. The CAISO recognizes that there are issues associated with the integration of variable resources, but sees the need to integrate more flexible resources. We think that centralized dispatching and an EIM can be viable tools to integrating variable resources. Incremental steps should be taken to implement an EIM. We need to figure out how to achieve this goal and determine how to allocate costs. We support the idea of transparency in terms of information sharing.
  
- f. Sixth Speaker: Need more coordination, collaboration, and communication between the regulated utilities and the PMAs. My involvement has given me a greater knowledge of public power.
  
- g. Seventh Speaker: SMUD is Western's largest customer. Western is already doing a lot of the things in Secretary Chu's memo in a very collaborative way. Why is DOE doing this? It seems as if it is looking for a solution to a problem that does not exist. Western is restricted by its legislative authorities. DOE needs to work with Reclamation. Western is already doing a good job with its transmission system. Customers take issue with the memo in that it implies that we are not up to snuff. Examples of recent

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upgrades to the system include the SVS and the Folsom loop projects. Western can do a better job coordinating with Reclamation on outage control. Renewables: Customers are already on track to meet renewable goals. SMUD is working with Western and BANC to meet its renewable goals. Western is already involved with planning of how to integrate renewables. Customers like SMUD are also meeting its demand reduction and energy efficiency goals. Customers do not think that DOE needs to get involved in this.

2. Customers/Stakeholders (open):

- a. Process question. What does DOE mean by the term, "21<sup>st</sup> Century Grid"? SMUD suggests that a minimum of 60 days is given to comment on the FRN
- b. WECC is already working on a 20-year transmission plan. Since DOE is actually funding WECC's planning effort, maybe it should wait until the outcome of this process before it tries to implement any new policies.
- c. TID is concerned about who will benefit from this process and the associated costs. Any decisions should be customer driven and made from the bottom up.
- d. LADWP observed that Western has not been that engaged with efforts to move forward to improve communications and collaborate with neighboring systems.
- e. Speaker from SMUD Noted distinction between Western SNR and Western DSW. DSW is in LADWP's service area, not SNR. Facilitators noted that discussion of this session does not have to be limited solely to SNR but SNR will be the focus.
- f. Reclamation has built a relationship with PMA's that has facilitated many value added decisions. Reclamation is open to incorporating renewable and is currently studying this option.
- g. Certainty and predictability are most important to our customers. Secretary Chu's memo seems to throw this up in the air. Certainty is needed to protect our customers. How does more expensive power make you more competitive?
- h. We need clarification from DOE and Western. Is DOE contemplating something more than what is already happening?
- i. Redding is a direct connect customer of Western and is fully dependent on Western transmission. Western assists Redding with the integration of renewables into its portfolio. Perhaps DOE can use its expertise, leadership, and resources from its labs to help reduce energy dependence. It is not efficient to transmit wind power over vast

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distances. It is better to use intermittent resources where they are generated. DOE can help by developing storage technologies for variable resources.

- j. JOT member noted, I am trying to answer what the 21<sup>st</sup> century grid should look like. The Secretary has been asked, "What can we do from a technology point of view to catch problems that led to the September 8 incident in San Diego?" We are looking for technical guidance.
- k. Technology was there to avoid September 8 event. Most of the time, events such as these are due to human error.
- l. Will there be an analysis of any overlap between any new directives and all the directives that currently exist? Customers in SNR already have many directives from State of California and adding another layer of compliance could cause problems and raise costs.
- m. There is a lack of communication and understanding of responsibilities between Balancing Authorities especially in the southwest. There needs to be more system wide coordination.

**Overarching themes to frame discussion of Agenda Items:**

1. Beneficiary pays principle
2. Statutory limits
3. Acknowledging what Western is doing today – main focus on SNR

**Agenda Items:**

1. Condition of System Today – focus on SNR
2. Planning and Coordination – focus on Western, what can Western do? Western's role in planning and coordination.
3. Coordination of Operations with Adjacent BAs and Systems – gaps or opportunities, danger of filling gaps
4. Variable Resource Integration

**1. Condition of System Discussion:**

- a. State of Western capital program. Sometimes we get money from Congress and sometimes we do not. Funding is dependent on receiving appropriations. How can we improve to get funding for upgrades?

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- b. Concerned with the operation of the system in terms of human capital. Are Western employees being properly trained? Is Western operations division fully staffed? Does Western have a succession program in place to deal with departing employees?
- c. SNR's Operations division is fully staffed. The staff are fully trained and certified. Western fills behind positions as they are vacated.
- d. The O&M Funding Program is integral to resourcing capital improvement programs. The program funds Western's operations right now. The program allows for customer input and cost control. It should be further used for planning studies for the future.
- e. In response to the question, "Is there something that Western can be doing? No. Western (SNR) has adequate funding through its O&M Funding Program. I don't see a problem in this region. Western came up with the O&M Funding Program to pay for upgrades to facilities that were needed, but hindered due to cuts in Reclamation's budget. Originally, generation-related projects were the focus of the O&M Funding Program. Recently, funds from the program are being used for transmission-related projects.
- f. The O&M Funding Program is a faster process to make improvements on the system in order to meet new reliability standards. The Shasta-Keswick reconductoring project is an example of Western's leadership in terms of recognizing the need for a system improvement to meet new FERC/NERC standards.
- g. Western participates and is involved in WECC, CTPG, BANC, West Connect, etc. An example of Western's involvement is its participation the Sacramento Area Voltage Support Project. This project relied heavily on the strong working relationship between Western, its customers, and Reclamation.
- h. The O&M Funding Program is a very transparent process. Rate payers are involved in process.

**2. Planning and Coordination:**

- a. There is an effort to develop a 20-year plan to prepare the grid for the future. Part of the plan involves developing a variety of scenarios. I do not view Western as being really engaged in this process. Western should support other Federal agencies in their efforts to integrate variable resources. Western should take more of a leadership role. Western could provide more representation on corridor studies etc. Path 15 is an example of Western taking a leadership role. Western could be more of a leader by providing technical expertise and policy guidance for variable resource integration.
- b. Being more involved would use resources and in turn incur costs. Customers are concerned about the cost of involvement. Is "involvement" really part of Western's

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authority? This may be beyond Western's statutory obligations. Western is participating in sub regional planning groups and WECC. Western was able to take a leadership role in Path 15 because there was existing legislation (COTP or third AC Intertie authorization) that allowed for its participation in this project.

- c. Order 1000 – Western is involved through West Connect. How are we doing? Is this the right venue to be involved with West Connect? Are there other activities we should be involved with?
- i. The bottom line is that Western is complying with Order 1000.
  - ii. Western is participating in various forums.
  - iii. Western is encouraged to continue its participation with West Connect and also plan across its regions. In looking toward the future, Western should take a stronger leadership role.
  - iv. Is this within Western statutory authority? No!
  - v. Western should concentrate on providing services for its customers in the best interest of its customers.
  - vi. Western is separate from DOE. Some roles are DOE roles and some are Western roles. Western's leadership role involves providing the best business case for its customers.
  - vii. PG&E is a partner with Western in Path 15. We see Western's leadership role as representing its customers.
  - viii. West Connect is the governing board of FERC 1000. Western is an equal in this process. The process does not allow for there to be one leader.
  - ix. Western is not tax funded. Western is in compliance with FERC Order 1000 and NERC.
  - x. Leadership should be customer driven and proactive if they choose to be.
  - xi. Leadership means "participate." The leaders take the arrows.
  - xii. Western hired Argonne National Laboratory to evaluate the NREL study on the EIM. Western has been involved and engaged. The work associated with Secretary Chu's memo may have slowed down this effort. Western is preparing a budget to implement an EIM in 2015.

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- xiii. Western is a leader where it should be and participates in stakeholder forums. Western is one Transmission Operator out of many.

**3. Coordinated Operations with Adjacent BAs and Systems:**

- a. Is there something that Western should be doing in terms of coordinating with its adjacents? Western participates on the WECC Operating Committee.
- b. SMUD, as BANC Operator shares 1,100 data points with Western.
- c. More coordination can be done between Reclamation and Western on timing the output of water and outages to maximize the value of the generation to match the shape of the customers' loads.
- d. Reclamation is key to the coordination.
- e. Path 66 is an example of Western's coordination with PG&E, TANC, and PacifiCorp.
- f. There is coordination between Western and Reclamation in terms of generation and outages.
- g. Reclamation and Western have numerous coordination meetings, which include Western's customers. Probably more than NERC requires.
- h. Do all of the regions have the same level of coordination? Would having more sub-balancing areas be beneficial?
- i. NERC audits: Western has had 4 audits with no significant findings.
- j. Are there any other things where coordination needs to happen? We can always coordinate more and share more information. There is always room for improved efforts.
- k. TID is its own BA and coordinates with BANC as well as others.
- l. Each region deals with its resources uniquely... such as the max peaking program here. A lot of effort is taken to use the generation during on-peak periods. Other regions must flat load the generation due to environmental constraints.
- m. In response to the question if Western is involved with any demand response or energy efficiency programs... Western is not involved with energy efficiency or demand side management programs as a wholesale provider. These are retail functions.



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- n. Western does require its customers to submit annual integrated resource plans. These plans set forth energy efficiency, demand side management, and renewable efforts that the customers are implementing. Allocations are in jeopardy if customers do not comply.

**4. Variable Energy Resource Integration:**

- a. There has been a loss of generators in the southwest which impacts the system. We have not seen what Western is doing to get ready for integration of renewables on its system.
- b. How is it that Western customers will not be impacted by VER costs? If the hydro resource continues to be reduced, and given that we may have to rely on more VER in the future, doesn't it make sense to prepare the transmission system and invest in VER now?
- c. Renewable generators should be responsible to have firming plants at the VER generation sites and pay for such firming.
- d. EIM. Is this just a shift in costs?
- e. We cannot count on one resource. We will have to rely on more renewables in the future. Planning now for the integration of renewables, 15 minute scheduling, and an EIM will bring down the cost of renewables for everyone.
- f. The BAs still need to keep reserves. EIM is being modeled and studied as an energy commodity market.
- g. EIM is good and needs further evaluation. The studies to date have been insufficient. We urge caution in introducing another FERC jurisdictional organization (i.e. an EIM). This would not be good for costs. An EIM will lead to the formulation of an RTO. All other EIMs have... and they have led to unfavorable customer costs.
- h. Western does not have additional ancillary services to support or firm VER. The jury is out on EIM. If SMUD thinks that is something that is going to be good for its customer, it will agree to go along with it.
- i. Is this really Western's role to implement EIM and accommodate more variable generation.
- j. There is no opportunity to integrate a variable resource because the generation is so optimized at this point. Integrating renewables will take benefits from one group at the expense of others.

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## Report out from TOPS to Plenary

### Transmission Operations and Planning breakout group – main topics addressed:

- Beneficiary pays.
- Discussed Western-BOR operations interface. How water is used here in the west vs. rest of the west. Is it appropriate for Western to do this?
- EIM - need to know that all costs are tracked and identified so beneficiary pays. Need to track cost-savings.
- Condition of system, Western provided overview of how system is today. In SNR nothing is broken and it is working well. Do we need to do more?
- Leadership and what role should Western have. Is it appropriate for Western to be engaged? Western is participating, are they really actively engaging? Should have broader and more global view.
- Infrastructure of system discussion. Customers have provided advanced funding since 1997 to maintain Western and BOR systems and pay for transmission upgrades. This is a difference between SNR's system and the rest of Western's regions. Secretary Chu's Memo is already being implemented in SNR region. Western customers have paid \$120 million toward transmission improvements and \$250 million toward generation upgrades.
- Operations Coordination – set baseline of how things are operated today. How hydro system works to optimize value for preference customers on/off peak generation. Operations coordination effort is good. On peak capacity was 4 times off peak capacity.
- Backbone wholesale system, energy efficiency, RPS, demand side management is already in distribution side. Western should stay out. Driven by California laws and regulations.
- Variable resource integration – Western outlined activities they are currently engaged in. Western is using due diligence on EIM and integration of variable resources issues. Will be seeing more variable resources integrating. In order to maintain low costs for customers we need to look into future to see how to properly integrate those resources. Preference customers are required to hit 33% renewable within their resource portfolio mix. If EIM overlays it will take away hydro benefits and send them to someone else, creating a cost shift. Customers have already dealt with how to have 33% renewable and don't want to pay again. Customers don't want to fight to keep preference rights to the hydro facilities. Unintended consequences create larger footprint of coal when incorporating variable resources. Need to be at carbon reduction limit by 2020 and 2050, we don't want EIM to create problems in that process. WECC transmission expansion planning committee is putting together a long term plan. SNR participates in WestConnect planning committee, FERC Order 1000 and California Transmission

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Planning Group and has 10-year transmission planning. An intense level of planning is already happening.

- Leadership, FERC Order 1000 - how will interregional planning shape up for filings? Western needs to stay engaged in discussion and in 20-year planning process. Western is not in leadership role now and should be. Western could be more fully engaged than currently. Bottom-up approach and representatives in WestConnect. However, some in the group do not believe Western should be at that table. Western should do a better job coordinating with other government agencies like BLM, BOR, etc. Question is who pays for Western's engagement at that level? Federal agencies could do a better job coordinating with each other, but is that within their statutory authorization. Would it be done as a normal DOE expense or stimulus dollars?
- Define leadership - Western is a leader and doing a good job within their statutory authority. Western could be more outspoken in planning. In WestConnect everyone comes to the table equal, no room for a leader. Being a leader isn't just showing up to meetings, it is being proactive, setting priorities, setting agenda, bringing opinion, doing analyses, not overtaking process though. Customers like what Western is doing on EIM.
- Sept 8 outage. This is an industry issue. It is WECC's responsibility and how they implement reliability standards. Culture of compliance has turned into culture of CYA and entities don't want to say too much so less talking is taking place.

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## Design of Transmission Services, SNR – Folsom: Flip Charts

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### Page 1

- Generation marginalized
- PMAs facing biggest challenges since onset
- Common interests Ind Gas and PMAs
- Lack of markets for flex ancillary services → need will grow
- PMAs will need more flex too
- Pancaking

### Page 2

- Beneficiary pays → no cost shifts
- EE/DR/EV=distribution issues, not wholesale
- Don't need mandate pile
- CVP
  - River reg flood control
  - Water use/deliveries
  - Power
- US Bur besides WAPA
  - "must take resource"
- Resource varies w/ precip
  - Sometimes < need pumping

### Page 3

- Resources built to serve pumping load
- Rates \$8//MWh adder CVP
  - Close to market rate so no room to add more cost
- Pay whether power comes or not even in bad water years
- Partnership w/W through bad years
- Customers pay for T improves beginning when Fed funding decreased → Partners w/W

### Page 4

- SMUD contribute to habitat funds
- Better if input sessions had been before DOE letter
- Each W region different
- Preference customer unique important partners → we're paying the bill not just stakeholders

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- Statutory limitations on W including cost-based rates

Page 5

- CA RPS limits out of state resources so benefit import ability unclear
- Nuro obis already being pursued
- Pumped hydro pursued to integrate RE
- Retail functions not within W purview
- The economy matters/counties with  $U_R > 14\%$

Page 6

- May not be possible to achieve objectives within existing statutes
- Beneficiary pays
  - Sometimes we don't want we might benefit from
  - Want say even if we benefit
  - Defining benefits broadly in order to socialize costs
  - Sac voltage support ex of benefits deems but payers disagree

Page 7

- Difficult to talk about what we should do when don't know what the problem is trying to fix
- Struggling under current costs
- Does DOE/W understand system/rates/operational limitations
- Benefits: are they excess to needs
- Embedded costs vs marginal costs in cost-based

Page 8

- Should we be here?
  - Statutory authority
- W can't tell congress what to do. Arrogance in assuming congress will act
- Already participating w NWPP on many of these issues CTPG effort
- Lack of coordination among fed agencies and NERC
- Redundant effort

Page 9

- fundamental disconnect between memo and regulatory layering making life impossible
- effort here taking away from utility resources and from mission focus → distraction
- Bay/Delta not getting our attention

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- B/D impacts on W need exploration
- Utilities not sure they will survive
- Impact on farmer from RPS

Page 10

- B/D obliterate use of water during summer peak
- Link the policy silos.
- Western hydro resource
- Do facilitated discussion among the agencies to coordinate
- Why does DOE not know about B/D
- Will get issue paper to JD today

Page 11

- Opportunity here
- What the issues that ought to get discussed?
- CA faces unique challenges e.g. RPS, B/D, out of state limits
- DOE gets that one size fits all doesn't work
- What is the need across the region among customers and stakeholders

Page 12

- W good at marketing ancillary services
- Work on bottom-up approach to Top down frightening
- Have a customer coordination meeting already and W needs to continue collaborating in other processes like CTPG, RETT, WestConnect, B/D
- Have a 2024 marketing plan
- Need stability
- Prefer different approach – BU vs TD

Page 13

- What does it mean in memo to have resilient grid
- This process adds regulatory uncertainty
- But recommendations will be built from bottom-up
- Don't need W to do a lot more – fix disconnects w/ bureau rec. and other agencies
- Catalog what can't be done

Page 14

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- Idea of single W rate physically and legally not achievable statutory limits
- Concern about using preference customers TCAP to balance RE
- Met really only has Hoover or Parker to balance RE → nice to have market mechanism for inertial response to curtailment

Page 15

- Use DOE to support and recognize projects
  - The pumps B of Rec want T upgrades
- Valley T-deficient
  - San Luis T upgrades applied for TIP but no real progress
- Energy-water nexus
- How could W facilitate? Doe acknowledge that these projects that have applied for TIP \$ get them moving
- N Cal more connected to NW than Southern California
- Most T upgrades for RE in S. Cal
- Will need regulating resources in S. Cal.

Page 16

- Our attainment issues in S. Cal may preclude fossil to provide regulation – train wreck
- Looked w/W at building T but don't see benefits
- N. Cal customers work together closely
- W a great benefit/good relationship with staff
- What can NRDC do to help?
- Infrastructure not the problem; reputation is

Page 17

- How do stakeholders participate in utility process?
- How can W improve?
- Met putting in new turbines to increase operating range – W is balancing authority
  - Hoover provides ancillary → compensation?
  - Spinning reserve needs paying for
- EIM concern modeling not transparent and doesn't correctly portray the AS-IS situation
- Understand what is there already
- NREL study used more coal to balance

Page 18

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- Going to 15 –min scheduling reduces EIM benefits
- Reliability risk going to 15-min scheduling needs studying
- Argonne lab said to include Alts that create less risk
- 2/3 of US served with 5 min scheduling and like it, don't go back
- Worried will build T that gets stranded
  - We are focused on cost not reward based

Page 19

- Policy during EIM. What do we need?
- What exists/under development now
- What else needed that is not feasible legally (if 2 is inadequate)
- How do benefits get defined/benefits to whom?
- Scared by “societal benefit” getting there via bottom-up gets support/less concern
- W is only one player in the Western Interconnect. Others key/W may not be central to EIM

Page 20

- B-U inconsistent with T-D directives to analyze?
- Each of the utilities/customers really diff
- Don't need W to do anything different
- One size doesn't fit all
- BI has been working just fine
- Quarterly customer coordination meeting and management meeting 1/year and worked on marketing of the product
- Great projects like new turbines

Page 21

- Right size req up/down so can market some to ISO
- Explore together and come up with solutions (CVP)
- Customer funding mechanism
- Don't like added costs w/o benefit but like when matched needed benefits
- May need LT vs ST compare
- Bureau REC operating gens in response to ADDL goals, like FISH

Page 22

- If Hydro = Renewable underfed law and fed trumps, CA we'll be happy and have something in common w/ other W regions



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- PMAs not only mechanism for building T
- PMA to transmit RE may not be best use of federal hydro transmission
- Careful to define policy goals for clear benefits. Jobs supply, diversity
  - W to support not lead. W not to lead this

Page 23

- Why don't view W as leader? b/c they implement and don't set policy
- Congress sets policy (need some B-V and T-O meet in middle from each end)
- DOE can lead by actively coordinating discussion among stakeholders/agencies
- Delta flow criteria
  - Energy-related science in Delta flow context and coordinate with BUR
- Recognize CA reqs/law constraints, too

Page 24

- If only tool is shoe horn then one size fits all (group LOL)
- Are we thinking enough about folks who can't pay their bills as we talk about these goals?
  - Losing the emphasis on the customer stuck with bill for ideology.
- Concern about renewables at all cost
- Can help by sticking to mission of providing low cost hydro – use to cover as much of portfolio as can

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## **Design of Transmission Services, SNR – Folsom: Notes from Breakout Session**

Introductions – everyone stated name and company.

Opening comments by three representatives, ~5 minutes each:

1. Speaker 1: 3 points to make.
  1. Calpine has 28,000 MW. 3,000 MW within PMAs. Statement is PMA focused in general, not just SNR. Calpine generation in each PMA has been marginalized, seeking alternative to escape PMAs due to a lack of market.
  2. PMAs are facing challenge of integration of renewables
  3. Common interests on how things should change between independent generation, PMA and transmission. DSW has backlog queue of integrating solar. Calpine is seeking exits thru pseudo ties, dynamic scheduling, generation only Balancing Authorities. Unless this issue is resolved it will continue to impact PMAs. Difficult to integrate wind. No market for ramping, flexible services. Big challenge. Solar, wind, interconnection queue is getting larger, need for flexible services will grow. Enormous convergence of opportunities for flexibility services. Need to respond quickly, ramp quickly, stop quickly, assets are well positioned. Need to ensure we have opportunity to move power where it needs to go. Move power from one federally funded system to another is expensive. It is costly to move power from one system to another in DSW due to pancaking. Pays PMA \$46-50 million per year.
  
2. Speaker 2
  1. Beneficiary pays principle. No cost shifts without benefits.
  2. Energy efficiency DSM, electric vehicles are distribution issues, not wholesale. Lies with local utilities to decide. Need to follow State of California standards. Don't need new mandates adding costs and confusion of responsibilities.
  3. CVP resource is authorized for river regulation, navigation, flood control, water deliveries for irrigation. Deliveries for power was last. Power is a byproduct of water releases for other purposes for CVP. Limited flexibility. Limited by regulation reservoirs of large dams. Power generation by dams is first used to pump water to ultimate destination, remaining power is marketed by Western to preference customers. There are two entities; BOR responsible of releases, marketing is responsibility of Western. Generation is variable with wet years at more than 8,000 GWh; dry years are 2,000 GWh. Generation varies hourly to

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meet priority requirements of CVP. Times in winter when generation is not sufficient to meet pumping loads so Western makes purchases. Resource is a must-take by customers. CVP doesn't have any way to store power/water because of other purposes, customers firm their resource that comes from CVP. Transmission for CVP was built for delivering generation to pump loads. Most customers served by PG&E. Half dozen customers directly connected to transmission system.

4. CVP customers pay \$26 million in costs for fish and wildlife in their rate which causes an \$8/MWh adder. Because of that adder and because of market rates, last 3.5 years cost of CVP power has been about the same as market or higher. No room to add costs to what is already being delivered to CVP customers.
  5. For customers of hydropower from Western whether or not power comes, they pay. Customers bear the brunt of bad weather and work in partnership with Western to deal with it. Pass-through hydroelectric surcharge. Customers are there in good and bad years.
  6. Discussed improvements in system that customers have paid for. – CVPIA. 1990's when appropriations started dwindling customers entered into contracts with BOR and Western to provide funding to properly maintain systems. Rewinds, transmission upgrades, \$128 million in funding to Western and \$257 million to BOR in funding from customers.
  7. Preference customers are partners with Western to make product be the best they can.
  8. In 1992 under CVPIA, \$1 billion was spent on improvements.
3. Speaker 3
1. Thanked DOE. Don't want to kill messenger. DOE should have had this process before the Secretary Chu Memo came out. SMUD has 600,000 customers. 6<sup>th</sup> largest utility in US.
  2. Each Western region is unique. All stakeholders are not equal. Preference customers are the partners that fund Western. They pay the bill. Western has done a good job of implementing system improvements. Western's statutory authority is limited. Direct beneficiary pays and Western has cost-based rates. Don't want customers to pay twice. Expansion must be authorized by Congress. Integration of renewables is already happening with California mandates. Have standard of 33% by 2020, but limits out-of-state imports, so it doesn't make sense to fund investments that don't contribute to that. Have been implementing renewables already. 24% of SMUD's electric supply is renewable with a 50% carbon free portfolio. Already pursuing Memo objectives. Looking at 400 MW pump storage project to address peak demand.

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3. Retail is not a Western role. SMUD reduced demand by 136 MW with efficiency programs. SMUD has spent \$160 million over the past 5 years on energy efficiency.
4. Economy does matter. Customers are struggling. Unemployment in Sacramento region is over 14% compared to nation 8%.
5. Work within existing system to meet objectives of Memo, but many are already being met.
6. It is not possible to do what DOE wants under current authority.

Question – We want beneficiary to pay but there are times when customers don't want to be a beneficiary. Do customers get to pick?

Another customer agreed. A benefit of Western's relationship has been the concept of direct benefit.

Transmission expansion was a beneficiary "put". Calpine pays 25% of cost and doesn't receive benefit. Intervened in proceeding but did not prevail. Pay through NITS rate. SVS is a high cost for Calpine. They didn't see the benefit that Western did.

Preread documents implies problems need to be resolved.

Another customer: discuss situational analysis of SNR with DOE nationwide. Things are ahead here and could be a model. Allow California and SNR to be a model for other areas. How can that be expanded? Maybe we shouldn't be concerned with new layers. We are struggling with costs of new layers. We have been a leader but we don't want to add an additional layer in order to help other areas, could be the straw that breaks camel's back. Spend time on situational analysis. What is happening here? Does DOE understand here?

What flexibility is there in Western's system in transmission or generation support to provide services that are anticipated? A lot of talk in preread materials about elimination of pancake rates across Western system. Is that operationally or legally possible? No.

Beneficiary pays, benefits can't be disconnected from need. Need to start with "need." If this benefit is excess to need then there is additional cost.

Great thing about Western system is cost-based rates. Started tight partnership with Western two decades ago to rewind Shasta Dam to get more energy out of system. Western worked with customers to determine needs and discussed costs. Good partnership already established to determine needs and make investments to satisfy needs. How do you keep that going while outside sources come in without diluting what works?

When we look at costs and beneficiary pay concept, are we looking at incremental costs or embedded costs as well?

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The issues in Memo (energy efficiency, vehicles) are distribution issues. Local distribution is already addressing these issues. Keep it there.

Another Participant: FERC Order 1000, avenue where dialogue is starting, transmission distribution and alternatives. Fine line of transmission/distribution. How is that incorporated with demand side management (DSM)? How are partnerships taking it to another level?

This should be a bottom-up process.

Another customer: Read-ahead was arrogant. We shouldn't start a process without an Act from Congress first.

Another customer: Lack of clarity on how this all integrates. Do we need something different if that is already in existence? Are these new to what FERC has already stipulated? Is Western being told to do something in conflict with FERC?

Another customer: We are already participating in other forums for intra-hour scheduling, EIM, etc, along with 20+ other Balancing Authorities. FERC Order 1000 is looking at regional planning. FERC Order 1000 changed focus. There is a lack of alignment of federal agencies. NERC Compliance. Unique role of Western as a collaborative member. How can Western be leaders when NERC is already fulfilling that? Seems redundant. Points to the issue that the Secretary of Energy issued the Memo without understanding what is being requested to find a way to make Western align principles when they don't fall within core values of Western. Draft EIR. Customers are not on board, responsible for guarding against this.

Another customer: We are being killed by regulation, this is collateral damage. "Don't do this." Feel-good issues are making it impossible to operate within this environment. Offended by this process.

Another customer: This effort has taken resources away from utility's mission. Western should be focusing on Bay-Delta but it is under the radar. Smaller utilities in California will not be in existence in 10 years because of state-level regulations. Roseville has been in existence 100 years and will not be another 100 due to regulatory burdens. Half of time is spent on regulation now. Have own power plants and Western power, also investing in renewables. Roseville helps Western in terms of reliability. They have very reliable units. Partnered with Western. Plan 10-20 years out. Already have state changing things, now DOE is changing. Can't focus on mission.

Another customer: Bay-Delta issue is important. Need to do environmental restoration of Delta, but changes to flow regime will create dead pool 50% of time. No water released, all flows to happen prior to summer peak. Nothing seems connected. Secretary Chu should issue state and federal entities to meet to solve Bay-Delta issue. This is more important than the Secretary Chu Memo.

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DOE – This is what we want to hear. Issues like Bay-Delta. The Memo does not put a box around what we can talk about today.

Customer: damage isn't just to power. Bad for rivers. Species. We are fending off multiple threats to system by well-meaning parties. Need to figure out how to help everyone see what each other is doing. Multi-benefit system. Need to coordinate. Power helps pay for this system. Environmental regulation is now a major component. Pay into CVPIA. Need Federal help to continue to manage system in worthwhile way, not manage new distraction.

Delta already had preconceived idea of what to do.

Message back to DOE is that there is an issue related to Bay-Delta that needs to be relayed. Won't be a Western resource anyway. Need facilitated session between federal and state representatives. Direct Western to coordinate all levels (state and federal) instead of issuing macro level directives.

DOE – these points are critically important. This is the first time hearing about Bay-Delta. This needs to be in recommendation back to Secretary.

Roseville will provide summary for Bay-Delta flow criteria to DOE today.

Another customer - same issues happening in Nevada. California issues are not new. Underlying facts are different but have same challenges.

Another customer - land owner driven solar park, trying to use 30,000 acres of land, key issue when designing a plan is cost stabilization. Is it worth it to invest? Farmers in district believe that the way current system is being developed to meet Renewable Portfolio Standard (RPS), farmers will pay burden of renewable costs.

There is a deliberate effort to take pumps off CAISO system to put in more integrated balanced system with BANC based on cost. CAISO costs are another layer. Prices are breaking the bank.

Participant Question: Preference customers are receiving different benefits within SNR. Is the process defined well enough today? Does the existing process work?

Customer: each region is unique, California is facing unique challenges. SNR is situated differently than other Western regions. Can't have one size fits all approach.

DOE – we heard that in Rapid City. One size fits all approach is not going to work.

Customer – differences even within SNR. On way to meet 30% renewable without a need for new transmission. All needs are being met. Dropped load with efficiency program already. This process is looking in wrong direction. What is need for stakeholders?

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When loads drop that provides transmission capacity. Makes room for future.

Customer – Secretary Chu’s Memo was looking at all PMAs. We are afraid of one size fits all because we are already dealing with other one size fits all with California regulations. Message to Secretary: top-down one-size is not the way to go. Need a process region-by-region that’s bottom-up. Work to solve problems. For example, there is a market for ancillary services and Western markets their excess.

DOE – how can this process help each company integrate renewable? What do you need?

Facilitator asked: What does DOE need to do to support local changes?

It is already happening. Customer Coordination Committee meetings with Western, BOR, and customers happen to discuss ways to improve units, transmission, etc. Move in the direction that is needed. This discussion is already happening.

Western is already participating. Need to continue to collaborate and be active in California Transmission Planning Group (CTPG), already active in discussions with Non-preference customers in joint transmission development. Continue to collaborate needs of region. We make long-lived decisions with investment horizons that are lengthy, current marketing plan is good through 2024; need that to justify long term investment. Can’t have that change with change in Administrations and DOE Secretaries. Western is already active in CTPG, WestConnect, CAISO, Bay-Delta team, and contributed customer funds program.

We all want stable grid, reliability, all have same goals, we just want a bottom-up approach.

How can we make a better process, need regulatory certainty? Can we make improvements?

Need regulatory certainty, this process puts a cloud over that.

DOE – How? We are not a regulatory body, not developing regulation here. If things that are in the Memo are not realistic, we shouldn’t be talking about them.

DOE is proposing to direct Western which creates a “regulation” to customers.

DOE – we are not working across purposes. We are here to build from bottom-up. Take this opportunity today to determine what we need to focus on.

Customer – we do know what the future holds for regulations and policies. Most are similar to outcomes in Secretary Chu’s Memo. Communities are already working on that. Don’t need Western to change. We need to collaborate. Western could work more closely with BOR, there’s a disconnect there. Participate in forums so Western hears same things customers hear. No need to change rates.

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Recommendations should include understanding of what is being done now. What is working should be acknowledged.

DOE – yes, we agree. Recommendation will acknowledge what is being done.

Customer - \$127 million customer investment in Western's transmission system, Western played lead role in relieving constraint on Path15. We need to know what can't be done.

Single transmission rate for US is not achievable physically or legally. We need to make sure we are not pursuing things that aren't possible anyway.

Questioned the amount of MW Calpine is pulling out of PMAs. Is that leaving a gap?

Response - that's already being sold.

Question - How does that affect Western's customers?

Answer - If there is a challenge in a region, Calpine can serve a role. In BPA, as wind increased, preference customers believed their capacity was being used to balance wind. If that situation doesn't exist in SNR then maybe there isn't a lot to talk about.

Question - If problem does exist, then does the fed system have a way to solve it?

Producers are not able to sell ancillary services because they don't have a market to sell to.

It is the customer's responsibility to firm renewable. Not Western's responsibility. BPA and CAISO would say it falls back to reliability organization. Certain customers may want to balance own resources but oversight should take place. However, Western is the Transmission Operator that provides ancillary services.

Customer - With integration of variable generation in DSW there is not a strong hydro dominance, not a lot of unloaded synchronous generation other than Hoover. Once you take away secondary frequency response reserves then it starts to feed from primary reserves like Parker and Hoover. Need market incentive to provide response, issues need addressed. Hoover customers don't want to pay for Hoover to respond to that.

10 minute break

11:20

Question: What do you not need from Western?

Need to make a list of what is already happening in the region.



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Customer – need DOE’s support to expand project that takes transmission to provide service to three federal CVP pumps; O’Neill, Gianelli, and Dos Amigos pumps, that are BOR transmission upgrades to connect with BANC to strengthen Western sub region, and expand the project to include retirement of 18,000 acres of drainage-impaired farmland in Central Valley to give to solar generation. Transmission would further benefit broader system upgrades because Central Valley is transmission deficient. Solves reliability problems through Path 56 and Path 15 which Western has a large role in. Other operators are looking at solutions in valley, would be helpful for DOE to step up and help with that. Benefits policies and goals of state. Transmission upgrade required, aligns with delivery of 5,000 MW of solar on drainage-impaired farmland. Leads into Bay-Delta issue. Secretary needs to be aware of these issues to know what is working and what can be accelerated with federal support. San Luis Transmission Upgrades are driven by BOR. Will create cost stabilization. Reduce rate pancaking. Will increase system reliability in an area that needs upgraded to meet 33% renewable requirements? It’s a win-win-win. TIP upgrade.

Any other projects that need to be noted? No answer

What should Western do differently?

Participant answer - Energy-Water Nexus, what are preference customers doing? What going on? How can we be proactive?

Customer – we are more connected to the Northwest. Renewable development in CAISO is in Southern California. None of those benefits go to Northern California. SMUD is taking actions to work with BPA and SNR to strengthen system. Once all transmission gets built and “peanut butter” spread, they will figure out they don’t have regulation to deal with intermittency. Can’t build fossil fuel for regulating resources. Additional resource investments will need to be made.

Do customers see value in having improvements or another Path 15?

Each customer has own focus. No need to build more transmission to link to south.

Western is integral in that. Try to stay away from CAISO to avoid TAC charges. Not getting a lot of value from what was built by CAISO, just adds to costs. Each has different needs but common goals. They work with Western when it helps meet goals.

Customer – To be fair, SNR’s entire customer base works together to make sure that SNR’s CAISO customers get benefits that non-CAISO customers get. This is done through coordination and working closely together.

Customer - Complemented Western’s staff, great benefit. Good to work with over the years, good relationships. Yes, we can make improvements. Need to be thoughtful and strategic about how to be improved.

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It is not an infrastructure problem, it's a regulation problem.

Customer - Regulation problem when you have resources that can't be firm. What can companies do to help?

Participant - Stakeholder aspect, are there opportunities for stakeholders to come in and get message?

Western opens processes publically. Rates changes are done through a public process.

Customer – Changes are done through partnerships. Try to communicate regularly.

Participant: We are here to support initiatives, understands Preference customers' needs, but believes Western can play a role. How can we play with each other? Want to help DOE and customers get to the next stage.

Customer – customers are paying to put in wide-head turbines at Hoover, expensive, big investment. The upgrade will allow for more regulation and to meet mandates. This customer is questioning DSW, as a Balancing Authority, not paying for this upgrade even though DSW receives the benefit of more regulation. How can DSW compensate those paying for this improvement? This customer doesn't need it but paying for it. Western should compensate for these costs, they benefit from upgrade with more regulation and spin.

Facilitator brought up EIM –

Customer – EIM premise is that it will help regulate renewable by using transmission capacity that is unused. The concern is with the modeling and PUCIM saying it produces benefit. The study results don't make sense. EIM is getting traction. NWPP already has a similar initiative with 20 of 37 Balancing Authorities using tools that are bi-lateral, bulletin boards, intra-hour scheduling, 15-minute pilot, etc. EIM is getting traction as a solution but we are already doing other things. There have been three different sets of modeling that are not transparent and probably wrong. The models need built from the foundation with solid data first. The NWPP already has a 400 MW reserve sharing agreement that effectively does the same thing as EIM. On a net basis, you get nothing with EIM. Need to understand what is already there to not transfer benefit.

NREL study is ongoing. Benefits derived from increased reliance on coal. FERC order requiring 15 minute schedule. If you go from 1 hour to 15 minutes benefits are reduced. When you go to intra-hour scheduling, not firm reserves but flexible reserves, it puts the system operations at risk. Something wrong that doesn't show up will be subject to fines if it results in an inadequacy of reserves. EIM studies are showing benefits but Argonne Lab pointed out flaws in a study and suggested there be a more broad investigation with alternatives that might impose less risk and more benefits.

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EIM is demonstrating benefits and cost savings but it is not incorporating diverse renewable resources.

Resource mix matters. NREL needs to understand operations better.

NREL – 2/3 of country is served in areas that use 5 minute scheduling. No area that has gone to 5 minute scheduling has ever gone back because of huge savings.

Customer – there is a belief that CAISO benefits are not seen for the money that has been spent. Things get built that aren't necessary. Investor owned utilities are rewarded differently. This customer has an energy efficiency program because it drops costs. We are talking about the difference between a cost-based model vs. a reward based model.

Mini-case study, what are the policy objectives behind EIM? What exists on the ground to address objectives? If inadequate, what are the additional steps that are economically, operationally feasible? It is different in different areas. UGP Western exploring SWPP or MISO, if they join they will have EIM, and maybe that makes sense for them. DSW might have different conclusion based on these factors.

Participant – we should talk about needs, not policy objectives. What do we need? Policy objectives may not be the priority. Should start with needs.

Participant - Different customers define benefits differently. How can we overcome that? Societal good has a big beneficiary.

Participant – If we start with the consumer, to whom we are trying to deliver power, what do we need to do to meet those needs? What does the system need to look like? Then we can design the system. Then we figure out who benefits. Who needs how much renewable, where? Make analysis from bottom-up.

Societal benefit = rate increase. That may not help me at all but I have to pay for it.

If we take a bottom-up approach we may get to the same end result that is more palatable to customers.

Customers of utilities drive policies. They are ahead of California state requirements because their customers supported utility in making investments. Can't impose these changes on other utilities if it isn't supported by their customers. Unless Congress does it.

Participant - Western has stakeholder meetings where stakeholders can provide discussion and recommendations. What happens next? What does Western do?

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Answer - Depends on how formal the process is. A rates process is formal. We take comments and make decisions based on comments. Customers participate in Customer Coordinating Committee (CCC) meetings. Western and customers have a collaborative process.

Should that process be more transparent?

Western is just one player. They are a stakeholder in EIM discussions too.

Participant – are bottoms-up analysis in conflict with top-down directives? If Western believes bottom-up is needed, it should be able to demonstrate that to DOE. Doesn't DOE have a role to require an analysis and Western completes it? DOE can dictate to Western on an analysis of EIM.

Customer – Western is participating in NWPP discussion of EIM.

Western sponsored Argonne study.

Customer – We are a transmission-dependent utility in Truckee, CA between 6,000 – 8,000' elevation. In summer when it's hot everyone comes up, so we are the best demand side management program California has! The point is that each utility needs to understand its customers.

It is really hard for Western to do these things without policy. Bottom-up in the utility is because customers ask. Western needs statutory responsibility to take action. What should Western be doing for policies that don't exist and also manage the ones that do? This is a difficult task for Western. Utility doesn't want to change that.

DOE - DOE isn't changing Western's policies either. We are not asking Western to do anything beyond its statutory obligation.

Was Department of Interior and Bureau of Reclamation coordinated with in this process?

DOE – that has been questioned in other regions as well.

Lunch break

Summary

1. One size doesn't fit all.
2. Beneficiary pays.
3. Bottom-up works.
4. What we are doing is working just fine. CCC meets with BOR and Western quarterly and with top management annually. Look at needs and values to see if changes in operations and investments need considered. We saw a need for new turbines at Shasta, Spring

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Creek, Folsom. Scheduled for Trinity and Carr. Generator rewinds were funded through customer advancements, we use O&M advanced funding. Customers work with Western on how best to market the products and structure the product to be responsive to needs. We work together to figure out the right amount of regulation up and down that is used within SNR's sub control area so that it can free up excess to market into CAISO. Working together is a win-win. We ask, what are the capabilities of these assets? The work is assigned out across the CCC to make the analyses. We come up with solutions that the group is able to vote on and consider implementing.

5. Funding issues. There are alternative funding source in each region. DSW uses lower Colorado regional office for advance funding projects. Boulder Canyon Project has customer funding project. DSW has project to help pay for capital – use of repayments. Palo Verde transmission was done through TIP because of beneficiary pays concept. This way only those Parker Davis Project customers that wanted to participate would pay.

Facilitator Questions: Are you happy with the rate you pay?

Depends on the year. Western's resources are higher than market in a dry year. It's a fixed cost. The more MWh, the price goes down. That's what we signed up for.

That cost analogy is the same as what would apply if the customers owned it. It works as long as additional costs serve a need. Added costs are ok when they produce needed benefits.

Participant - If wind is integrated the cost is only upfront, it evens out long term.

It's not my problem, I don't need renewables. Why can't renewable just join the system without affecting what already exists?

Western has OATT and Tariffs to sell excess transmission. Those are already in place. Renewables can use those to connect.

Doesn't that keep our costs down if there is excess transmission? That makes it a benefit in the long term. If those dollars are put on the fixed price I pay for hydro, that is a benefit to me. If it comes out through OATT it is not a cost to me.

Western used to make up difference in variability. Now customers take care of own needs. Previously we were CROD and full load customers until 2004. The new marketing plan set new types of customers, Full Requirements and Variable Resource customers. Customers get just a slice of the generation each day. They have limits; lowest and highest they can take each hour and volume of energy. We schedule that around other resources; wind, solar, thermals etc, and schedule hydro to fill in best where it is needed. With CAISO market we look at value of and cost in the same hours we have load. We dispatch resources into CAISO during more valuable

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hours. Peaking system up to meet societal needs. Ancillary service requirements get in the way of peaking higher. It's all on sunk cost basis, we pay annual bill regardless of weather. We get a lot of cooperation with BOR and Western to use to system to the best of its capability. Confident generation system is being use fully. There is no unused steel in the ground.

BOR is now operating projects to meet fishery requirements, downstream temperature controls, other limitations to shift and shape water. Regulating reservoirs downstream limit flexibility when scheduling power. When operating to integrate wind, etc., then you are potentially endangering fisheries, passing water out to sea instead of for pumps to use for irrigation at other side of Delta. CVPIA, Restoration money, these are all based on balance of how entire system will run. Use of generation, to change operating protocols can change power side and water side. You can't touch electricity without moving water; if you move water it will go outside BOR and affect environmental issues.

Participant – I'm hearing that it's transmission vs. renewable. Customers are directly connected to Western. WECC and NERC are all separate but still part of larger picture. All different regions, but still connected with Western. Everyone keeps trying to push this back to distribution, but we are all in this room because we are all connected to Western. If DSW comes back with solutions that don't work for this region, is there a way to bring that back anyway?

We've tried to convey that there are differences operationally and physically (generation, transmission) so maybe integration of variable resources and solution for UGP may be different for DSW and maybe there is no solution in SNR because there is no problem.

Participant - If every other region points to a reason for the problem, why can't we look at it for ours?

Customer – even though Western has a large footprint, state policies are so different it is hard to make it apply here. We don't need new transmission to accomplish these changes. Our utility proves that.

In California, because of your state requirement it may not always make sense to do what other regions come up with. We've already made advancements to meet state requirements; even if you bring in DC line it has minimal value. What makes sense in states with without RPS standards?

What if requirement goes to 40%?

We'll plan for it. Are there cost effective ways to meet standards without building long line transmission? And create jobs within our cities.

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We need to ask DOE to make large hydrogenation a renewable resource. PMAs can't make things happen in the industry, they are just one single entity. Western should focus on core strengths.

If federal government declared large hydro as renewable resource that would trump state law and everyone would be happy.

Participant – we have the desire to achieve goals and meet percentage required. You are asking, “What do we need to do to make Western make that happen?” That doesn't connect. That doesn't mean it should be Western's job. There may be other ways to do it without Western. Statute doesn't say it is Western's job. Lots of transmission gets built without PMAs. Yes, they provide value and participate, but that doesn't mean we need to use them for this purpose. I think DOE understands. But the conversation often gets confused. If this is a goal, PMA will make it happen. If Western does a good job at what it does (deliver hydro at lowest possible cost) that's great, let's accomplish other goals with the tools we have.

Participant - If you have something that works well, wouldn't you want to make it work well in other areas too? New way of thinking.

Participant - Where's the balance? Focus on core strength is sometimes the best strategy. Western is good at what they do now, don't add more tasks because it could weaken their current strengths.

Customer – we support renewable to reduce carbon and supply diversity. Policy makers aren't clear. We aren't saying that we shouldn't do it, we are saying we need to do it with eyes open. With diversity. If we are doing it to create jobs, what's the net of jobs we are creating? Make sure it is consistent with a need, otherwise it raises costs. Need harmony. Lots of pressure to do certain things for the sake of doing it but we need to define outcomes first. Western has a role. Western is not a leader in that, they are a stakeholder. They provide what it in their statutory mission. If we want renewables we will step up with partners and maybe ask Western to assist.

When our utility seeks renewables they seek them in CAISO, otherwise they'd have pancaked rates. All entities are in different situations.

Participant - Why don't preference customers view Western as a leader?

We view them as having a statutory mission that customers pay for.

Utility - Leaders make policies. Western is a policy follower and implementer. Customers work within collaboration.

Participant - Leaders can be defined in lots of ways.

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WECC, FERC, NERC, have roles. These are where the policies are coming from. Don't want one leader to break away from group to undermine goal of WECC, etc.

Congress makes policies. Western doesn't have a strong energy policy to follow.

Are other regions seeing the same thing? Congress sets policy. DOE enables policies set by Congress.

Western and DOE do not have administrative flexibility. This effort is done within statutes.

One way DOE can exercise leadership is to actively collaborate and engage across regions with Western and stakeholders. If out of that comes a desire to change then that is where policies should be changed.

DOE could collaborate on other issues, not just things that impact preference customers.

DOE should come into the California Delta Flow Criteria issue with the purpose of helping the Delta and to help infuse the situation with energy-related science. They are having a hard time. DOE could maybe shed light and neutrality.

DOE could serve Western by coordinating with BOR. You can't get more through Delta without modifying upstream flows. There needs to be coordination and alignment amount the state and federal authorities responsible.

Have to look at state regulations because some of what could happen here could conflict with law.

The issue of where policy comes from came up in FERC Order 1000. The planning process should take into account policy. How? Whose? Back to bottom-up issue. When it seems that DOE or stakeholders want to bring new policies from top-down and lay them over current policies, sometimes it's inconsistent. There are inaccurate assumptions and it creates confusion.

FERC Order 1000 is looking at a combination of bottom-up and top-down.

(Inside joke from the meeting – "If the only tool you have is a shoe horn then it looks like one size may fit all.")

Facilitator: Any other issues?

Participant - What was the best question raised in other regions?

Facilitator – In Phoenix they found a small issue that the transmission customers and preference customers both wanted and Western could help. They discussed select system



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upgrades where people would clearly benefit. These issues weren't getting captured until this meeting. This doesn't seem to be an issue in SNR. Customers are already working with Western.

Customer – Made an observation that if the average rate payer on the street were in the room, they would be having a hard time understanding what the debate is over because they can't even afford to pay their bill today. We are talking about an eclectic view of bringing renewable into mix, Western or not. This only has a negative impact. It's a view achieving these goals at any cost and it's offensive. The further away you get from the ground the more you lose contact with reality. We have lost sight of how we really are. The "preference customer" is our customer, which is lost in this debate. Environment at all costs doesn't take into account how rate payer will be impacted. At the end of day they are the ones stuck paying for ideologies and that's not sustainable.

The further east and north you go the more conservative the population gets. Some customers like renewables but don't want to pay for it. Our utility is seeing pushback on solar. Low income customers are paying to support solar on 4,000 sq foot homes.

Western needs to stick to statutory mission to market low cost hydrogenation. If they expand their mission it needs not raise power rates. We need to find a balance. Get environmental stewardship in a balanced way. Costs flow right to consumers.

Hydro is a low cost resource, it promotes conservation, and it gets to be shaped to fit with other resources. We are already making it work best with renewables.

## **Presentation to Plenary from DOTS**

### **Design of Transmission Service breakout group – main topics addressed:**

- Agreement that Western needs to stay within statutory authority. Secretary Chu's Memo items are already being done. A lot of underlying policy being done or inconsistent with aspirations being stated.
- Leadership is active engagement but not taking over. Leadership is being present, participating, and planning. It is important to know that Western is not homogeneous and its relationships are not homogeneous.
- One size fits all is not appropriate even within each region. Federal agencies should be talking to coordinate.
- Beneficiary pays – start with consumers. Benefits have to come from a need. System is fully subscribed.
- DOE needs an understanding of some significant threats to Western's resource before repurposing. Bay-Delta could change BOR hydro system so it wouldn't be an available resource in the future.

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- Any consideration of EIM needs to begin with an appreciation of what already exists so that it doesn't become obliterated. Modeling needs to account accurately for what's already there.
- Economy does matter. Changes we want to make needs to focus on our customers and economy. Unemployment is 14% in our area, customers can't pay bills. Smaller utilities are worried that they can't stay in business because they can't keep up with regulations. Concerned that some initiatives could conflict with state law. All these are costly but we are figuring out how to do it.
- SNR is unique. We need to make these differences in customers more open and transparent. Bay-Delta and water-energy nexus are really important issues. This is an opportunity to start discussing these things.
- Western is a follower, not a leader in some views. Just a PMA. Western does a great job with customer outreach and seeking feedback. Where can broader customers and stakeholders come into these discussions?
- Pancaking – no rate changes needed for SNR. This is not an issue for Western to take on.
- People are not comfortable with DOE asserting authority in areas without congressional action.
- It is important for Western to be at WECC, WestConnect meetings.
- Western works well with customers but we need to be more transparent so that renewable customers can participate too.

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## New Transmission Authorities, SNR – Folsom: Flip Charts

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Page 1

Process Wish List

- Flow chart timelines
- NEPA fit?
- Roles and responsibilities
- End point – what do you get?
- Think about Path 15 as prototype?
- When connecting (what if EIM?) to Western project how rate setting? E.g. TWE
- How staff charges work
- Eval. Consistent w/risk and \$ at risk

Page 2

- Concerns / Recommendations
  - Not of interest in SNR / focus on TIP
  - Cap v Sunset / FAQ?
  - Transparency / List of projects (WAPA needs to own or have capacity)
  - Prioritizing projects / prioritize interconnection projects
  - Valuable for SNR (1222?)
  - Users/CAISO interconnection / define 'users'
    - Standalone projects uneconomic
    - Demand risk?
  - Projected purpose change over time

Page 3

Roadmap

- About 1222
- Current process
- Process wish list
- Evaluation criteria
  - Regional planning
  - Demand identified? → contracts
  - Project use and use consistent with existing obligations

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- Concerns and recommendations
- Statute says “users”

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Evaluation criteria (in opinion of renewing entity) – points not yes/no

1. Public interest
  - Who is public
  - Strike?
  - Project use
  - Pref customers } addressing need (financial and otherwise)
2. Facilitate delivery renewable
  - Not in statute if this is threshold (may violate statute)
  - Treat facilitate broadly – storage
3. Benefits in each state incl. economic and environmental
  - Consider impacts or handle through NEPA
  - Sage grouse and bistate greater
4. Technical (eng/elect/geog)
  - Spell out (path rating, if applicable)
  - No unmitigated system impact

Page 5

5. Financial viability of project
  - TSA contracts to pay (no ‘contracts’ w/project use) + durability (pay for life, survive regulation change)

Proposed additions and revisions

6. Regional planning
  - or move into item 1 or 4
7. Facil/support existing project use oblig. + Western improvements
8. Upfront – applicant agrees regardless of ownership, cost recovery only through users defined at beginning

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Process Wish List 2

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- Cost causation/beneficiary pays (order 1000 interaction) and definition of 'beneficiary' (not 'user')
  - Changing definition over time (establish who is responsible)
- Prioritizing
  - Existing oblig supports + statutory project use obligations
  - Not WAPA benefit
  - Focus on need and preference
  - Goal: focus on reliability projects then unmet policy needs then economic project

## Summary of NTA Discussion

Page 1

### Consensus Points

- No harm (\$/reliability) to Western's customers or project use
- More clarity on statute
  - Sunset and cap
  - Ownership
  - Users "customers using..."
- Greater transparency on eval + prioritization + what are active in TIP?
- Need clarity on roles + responsibility +decision points + who decides

Page 2

- 1222 of limited value in SNR
  - Existing authorities and mechanisms w/customers
- Prioritize projects that benefit existing customers and project use
- Don't want criteria to require Western ownership or share
- Evaluation criteria for weighing, not pass-fail

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## New Transmission Authorities, SNR – Folsom, Notes

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### *Transmission Authorities –EPA 2005 Section 1222*

Under Section 1222 Western can accept third-party funds of up to \$100M for new or upgraded facilities. Question as to whether the cap or the authority ended in 2015. End-of-the-day wrap indicated the cap ends in 2015, while the authority does not.

This section does not affect any of Western's other programs.

Participants requested the Transmission Infrastructure Program be added to the discussion.

### *TIP:*

- \$3.25B in borrowing authority for transmission projects in the Western territory.
- More transparency in the projects that are being evaluated and/or accepted was requested.
- One participant stated that interconnection projects for project use loads should receive priority.

### *Process Wish List for Section 1222*

- Flowchart including timeline;
- Roles and responsibilities should be made more clear;
- Prepare a Frequently Asked Questions document for the website;
- The benefit of the program needs to be clearly defined to the applicants;
- Path 15 could be a prototype for other projects;
- Determine the rate structure for interconnecting to the CVP transmission system, i.e., ensure no cost burden to customers not using the new transmission.
- Ensure there is demand for the transmission.
- Western needs to ensure that TIP staff time is properly charged.
- Ensure projects remain "cost causation" and not necessarily "beneficiary pays"; i.e., costs should only go to users.
- Projects don't need to be of benefit to Western.
- The value of Section 1222 is questionable for SNR.
- "Beneficiary" is a large concern. Want that term changed to "Users".
- Stand-alone projects are very uneconomical. Need to ensure those costs are not passed to non-users.

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- The definition of a project should stand the life of the project.
- Project priorities should be: 1) reliability; 2) unmet policy needs; 3) economic benefits.

*Evaluation Criteria for Section 1222*  
(Judgment of the reviewers)

1. Public Interest:
  - How is public interest interpreted?
  - Who are the “public”?
  - The needs of project use and preference customers should be taken into consideration.
2. Facilitate the Delivery of Renewables:
  - May limit the projects that apply.
  - May violate the statute.
  - Perhaps should be a priority, but not a determining factor.

\*\*Does Western have to own or have other ownership responsibility for a project to be approved?\*

3. Benefits in Each State (economic and environmental):
    - Developers should identify the benefits in the application.
  4. Technical:
    - Should be no system impacts or the impacts should have the ability to be mitigated.
    - The regional review completed, path rating, etc., should be fully disclosed in the application.
  5. Financial Viability:
    - Contracts to pay must be durable for the life of the project and survive regulatory changes.
    - Contracts are not necessary for Project Use transmission projects as Reclamation and Western are cooperating agencies.
    - Preference should be given to Western customers first.
- Other evaluation criteria:
    - Regional Planning Process

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- Applicants should agree up front that cost recovery should only be through users defined at beginning or who agree later on

Stakeholders agreed that they were not interested in Section 1222 authority and requested to change the topic to TIP authority.

- Public interest can be established by the benefits the State acquire due to a project, i.e., jobs.
- Reasonableness of repayment –how is reasonable determined.
- TIP requires projects must be for renewables.
- Projects must be technically feasible.
- Stakeholders requested that statutory requirements be added to TIP.

\*\*\*Stakeholders want DOE to be aware that Western/SNR Customers are leading the way with renewable efforts.\*\*\*

## **Report out from NTA to Plenary**

### **New Transmission Authorities breakout group – main topics addressed:**

- Mostly discussed 1222. California doesn't have a need for 1222 process. We already have \$8 billion worth of queued projects and don't need help from Western. There should be no harm to existing Western customers or Project Use customers from either a financial or reliability perspective for the life of the project.
- We need clarification of the sunset provision of 1222. We need a better understanding of Western's ownership role. Discussed greater transparency of process, how projects are prioritized, what's being considered, what's supported. Need clarity for roles and responsibilities for decision points. What happens when a decision is made? Want flow chart.
- Discussed statutes. Don't believe Western has authority to facilitate integration of renewables within its current authority. Need to know how costs of projects connecting to Western are assessed to existing customers. Path 15 was built without using benefits from 1222. It was done cooperatively among Western participants working together. There are already existing mechanisms to allow for transmission projects to be built.
- There is not much value in Section 1222 because of existing authority Western already has and good success rate already. No harm to existing customers, got support from DOE to invite comments from public. DOE clarified that beneficiaries are users.
- FERC Order 1000 authorizes regional planning. Statute authorizes Western to accept funding for projects. For life of project user should be defined at outset and should pay.



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Project should facilitate delivery of renewable resources. Ranking of criteria should be transparent. Facilitating renewable criteria isn't in statute; projects that wouldn't deliver renewables meet a need for transmission capacity and don't get evaluated. Need for better coordination among DOE entities.

- San Luis Delta Mendota Water Authority and Solar developer, TIP was focus of interest. Need more transparency in TIP application program. Rigorous application process. What kind of criteria is used? Project Use customers should get first priority. There is a TIP improvement/optimization program ongoing to brainstorm ways to improve process. FRN will go out with details.
- Facilitating renewable concept – word facilitate should be looked at by department. Should include advanced technologies such as storage to help integrate.
- Path 15, is the prototype, model of how Western can be proactive in helping preference customers and society in general to ensure a more robust reliable grid.
- Regional planning, all need to be engaged in planning process, CAISO, California Transmission Planning Group, WECC, as DOE and Western move forward in looking at TIP and 1222 applications, look at where projects fit into planning process.
- Western's participation in Path15 came from specific congressional authorization for participation in that project.
- The \$100 million provision for receiving funds from private parties through 2015 limit disappears so any project that comes to DOE that meets criteria can be evaluated and can use private funds without limit or limit on number of projects.