

DOE-WAPA Joint Outreach Team
Comments of Western Grid Group
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Specific changes to WAPA operations can improve system reliability and reduce costs for customers, including costs of integrating renewable energy. Costs and benefits of each are outlined on the following pages.

In approximate order of value added to regional electric service, these include measures to:

1. Participate in the proposed western Energy Imbalance Market (EIM).
2. Schedule and dispatch resources at 15-minute or faster intervals.
3. Buy replacement power to make up for hydropower shortfalls from wind, solar and geothermal generators instead of from coal units.
4. Reform tariffs:
 - Develop and adopt WAPA-wide transmission tariffs. Renegotiate transmission tariffs attached to individual hydro projects to eliminate rate pancakes across the WAPA system.
 - Offer Conditional-Firm transmission service.
 - Adopt transmission rates that encourage load management and discourage electricity use during peak demand times, by incorporating the value of location-specific energy efficiency, demand resources and distributed generation in reducing congestion and need for new infrastructure.
5. Consolidate WAPA Balancing Authority Areas in the Western Interconnection; centralize dispatch of WAPA generation.
6. Expand use of dynamic transfers between WAPA and other western BAAs.
7. Expand resource planning technical assistance to help customers diversify their resource portfolios and add low-cost resources.
8. Adopt WECC Regional Transmission Expansion Plan (RTEP) model of stakeholder involvement in transmission planning. Employ environmental and cultural data compiled by WECC/TEPPC Environmental Data Task Force in regional and sub-regional planning.
9. Operate the Mt. Elbert hydroelectric pumped storage plant to provide regulation.
10. Adopt a standard, simplified interconnection agreement to facilitate interconnecting to the WAPA transmission system everywhere in its footprint.

Costs and benefits of these measures include:

1. Participate in the proposed western Energy Imbalance Market (EIM).

Costs: pro-rata share of EIM start-up and on-going annual costs.

Benefits: more efficient generating unit operation across the Western Interconnection, as most efficient units run more and least efficient units run less or not at all. Decreased operating reserves. Decreased system-wide need for regulation. Potential increase in transmission revenue. Fuller utilization of existing transmission. Provides real-time power flow information system operators need to improve reliability.

2. Schedule and dispatch resources at 15-minute or faster intervals.

Costs: hardware, software and training, to automate dispatch and transmission system operation.

Benefits: Reduced regulation requirements. Greatly increased system flexibility. Ability to integrate much larger amounts of wind and solar generation, at least cost. NREL modeling shows the societal value of moving from hourly to 10-minute scheduling to exceed \$1 billion annually.

3. Buy replacement power to make up hydropower shortfalls from wind, solar and geothermal generators instead of from coal units.

Costs: Potential cost savings, or cost increase; economic analysis required.

Benefits: Using off-peak wind power to recharge Bureau hydro projects having storage capabilities conserves water for later power deliveries. This may be less expensive than buying coal-fired replacement power, as WAPA now does. It may also be economic to buy combinations of wind and solar power to meet replacement power needs. In most areas of the West, wind and solar output is complementary and the blended cost may be competitive with coal on-peak.

4. Reform tariffs:

- Develop and adopt WAPA-wide transmission tariffs. Renegotiate transmission tariffs attached to individual hydro projects to eliminate rate pancakes across the WAPA system.

Costs: Potential *de minimus* changes in delivered cost of power from individual hydro projects. Potentially, no change in overall WAPA transmission revenue.

Benefits: Eliminating rate pancakes makes lower cost power available across the entire WAPA region. Increases utilization of existing WAPA transmission assets. Takes advantage of geographic diversity of wind and solar resources.

- Offer Conditional-Firm transmission service. This tariffed product guarantees service in a defined number of hours per year, while allowing service to be

curtailed during varying periods of congestion. Paths which are constrained only a few hundred hours per year can be utilized to provide firm service in all other hours with this approach.

Costs: Administrative costs of developing and filing a Conditional-Firm tariff at FERC.

Benefits: Expanded utilization of federal transmission assets. Increased transmission service revenue. Near-term interconnection of larger amounts of wind and solar generation without waiting for new transmission to be built.

- Adopt transmission rates that encourage load management and discourage electricity use during peak demand times, by incorporating the value of location-specific energy efficiency, demand resources and distributed generation in reducing congestion and need for new infrastructure.

Costs: None.

Benefits: Reduced on-peak transmission congestion. Avoided or deferred new transmission. Cost savings to customers from shifting or flattening peak loads, and from increased reliance on low cost energy efficiency and demand resources in their portfolios.

5. Centralize dispatch of all WAPA generation in the Western Interconnection. Accelerate consolidation of WACM and WALC Balancing Authority Areas, including integration of CRSP assets into WACM, and consolidate with WAUW. If new transmission is found necessary to consolidate WAUW, perform studies to determine the cost-effectiveness of doing so, from a west-wide perspective.

Costs: Operations Consolidation Implementation project is already in WAPA budgets. Potentially, cost of studies to determine reliability and economic benefits of consolidating WAUW with WACM-WALC.

Benefits: Improved reliability. More efficient generating unit operation. Decreased operating and contingency reserves. Decreased system-wide need for regulation. More efficient utilization of WAPA transmission assets. Taking advantage of geographic diversity of wind and solar resources across the WAPA footprint reduces aggregate output variability by orders of magnitude. Decrease of WACM integration charge.

6. Expand use of dynamic transfers between WAPA and other western BAAs.

Costs: Minimal training costs. Potential reduced utilization of existing facilities, as dynamic transfers require firm transmission.

Benefits: Expanded, and easier, energy exchanges between BAAs. Greater geographic diversity to reduce aggregate variability of wind and solar resources. Improved access to balancing resources for wind and solar projects. Increased operational flexibility. More market opportunities and lower overall generation costs.

7. Expand resource planning technical assistance to help customers diversify their resource portfolios and add low-cost resources. Ensure customer IRPs evaluate energy efficiency and demand resources on same basis as generation and assess long-term fuel price risks and environmental liabilities.

Costs: Expansion of existing WAPA education and technical assistance programs.

Benefits: Potentially, deferred or avoided transmission. Cost savings to customers from hedging fuel price risks with renewables, and from increased reliance on low cost energy efficiency and demand resources in their portfolios.

8. Adopt WECC Regional Transmission Expansion Plan (RTEP) model of stakeholder involvement in transmission planning, to ensure perspectives of states, generators, non-incumbent transmission companies and NGOs are included. Ensure planning assumptions are vetted by stakeholders. Adopt WECC Environmental Data Task Force methodology for evaluating environmental and cultural sensitivities in planning.

Costs: Potential increased planning costs from incorporating a wider range of stakeholder input data.

Benefits: More robust plans having broader bases of support; plans more likely to be approved and built.

9. Operate the Mt. Elbert pumped storage plant to provide regulation in addition to, or instead of, on-peak power.

Mt. Elbert takes advantage of lower-cost off-peak power to pump water to its upper reservoir at night and then uses stored water to generate power during the day. The WACM Balancing Area which includes Mt. Elbert has very little regulating capacity. Operating the plant to provide regulation may provide more economic value than firm on-peak power. It may be possible to operate the plant to provide both regulation and on-peak power. Production cost modeling may be required to determine the highest economic and reliability value of the plant.

10. Adopt a standard, simplified interconnection agreement to facilitate interconnecting to the WAPA transmission system everywhere in its footprint. Qualify third-party firms to perform interconnection studies and allow their use in interconnection agreements.

Costs: Minor administrative costs to qualify third-party study firms.

Benefits: Administrative savings. Streamlined study and approval processes. Improved utility and generator interaction with WAPA. Cost savings to consumers across the region from earlier access to low marginal cost wind, solar and geothermal power.