

Building on ACE Diversity

Next Steps in Virtual Control Area Consolidation

Elliot Mainzer, BPA

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What We've Learned....

- Larger control areas, geographically diversified wind resources and within-hour markets for system flexibility can lower the costs of wind integration.
- These features are embedded in large, centrally organized markets.
- Large, centrally organized markets have not, and may never, take root in the Pacific Northwest.
- In the Northwest, for the foreseeable future, we will live in a world with 16 control areas and block hourly energy markets.

What We Are Doing....

- Building on the foundation of ACE Diversity, a working group of regional utilities, IPPs and marketers is figuring out how to further leverage the benefits of larger control area areas, geographical diversity and fast energy markets without a fundamental change in the Northwest's market structure.

Step One: Spread the word on Ace Diversity

- Seldom does one find low-cost, win-win solutions. ACE Diversity is one of them.
- NW Power Pool, ColumbiaGrid, individual utilities are evaluating the results of the pilot.
- An obvious next move is to increase the number of participants in a truly regional ACE Diversity program.
- Region can leverage experience pulling together its contingency reserves sharing pool.
- A regional ACE sharing arrangement will establish dynamic communication links between the region's major utilities -- essential to further developments.

Step Two: Define New Products and Services

- On September 12, 2007, Jeff Atkinson, Chair of the Operating Committee of the WSPP, advanced a proposal for a new service, known as Dynamic Load Following (DLF), for evaluation by market participants.
- DLF will allow a control area or individual generator to sell within-hour flexibility (basepoint adjustments) to another control area to assist in the management of system variability and uncertainty.
- Standardized terms and conditions, including instructions for technical enabling, will reduce transaction costs, increase liquidity, and foster the development of voluntary, bilateral markets for the service.
- Service can be provided in one direction (up/down) or bidirectional.
- Ultimate goal - product traded actively on Intercontinental Exchange (ICE), but first step is to increase number of negotiated deals.

Step Two: Define New Products and Services

- Dynamic Load Following is the natural counterpart to Regulating Reserves. Team is also defining standardized terms and conditions for Regulating Reserves.
- By end of 2007, team will also develop a standardized term sheet for one or more hourly storage and shaping services.
- These services can be provided by IPPs, marketers, and other participants under standard WSPP Schedules.
- There is tremendous room for creativity and innovation on both the supply and demand side.

Step Three: Dynamic Scheduling Swaps

- Dynamic Scheduling, in which a generating resource (or load) is electronically transferred from one control area to another, can synthesize a more geographically diversified wind fleet.
- After determining that their respective wind projects have differing, complementary wind patterns, two or more control areas can exchange wind signals, dampening the variability of their respective system operations.
- Once technical enabling from ACE Diversity and DLF is complete, such arrangements can be done on a low-cost, experimental basis to test their effectiveness.
- Dynamic Scheduling requires firm transmission. Transmission margin for such transactions in the future should be included in transmission planning studies.

Step Four: Plan for Flexibility

- Load growth, fish constraints and climate change are eating into the deep pool of hydro flexibility in the Northwest.
- ACE Diversity, Dynamic Load Following, Dynamic Scheduling and other services can optimize the existing fleet and buy us time, but additional flexibility resources will be needed in the future.
- To accommodate large amounts of variable renewable resources, the characteristics of our dispatchable capacity resources must evolve towards greater flexibility -- e.g. faster ramp rates, fast starts, mid-point loadings.
- Through IRP, utilities must now plan for capacity, energy, and flexibility.
- Hopefully, market forces will lower costs and increase the efficiency of such technologies.