



**Joint Board on Security Constrained Economic Dispatch
Federal Energy Regulatory Commission
Western States' Regulatory Commissions**

**Comments of Robert Kahn, Executive Director
Northwest Independent Power Producers Coalition
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Indian Wells, California**

Thank you for the opportunity to address you today. My name is Robert Kahn. I speak today on behalf of the Northwest Independent Power Producers Coalition (NIPPC).

Our members currently operate 3600 megawatts of capacity in the states of Oregon and Washington. NIPPC members have roughly an equal amount of new generation in development in Oregon, Washington and Idaho. One-third of this capacity is coal with two-thirds gas-fired combined cycle power plants.

The geographic area that I will be referring to is the Pacific Northwest and Inter-Mountain West. This is the same area that is generally served by the Northwest Power Pool and the footprint of Grid West. Thermal and renewable IPPs generators contribute approximately 18 percent of the capacity within this area. For context, BPA represents 35 percent of the total high-voltage transmission within the Pacific Northwest and Inter-Mountain West although it provides 75 percent within the Pacific Northwest.

The message that I am here to deliver in essence is that independent power producers (IPPs) are not included in hourly markets. Long-standing institutional structures prohibit merchant participation. When IPPs are called it is only as a last resort.

It should come as no surprise that NIPPC supports the formation of an Independent Transmission Provider (ITP) for our region.

Economic dispatch is constrained but not by physical, software or resource hurdles (although they do exist). The problem is: "institutional congestion." The problems in the Pacific Northwest and Inter-Mountain West can be traced to the fact that we have 15 Control Areas. In a transmission version of a tragedy of the commons, each Control Area pursues its own optimal objectives sometime to the

detriment of its neighbors and frequently to the detriment of the integrated system as a whole.

“Institutional Congestion” yields several real consequences.

First, redispatch is increasingly “managed” (if you can call it that) by curtailment, which occurs without regard to economic consequence.

Second, there is the under utilization of readily dispatchable generation for the sake of internal Control Area priorities and inter-utility “tradition” for balancing.

Third, there is the general mis-utilization of transmission of transmission capacity as seen in the obfuscation of actual ATC with valid contract rights that are withheld thereby eroding efficient operation.

Fourth is the confusion over what is advertised and what actually happens. For example, BPA’s OATT states in Section 30.5 that “Redispatch of resources...shall be on a least-cost, non-discriminatory basis...” But, our resources have never been formally dispatched by BPA’s transmission business line. And for all non-federal resources, Point to Point service take a back seat to Network customers of the Power Business Line.

We can resolve “institutional congestion” through Control Area consolidation. In fact, Control Area consolidation is a pre-condition to economic dispatch.

There are real lost opportunities to this way of doing business in the Pacific Northwest Inter-Mountain West. We can see how much by looking at the benefits of economic dispatch as identified in the peer-reviewed cost-benefit or “risk reward” study prepared by Grid West.

If we were to assume that the ITP were only doing dispatch, the cost would be approximately \$22 million/year. With median assumptions (e.g., average hydro year) and 10 Control Areas consolidating – including BPA – the net benefit would be \$260 million. With the same assumptions but only four Control Areas consolidating but still including Bonneville, the benefits would be net \$84 million.

In summary, IPPs are left out of full participation in the hour-to-hour operation of the Pacific Northwest Intermountain Grid. If IPPs were fully integrated their highly-dispatchable resources could be deployed to support:

- A competitive, low-cost ancillary services market;
- A competitive market for imbalances including operational reserves;
- Much better congestion management since economic dispatch is a far more effective tool to alleviate congestion than curtailment.

For the Pacific Northwest and Inter-Mountain West as a whole, the objective should be to realize an ITP that integrates system-wide operations and is capable of dispatching resources on a truly economic basis.

For BPA in particular, it should pursue a dispatch regime that takes full advantage of all the plants connected to its system.

This was the aim of Grid West and remains the aim of those market participants that are committed to proceeding with the ITP notwithstanding BPA's recent decision to drop out of the Grid West development process.

Thank you. I am available to respond to questions.

NOTE: Responses to FERC staff questions follow below.

Northwest Independent Power Producers' Response FERC Staff Questions Regarding Economic Dispatch Western Region

Who performs the dispatch?

Multiple, autonomous control area operators dispatch generating plants under their control to meet their instantaneous load and scheduled interchange.

How is the dispatch determined?

It is a fair assumption that each of these control areas will individually try to minimize the production cost in their control areas, subject to binding constraints, as their economic dispatch objective.

The constraints may include: net scheduled interchange, hydro flow limits, transmission operating transfer limits, generator cost curves and other physical system limits that the control area is responsible for.

What is the geographic scope of the dispatch?

More important than geographic scope, is the electrical system scope of each of the control area entities that is attempting to economically dispatch.

Because a control area is defined by a boundary established by tie line metering, it is not a geographic concept.

There are numerous instances of geographically non-contiguous control areas with overlapping operations within the geographic bounds of the Northwest Power Pool.

Again, each of these areas attempts to perform economic dispatch consistent with its own economic objectives and not a single objective within the geographically defined region.

Are there resources not included in the dispatch? Would including them improve the dispatch?

Not all generating resources have contracts that allow them to participate in economic dispatch. This is particularly true for the IPPs that NIPPC represents.

While the IPPs can participate bilaterally in hourly energy markets through prescheduled transactions that become part of the scheduled interchange calculation for the control areas, there is no real-time balancing market accessible to most IPPs.

Are there resources that present challenges in incorporating them into the dispatch (e.g., hydro resources)?

All resources have constraints that affect their use in economic dispatch.

Fossil-fueled resources may have more explicit cost functions; while hydroelectric resources are committed by their owners based on flow constraints and opportunity costs.

The point here is that physical challenges have been addressed through the good work of engineers and problem solvers.

Barriers to participation in economic dispatch that are not founded on sound physical principles should be addressed by this joint board.

How do transmission congestion and the dispatch affect each other? How would improvements in one affect the other?

Transmission path ratings are a binding constraint on dispatch. The term “congestion” implies that the transmission system has reached a limit prior to achieving the optimal system dispatch.

Because there are more than a dozen control areas each attempting to optimize their dispatch, but potentially causing flows across each other’s wires (parallel flows), it has been documented that suboptimal dispatch occurs due to congestion patterns.

If we could gold plate the transmission wires, congestion could be eliminated and all of the control areas could do their own thing without compromising each other. Unfortunately, the economics of gold-plating the system must be weighed rationally against options such as redispatch during congested periods.

We must keep in mind that SSG-WI concluded in its 2003 study that most paths are not operated within even 75% of their maximum limits in the Northwest.

A major limiting factor is what I will call “contract congestion”—where physical transmission capacity is withheld by control area operators or transmission contract holders to ensure that they have the option to use it for their own purposes since there is no requirement to release it to others.

How are individual dispatches in the region coordinated?

Dispatches are coordinated in accordance with interchange scheduling rules.

These rules include limits on area-to-area interchange, and recently BPA has implemented a system of flow-based limits on transactions within its control area. These rules include limits on area-to-area interchange, and recently BPA has implemented a system of flow-based limits on transactions within its control area. Given the existing contract rights (see contract congestion above) it is necessary for BPA to make several assumptions regarding the use of the transmission paths in question. The lack of transparency in this process is troubling, especially when coupled with the inherent inefficiencies of multiple control areas running individual dispatches.

Where interchange schedules and transactions threaten to cause limits to be exceeded, control area operators are required to curtail transactions.

Curtailments result in de facto redispatch without regard to economics.

How is the dispatch communicated to affected generation operators?

Generators that enter into hourly block transactions, such as IPPs, must ramp and maintain their output across the hour or suffer economic penalties for energy imbalance.

They are nevertheless subject to curtailment if system limits are threatened.

Economic redispatch of many generators is not an option under the current structure of the industry in the Northwest.

Are there technical/infrastructure impediments that interfere with implementing the economic dispatch?

What is lacking is not technology. Nevertheless, attempts to implement a market structure that fosters economic dispatch opportunities for all have been unsuccessful. The problem is institutional rather than technical.

Describe possible improvements to current economic dispatch practices.

What are the potential benefits and costs of those improvements?

Grid West proposed to effect economic dispatch through reconfiguration (RCS) and Real-time Balancing Service (RBS) markets. The total costs associated with Grid West implementation were estimated to be \$91 M per year. If the non-dispatch benefits are netted out, the cost of providing the dispatch benefits would be about \$22 M using the most conservative assumptions for the operating reserve and reliability benefits (91-69=22).

In following median assumptions of the annual benefits of RCS and RBS were estimated to range from \$84 M (4 control areas participating including BPA) to \$260 M (with 10 control areas participating including BPA).

Economic redispatch, performed regionally, results in lower fuel costs, increased utilization of renewable resources, opportunities for demand response, and mitigation of curtailment procedures through redispatch and settlement.

How would those improvements affect reliability?

To operate a highly integrated network of transmission corridors within secure operating limits requires a high degree of coordination and knowledge about redispatch options that are available.

Employing regional economic dispatch to move away from physical curtailment will reduce the probability of cascading disturbances and sustained outages due to load shedding.

The software tools used for regional economic dispatch are designed to incorporate secure optimal powerflow solution methods that would enhance reliability.

Are there institutional, regulatory, or statutory impediments to the identified improvements?

As mentioned above, the impediments to implementing economic dispatch are institutional in the Northwest.

If you could start from scratch, how should economic dispatch be accomplished in your region?

First, an Independent Transmission Provider (ITP) would provide consolidated control area services to manage use of the transmission grid on an integrated basis. Bilateral transactions for capacity and energy products would form the foundation of the resource stacks used to serve load and promote intersystem sales. The markets operated by the ITP

would serve the marginal requirements of the system to ensure excellent control performance and reliability.

How does economic dispatch affect planning, resource acquisition and trading in your area of the West?

Because economic dispatch is not handled on a regional basis, the individual objectives of multiple systems can create intractable barriers to entry for competitive providers.

Contract path limitations commonly interfere with resource acquisition options proposed in response to Integrated Resource Plans.

While planning models used in the West purport to evaluate options based on economic dispatch, they do not accurately model the base system as it is currently controlled and dispatched today. The starkest example of this is the fact that ten control areas in the Northwest are assumed to be economically dispatched as a single system when in fact they are autonomous and their competing objectives often complicate management of system constraints.

Furthermore, cost data for these models has only begun to take shape under the auspices of SSG-WI. While this database will now be transferred to the stewardship of WECC, significant error checking, data scouring and model calibration is needed to ensure that the modeling data reflects both actual and potential outcomes.

What effect does non-participants' (TDUs, IPPs, etc.)? have on economic dispatch?

Under the current structure, individual control areas may perceive that the actions of these non-control area market participants only frustrate their efforts to dispatch resources economically. If a regional economic dispatch structure were overlaid across all systems and market participants, the overall results would be more optimal and additional societal benefits would be captured.