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FERC Order 764, Forecasting, and Flexibility
Implications in Large Markets and Small BAs

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FERC Order 764

The essence of the order:

1) Transmission customers should have the option of using 15-minute transmission scheduling (rather than hourly)
2) Met data may be required from wind plants if used for forecasting
3) FERC is unlikely to allow an "integration charge" unless the system operator has minimizing the charge with faster scheduling and centralized forecasting

Absence of forecasting would lead to unjust and unreasonable rates

Impacts:

- Regions with hourly transmission scheduling
- Seams where hourly scheduling interfaces with ISO markets
- Market redesign efforts in CAISO

What is an Integration Charge?

In common usage, usually viewed as the cost of additional reserves or flexibility (as compared with getting energy from another source)

- Variability impacts regulation (within the dispatch interval)
- Uncertainty impacts reserves (non-spin reserves)
- Ramps impact flexibility (system ramp rate)

Charges can be imposed directly or through less obvious means…

- Directly through differentiated rates to generators
- Indirectly through market rules and operating practices

Sources of Flexibility

What provides flexibility to the system operator?

- Dispatch control of a large population of generators (and loads)
- Access to flexible generators and loads (ramp rate, fast start, etc.)
- Ability to commit and dispatch very close to real time

How can more flexibility be made available to the real-time operator?

- Build more flexible generators (long-term flexible capacity/planning)
- Adjust dispatch to preserve ramp rate capacity (MISO proposal)
- Create a market product for those who offer ramp rate (CAISO)

Implications for ISOs

When are rules “facially neutral, but discriminatory in practice?”

- Is it fair to start imposing a new cost allocation or integration cost now, when it hasn’t been done for other costs?
- Do established rules reflect our desired future power system?
- What about the integration costs of other generators?
    - Baseload units
    - Inflexible units
    - Startup times
    - Minimum run times
    - Minimum operating points

What is the primary mandate of the ISO?

- Protect established investments or accommodate policy choices?
- Allocate costs based on perceived impacts to the current system or optimize the system as a whole for the benefit of ratepayers?

Implications for Smaller BAs

Headwinds of politics, federalism, Federal PMAs and their public power mandates, history, etc. However…

Getting much more expensive to run a small BA

- 15-minute scheduling requires change from manual transmission tagging to automated systems
- Centralized forecasting (and many other things) benefit from larger economies of scale

Will Order 764 and economics drive changes?

- Economics of BA consolidation
- Economics of a real-time energy imbalance market

Significance of Energy Imbalance Market (EIM)

Imagine optimized five-minute dispatch over large parts of the West

Imagine real time energy flowing between balancing authorities, and perhaps even across the seam with CAISO

Imagine wind and solar energy being dispatched based on its current persistence forecast or a very-short-term five-minute forecast

Could the EIM bring best practices for dispatching variable generation not just to WECC, but to CAISO?

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Discussion

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Cost Allocation

CAISO's principles to guide cost allocation market designs:

- **Causation** - charged to those who drive (or benefit from) the costs
- **Comparable treatment** - nondiscriminatory to technologies/participants
- **Accurate price signals** - economic achievement of policy goals
- **Incentivize behavior** - profit maximization leads to lower ISO costs
- **Manageable** - ability to manage your exposure to the cost
- **Synchronized** - cost drivers align to billing determinant
- **Rational** - implementation cost does not exceed benefits

Implications on Forecasting

System operators will use forecasts for operations, even if such forecast information is not reflected in the market rules.

Market participants prefer to control their own offers and schedules.

Market rules should align with forecasting skill timelines and motivate improved forecasting and scheduling.

There are significant differences between adapting market designs and using cost allocations/integration charges to achieve efficient systems.

It is very important to be engaged in the stakeholder process with ISOs as they work on changes to market rules.