

Universal Participation Model Roadmap

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Universal Participation Model Paths Forward

- **RTO/ISO by RTO/ISO**
 - Technology-neutral UPM allowed by 841, not required
 - Problem statement/issue charge supported by stakeholders
- **FERC generic action**
 - Pro—covers all, FERC is more likely than many RTOs to remedy barriers to entry.
 - Con—841 took five years and is back to RTO by RTO implementation anyway
 - Could be issue by issue or many together



UPM Policy Change Components

1. Facility Parameters—Fixed
2. Facility Parameters—Dynamic
3. Facility Parameters—Real-time telemetered
4. Monitoring and verification of parameters
5. Market power rule interactions
6. Price Formation
7. Co-optimization
8. Obligations and penalties
9. Product definitions
10. Transition period and software change



UPM Rule Goals

- **Remove biases**
- **Open participation**
 - All known sources including wind and solar plants
 - Unknown sources
 - Paired or independent
- **More granular parameters**
- **More sophisticated co-optimization**
 - Across products
 - Across dispatch intervals



Remove Biases

- Remove unnecessary pre-commitments such as mandatory day ahead bidding
- “Spinning,” “non-spinning,” other technology-limiting terminology
- “Fast Frequency Response” instead of “inertia”
- Service definitions based on all sources of imbalance, not just loss of conventional units
- Make line ratings and everything else that can be measured dynamic not fixed



Facility Parameters

- **Static**

- Capacity/max injection or withdrawal
- Min injection/withdrawal
- Ramp (speed)
- Startup time
- Transition time

- **Dynamic-daily or hourly**

- Offer price
- Outages
- Other status changes
- Capacity (can change)

- **Real-time monitored**

- State of charge
- Output



Product Design

- Allow small building blocks
- No unnecessary pre-commitments—more flexible
- Truly technology neutral definitions—all can bid and set price
- Fine gradations of service
- Pay for performance

