

Expand Operating Reserves to include Aggregated Non- Dispatchable Load

Presentation to MDAG

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Project Recommendation:

- Project: Enable the participation of aggregated non-dispatchable load in the OR market
- Today: Only generators and dispatchable load participate in the OR market
- Examples: PJM, AESO, ERCOT allow aggregated load to participate in OR

Markets with Aggregated Load in OR:

Operator/Program	Product	Aggregation? (Y/N)	Reserve Req/ Enrollment (MW Est.)	Load Participation (MW Est.)	Price (\$/kW year)
IESO OR	10/30-minute	No	1,400	Unknown	\$30-40
AESO OR	10-minute	Yes	770	80	\$30-185*
PJM Sync Reserves	10-minute	Yes	1,600	400	\$20-45
ERCOT Emergency Interruptible Load	10/30-minute	Yes	900	900	\$50-\$55
NYISO OR	10/30-minute	Yes**	1,300	120	\$30-40
ISO-NE FRM	10/30-minute	Yes	800	Unknown	\$20-40

**AESO OR pricing has been highly volatile*

***Aggregation possible but challenging requirements for participation*

Project Recommendations

- Benefits:
 - Increases competitiveness of the OR market
 - Diversification of the OR market
 - Improves cost effectiveness of the IAM market overall
 - Maintains reliability
 - Customer participation
 - Moving towards technology agnostic markets

Project Recommendations

- Design Changes:
 - Changes to software/how IESO models aggregation
 - Market Rule amendments
 - Adapt telemetry standards to accommodate aggregation while meeting IESO needs
 - Allow for dual participation across products
 - Technology agnostic resource requirements
 - Energy market participation