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PJM Interconnection



- Demand Response must be treated equally with generation both for short run dispatch (energy) and long run planning (capacity).
- PJM designed its markets to be agnostic.
- A MW gained is worth the same as a MW saved and resold.
- PJM has multiple options for DR participation, some active and others pending FERC final approval.



Comparison of Revenue Opportunities for Demand Response Current vs. Revised

Revenue Opportunity	PJM (today)	PJM with new initiatives
Real-Time/Spot Energy Sales	Yes	Yes
Day-Ahead Energy Sales	Yes	Yes
Forward Energy Sales	No	Yes; Proposed Forward Energy Reserve Market
Forward Capacity Sales	Limited by small volume and to current planning year	Yes; RPM auction fixes problems
Energy & Capacity payment for emergencies	Not in all cases	Yes; Emergency program changes ensure payment
Ancillary Services	No	Yes; Spin & Regulation



Comparison of Revenue Opportunities for Revised Demand Response vs. Generation

Revenue Opportunity	PJM with new initiatives	Central Station Generation (PJM)
Real-Time/Spot Energy Sales	Yes	Yes
Day-Ahead Energy Sales	Yes	Yes
Forward Energy Sales	Yes; Proposed Forward Energy Reserve Market	Yes, 50mw blocks at Hubs liquid up to 5 years
Forward Capacity Sales	Yes; Proposed RPM auction fixes problems	Yes, Bi-lateral market liquid up to 3 years
Energy & Capacity payment for emergencies	Yes; Emergency program changes ensure payment	Yes; always
Ancillary Services	Yes; Spin & Regulation	Yes; Spin, regulation, black start, etc



- Emergency Enhancements (energy) FERC approved in Feb, 2006, to be implemented on June 1.
- Ancillary Services Now available as of May 1, 2006.
- <u>Economic Load Response</u> (energy) –
 Permanent status effective May 1, 2006.
- Reliability Pricing Model (capacity) set for technical conference to work out implementation details for June 2007.



Economic Load Response in the Energy Market:

- Permanent integration into the Energy Market (no longer a "Program").
- Product rules largely unchanged from current.
- Treatment of incentive payments deferred until early 2007. Current sunset on 12/31/07.
- Pilot for non-interval metered customers enlarged and enhanced. Grants PJM flexibility to allow additional resources in.



New chance for demand side resources to provide synchronized (formerly spinning) reserves and regulation:

- Same payments as generators when resource is made available.
- Demand resources initially limited to 25% of synchronized reserve requirement.
- Additional training requirements for Curtailment Service Providers (CSPs)
- Endorsed by overwhelming majority of members.



Emergency Load Response enhanced:

- Preserves two options energy only (voluntary) and energy and capacity (mandatory).
- Full Emergency Load Response made permanent.
- Expands aggregators of Full Emergency Load Response beyond LSEs to include CSPs.
- Aligns the deficiency charge more closely to the value of capacity as determined in PJM auctions.
- Allows demand resources to register simultaneously in Emergency and Economic Load Response.
- Links emergency payments to market prices with minimum dispatch price determined by resource not PJM.



- Part of an integrated Capacity Market Design (RPM)
 - Provides multi-tiered integrated Demand Response participation.
 - Direct auction participation or self supply opt out.
 - Signals new resources to offer into Forward Auction
 - Integrates merchant transmission solutions to compete with generation and demand response
 - Provides stable capacity price signal to incent sustained investment where needed