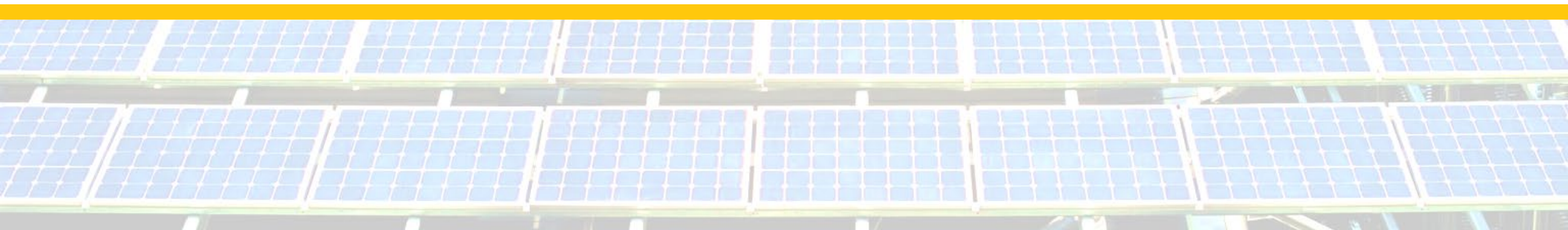


NYISO Program Snapshot: **Distributed Energy Resources Participation Model (DER PM)**

About the NYISO DER PM

The NYISO DER PM realizes the full capabilities of Distributed Energy Resource (DER) aggregation into virtual power plants (VPPs)

- Provides energy, ancillary services and capacity in the NYISO markets
- Expands revenue opportunities for DER asset owners and C&I energy users
- Gives energy users unprecedented access to existing markets as if they were a power plant



About the NYISO DER PM

- **DERs of at least 10 kW aggregated into VPPs of at least 100 kW** can simultaneously provide wholesale services to the grid operator and retail services to utilities and load servers
- Demand response, solar arrays, battery energy storage, building management systems and electric vehicle charging stations aggregated as VPPs can help large energy users **earn up to a 35% increase in revenue compared to current programs**
- **Customers with automated technology are particularly well-positioned** because NYISO offers access to additional markets for resources within minutes response-to-dispatch.



Revenue Increase with DER PM vs. SCR, DSASP and CSRP

Current State (\$/MW-Year)						
NYPrograms	SCR	DSASP	RTEnergy	CSRP	DLRP	Total
NGRID	\$34,560	\$50,000	N/A	\$13,750	\$0	\$98,310
ConEd	\$124,200	\$72,000	N/A	\$90,000	\$90,000	\$376,200

*Assumes 64%CAF in NGRID and 69% CAF in ConEd.

Future State - DER Participation Model (\$/MW-Year)						
NYPrograms	Capacity	Ancillary Services	RTEnergy	CSRP	DLRP	Total
NGRID	\$54,000	\$50,000	\$15,000	\$13,750	\$0	\$132,750
ConEd	\$180,000	\$72,000	\$15,000	\$90,000	\$90,000	\$447,000

*Assumes 100% CAF in both NGRID and ConEd.

*Assumes \$200/MWh strike price for energy. Decreases to \$2,000 if \$1,000/MWh strike price.

REVENUE INCREASE

↑ **35%**

↑ **19%**

DER PM Overview

Type of Program	Capacity, Energy, Ancillary Services
Obligations and Testing	DMNC Test (Dependable Maximum Net Capability) required each season prior to Capacity market participation.
Dispatch Trigger	Economic. Performance required when offers clear in the Energy and/or Reserve market.
Eligibility Requirements	Hourly revenue grade metering and 6-second telemetry.
Energy Market Bidding Rules	Capacity resources must submit offers daily into the Day-Ahead Energy Market
Season and Dispatch Window	Capacity is cleared seasonally (May-Oct. Nov-April). Otherwise dispatch window is 24/7 determined by cleared offers & system conditions.
Participation Options	Ability to be a 2, 4, 6, 8 hour <u>or unlimited</u> capacity resource. Longer duration resource achieves higher Capacity Accreditation Factor.
Stackable with Utility DR	Yes
Voluntary	Capacity: No. Energy: Yes. Reserves: Yes
Penalties	Yes for underperformance.
Payment Rate and Terms	Capacity (\$/kW-mo): Relevant Auction clearing price. Energy (\$/MWh) and Reserves (\$/MW and \$/MWh): Market clearing prices.
Baseline Calculation	Capacity & Energy: Economic Customer Baseline Load is (roughly) the average customer usage in each hourly interval of top 5 days out of last 10 eligible weekdays. Weekends and holidays differ slightly.
Dispatch Timing	Full response required within 10-minutes for 10-minute Reserves or within 30-minutes for 30-minute Reserves.
Automated DR Requirement	Yes. Ability to follow NYISO basepoints required.
Generator Requirements	Must meet federal, state and local requirements and be fully permitted.
Event Frequency	Capacity/Energy: Dependent on Energy offer and clearing price. Ancillary: Dependent on customer location. Typically 1-5 times per year.
Pricing	Dependent on location and offer parameters. Capacity: \$50k - \$180k. Ancillary: \$50k - \$75k. Energy: \$0 - 25k.(\$/MW-year)