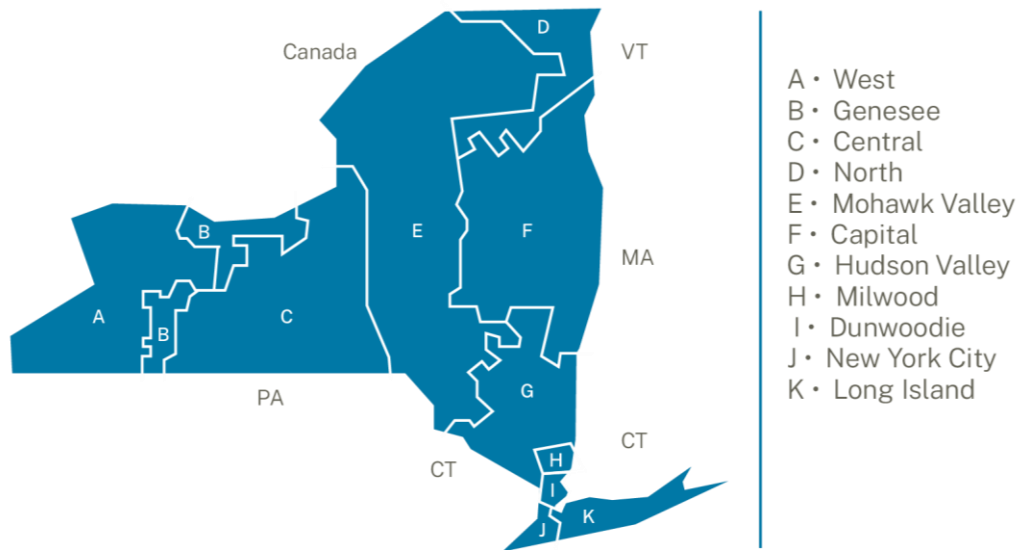


NYISO Demand Response

Demand Side Ancillary Services Program (DSASP)

NYISO Service Area and Zone Map



Demand Side Ancillary Services Program (DSASP)

ANCILLARY SERVICE PRODUCT	DESCRIPTION
10-MIN SYNCHRONOUS RESERVES	<ul style="list-style-type: none">• 10-min response time (behind-the-meter backup generation prohibited)• Respond as needed by NYISO in each hour resource clears the market• Dispatched to address system contingencies
10-MIN NON-SYNCHRONOUS RESERVES	<ul style="list-style-type: none">• 10-min response time (allows behind-the-meter backup generation)• Respond as needed by NYISO in each hour resource clears the market• Dispatched to address system contingencies
30-MIN SYNCHRONOUS RESERVES	<ul style="list-style-type: none">• 30-min response time (behind-the-meter backup generation prohibited)• Respond as needed by NYISO in each hour resource clears the market• Dispatched to address system contingencies
30-MIN NON-SYNCHRONOUS RESERVES	<ul style="list-style-type: none">• 30-min response time (allows behind-the-meter backup generation)• Respond as needed by NYISO in each hour resource clears the market• Dispatched to address system contingencies
REGULATION CAPACITY	<ul style="list-style-type: none">• 6-sec response time• Provide regulation service (ramp up/down) in each hour resource clears the market

Demand Side Ancillary Services Program (DSASP)

MINIMUM SIZE	1,000 kw
PARTICIPATION	Customer may bid into NYISO Day-Ahead Market (DAM) daily and choose hours of participation.
NUMBER & DURATION OF RESPONSE EVENTS	Participants agree to provide the load reduction for hours during which bids clear DAM. Events are generally called during Reserve Pickup Events (RPU), typically lasting a total of 10-30 minutes. There is no limit to the number or start time of events.
NOTIFICATION	10-min Synchronous and 10-min Non-Synchronous Reserve participants must drop to required level within 10 minutes. 30-min Synchronous and 30-min Non-Synchronous Reserve participants must drop to required level within 30 minutes. Regulation participants must move up or down to required level within 6 seconds.
COMPENSATION	Hourly DAM clearing price paid for hours when customer has bid in and cleared the market.
BASELINE /PERFORMANCE	Performance is based upon the load reduced within the respective product's notification lead time from the last 6-second telemetered load value prior to the event start time. Resource must return to load level as of the event start time following the event end.
SETTLEMENTS	Customers are paid monthly their portion of the Ancillary Service market revenues, minus any Real-Time true ups, plus any Day-Ahead Margin Assurance Payments (DAMAP) or Bid Production Cost Guarantee (BPCG) payments are issued 60 days after we have received payment from NYISO.
COMPLIANCE	Customers are required to curtail up to the amount of capacity committed in the DAM for the hour. NYISO may not dispatch the full committed capacity.
CONSEQUENCES OF NON-PERFORMANCE	Derating: Failure to perform in a test will result in NYISO derating the Resource to 0. A retest can be requested to resume market participation. Real-Time (RT) Market Penalties: If a resource becomes unavailable prior to the operating hour in which it has a commitment or fails to perform in a test or event, it must buy out its commitment at the RT market price for the applicable product.
TESTING	A mandatory test is administered prior to the customer entering the market, plus at least one test per Capability Period (event performance data can be used in lieu of a test).
ENROLLMENT DEADLINE	Rolling deadline. Registration and qualification can take several months.
METERING	Each account must have an hourly interval or utility AMI meter, plus 6-second real-time telemetry capable of two-way communications.

DSASP Reserves Event History

YEAR	EVENTS	ZONE A
2015	FREQUENCY	10
	AVG DURATION (MIN/EVENT)	16.5
	TOTAL MIN.	165
2016	FREQUENCY	20
	AVG DURATION (MIN/EVENT)	17
	TOTAL MIN.	340
2017	FREQUENCY	11
	AVG DURATION (MIN/EVENT)	18.6
	TOTAL MIN.	205
2018	FREQUENCY	7
	AVG DURATION (MIN/EVENT)	16.3
	TOTAL MIN.	114
2019	FREQUENCY	2
	AVG DURATION (MIN/EVENT)	7.5
	TOTAL MIN.	15
2020	FREQUENCY	0
	AVG DURATION (MIN/EVENT)	0
	TOTAL MIN.	0
2021	FREQUENCY	0
	AVG DURATION (MIN/EVENT)	0
	TOTAL MIN.	0
2022	FREQUENCY	0
	AVG DURATION (MIN/EVENT)	0
	TOTAL MIN.	0
8-YEAR Summary	AVG FREQUENCY	6.2
	AVG DURATION (MIN/EVENT)	9.5
	TOTAL MIN.	139.8

DSASP Ancillary Service Historical Prices (\$/MW/YR)

YEAR		10-MIN SYNCHRONOUS RESERVES		10-MIN NON-SYNCHRONOUS RESERVES		30-MIN NON-SYNCHRONOUS RESERVES		REGULATION CAPACITY	
		West	East	West	East	West	East	West	East
2015	Avg. \$/MWh	\$3.58	\$5.84	\$1.44	\$3.41	\$1.23	\$1.23	\$9.23	\$9.23
	\$/MW/YR	\$31.3k	\$51.2k	\$12.6k	\$29.9k	\$10.8k	\$10.8k	\$80.8k	\$80.8k
2016	Avg. \$/MWh	\$5.21	\$5.63	\$5.12	\$5.38	\$5.12	\$5.12	\$8.40	\$8.40
	\$/MW/YR	\$45.8k	\$49.5k	\$45k	\$47.3k	\$45k	\$45k	\$73.7k	\$73.7k
2017	Avg. \$/MWh	\$4.55	\$5.00	\$4.01	\$4.18	\$4.00	\$4.01	\$10.28	\$10.28
	\$/MW/YR	\$39.9k	\$43.8k	\$35.1k	\$36.6k	\$35.1k	\$35.1k	\$90k	\$90k
2018	Avg. \$/MWh	\$5.31	\$6.28	\$4.18	\$4.69	\$4.16	\$4.16	\$11.24	\$11.24
	\$/MW/YR	\$46.5k	\$55k	\$36.6k	\$41.1k	\$36.5k	\$36.5k	\$98.4k	\$98.4k
2019	Avg. \$/MWh	\$3.97	\$4.24	\$3.62	\$3.67	\$3.62	\$3.62	\$9.08	\$9.08
	\$/MW/YR	\$34.8k	\$37.1k	\$31.7k	\$32.1k	\$31.7k	\$31.7k	\$79.5k	\$79.5k
2020	Avg. \$/MWh	\$3.62	\$3.91	\$3.09	\$3.20	\$3.08	\$3.10	\$5.83	\$5.83
	\$/MW/YR	\$30.1k	34.4K	\$27.1k	\$27.1k	\$27.1k	\$27.3k	\$51.2k	\$51.2k
2021	Avg. \$/MWh	\$4.11	\$5.05	\$3.60	\$4.00	\$3.60	\$3.69	\$7.10	\$7.10
	\$/MW/YR	\$36.0k	\$44.2k	\$31.5k	\$35.0k	\$31.5k	\$32.3k	\$62.1k	\$62.1k
2022*	Avg. \$/MWh	\$6.47	\$9.39	\$5.51	\$7.53	\$5.51	\$5.65	\$14.62	\$14.62
	\$/MW/YR	\$56.6k	\$82.2k	\$48.3k	\$66.0k	\$48.2k	\$49.4k	\$128.0k	\$128.0k

* Annualized values based upon YTD avg clearing prices extrapolated for full year