

# 2017 CARIS 1 Preliminary Scenario Results and Identification of Three Studies

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# 2017 CARIS 1 Scenarios

# 2017 CARIS 1 Scenarios – Results Pending

Scenario	Description
Public Policy Transmission	Western NY PPTPN (recommended project) and AC Transmission PPTPN (generic segments A and B)
System Resource Shift <sup>a</sup>	Achievement of “50 by 30” objectives by 2026 (Solar, On-Shore and Off-Shore Wind) /Retirement of NYCA Coal Units/ Retirement of IP 2 and 3 units

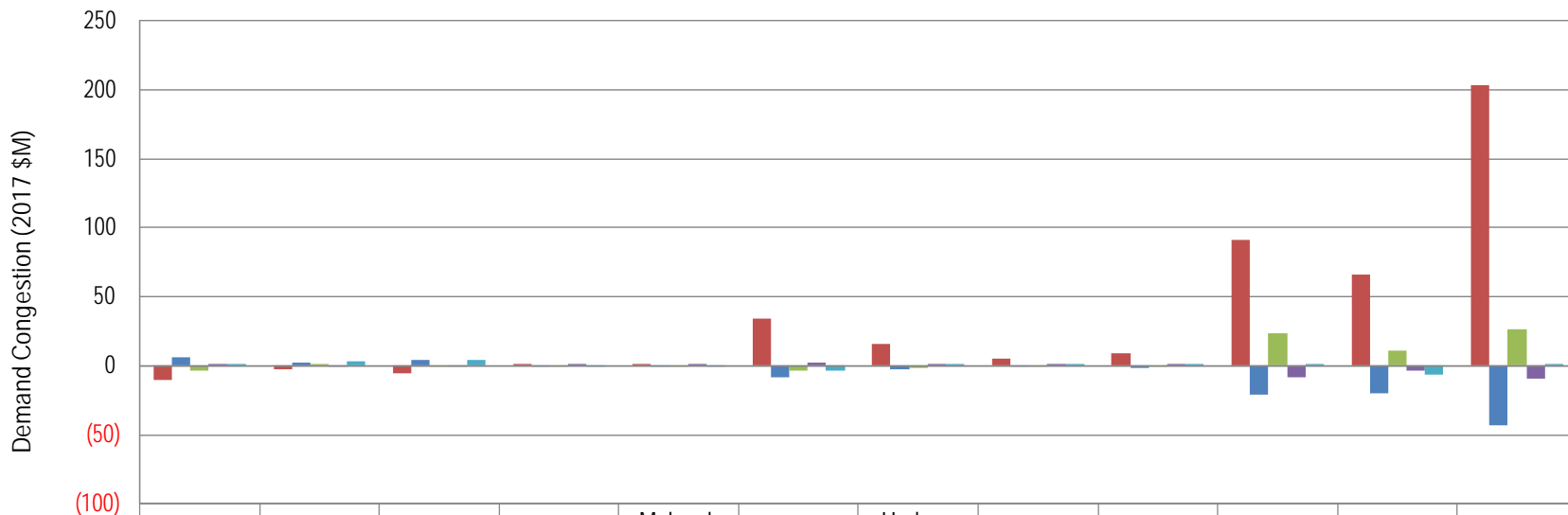
<sup>a</sup> Combining Indian Point Retirement & High Renewable Penetration scenarios previously discussed (along with coal unit retirements)

# 2017 CARIS 1 Scenarios

Scenario	Description
High Load Forecast	Higher growth rate
Low Load Forecast	Lower growth rate
High Natural Gas Prices	Derived from 2017 EIA AEO High Forecast
Low Natural Gas Prices	Derived from 2017 EIA AEO Low Forecast
National CO <sub>2</sub> Program	RGGI carbon pricing applied to Non-RGGI states

# Demand Congestion Delta (2017 \$M)

PROJECTED DEMAND CONGESTION DELTA BY ZONE (2017 \$M)

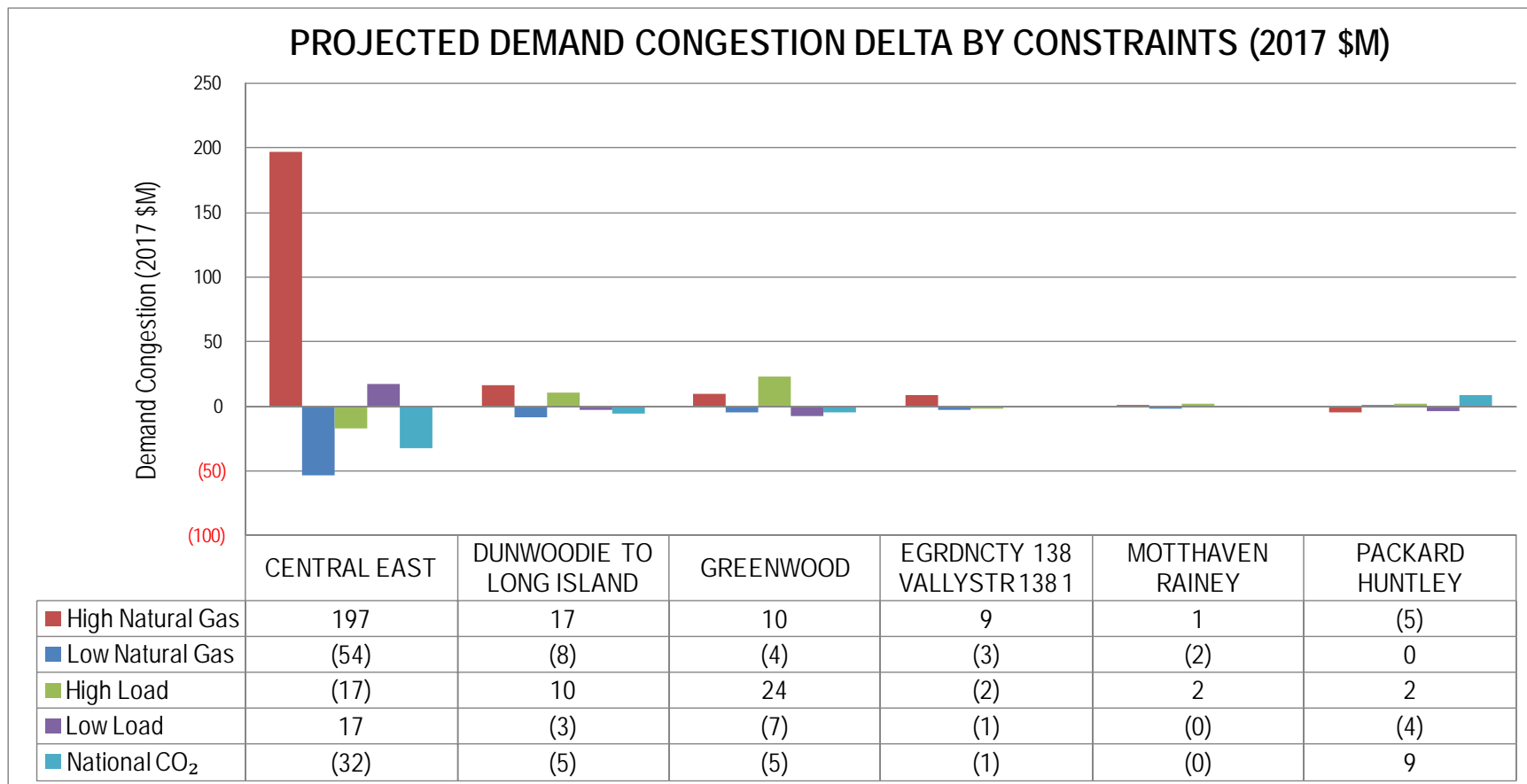


	West	Genesee	Central	North	Mohawk Valley	Capital	Hudson Valley	Millwood	Dunwoodie	NY City	Long Island	NYCA Total
■ High Natural Gas	(11)	(3)	(6)	0	2	34	16	5	9	91	66	204
■ Low Natural Gas	6	2	4	(0)	(0)	(9)	(3)	(1)	(1)	(21)	(20)	(43)
■ High Load	(3)	0	(0)	(0)	(0)	(3)	(1)	(0)	(1)	24	11	26
■ Low Load	1	(1)	(1)	0	0	3	1	0	0	(9)	(4)	(9)
■ National CO <sub>2</sub>	1	4	5	(0)	(0)	(4)	1	0	1	1	(6)	1

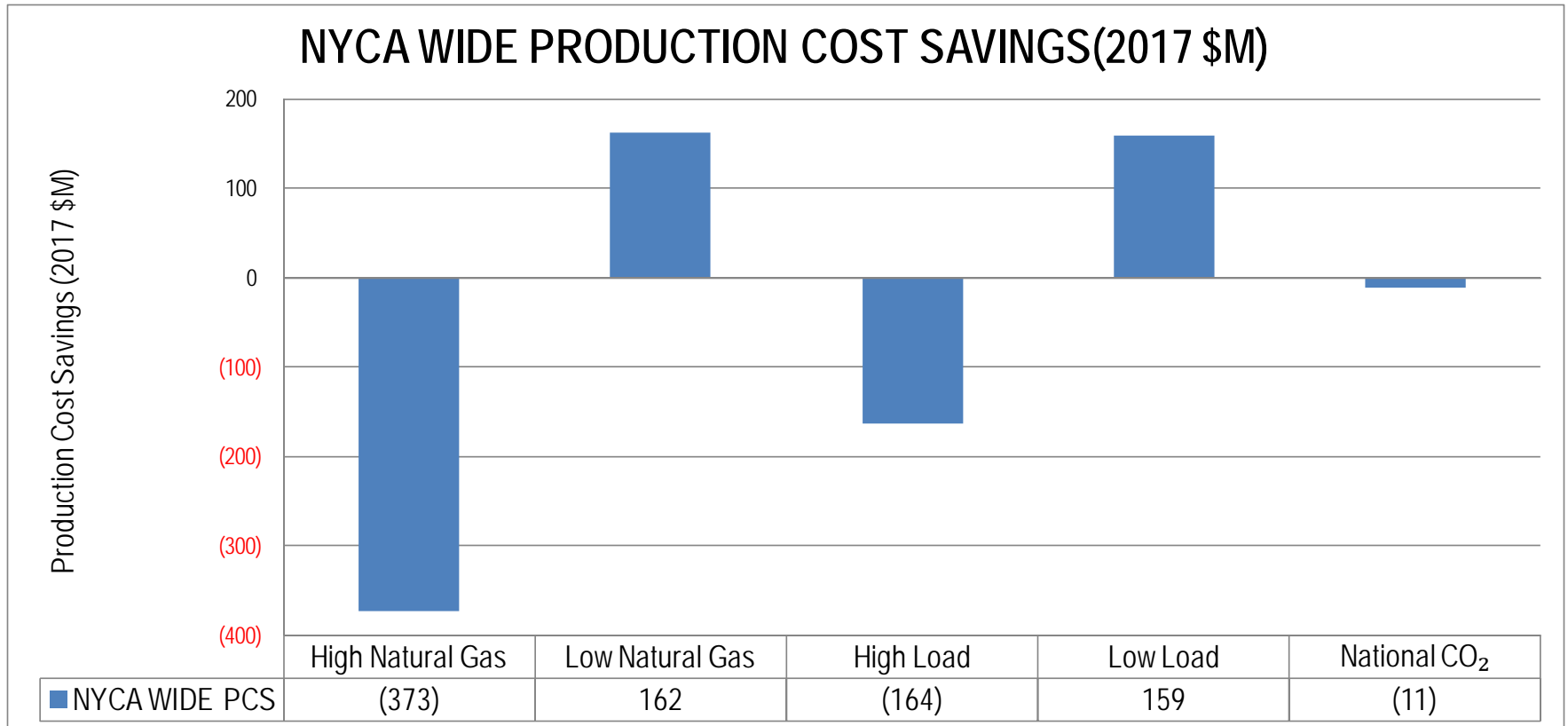
# Demand Congestion Delta by Constraint (2017 \$M)

Demand Congestion (2017 \$M)	High Natural Gas	Low Natural Gas	High Load	Low Load	National CO <sub>2</sub>
CENTRAL EAST	197	(54)	(17)	17	(32)
DUNWOODIE TO LONG ISLAND	17	(8)	10	(3)	(5)
GREENWOOD	10	(4)	24	(7)	(5)
EGRDNCTY 138 VALLYSTR 138 1	9	(3)	(2)	(1)	(1)
MOTTHAVEN RAINEY	1	(2)	2	(0)	(0)
PACKARD HUNTLEY	(5)	0	2	(4)	9
LEEDS PLEASANT VALLEY	0	(0)	1	0	(0)
VOLNEY SCRIBA	(0)	0	1	(1)	0
NIAGARA PACKARD	1	(0)	2	(1)	1
E179THST HELLGT ASTORIAE	0	(0)	0	(0)	0
RAINEY VERNON	1	(0)	1	(0)	(0)
DUNWOODIE MOTTHAVEN	(0)	(0)	0	(1)	0
EDIC MARCY	(0)	1	1	(0)	1
NIAGARA ROBINSON	0	(0)	0	(0)	(0)
STOLLE GARDENVILLE	(1)	1	1	(0)	4
GLENWD 138 SHORE_RD 138 1	0	0	0	0	0
W49TH_ST 345 SPRNBRK 345 1	0	0	0	0	0
<b>Grand Total</b>	<b>229</b>	<b>(69)</b>	<b>25</b>	<b>(2)</b>	<b>(29)</b>
<b>NYCA Total</b>	<b>204</b>	<b>(43)</b>	<b>26</b>	<b>(9)</b>	<b>1</b>

# Demand Congestion Delta by Constraint (2017 \$M)



# NYCA Wide Production Cost Savings(PCS) (2017 \$M)





# Demand Congestion by Constraints(2017 \$M)

- Sorted by 15Y Total

Constraint Group(2017 \$M)	2012	2013	2014	2015	2016	Hist. Total	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	Proj. Total	15Y Total
CENTRAL EAST	370	1,476	1,439	1,083	709	5,077	119	203	281	283	314	232	115	174	123	121	1,966	7,043
DUNWOODIE TO LONG ISLAND	386	415	196	163	182	1,342	25	20	28	31	34	33	34	30	31	30	298	1,639
LEEDS PLEASANT VALLEY	199	187	54	131	70	641	3	2	2	2	2	1	0	1	2	2	17	659
GREENWOOD	105	131	16	22	35	309	12	27	24	20	20	16	15	15	16	17	182	491
PACKARD HUNTLEY	0	7	8	49	60	124	36	19	27	29	20	23	12	18	9	9	203	327
EGRDNCTY 138 VALLYSTR 138 1	11	18	26	21	8	85	9	10	12	14	14	14	13	13	11	13	123	208
NIAGARA PACKARD	4	28	23	26	49	130	4	1	2	2	3	3	1	2	1	1	20	149
DUNWOODIE MOTTHAVEN	32	24	50	3	3	112	0	0	1	0	1	1	1	1	1	1	8	119
NEW SCOTLAND LEEDS	13	37	11	38	14	113	-	-	-	-	-	-	-	-	-	-	-	113
SHORE_RD 345 SHORE_RD 138 1	5	49	16	32	3	104	-	-	-	-	-	-	-	-	-	-	-	104
EDIC MARCY	1	0	8	1	35	45	29	8	7	6	2	3	-	2	0	0	57	102
RAINEY VERNON	14	43	2	8	9	75	0	0	1	1	1	1	1	1	1	1	7	83

# Demand Congestion by Constraints(2017 \$M)

- Sorted by 10Y Projection Total

Constraint Group(2017 \$M)	2012	2013	2014	2015	2016	Hist. Total	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	Proj. Total	15Y Total
CENTRAL EAST	370	1,476	1,439	1,083	709	5,077	119	203	281	283	314	232	115	174	123	121	1,966	7,043
DUNWOODIE TO LONG ISLAND	386	415	196	163	182	1,342	25	20	28	31	34	33	34	30	31	30	298	1,639
PACKARD HUNTLEY	0	7	8	49	60	124	36	19	27	29	20	23	12	18	9	9	203	327
GREENWOOD	105	131	16	22	35	309	12	27	24	20	20	16	15	15	16	17	182	491
EGRDNCTY 138 VALLYSTR 138 1	11	18	26	21	8	85	9	10	12	14	14	14	13	13	11	13	123	208
EDIC MARCY	1	-	8	1	35	45	29	8	7	6	2	3	-	2	0	0	57	102
MOTTHAVEN RAINEY	7	0	0	1	3	10	-	0	0	1	4	5	4	4	5	5	28	38
STOLLE GARDENVILLE	-	-	-	9	9	18	3	2	5	2	2	3	2	2	1	1	23	41
NIAGARA PACKARD	4	28	23	26	49	130	4	1	2	2	3	3	1	2	1	1	20	149
LEEDS PLEASANT VALLEY	199	187	54	131	70	641	3	2	2	2	2	1	0	1	2	2	17	659
E179THST HELLGT ASTORIAE	15	21	4	3	3	47	0	0	0	0	1	1	1	1	1	1	8	56
DUNWOODIE MOTTHAVEN	32	24	50	3	3	112	0	0	1	0	1	1	1	1	1	1	8	119

# 2017 CARIS 1 Study Selection

# Relaxation Starting Point

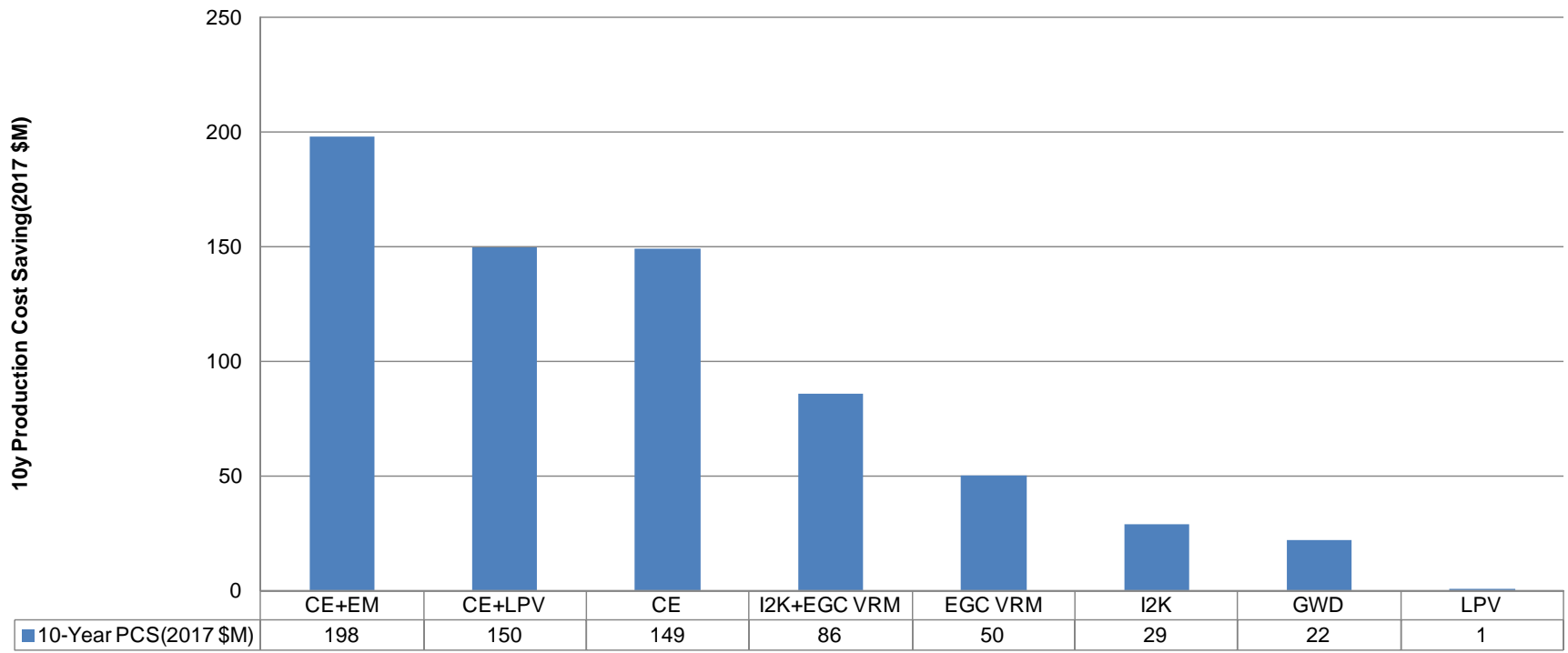
- Relaxation process begins with top 10 constraints based on 15Y Total
- Process does allow for consideration of additional constrains whose forecasted congestion significantly exceed historical values
- Relaxation starting point
  - CENTRAL EAST
  - DUNWOODIE TO LONG ISLAND
  - LEEDS PLEASANT VALLEY
  - GREENWOOD
  - EAST GARDEN CITY VALLEY STREAM
  - EDIC MARCY

# Central and Eastern Relaxation: Demand Congestion

Demand Congestion (2017 \$M)	Base Case	10 YEAR RELAXATION								
		CENTRAL EAST (CE)	DUNWOODIE TO LONG ISLAND (I2K)	GREENWOOD (GWD)	ERGNCTY VALLYSTR (EGC VRM)	LEEDS PLEASANT VALLEY (LPV)	EDIC MARCY (EM)	CE+EM	CE+LPV	I2K+EGC VRM
CENTRAL EAST	\$ 1,966	\$ -	\$ 2,001	\$ 1,978	\$ 1,960	\$ 1,966	\$ 2,578	\$ -	\$ -	\$ 1,980
DUNWOODIE TO LONG ISLAND	\$ 298	\$ 313	\$ -	\$ 297	\$ 365	\$ 299	\$ 307	\$ 314	\$ 314	\$ -
LEEDS PLEASANT VALLEY	\$ 17	\$ 19	\$ 21	\$ 18	\$ 18	\$ -	\$ 19	\$ 20	\$ -	\$ 23
GREENWOOD	\$ 182	\$ 186	\$ 179	\$ -	\$ 183	\$ 182	\$ 181	\$ 181	\$ 186	\$ 179
EGRDNCTY 138 VALLYSTR 138 1	\$ 123	\$ 125	\$ 125	\$ 122	\$ -	\$ 123	\$ 119	\$ 121	\$ 125	\$ -
EDIC MARCY	\$ 57	\$ 59	\$ 59	\$ 55	\$ 56	\$ 59	\$ -	\$ -	\$ 61	\$ 57

# Central and Eastern Relaxation: Production Cost Saving

Ranking of Grouped Elements Based on Production Cost Savings(2017 \$M)



# Final Study Selection

- **3 Studies Identified are Inclusive of Central East**
  - Central East-Edic Marcy
  - Central East-Pleasant Valley
  - Central East
- **NYISO additionally intends to study Central East-Pleasant Valley corridor under “System Resource Shift” scenario and the Central East interface with Edic Marcy constraints resolved**
  - Providing additional data to stakeholders on the potential production cost savings and the cost effectiveness of solutions under those assumptions.

## The Mission of the New York Independent System Operator, in collaboration with its stakeholders, is to serve the public interest and provide benefits to consumers by:

- Maintaining and enhancing regional reliability
- Operating open, fair and competitive wholesale electricity markets
- Planning the power system for the future
- Providing factual information to policy makers, stakeholders and investors in the power system

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