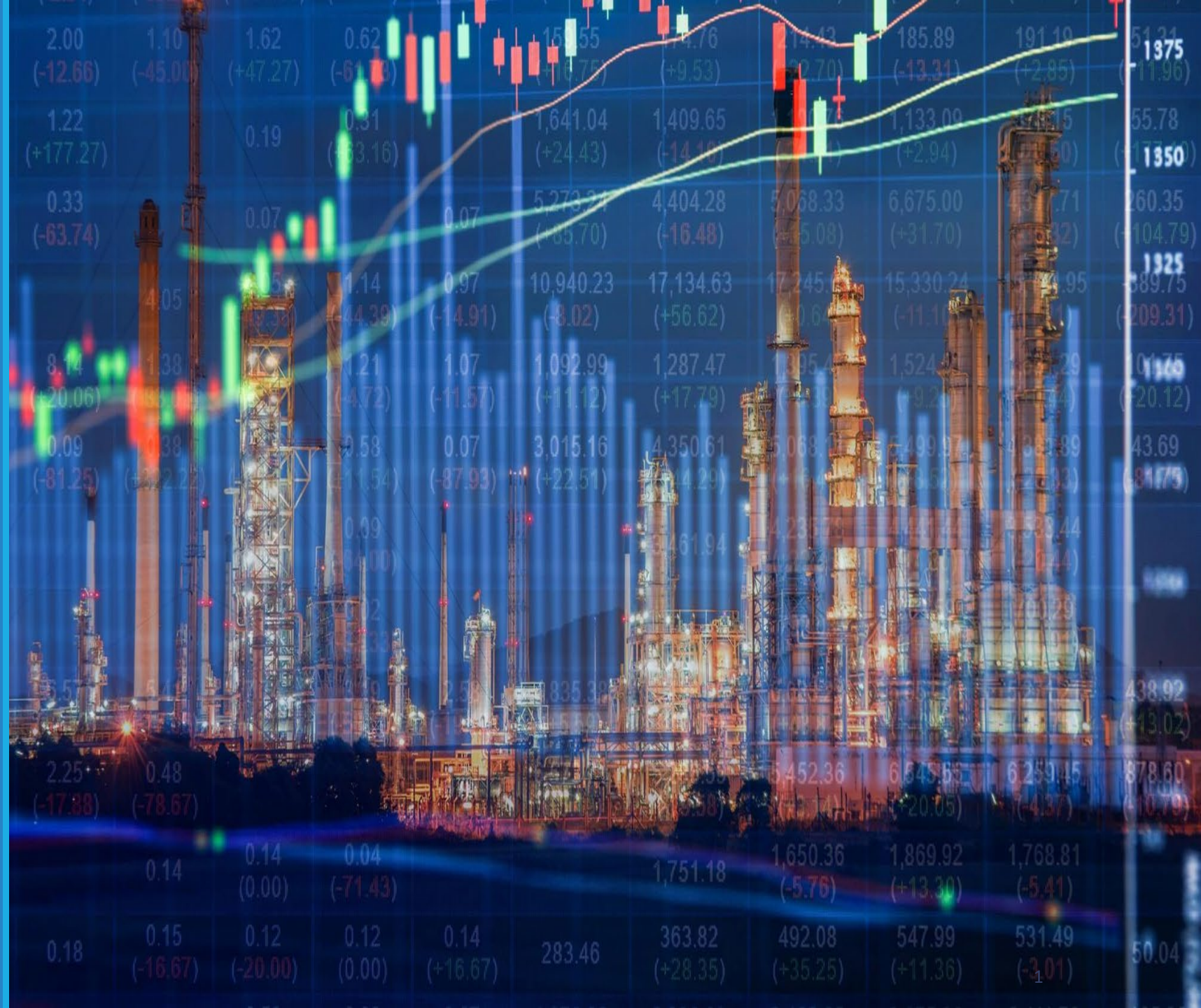
Electricity Supply Considerations for the City of Naperville Municipal Utility

July 28, 2025

The Power Bureau, LLC

CJT Energy Law, LLC

Progressive Energy Solutions, LLC



AGENDA

Reliability	▪ PJM Wholesale Market Operations ▪ Naperville Utility System Reliability
Affordability	▪ PJM Market Prices ▪ Physical and Financial Hedging ▪ Naperville Electric Utility Price Performance
Sustainability	▪ Baseline Emissions ▪ Environmental Attributes ▪ Approaches to meet Sustainability Goals
Discussion	▪ Questions and Responses

OVERVIEW

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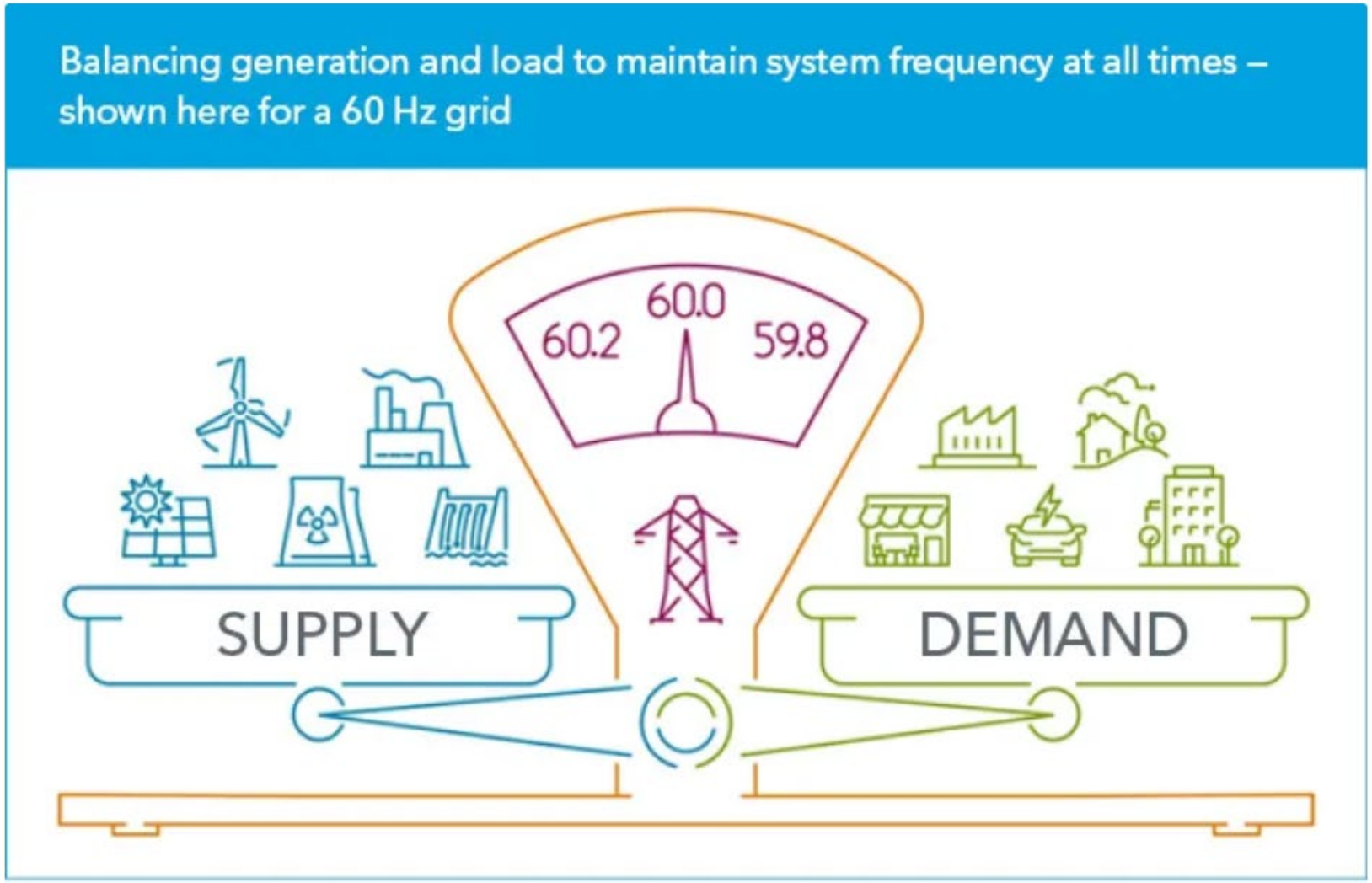
Power Bureau	• Advisor on energy policy, planning, and procurement • Retail and Wholesale energy transaction support
CJT Energy Law	• Legal analysis and advocacy supporting transactions, regulatory proceedings and legislation • Representing entities other than the local utilities
Assignment	• Summarize Supply Considerations - Reliability - Affordability - Sustainability

RELIABILITY

PJM Wholesale Market Operations

Naperville Utility System Reliability

Grid Reliability Requires Maintaining Balance between Supply and Demand



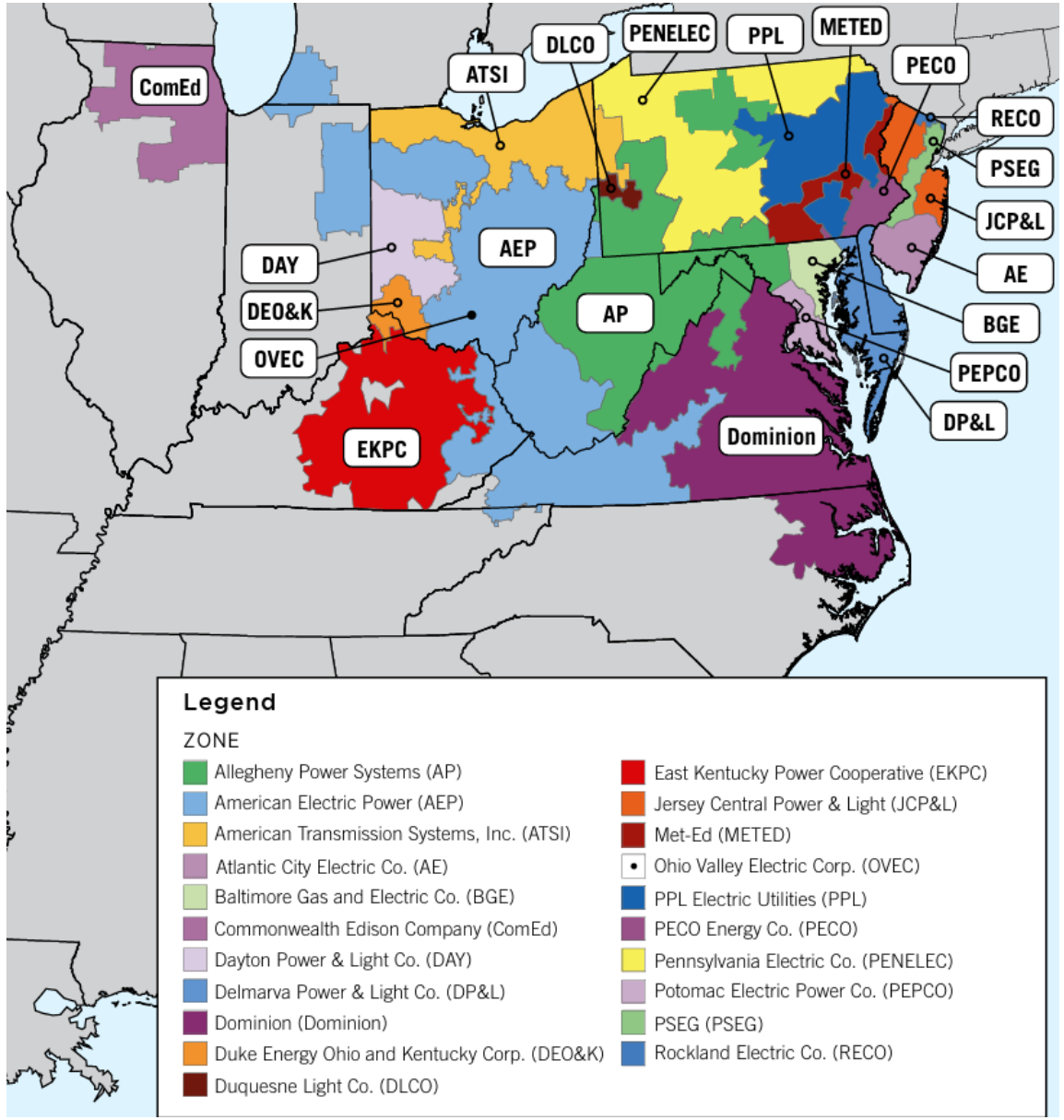
Source: Pacific Northwest National Laboratory

RELIABILITY

PJM Wholesale Market Operations

Naperville Utility System Reliability

PJM Manages Supply and Demand for XX million consumers



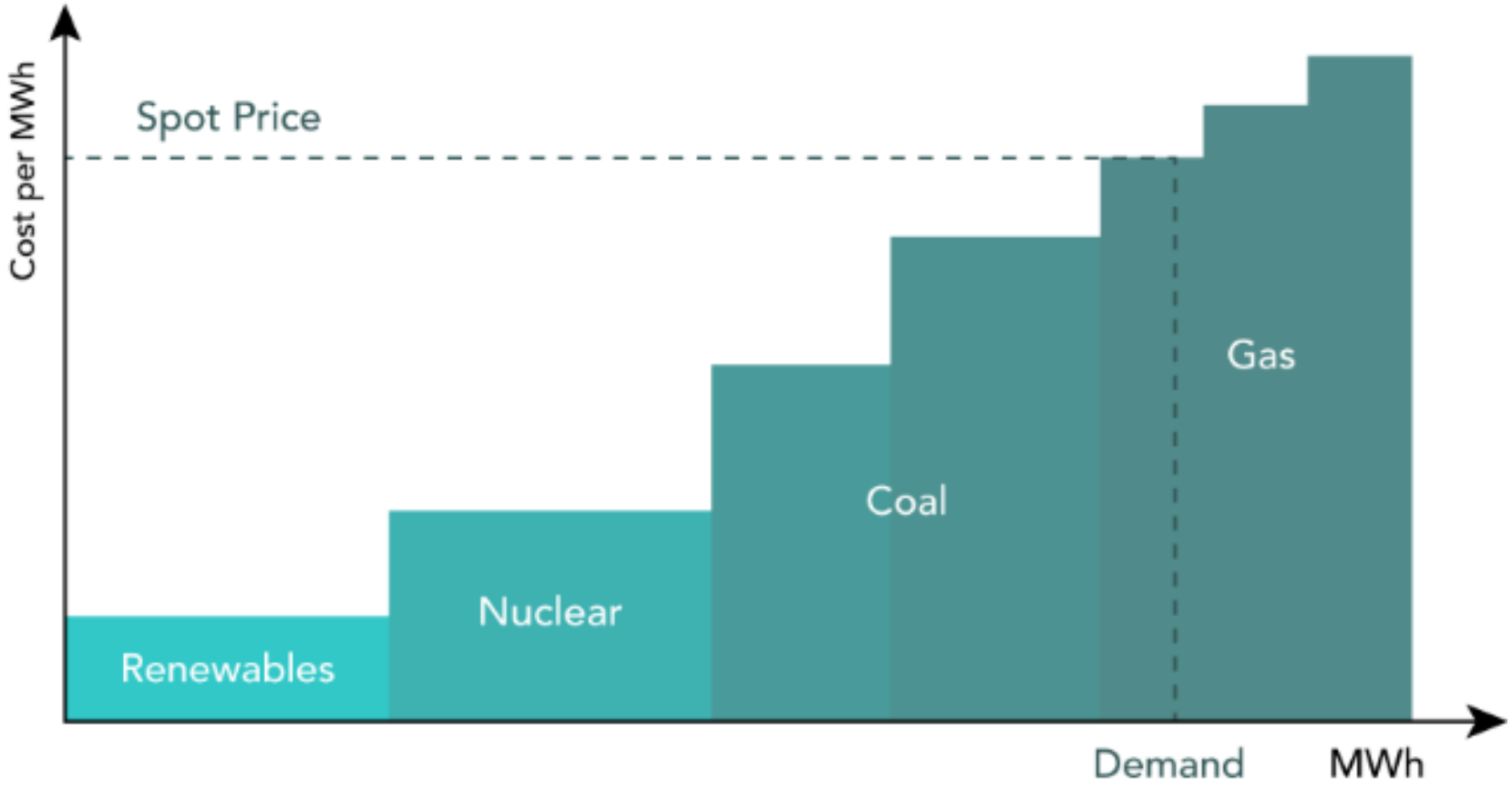
Source: PJM Interconnection

RELIABILITY

PJM Wholesale Market Operations

Naperville Utility System Reliability

PJM Uses Clearing Price Auctions to Set Prices for Energy and Capacity



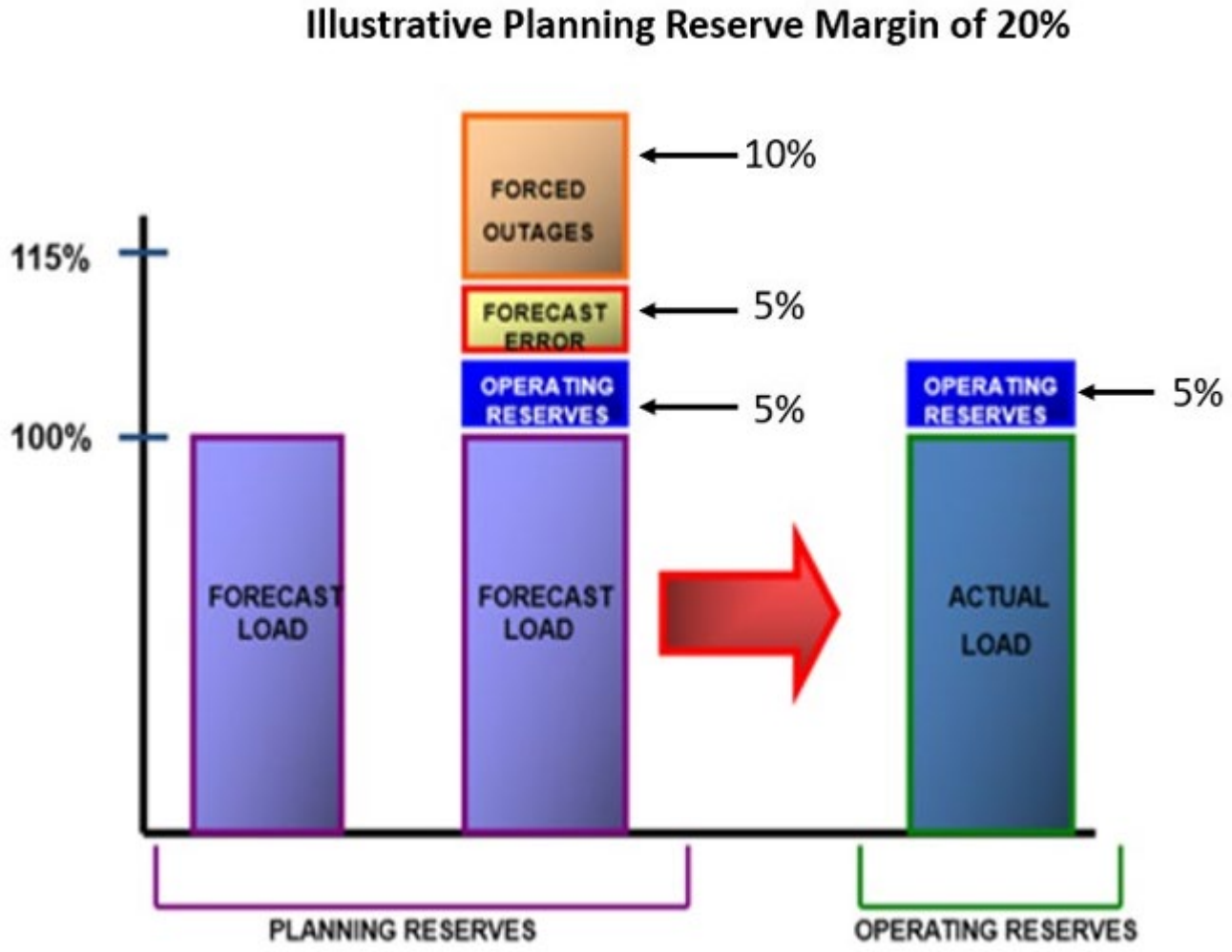
Source: RTO Insider

RELIABILITY

PJM Wholesale Market Operations

Naperville Utility System Reliability

PJM Auctions Procure Planned Resources *plus* a Planning Reserve Margin



Source: Reliability First Corporation

RELIABILITY: PJM is Responsible for Securing Sufficient Supply for the Naperville Municipal Utility

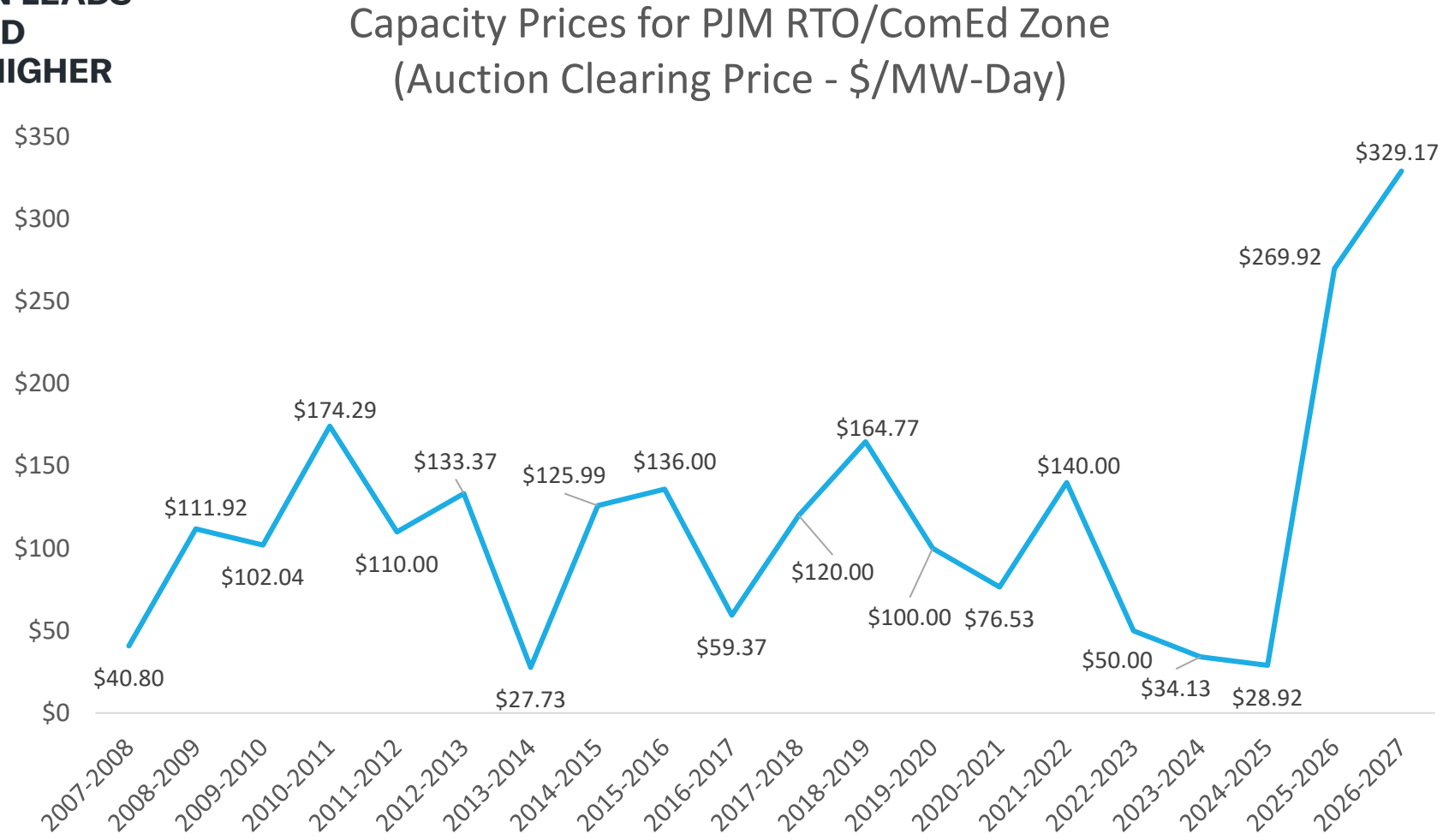
Table 12: Anticipated Reserve Margins with Announced Retirements											
	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034
MISO[13]	17.7%	10.3%	10.3%	13.2%	8.6%	7.1%	10.6%	8.2%	7.5%	4.2%	-2.5%
MRO-Manitoba	12.5%	21.3%	18.4%	18.0%	15.0%	9.8%	0.5%	-0.6%	-1.7%	-2.9%	-4.2%
MRO-SaskPower	28.9%	27.8%	26.6%	31.1%	29.4%	7.0%	28.8%	28.0%	26.7%	26.8%	1.2%
MRO-SPP	28.3%	26.7%	26.0%	25.0%	20.8%	19.1%	26.7%	24.9%	23.5%	22.4%	8.1%
NPCC-Maritimes	18.9%	20.6+%	25.5%	25.1%	18.6%	3.9%	23.4%	20.7%	19.1%	17.7%	-1.5%
NPCC-New England	20.4%	25.0%	25.0%	26.3%	24.9%	23.5%	22.0%	20.1%	19.7%	17.1%	14.6%
NPCC-New York	18.4%	17.1%	21.4%	22.5%	22.4%	21.6%	20.7%	18.3%	16.7%	14.9%	13.6%
NPCC-Ontario	22.5%	20.8%	23.6%	15.7%	23.0%	9.5%	5.1%	-0.2%	-1.4%	-3.9%	-5.5%
NPCC-Quebec	12.5%	12.2%	13.1%	14.2%	12.6%	11.3%	9.8%	6.2%	3.5%	0.5%	-2.2%
PJM	29.8%	34.9%	35.7%	28.1%	21.4%	18.2%	23.1%	21.6%	20.1%	18.5%	10.3%
SERC-C	28.2%	18.9%	18.9%	15.0%	16.0%	15.2%	17.3%	17.1%	18.4%	21.1%	11.8%
SERC-E	30.4%	27.3%	25.8%	24.6%	20.6%	14.4%	14.3%	10.2%	6.3%	4.6%	-2.2%
SERC-FP	27.0%	25.4%	26.0%	23.2%	22.1%	20.9%	18.4%	22.0%	20.4%	18.2%	16.0%
SERC-SE	44.9%	39.9%	35.9%	31.5%	24.5%	21.4%	27.7%	25.8%	24.7%	23.7%	13.0%
TRE-ERCOT	24.3%	30.2%	32.5%	29.7%	25.6%	25.4%	27.8%	28.0%	28.4%	28.9%	24.9%
WECC-AB	36.3%	35.8%	35.7%	38.5%	41.7%	41.9%	35.4%	41.2%	33.6%	27.8%	27.0%
WECC-BC	20.9%	25.2%	25.2%	15.8%	15.9%	22.3%	22.1%	21.6%	21.2%	13.4%	19.9%
WECC-CA/MX	38.6%	45.5%	45.2%	38.4%	43.1%	28.8%	29.6%	23.3%	25.0%	15.2%	11.1%
WECC-NW	34.5%	40.3%	38.9%	35.6%	30.7%	24.5%	18.3%	12.2%	10.2%	8.1%	5.9%
WECC-SW	28.6%	37.0%	35.6%	31.6%	24.2%	17.4%	11.3%	7.7%	0.2%	-4.7%	-9.6%

Source: North American Electricity Reliability Corporation

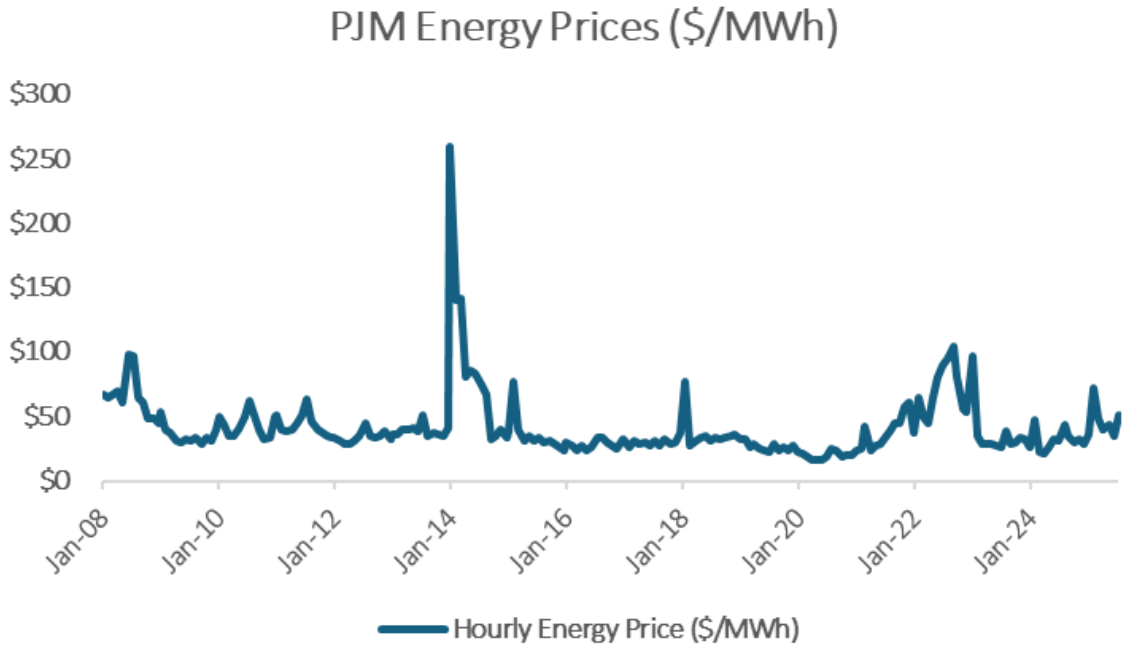
AFFORDABILITY: PJM's Recent Auction Resulted in the All-Time Highest Capacity Rates

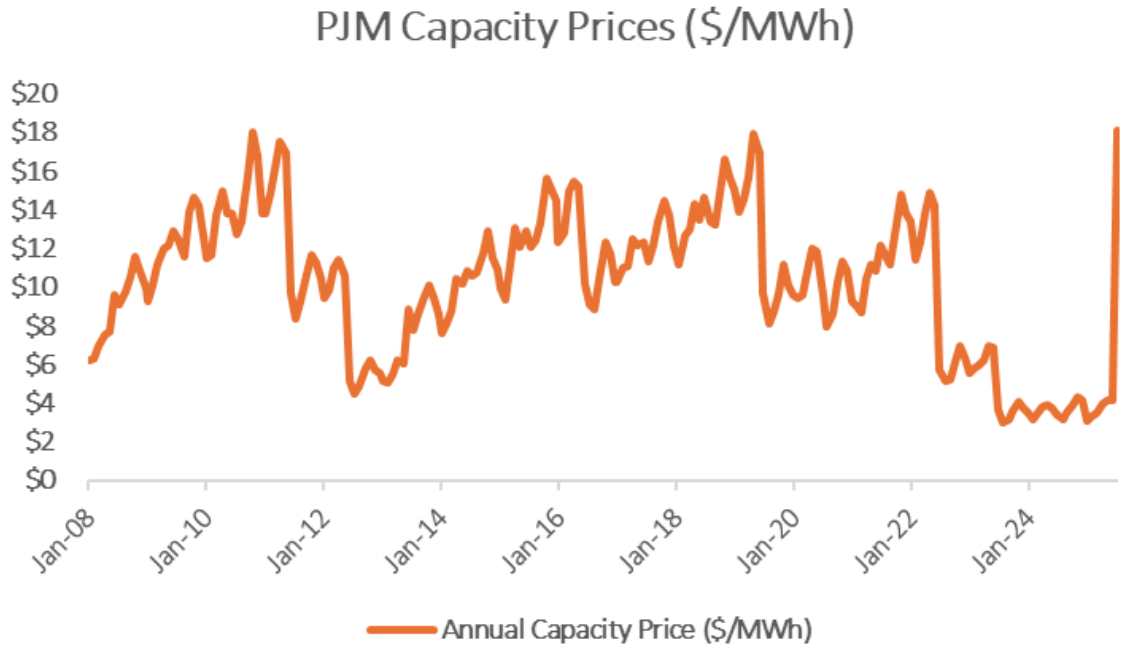
CUB STATEMENT: CAPACITY AUCTION LEADS TO RECORD PRICE SPIKE FOR SECOND STRAIGHT YEAR, THREATENS EVEN HIGHER COM ED BILLS IN 2026-27

CHICAGO, July 22, 2025
PRNewswire
"While we are relieved that the negotiated price cap prevented capacity costs from soaring even higher, this record price spike is unacceptable. CUB is deeply concerned that ComEd customers will continue to bear painfully high costs for another year, largely because of policy shortcomings from PJM. "



AFFORDABILITY: PJM Auction Prices are Volatile due to Supply and Demand Impacting the Price





Source: Monitoring Analytics

AFFORDABILITY

PJM Market Prices

Physical and Financial Hedging

Naperville Electric Utility Price Performance

Hedging Allows Consumers the Option of Limiting the Risk of the Price Volatility

Variable	Financial Hedging	Physical Hedging
Concept	Trade the variable market price for a fixed market price	Trade the variable market price for the cost to generate from a power resource
Typical Approach	Futures and options contracts	Partial or full output (ownership) of a power asset
Term	Usually 1-5 years (limited by liquidity)	10-30 years (usually the life expectancy of the power asset)
Counterparty	Banking institutions Retail energy suppliers Wholesale brokers	Power plant owners Power plant developers Distributed generation
Benefits	Book transactions Short duration Flexible	Physical Assets Long duration Quite stable
Challenges	New contracts reset at-market Counterparty risk Become "out of the money"	Minimum size Long-term commitment / Credit Become "out of the money"

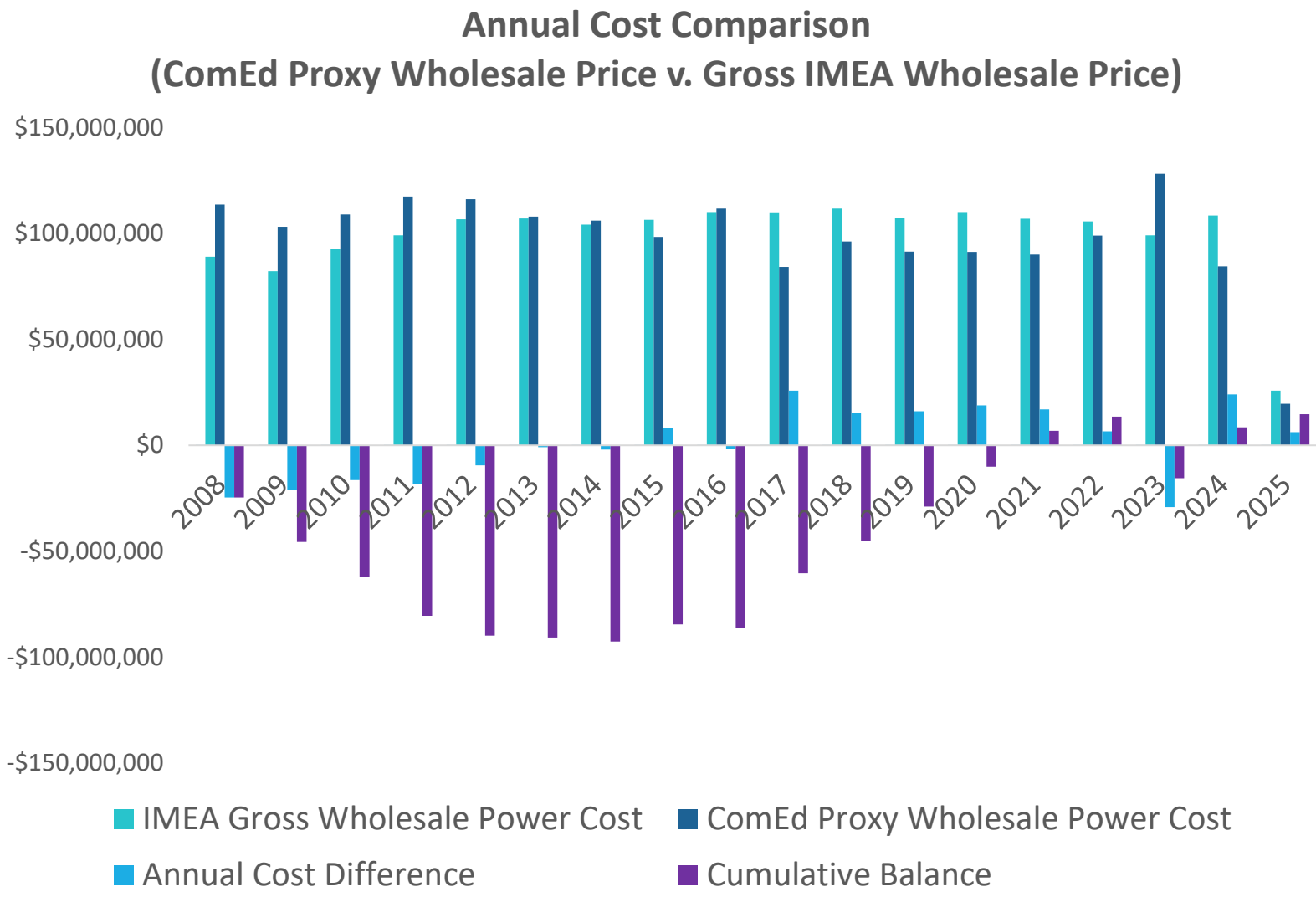
AFFORDABILITY

PJM Market Prices

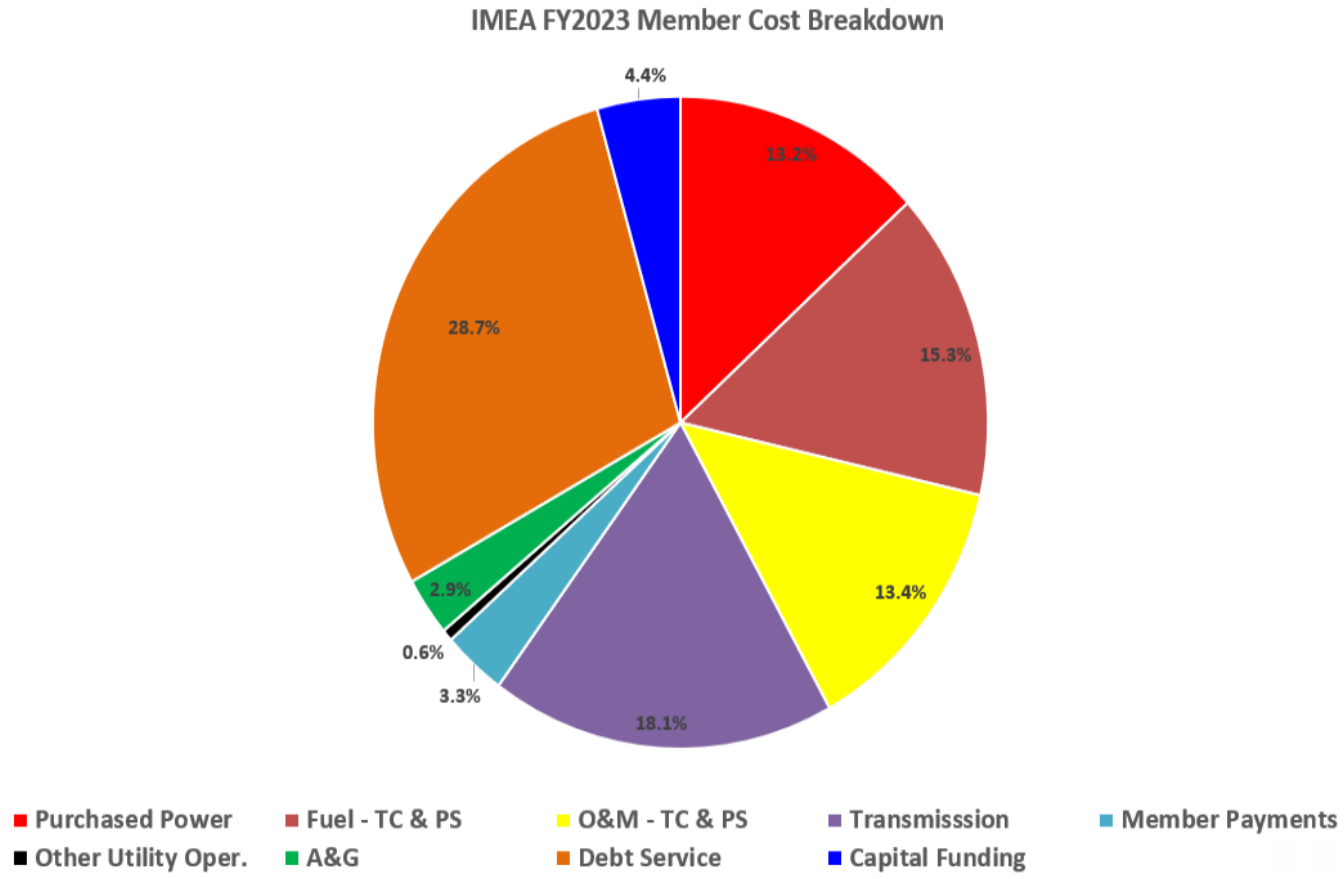
Physical and Financial Hedging

Naperville Electric Utility Price Performance

Including Debt Service, the Financial and Physical Hedges Delivered Stable Net Prices that have Delivered a Slight Cost Advantage over the Period



AFFORDABILITY: IMEA Benchmarking Proxy: Portions of IMEA's Costs are not Supply-Related



IMEA COST CATEGORY	ALLOCATION		NOTES
	GROSS	NET	
Purchased Power	13.2%	13.2%	Direct cost of supply; Included
Fuel - TC & PS	15.3%	15.3%	Operating cost related to generation; Included
O&M - TC & PS	13.4%	13.4%	Operating cost related to generation; Included
Transmission	18.1%	18.1%	Wholesale cost related to supply; Included
Member Payments	3.3%	3.3%	Wholesale cost of capacity; Included
Other Utility Operations	0.6%	0.6%	Indirect cost of supply management/generation; Included
A & G	2.9%	2.9%	Indirect cost of supply management/generation; Included
Debt Service	28.7%	0.0%	Investment with expected return; Excluded
Capital Funding	4.4%	4.4%	Indirect cost of generation; Included
TOTAL	**100%**	**71.2%**	**Net % of IMEA costs related to generation/supply**

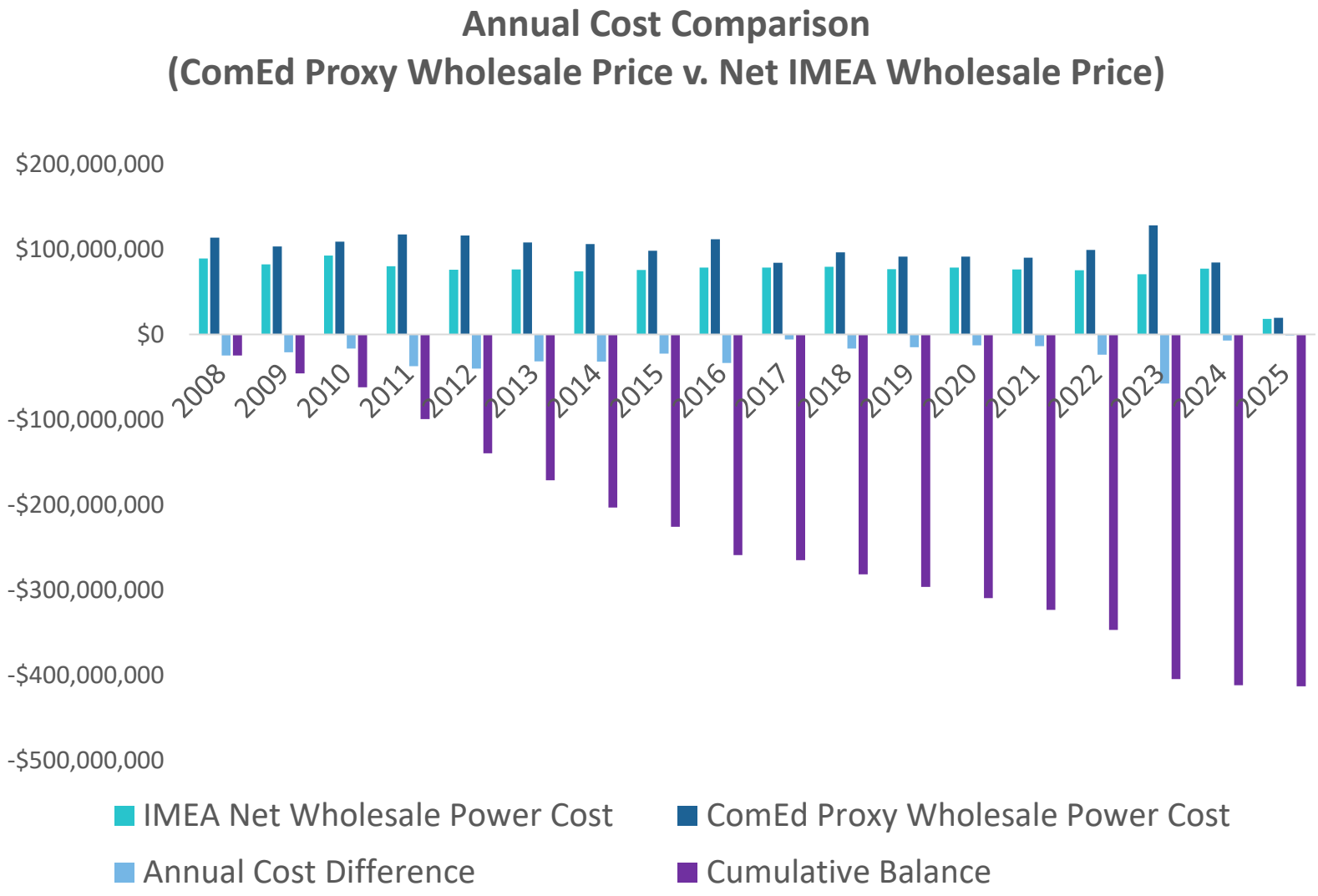
AFFORDABILITY

PJM Market Prices

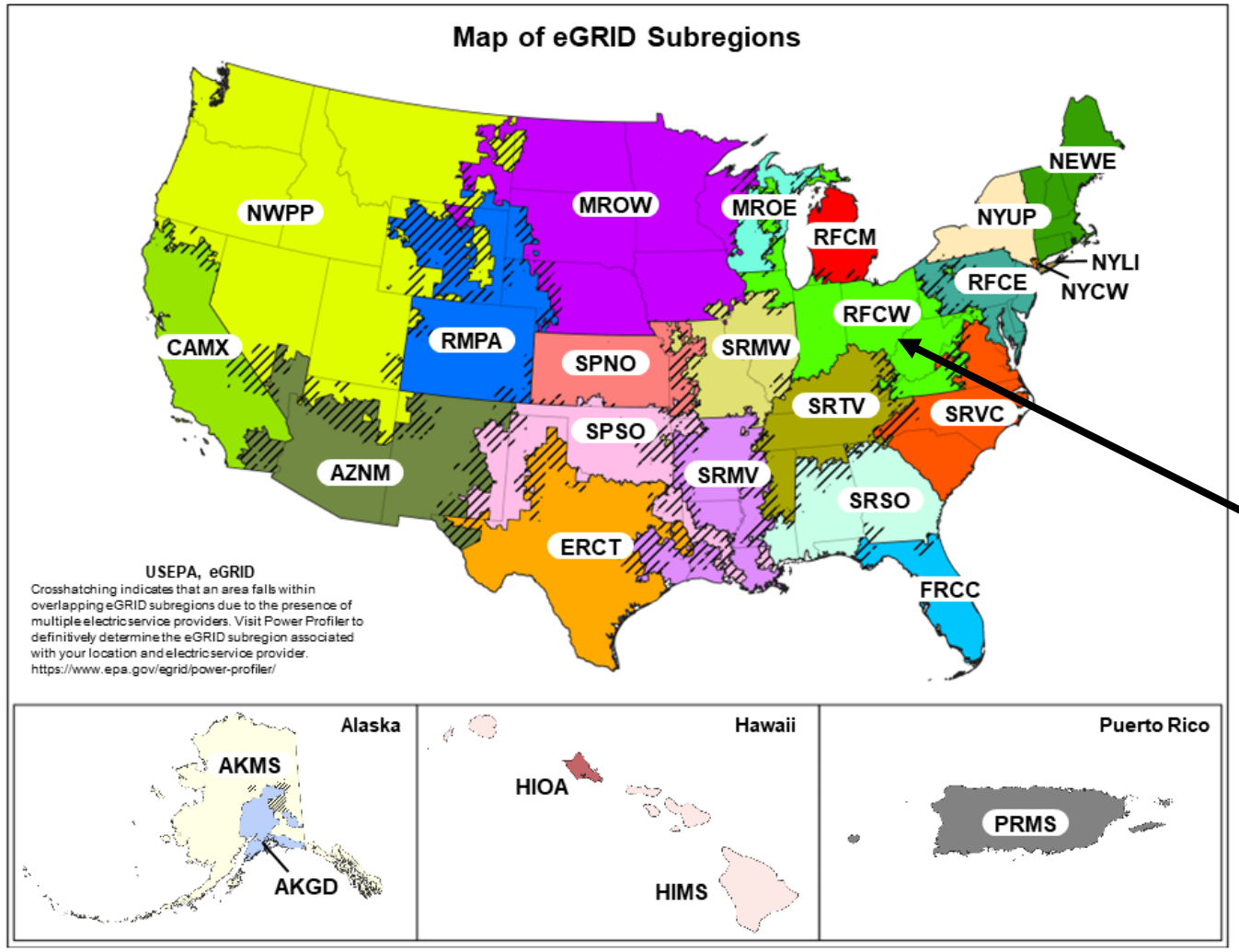
Physical and Financial Hedging

Naperville Electric Utility Price Performance

Excluding Debt Service, the Financial and Physical Hedges Delivered Stable Net Prices that have Delivered a Material Cumulative Cost Advantage



SUSTAINABILITY: Baseline Emissions for Electricity Supply Vary by Region



eGRID Subregion	2023 Report Data				
	CO_2	CH_4	N_2O	CO_2e	SO_2
MROE	1397.313	0.116	0.017	1404.963	0.277
MROW	920.13	0.097	0.014	926.552	0.896
RFCM	970.617	0.082	0.012	975.978	0.564
RFCW	911.424	0.071	0.01	916.054	0.412
SRMW	1239.839	0.132	0.019	1248.582	1.636
SRSO	842.329	0.056	0.008	846.007	0.162
U.S.	767.209	0.057	0.008	770.884	0.359

Source: US EPA

SUSTAINABILITY

Baseline Emissions

Environmental Attributes

Approaches to Meeting Sustainability Goals

Environmental Attributes Represent Generation from non-Emitting Sources

Variables	Carbon Offsets	Renewable Energy Credits	Clean Energy Credits
Source	Projects that avoid or reduce greenhouse gas emissions	Renewable energy generators (e.g., wind, solar, hydro)	Nuclear
Units	Metric tons of CO_2 or CO_2 equivalent	Megawatt Hours (MWh)	
Purpose	Direct reduction of CO_2 emissions	Convey use of electricity that does not produce associated emissions	
Use	Reduce Scope 1, 2, or 3 emissions	Can be used to reduce market-based Scope 2 emissions from purchased electricity	
Consumer Claims	Can claim to have reduced carbon emissions	Can claim to use “renewable” or “zero emissions” electricity supply	

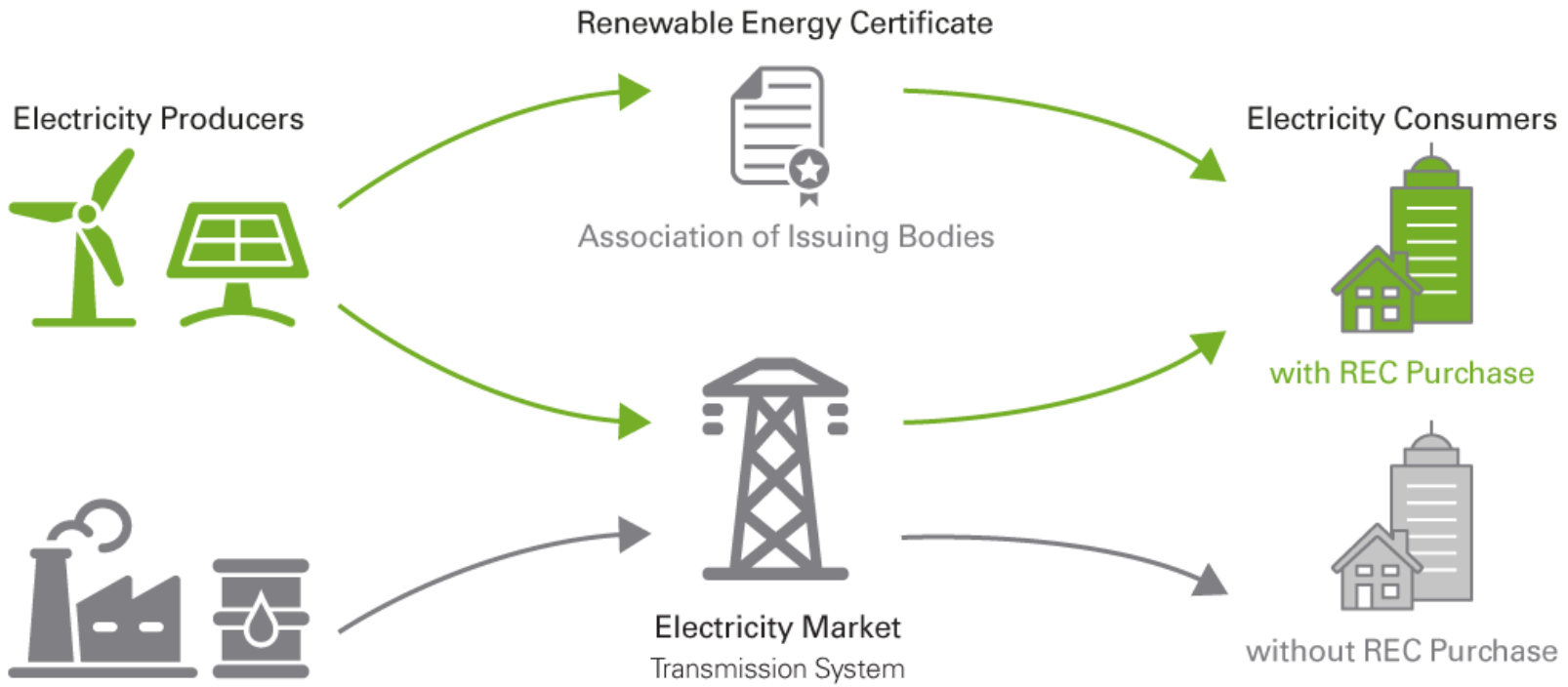
SUSTAINABILITY

Baseline Emissions

Environmental Attributes

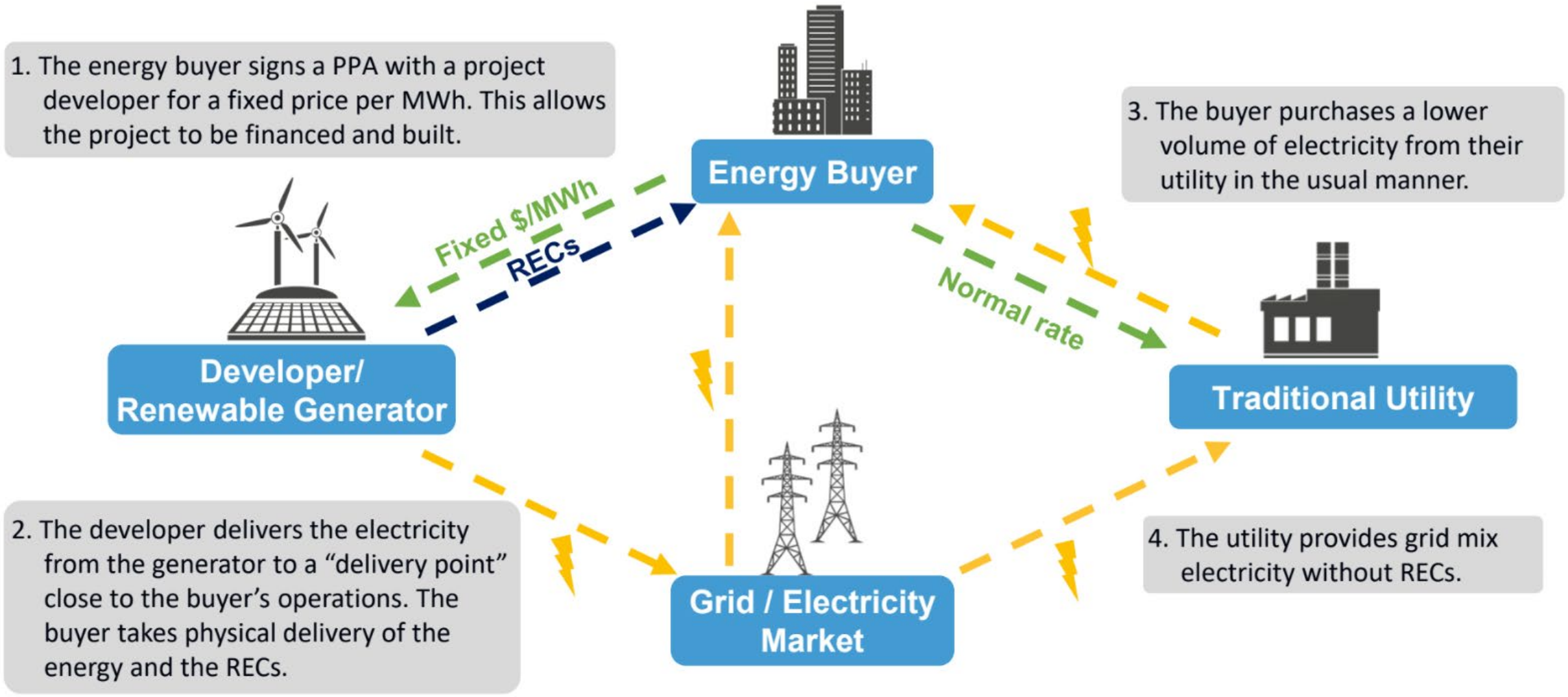
Approaches to Meeting Sustainability Goals

Securing Environmental Attributes: Purchase Grid Supply + Renewable "Credits"



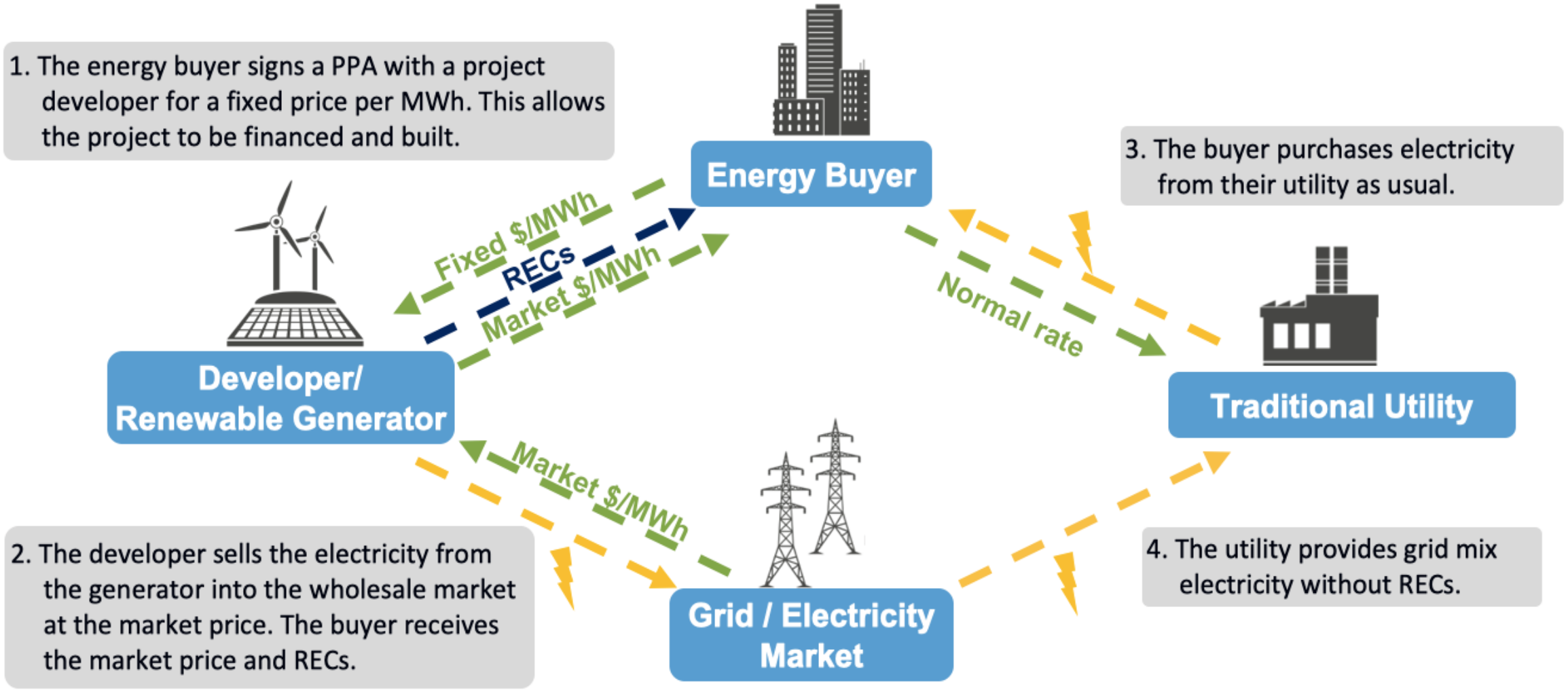
Source: Asia CarbonX Change PLT

SUSTAINABILITY: Secure Environmental Attributes through a Power Purchase Agreement



Source: American Cities Climate Challenge

SUSTAINABILITY: Secure Environmental Attributes through a Virtual Power Purchase Agreement



Source: American Cities Climate Challenge

DISCUSSION AND THANK YOU

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