Naperville City Council Workshop

July 28, 2025

Revised 7/18/25

Today's Discussion Topics

- Public Utilities Advisory Board's Meetings / Workshops.
- Contract Highlights
- What Has IMEA Done for Me Lately?
- IMEA's "Net- Zero" Strategy
- Can Naperville Improve IMEA's Net-Zero Strategy?
- Searching for New Power Supplies During Market Volatility
- Back of the Envelope Calculation; the Cost of Leaving IMEA
- Why 10 years in advance?
- Bidding The Contract Out

Public Utilities Advisory Board Meetings / Workshops

- Meeting Dates / Topics
  - 2/27/25 - IMEA Executive Team
    - *Benefits of Membership*
  - 3/6/25 - Customized Energy Solutions
    - *Naperville's Energy Procurement Options*
  - 4/8/25 - Chris Townsend, Energy Law Partner at CJT Energy Law, LLC & Mark Pruit, Principal at The Power Bureau
    - *Illinois Energy Law and Wholesale Market Risks for Municipal Utilities*
  - 4/8/25 - Naperville Environmental and Sustainability Taskforce
    - *Naperville's Path to a Cost-Effective, Sustainable Energy Future*
  - 5/29/25 – Townsend / Pruit
    - *Cost Comparison of Retail Electricity Rates for the City of Naperville*
    - *Retail Supplier Options for Naperville*

Public Utilities Advisory Board Meetings / Workshops

- Meeting Format
  - Public Forum – open to the public
    - Everyone had an opportunity to speak their mind.
  - Presentations by SME
  - Q&A from Board Members.
- Total Workshop 5 Hours
- On 4/8/25, Held Vote
  - To endorse Customized Energy Solution's recommendations:
    - Renew contract & explore the member-directed resource provision of the new contract immediately.
  - 4-3 vote in favor

Power Supply Contract Highlights

IMEA Current Supply Contract Highlights

- Electricity supply to Naperville started in 2011 and continues until 2035
- Full services contract (supplies 100% of Naperville's requirements)
  - ~ 1,200,000 MWH total power purchases per year
  - ~ 80% coal derived power ~ or 1,000,000 MWH
  - ~ 350 MW peak load
  - ~ $100 million per year total cost
- Pricing to Naperville is 100% pass-through with no mark-up
  - IMEA owned assets
  - Long term power purchase agreements
  - Market purchases as needed.

IMEA Proposed Supply Contract Highlights

- The renewal proposal was released to Naperville in March 2024.
- Twenty-year term starting in 2035.
- Pricing to Naperville will continue to be 100% cost pass-through with no mark-up.
- New contract feature - Member Directed Resource

Illinois Municipal Electric Agency

IMEA & Naperville

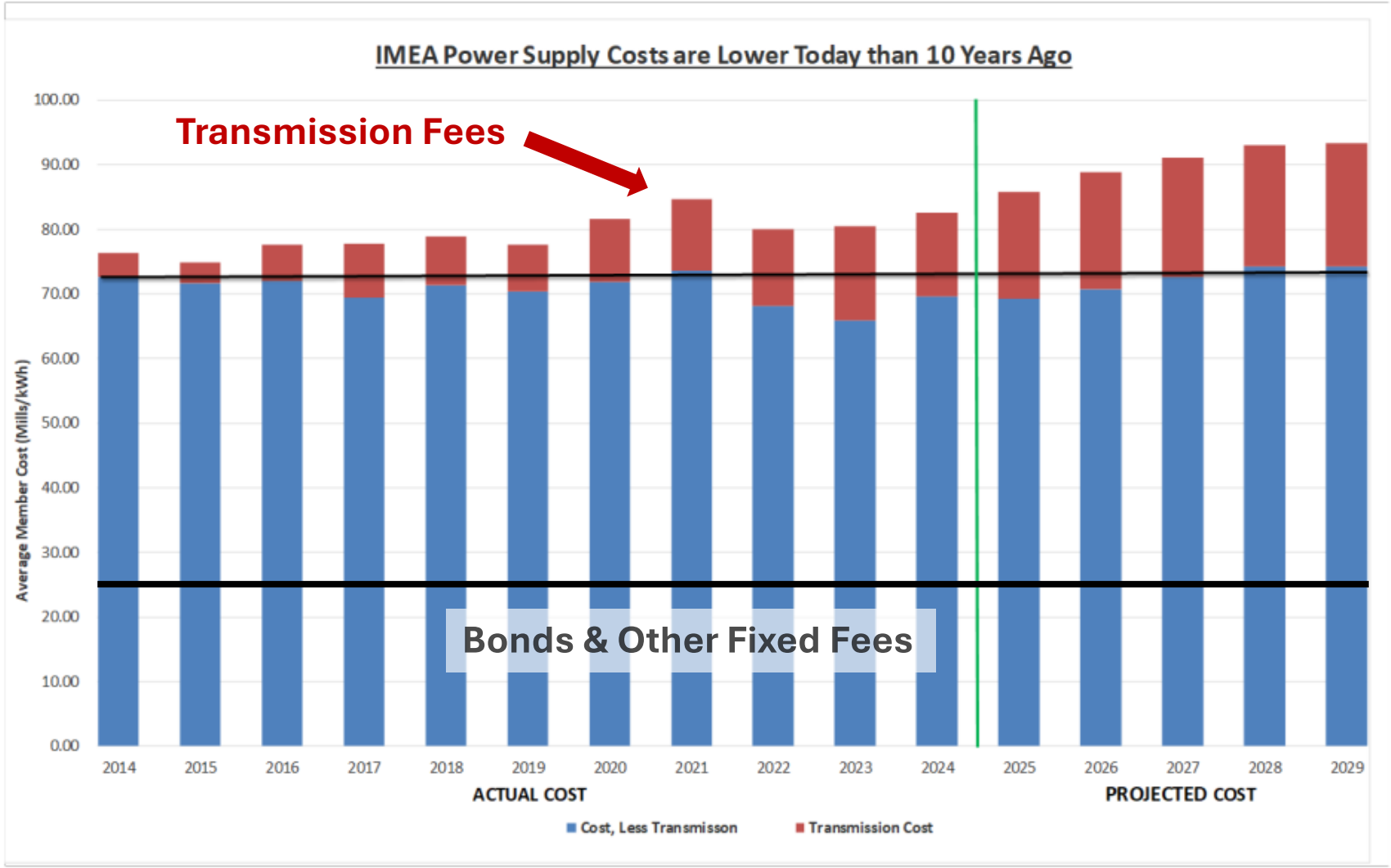
- IMEA is a nonprofit Municipal Joint Action Agency formed by and run by its members, including Naperville.
- Naperville was one of the original members when the Agency was created in May of 1984
  - ✓ Signed long-term agreement to purchase power in 2007
  - ✓ Full requirements power supply since 2011
  - ✓ Naperville has a direct voice in power supply through your board member
- IMEA is the highest financially rated power supplier in Illinois (A+/AA-)
- IMEA works every day to deliver reliable power at a cost lower than our peers
- We are diversifying the way we supply power, investing in wind and solar as we also move towards battery storage for the future
- Well positioned to address power demand growth expected through end of decade and beyond; keeping bills low while serving any growing customer demand

2

Source: IMEA presentation to PUAB 2/27/25

What Has IMEA Done for Me Lately?

Affordable, Reliable & Predictable Costs

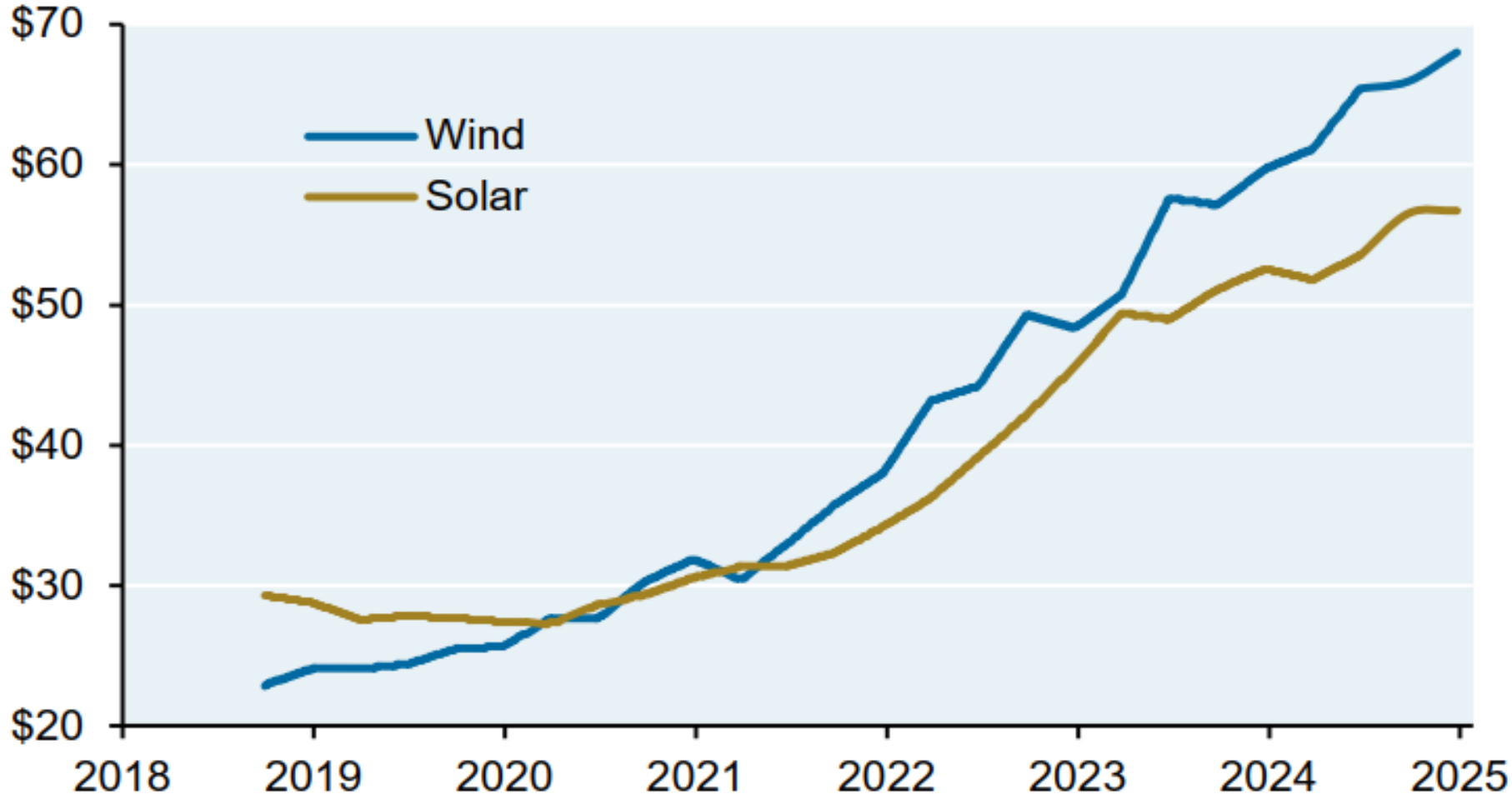


IMEA rates to Naperville remain flat over the previous 10-year period, and are projected to continue to remain flat, thanks to agency-owned resources and long-term contracts

Source: IMEA presentation to PUAB 2/27/25

US wind and solar PPA prices

US$ per MWh



Source: LevelTen Energy, January 2025

What Has IMEA Done for Me Lately?

- Compared to our ComEd neighbors, Naperville ratepayers **avoided an ~ $15 million rate increase** this year.
  - This is due to the “Capacity Market”
  - Last summer, PJM announced the results of its latest capacity auction.
  - High capacity prices signal power shortages in the three-year time horizon of the auction.


Chicago Tribune

May 19, 2025

ComEd customers to see rate increase this summer

What Has IMEA Done for Me Lately?

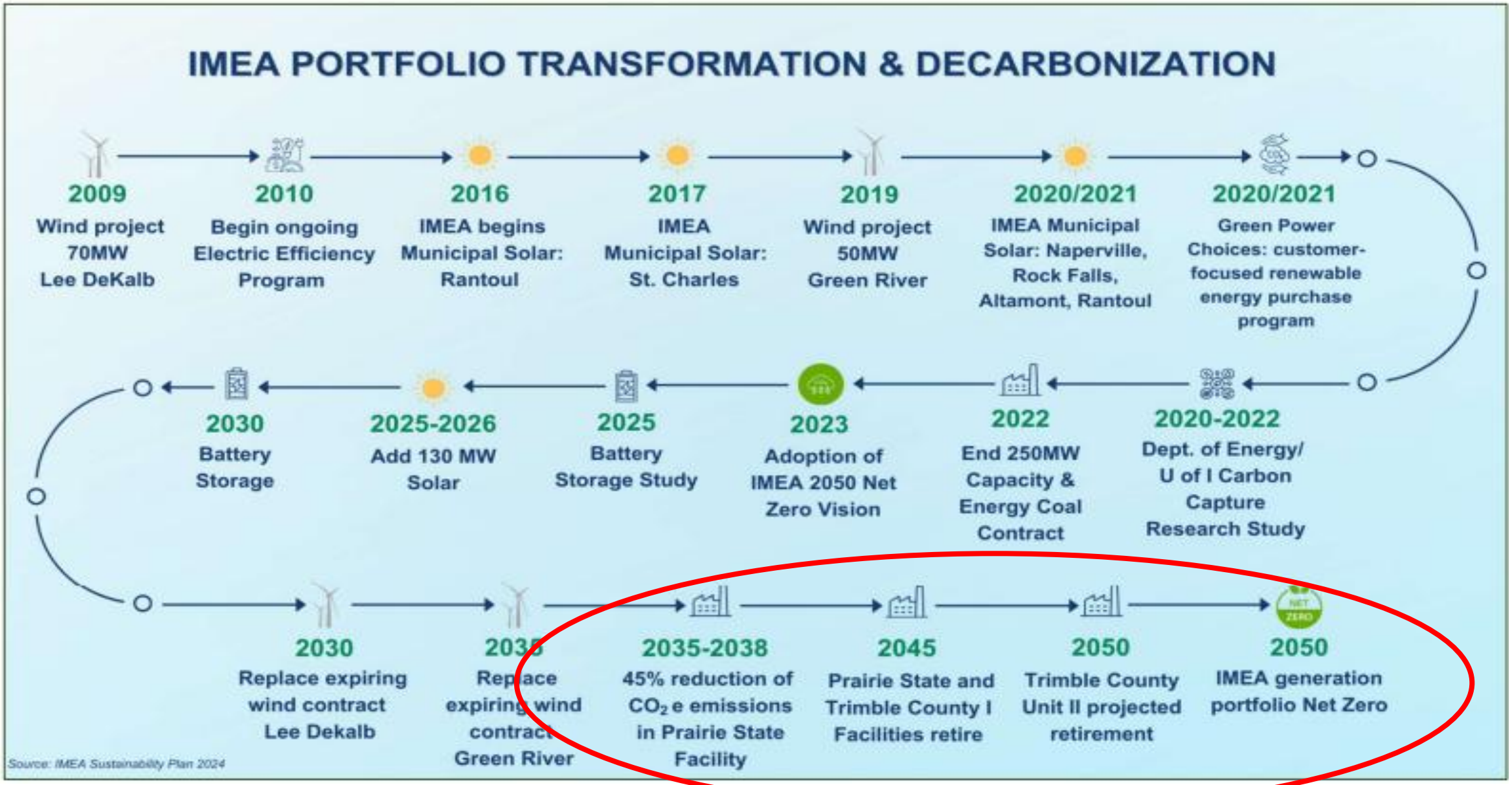
- Compared to our ComEd neighbors, Naperville ratepayers **avoided a ~ $15 million rate increase** this year.
  - For the one year the period starting June 2025, PJM capacity prices increased ~ 833 percent
    - $29 per MW-day to a record $270 per MW-day.
    - July 22 announcement – 2026/2027 BRA = $330 per MW-day (22% increase; hit cap)
  - Because Naperville is part of IMEA, the city is hedged against capacity fee increases.
  - FYI ~ 300 businesses consume half of Naperville's power demand


Chicago Tribune

May 19, 2025

ComEd customers to see rate increase this summer

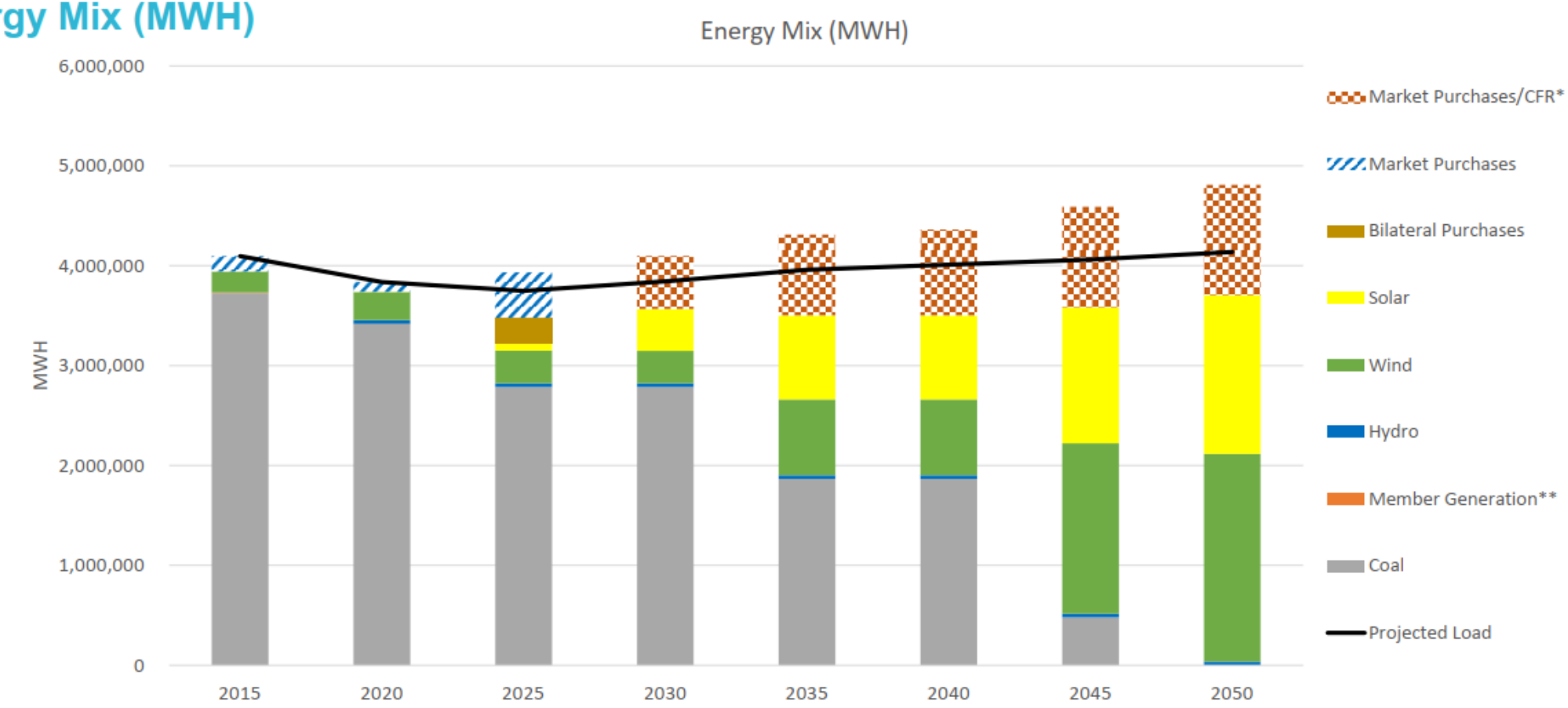
IMEA’s “Net- Zero” Strategy



Source: IMEA presentation to PUAB 2/27/25

Net-Zero Strategy

Energy Mix (MWH)



*Market Based Purchases or Potential Carbon Free Resources
**Member Generation is normally less than 1%
Note: Battery charging/discharging actions reducing market exposure

Source: IMEA presentation to PUAB 2/27/25

Can Naperville Improve IMEA's Net-Zero Strategy?

Locally Driven Renewable Resource Opportunity

Member Directed Resources

- ✓ With IMEA Board approval, the City can locally subscribe up to 10% of peak demand in qualified Member Directed Resources (e.g. ≈ 34.2 MW).
- ✓ Opportunity for an even higher percentage, if IMEA Board approved.
- ✓ Resource does not need to be in the City. However, it must be in Illinois.
  - City will get full credit from the RTO that the generator is located in with capacity and energy markets payment (either PJM or MISO)
  - Energy produced will be valued at MDR locational marginal price as determined by the regional market organization that the generator is located within
- ✓ IMEA will manage the resource scheduling and markets settlements on the City's behalf for its regional grid operator (PJM) requirements
- ✓ MDR option is designed to allow local renewable development and hold all other members harmless from costs and risks

Source: IMEA presentation to PUAB 2/27/25

Member Directed Resource (MDR)

- Currently, IMEA's energy mix is ~ 11% carbon free.
- The MDR option in the proposed contract allows Naperville to buy a fixed price block of power equal to "10% of its peak load".
- "10% of peak load" = 26% of total power consumed
- Naperville's carbon free mix will increase by **26% immediately**
- In 2026- 2027, the Bee Hollow solar farm will increase carbon free resources by another 8%.

Member Directed Resource (MDR)

Naperville Carbon Free %		
Today	11%	
MDR	26%	(end of 2025?)
Bee Hollow	8%	(2026-27)
	45%	

- Due to **immediate deep carbon reductions,** the MDR option may provide equal or lower lifetime carbon emissions compared to any other option.
- These **immediate** deep carbon emissions can only be achieved through IMEA.

Searching for New Power Supplies During Market Volatility

Searching for New Power Supplies During Market Volatility

Power Shortages → Price Volatility → Risk

Power Shortages => Higher Prices

NERC December 2024 Long-Term Reliability Assessment stated.....

“High-risk areas are likely to experience a shortfall in electricity supplies at the peak of an average summer or winter season. Extreme weather, producing wide-area heat waves or deep-freeze events, poses an even greater threat to reliability”

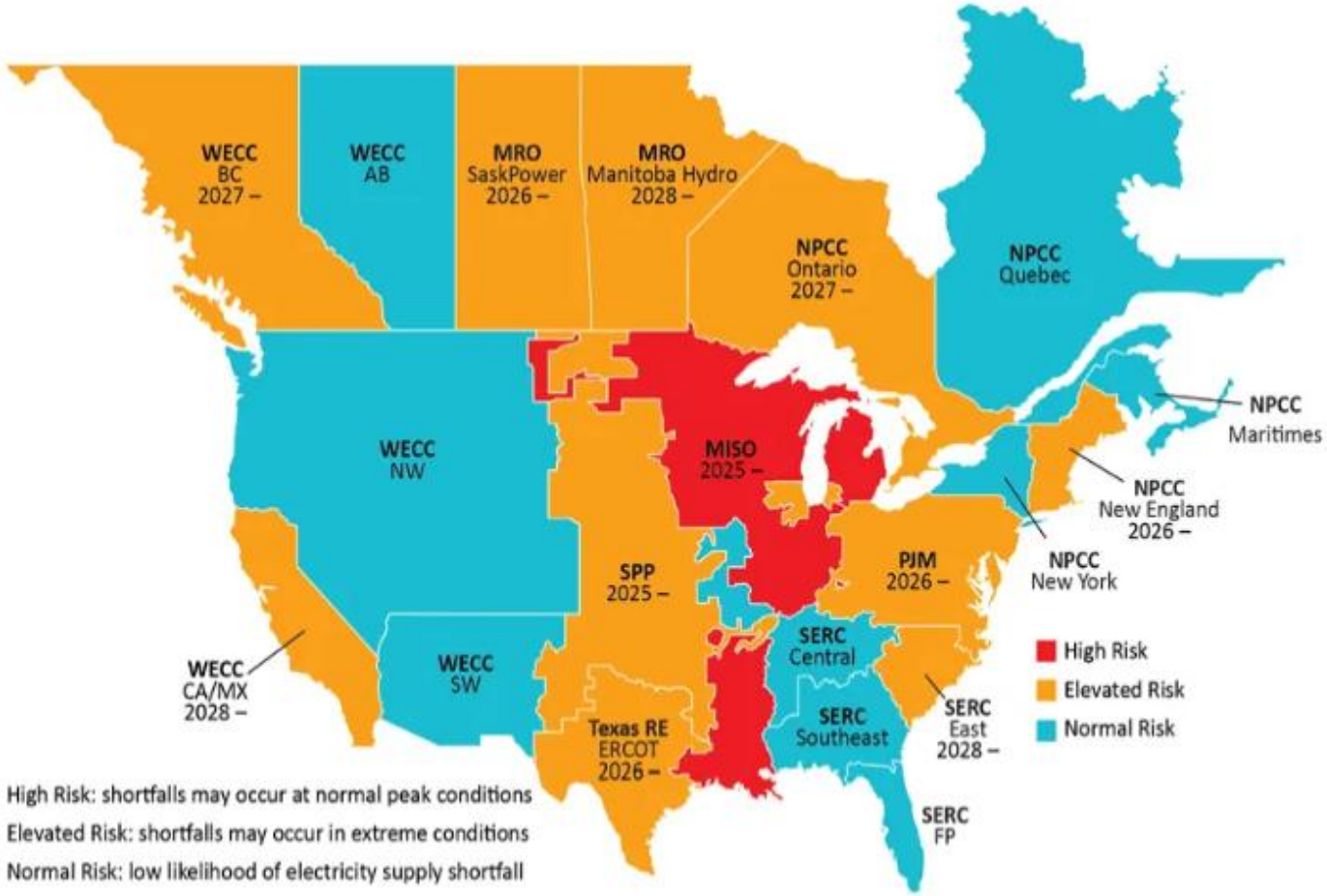


Figure 1: Risk Area Summary 2025–2029

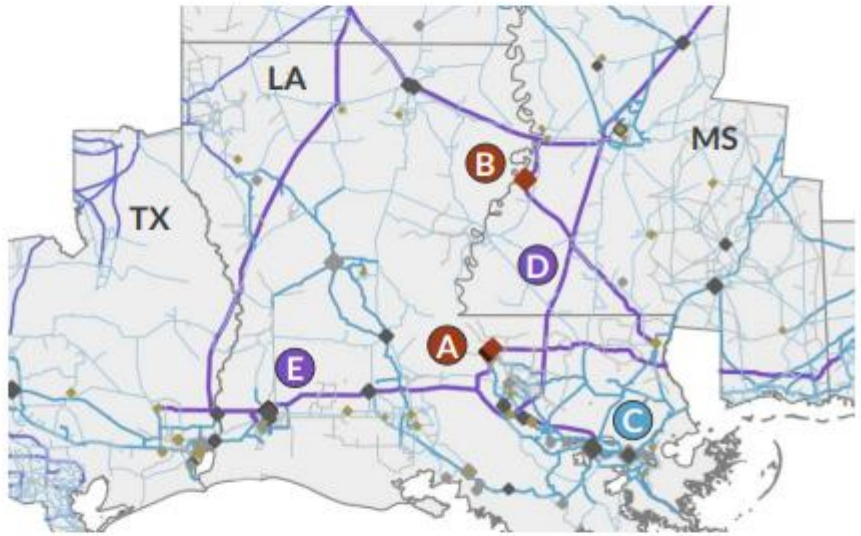
MISO

In MISO, planned and unplanned thermal outages and higher-than-normal temperatures contributed to load shed in May 2025

AURORA

On May 25, the combination of high temperatures, planned and unplanned generation outages, and limited transfer capability led to MISO ordering a 600MW load-shedding in New Orleans from 4–8 pm, with over 100,000 customers losing power as a result.

Operational status of key generators[1] and transmission infrastructure



Key

Technology
- Nuclear
- Gas CCGT
- Coal
- Gas / oil peaker[2]

Network
- <100 kV lines
- 100+ kV lines
- 200+ kV lines
- 345 kV lines
- 500 kV lines

Infrastructure	Status
A River Bend	Unplanned outage
B Waterford	Planned outage
C Barker Corner-Bogalusa	Exceed IROL[3]
D Franklin-McKnight	Contingent element IROL
E Nelson-Richard	Out of service[4]

Overview

- The **River Bend nuclear plant experienced an unplanned outage** due to a cooling system leak, while the **Waterford plant was undergoing a planned outage,** removing over 2GW of capacity.
- At the same time, the Nelson-Richard 500kV lines was out of service, limiting transfer into New Orleans and increasing reliance on north-to-south flows. This shift in power flows resulted in an overload on the Barker Corner-Bogalusa 230kV line and triggered an Interconnection Reliability Operating Limit (IROL) exceedance, resulting in MISO directing Entergy and CLECO to shed 600MW of load to maintain grid reliability.

Drivers and Response

- MISO addressed the New Orleans City Council[5] following the load-shed event and identified the main drivers as **limited transfer capability, generation and transmission outages, and weather**, noting that **4.5GW (70%) of the 6.3GW of outages that occurred were unplanned.**
- Additionally, MISO **acknowledged that fast responding resources, such as batteries, would have been helpful in this situation**, highlighting the value of flexibility to ensuring daily and seasonal reliability.

1) Additional generation was on planned and unplanned outage in the area. 2) Includes OCGT and reciprocating engines. 3) A system operating limit under NERC reliability standards. If exceeds, MISO is required to take corrective action within 30 minutes to maintain grid reliability. 4) Due to a tornado that occurred in March. 5) New Orleans City Council Special Utility Committee Meeting on June 3rd, 2025.

Sources: Aurora Energy Research, MISO

UTILITY DIVE Deep Dive Opinion Library Events

DIVE BRIEF

Load growth, plant retirements could drive 100x increase in blackouts by 2030: DOE

HEATMAP AM

JEVA LANGE • JULY 8, 2025

DOE resource report warns of blackouts, ‘overreliance on intermittent energy sources’

An Energy Department report released Monday warned that blackouts in the U.S. could “increase by 100% in 2030” if the country continues to close its coal and natural gas power plants.

"The OBBB will cut the build-out of new clean power generating capacity by 53-59% from 2025 through 2035."

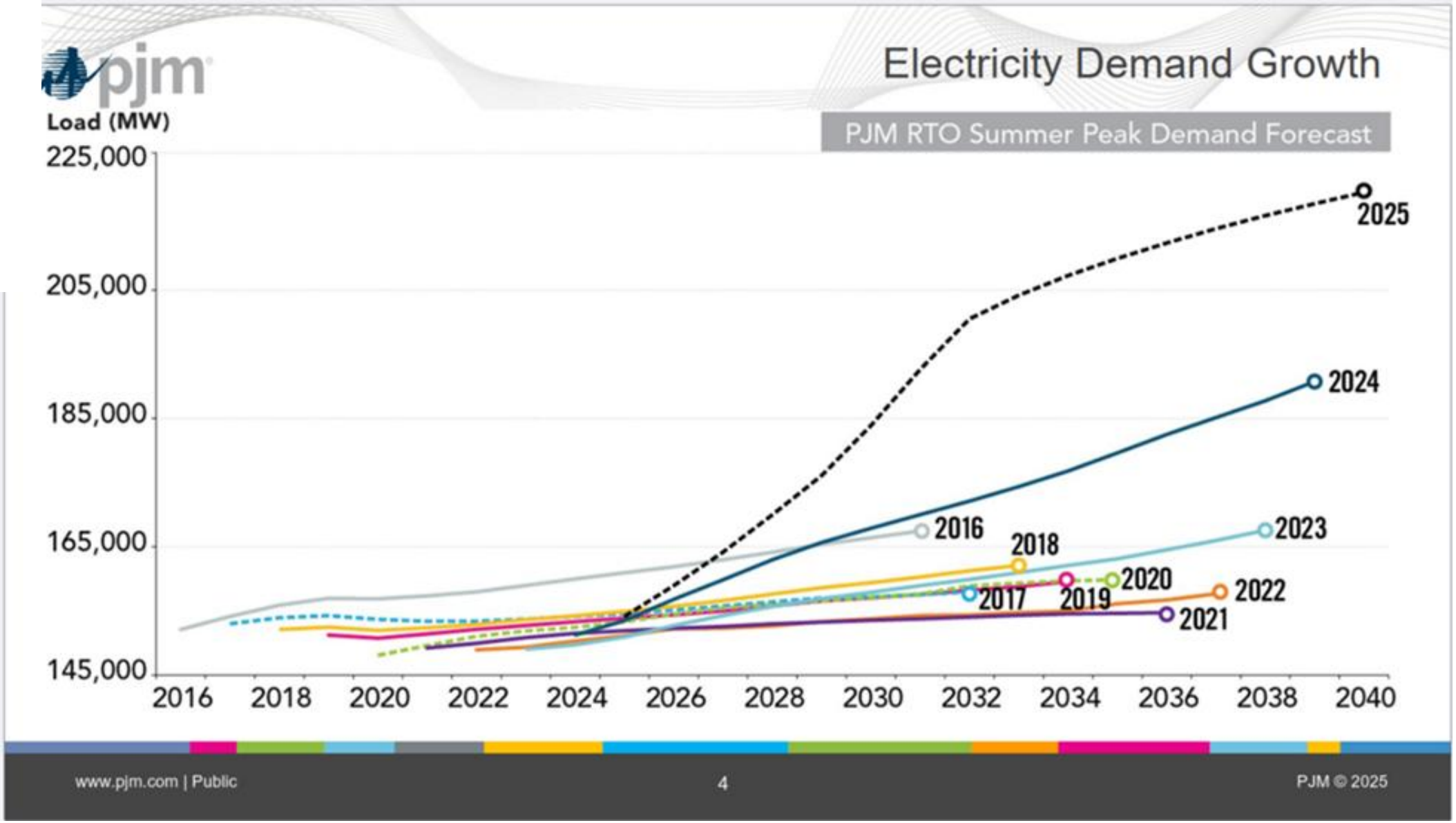
Illinois Commerce Commission

Resource Adequacy Policy Session 4

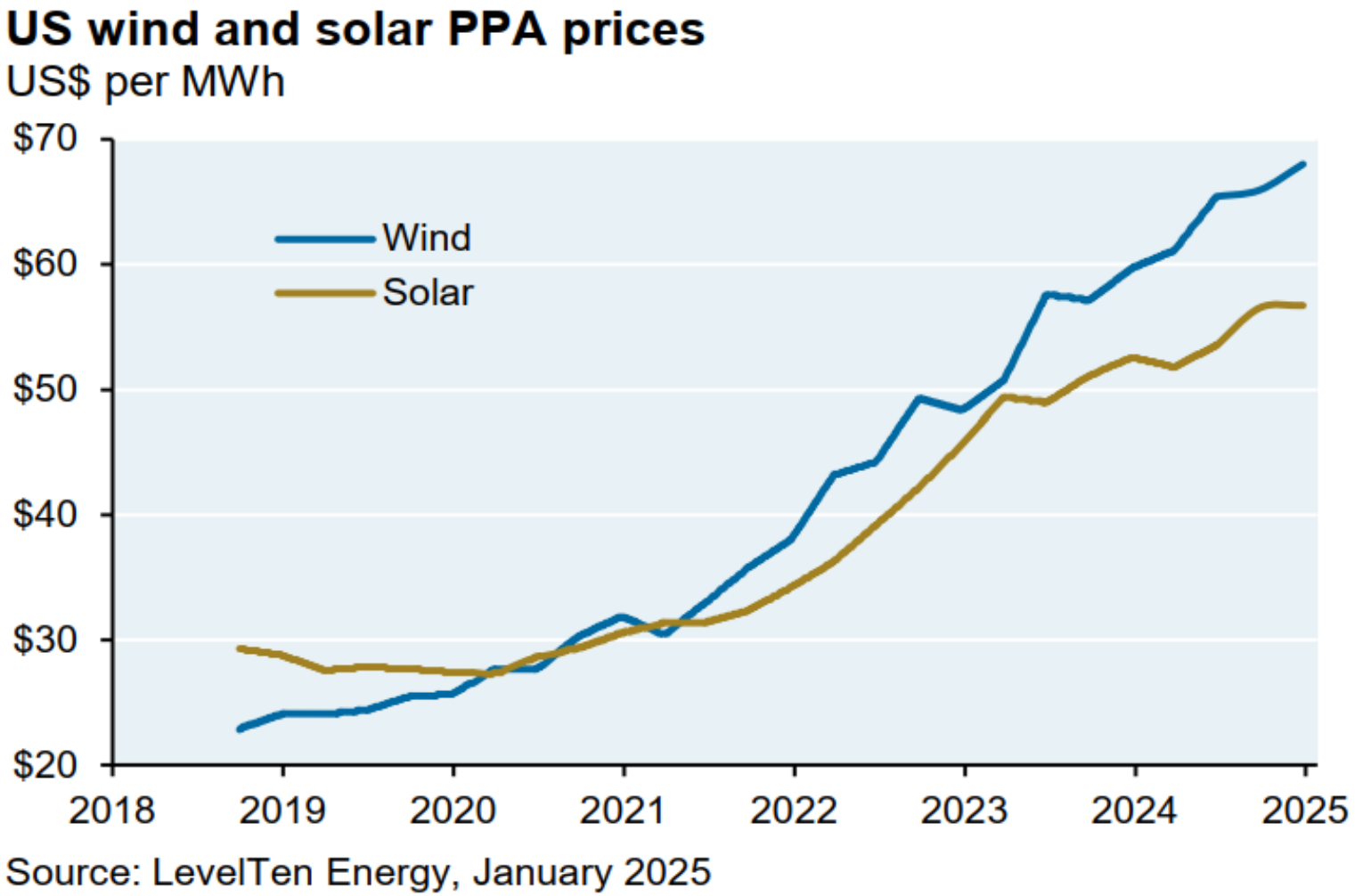
July 2, 2025

9 a.m. – 12 p.m.

PJM RTO Summer Peak Demand Forecast



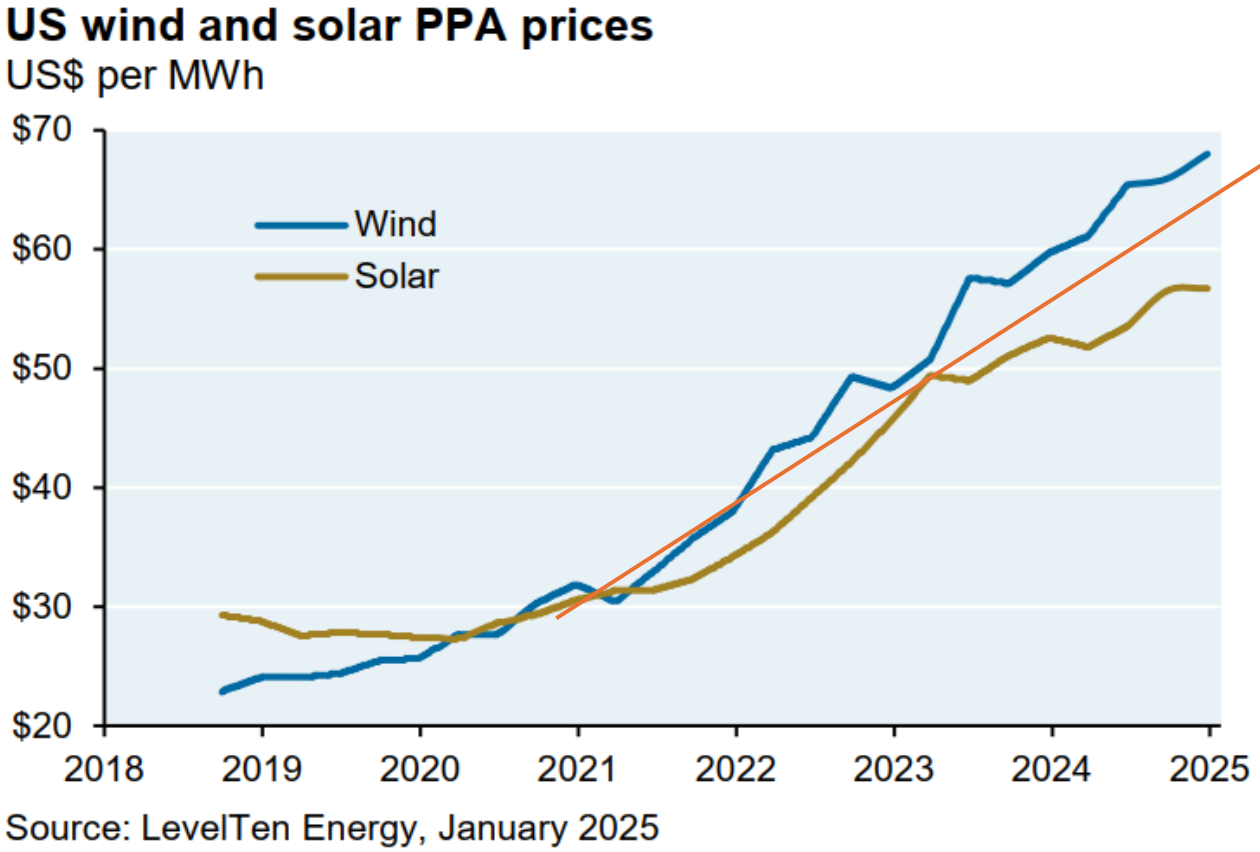
Searching for New Power Supplies During Market Volatility



These prices trends occurred during a period of lucrative federal tax credits.

The tax credits have been eliminated for projects starting after 2026.

Searching for New Power Supplies During Market Volatility



There will be significant financial risk for the city associated with searching for new carbon free power supplies during one of the most volatile times in electricity-market history

Back of the Envelope Calculation.

The Cost of Leaving IMEA

The Price of Solar and Wind Generation

- IMEA's new150 MW Bee Hollow solar power purchase agreement (PPA) is ~75 per MWH[1].
- The Springbrook Water Reclamation Center solar field PPA is $76 per MWH[2] today and will escalate to $92 per MWH by 2035
- CES provided these prices for their financial modeling at the 3/5/25 PUAB meeting
  - Solar PPA @ $80+8/MWh
  - Wind PPA @ $85+10/MWh

[1] fixed for 20 years
[2] escalates @ 2% per year

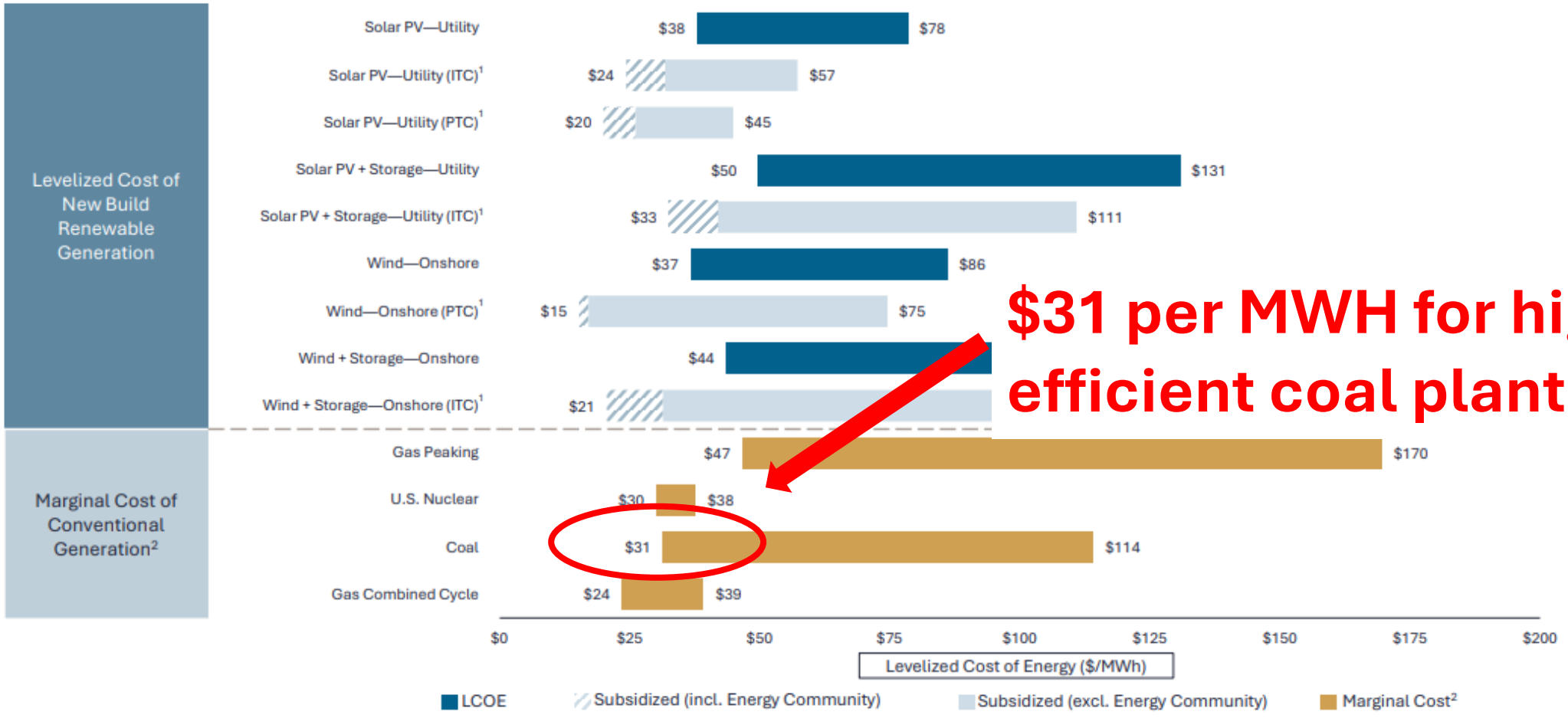
The Price of Coal Generation

- In testimony presented by IMEA's executive team at the February PUAB meeting, they stated the cost of power from the two complexes is ~ $30-35 per MWH.
  - Prairie State is one of the most modern & energy efficient plants in the country.
  - It is a "mine-to-mouth" facility; it already owns the coal.
    - The only fuel related expense is the mining cost
    - There is no market price risk for the fuel.

Levelized Cost of Energy Comparison—New Build Renewable Generation vs. Marginal Cost of Conventional Generation

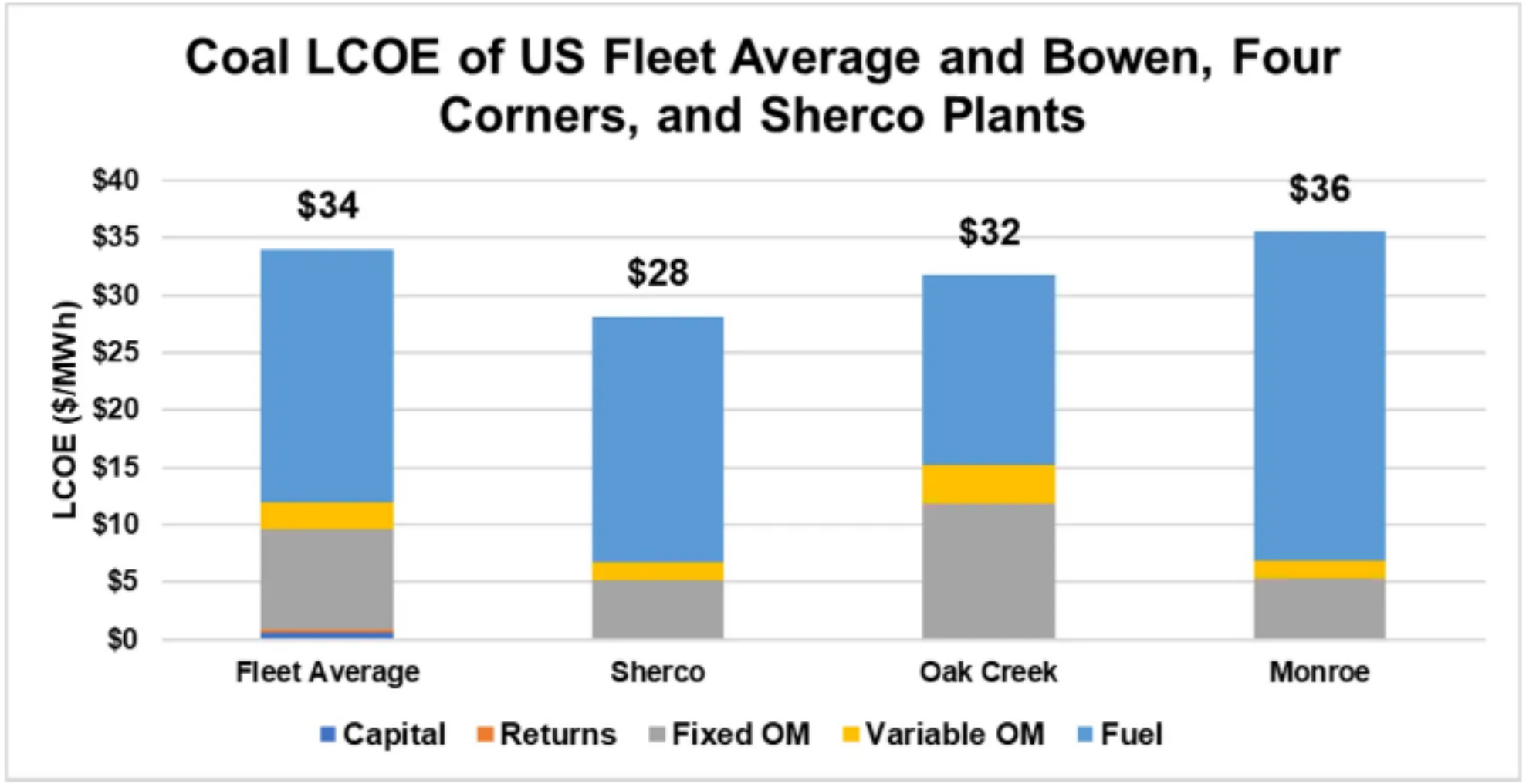
Existing Generation

Certain renewable energy generation technologies have an LCOE that is competitive with the marginal cost of selected conventional generation technologies—notably, as incremental, intermittent renewable energy capacity is deployed and baseload gas-fired generation utilization rates increase, this gap closes, particularly in low gas pricing and high energy demand environments



$31 per MWH for highly efficient coal plant

Source: Lazard estimates and publicly available information.
Note: Unless otherwise noted, the assumptions used in this sensitivity correspond to those used on page titled "Levelized Cost of Energy Comparison—Version 18.0".
1 See page titled "Levelized Cost of Energy Comparison—Sensitivity to U.S. Federal Tax Subsidies" for additional details.
2 Reflects the marginal cost of operating fully depreciated gas, coal and nuclear facilities, inclusive of decommissioning costs for nuclear facilities. Analysis assumes that the salvage value for a decommissioned gas or coal asset is equivalent to its decommissioning and site restoration costs. Inputs are derived from a benchmark of operating gas, coal and nuclear assets across the U.S. Capacity factors, fuel, variable and fixed O&M are based on upper- and lower-quartile estimates derived from Lazard's research.



Source: https://energybadboys.substack.com/p/chris-wright-is-right-keep-the-coal

"....latest FERC Form 1 Filings updated in 2020 (FERC ended its practice of compiling all the utility FERC Form data). We included a few select plants from individual FERC Form 1 filings in 2023: the Sherburne County Generating Station (Sherco), owned by Xcel Energy in Minnesota; the South Oak Creek Plant, owned by Wisconsin Electric Power Co., and the Monroe Plant, owned by DTE Electric.

Back of the Envelope Calculation:

~	$75 / MWH	wind and solar
~	($35) / MWH	coal
~	$40 / MWH	price advantage for coal

- About 1,000,000 MWH of city's supply is coal derived.
- **~ $40,000,000 per year lower cost**[1]
- ~ $338 per year savings for an average household
- Does not include capacity savings.
- Savings ramp down as thermal production decreases.

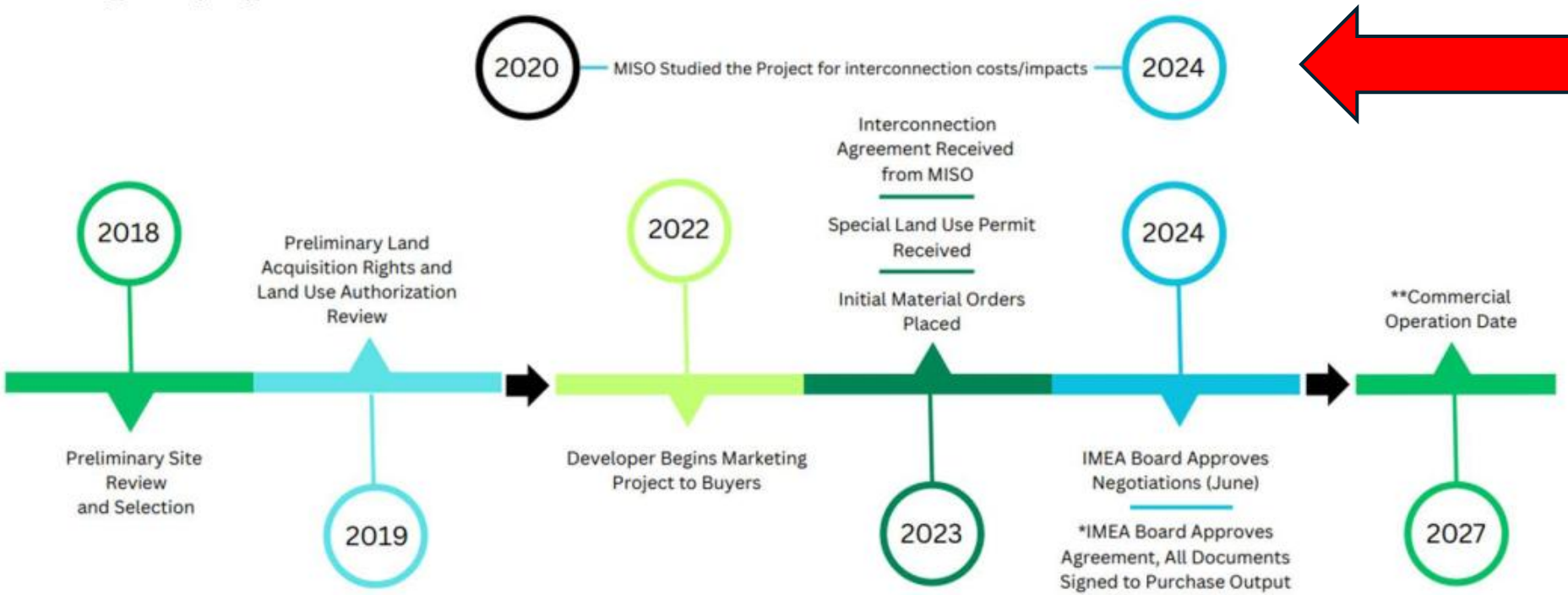
Why 10 Years in Advance?

Why 10 Years in Advance?

- IMEA states they need time to properly plan for and transition from a carbon-based portfolio to a net-zero portfolio by 2050.
- As an example, the new Bee Hollow solar power purchase agreement (150 MW) recently executed by IMEA, took nine years to develop.
- The longer the term the better the pricing.
  - Bee Hollow is a 20-year PPA.
- IMEA needs to know if Naperville is “in” or “out” to make these long-term planning decisions.

150MW Resource Acquisition Project with IMEA Timeline – 9 Year Timeframe

IMEA worked with the project developer for several years to ensure that this project would be achieved with reasonable terms, while also tracking the progress to meet all of IMEA Members' needs and criteria.



****Projected Timeline for Completion**

Q1 2025: Final Interconnection Costs Received
Q3 2025: Materials Delivered, Begin Construction
Q4 2026: Early Commercial Operation Date (COD)
Q2 2027: Expected COD
Q4 2027: Outside COD

**A project isn't "derisked" until it has site control, permit, interconnection rights and sale agreement to buyer – lots of moving parts*

17

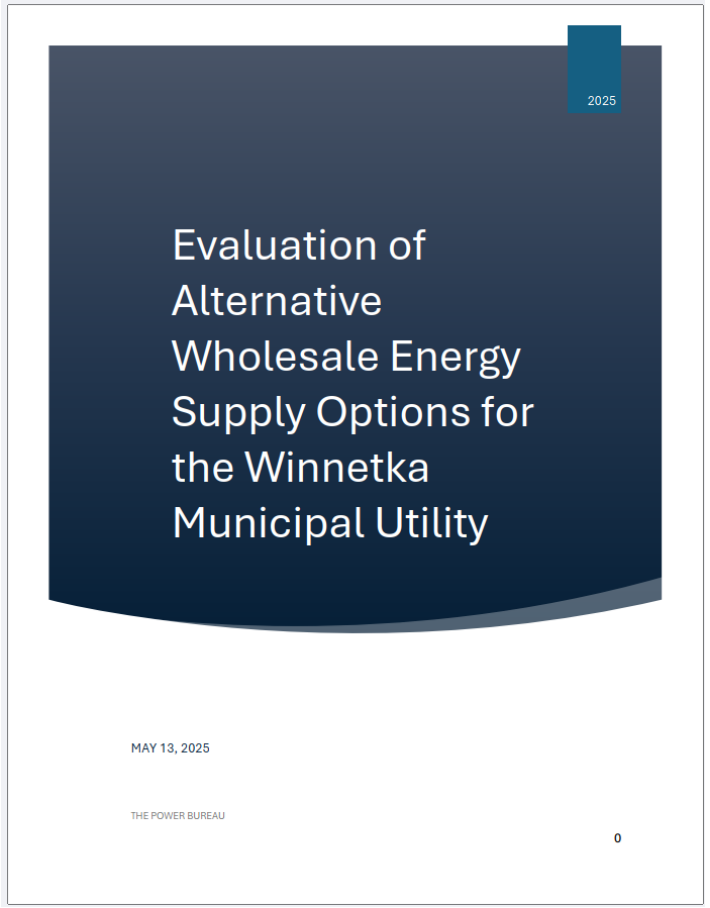
Source: IMEA presentation to PUAB 2/27/25

In a report likely to be used by interests on all sides of the U.S. power grid picture, big energy data and analytics firm Enverus says developers of wind, solar, and stationary battery projects can expect queue times of 4 to 9 years before they can be interconnected into the various regional power grids. The waiting period for interconnection depends on an array of policy and economic variables, but Enverus finds that developers can gauge expectations based in large part on their project's geographic location.

Ryan Luther, research director at Enverus Intelligence Research (EIR), said in the report's Executive Summary, "The surge in investment and development has overwhelmed interconnection queues, with a record number of projects seeking grid connections. This has exceeded grid operators' processing capacity, causing significant delays and project suspensions."

Why Not Bid The Contract Out?

Bidding The Contract Out



Power Bureau Report to the Village of Winnetka

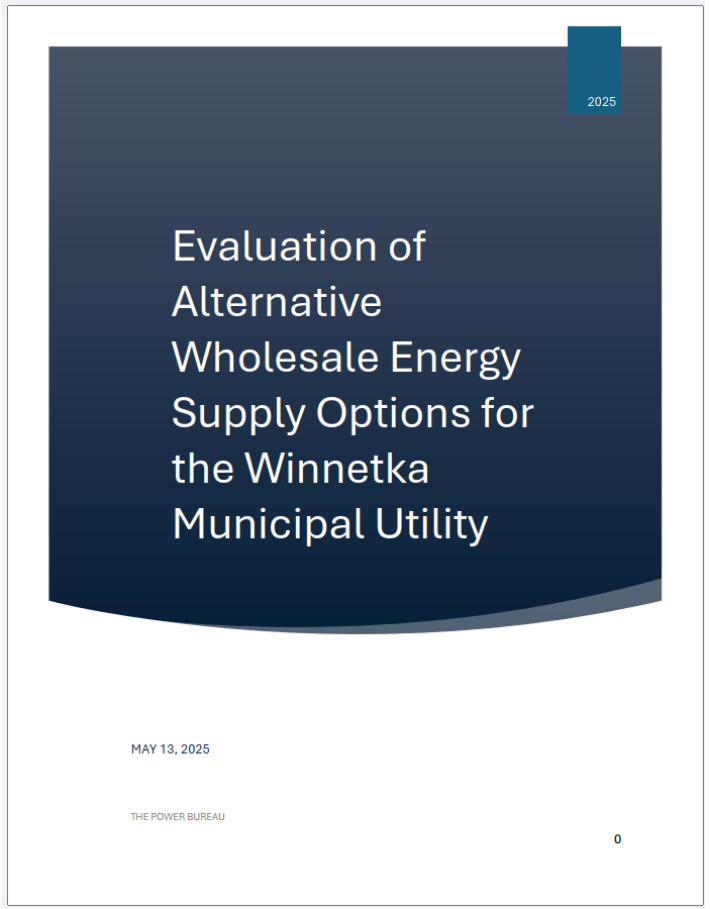
The Power Bureau identified a pool of twelve (12) wholesale power market service providers (“Alternative Providers”) with robust existing operations and longstanding experience as participants in the PJM wholesale market. Outreach to the pool of Alternative Providers was made by The Power Bureau to describe the load characteristics and needs of the Village’s Utility

TABLE 1: Largest Volume Retail Power Marketers in Illinois (2023)

Utility Name	State	2023 Metrics		
		Revenues ($,000's)	Energy Sales (MWh)	Customers
Constellation NewEnergy, Inc	IL	$1,437,422	22,726,753	297,809
Direct Energy Services	IL	$639,089	7,380,733	71,666
Calpine Energy Solutions, LLC	IL	$291,211	5,679,936	151
Dynegy Energy Services, LLC	IL	$309,293	5,066,854	49,426
AEP Energy	IL	$405,581	4,914,770	41,539
Homefield Energy	IL	$323,456	4,557,313	104,294
BP Energy Retail LLC	IL	$150,381	3,199,564	88
ENGIE Resources LLC	IL	$274,379	3,011,802	1,386
MP2 Energy LLC	IL	$138,409	2,499,816	2,953
Energy Harbor Corp.	IL	$161,238	2,386,973	130,041
MC Squared Energy Services, LLC	IL	$114,538	1,502,832	125,160
Reliant Energy Northeast LLC	IL	$119,279	950,784	120,308
Interstate Gas Supply, Inc.	IL	$74,114	929,580	22,917
NextEra Energy Services, LLC	IL	$38,144	615,178	284
Tenaska Power Management, LLC	IL	$27,436	583,721	2

Source: Energy Information Administration, Form 861 (Sales to Ultimate Customers)

Bidding The Contract Out



Power Bureau Report to the Village of Winnetka

- While the Alternative Providers indicated interest in providing services to the Utility, they also identified certain constraints that would prevent them from providing detailed proposals and actionable pricing for energy supply and service provision. Primarily, Alternative Providers voiced concern that the time lag between today and 2035 (the earliest point in time when an Alternative Provider could commence services for the Utility) placed significant risk on both parties due to the following risks:

- None of the Alternative Providers were willing to estimate unit prices for wholesale energy commodity, capacity, transmission, or ancillary services starting in 2035. Instead, the Alternative Providers indicated that executable forward pricing is more likely to be available 2-3 years ahead of the expiration of the IMEA contract.

Why Not Bid the Contract Out?

- Bidding Out is a Decision to Leave IMEA

- Marketers have the best interests of their shareholders in mind.
- Marketers will always sell at the “Market” keeping profit for themselves.
- Marketers can offer fixed prices, but they will price in the cost to hedge the risk.

- IMEA has the best interests of their membership in mind
- IMEA will always sell at “cost”, passing on the savings to their members.
- For every MWH of thermal power produced, there is zero price risk.

Thank You