

State of Illinois Integrated Resource Plan (IRP) + Resource Adequacy Mitigation Plan

Stakeholder Workshop: Draft Results

September 24, 2026



Energy+Environmental Economics

Viridis
CONSULTING

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- + Please introduce yourself in the chat and include your name and organization
- + Actively participate
 - Time for questions has been set aside at the end of the presentation. If you have a question or comment about a particular slide, please make note of that slide number in your question
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 - You can also use the Chat feature which will be moderated
- + Be respectful of other people's perspectives
- + Stay concise to allow time for everyone to participate
- + Post-Meeting Feedback
 - Workshop Comment Form: link will be provided at the end
- + This meeting is being recorded. Recording will be posted on the [ICC Integrated Resource Plan Website](#)



Agenda

Topic	Time
Agenda and Norms	5 mins
PLEXOS Methodology	5 mins
Final Scenario Matrix and Definitions	20 mins
Draft Results	30 mins
Q&A	60 mins

2026 Proposed Stakeholder Meetings for IRP and Mitigation Plan

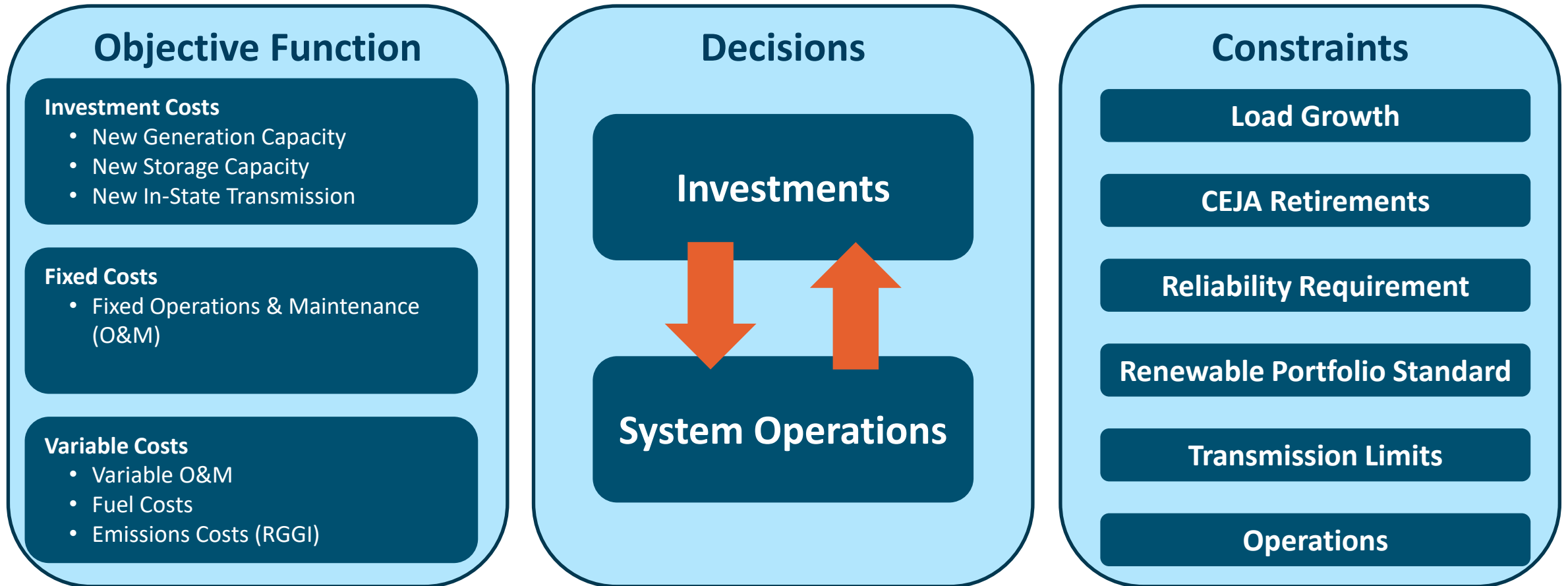


PLEXOS Methodology and Definitions



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The IRP uses the PLEXOS model* to identify least-cost resource portfolios for Illinois within the constraints set for each scenario



*PLEXOS is a commercially available capacity expansion and production simulation modeling software developed by Energy Exemplar; it is used by utilities and system operators across North America, and it is the model currently used by MISO and PJM. For more information, see: <https://www.energyexemplar.com/plexos>

The IRP models three separate electric sector portfolio requirements for Illinois

Reliability Requirement

- The electric system must have **adequate generation to serve load in all hours over a range of potential weather and outage conditions**
- **Key terms for understanding the reliability requirement:**
 - **Planning Reserve Margin (PRM):** an additional buffer of capacity maintained above peak demand to account for uncertainty
 - **Total Reliability Need (TRN):** the total amount of dependable capacity the system needs, accounting for peak demand and the PRM. Also referred to as the **Resource Adequacy (RA) Target**
 - **Accredited Capacity:** the portion of installed (nameplate) capacity that can be counted toward meeting the TRN

Illinois Renewable Portfolio Standard (RPS)

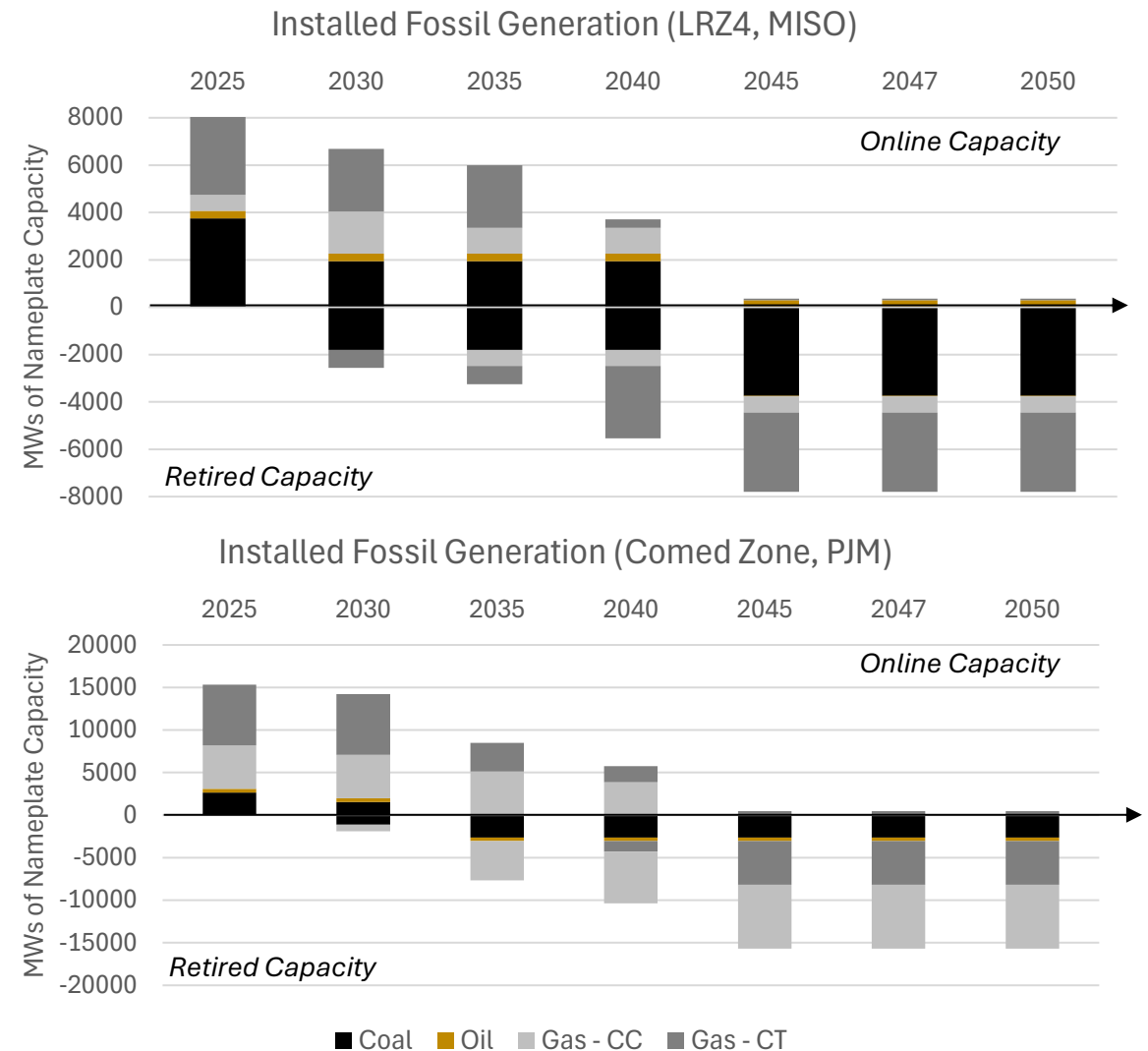
- Illinois has an RPS that requires a certain portion of electricity to come from renewable resources; this requirement increases by year
- **50% of electric retail sales in Illinois by 2040** must be met by utility solar, distributed solar, and wind combined

Illinois Emissions Constraints for CEJA-regulated Units

- The Climate and Equitable Jobs Act (CEJA) requires the phase-out of fossil fuel-fired power plants (thermal units) by 2045
- In the IRP, emissions caps are modeled as **hard constraints** on the cumulative CO₂e emissions of Illinois thermal generation units subject to CEJA
- The study uses a **net import emissions framework**, where exports offset imports on a 1:1 MWh basis and any remaining net imports are assigned the regional average emissions rate

The IRP reference case models retirements of Illinois generators in accordance with CEJA emissions limits

- + Units that are subject to CEJA emissions limits are assumed to retire in line with the assumptions [published as part of the 2025 Resource Adequacy Study](#)
- + Targeted updates have been made in consultation with the Illinois agencies:
 - [PJM has issued requests to a number of units](#) with CEJA Retirement dates of 2030 and requested those units to stay online through 2031 (totaling 5.7 GW of capacity). CEJA allows for RTOs to request the continued operation of a unit if needed for reliability.
 - Some units have changed ownership since the 2025 RA Study and are now municipally-owned and therefore have a later retirement date, or new ownership has moved units out of IL.



Final Scenario Matrix



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The IRP uses scenarios to study the impacts of uncertainty in load, policies, and resources on Illinois resource portfolios

+ The IRP scenario design is intended to capture multiple sources of uncertainty, including load, energy policy, availability of transmission solutions, and candidate resources



4 load scenarios are considered:

- Reference Case
- Low Data Center
- High Data Center
- Electrification



Scenarios also examine different state policies:

- CEJA Policy Today
- CEJA Unit Extensions
- Clean Energy Standard
- Data Center Flexibility
- Increased Load Flexibility



Scenarios consider different transmission and candidate resources available to meet load:

- Accelerated Technology Deployment
- Transmission Expansion
- Interregional Transmission Solutions

The IRP studies four different load scenarios covering a wide range of potential futures



Reference Case	Low Data Center Case	High Data Center Case	Electrification Case*
- Existing customer load forecast from utilities - Mid data center growth - EV and heat pump adoptions continue at current rates	- Existing customer load forecast from utilities - Low data center growth - EV and heat pump adoptions continue at current rates	- Existing customer load forecast from utilities - High data center growth - EV and heat pump adoptions continue at current rates	- Existing customer load forecast from utilities - Mid data center growth - High EV and heat pump adoptions reach 100% deployment by 2040 (EVs) and 2050 (Heat Pumps) *Aligned to Hybrid Electrification Scenario in Decarb Study

Common Across All of These Cases:

- Assumes policy achievement as written today (50% RPS by 2040 and CEJA plant retirements continue on schedule)
- Assumes the state can rely on out-of-state resources to meet reliability needs up to the existing import limits for each zone

The IRP studies four different major policy scenarios



	CEJA Extension	Clean Energy Standard	Data Center Flexibility	High Load Flexibility
Case Characteristics	- Reference Case load - Assumes plants subject to CEJA retirements are allowed to operate through the modeling horizon - Assumes plants must meet interim emissions reductions targets of CEJA until 2044	- Reference Case load - Illinois system is served by 100% clean energy by 2045 (MWh target) - Eligible resources: Wind, Solar, Nuclear, CCS (0.9 contribution coefficient)	- Reference Case load - Data center load is curtailable during the 100 highest system peak hours each year	- Electrification load - Assumes a higher trajectory of load-shifting demand response from programs such as time of use rates, VPP programs, or other incentives. Note: The focus of this case is on load flexibility because the reliability value of battery storage and BTM solar are already studied in all cases.
Purpose	Understand how the resource portfolios and customer cost impacts change if CEJA units continue to operate	The Clean Energy Standard (CES) tests a different policy definition of meeting a 100% clean energy system for Illinois.	Examines the impacts on resource buildout if the system does not need to meet the reliability need of the 100 highest peak hours driven by data center demand	The case will examine the impacts of load flexibility to the system through the resources that load flexibility could displace compared to a less flexible scenario.

The IRP studies five cases of specific technology options



	Advanced Technology Acceleration (with a Clean Energy Standard)	Transmission Expansion (Reference Case + Electrification Case)	SOO Green Case	GBX Case
Case Characteristics	- Reference Case load - Clean Energy Standard policy definition - Small Modular Reactors (SMR) and Long Duration Energy Storage (LDES) are available sooner and at a lower cost	- The model is given the option to increase the existing import capability of the zone by up to 50% to meet reliability needs with out of state gas resources. - Options are applied to the Reference Case and to the Electrification Case	- Reference Case load - Exogenously adds the SOO Green line to the model as a no-cost resource and re-optimizes the portfolio	- Reference Case load - Exogenously adds the Grain Belt Express line to the model as a no-cost resource and re-optimizes the portfolio
Purpose	Examines impacts on resource portfolios and total costs if technology deployment and reductions in cost accelerate	Enables comparison of the portfolio and cost impacts of expanding transmission to rely more on out-of-state capacity vs. relying on in-state resources and existing limits on imports.	Enables state agencies to examine how resource portfolios and costs could change by adding SOO Green to the system	Enables state agencies to examine how resource portfolios and costs could change by adding Grain Belt Express to the system

The IRP will consider more than a dozen cases, covering a wide range of load, technology, and policy futures

Today's
Focus

Scenario	Load	Energy Policy	Transmission Availability	Candidate Resources
Reference Case	Reference	Reference	Reference	Reference
CEJA Extension	Reference	CEJA Extension	Reference	Reference
Low Data Center	Low Data Center	Reference	Reference	Reference
High Data Center	High Data Center	Reference	Reference	Reference
Electrification	Electrification	Reference	Reference	Reference
Clean Energy Standard (CES)	Reference	CES	Reference	Reference
CES + Advanced Technology Acceleration	Reference	CES	Reference	Advanced technology acceleration
Reference Tx Expansion	Reference	Reference	Tx expansion up to +50% of CETL/ZIA	Reference
Electrification Tx Expansion	Electrification	Reference	Tx expansion up to +50% of CETL/ZIA	Reference
Data Center Flexibility	Reference	DC Flexibility	Reference	Reference
High Load Flexibility	Electrification	Reference + Shift DR	Reference	Reference
SOO Green Case	Reference	Reference	SOO Green	SOO Green
GBX Case	Reference	Reference	Grain Belt	Grain Belt

2026 IL PLEXOS Results: Reference Case



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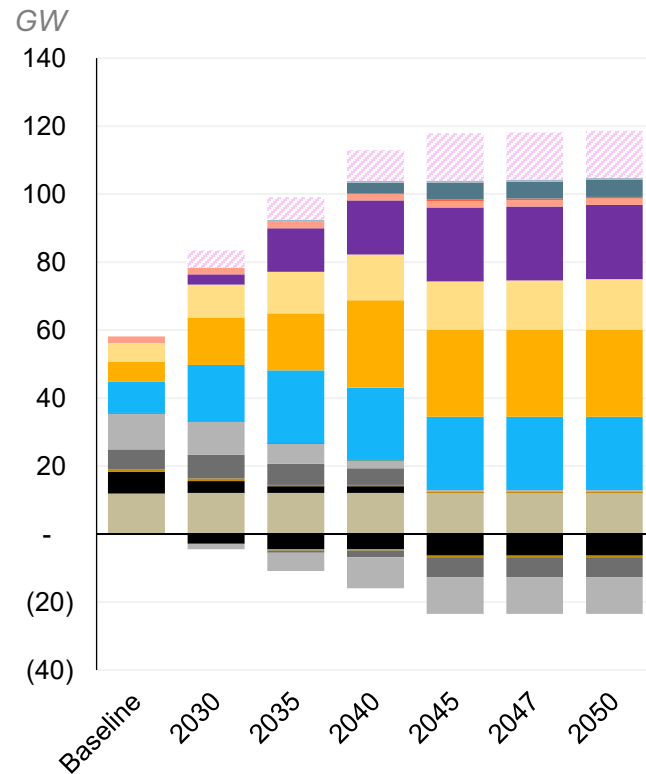
Illinois Results: Reference

The **system must more than double** (in nameplate capacity terms) **by 2045** to meet load growth.

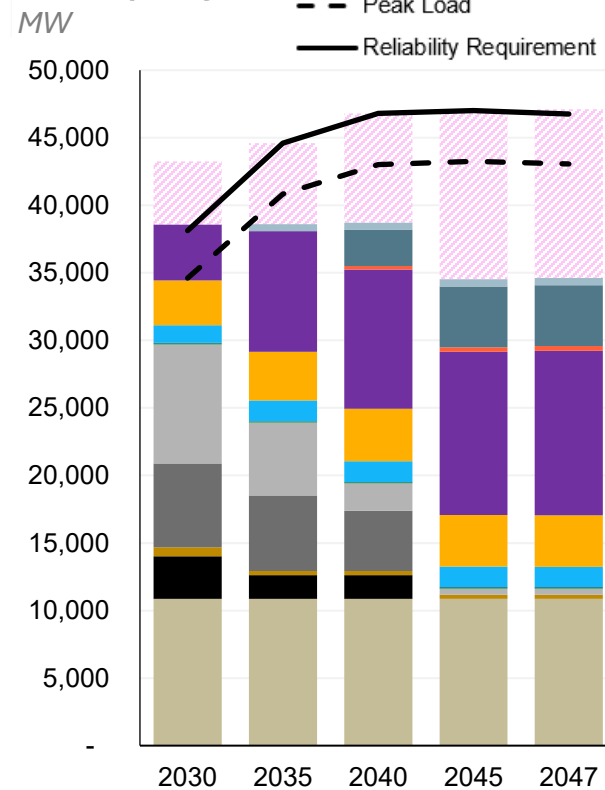
Out of state gas capacity increases as in-state CEJA units retire and new **nuclear and storage** are built in-state for reliability.

In 2030 89% of in-state generation is clean, and increasing over time to **99.9% in 2045.*** Illinois remains a **net exporter** in all years.

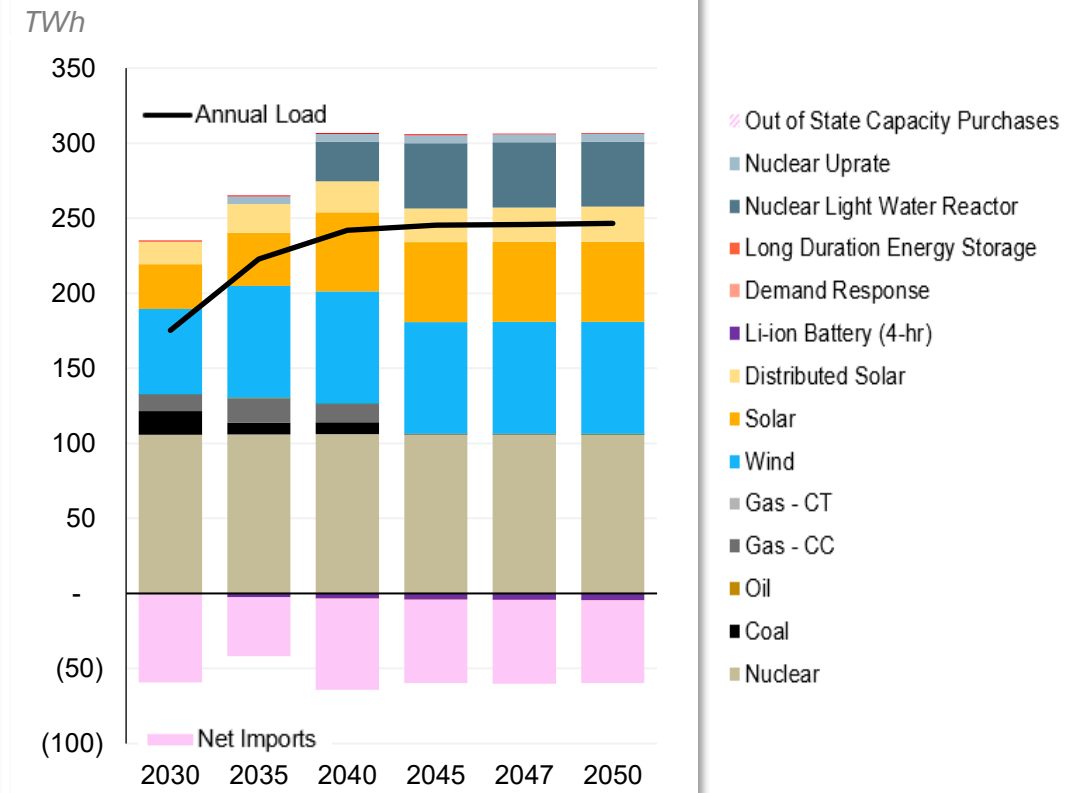
Installed Capacity



Firm Capacity



Generation



Note different y-axis

Note different y-axis

Note different y-axis

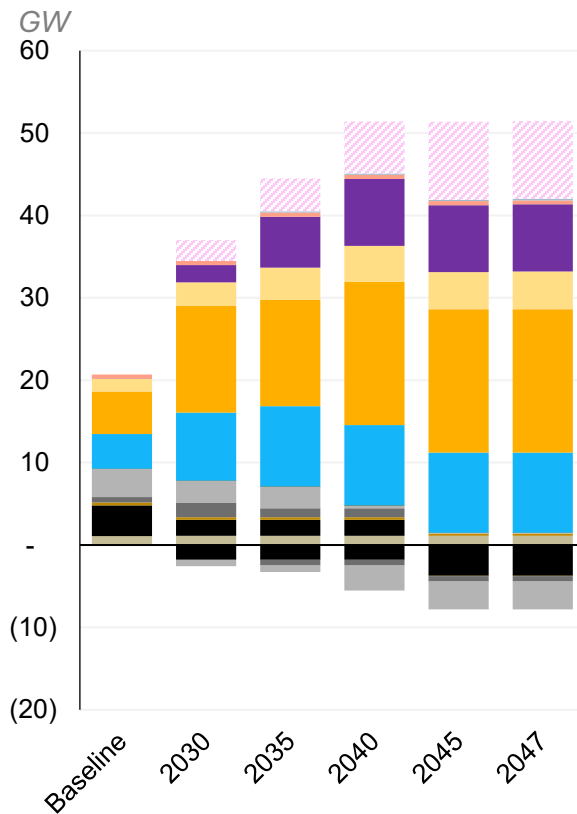
LRZ4 Results: Reference Case

The **LRZ4 in-zone capacity more than doubles** (in nameplate capacity terms) over the model time horizon.

In early years, the model selects a mix of new resources, but over time **the model increasingly relies on imported capacity** to meet firm capacity needs.

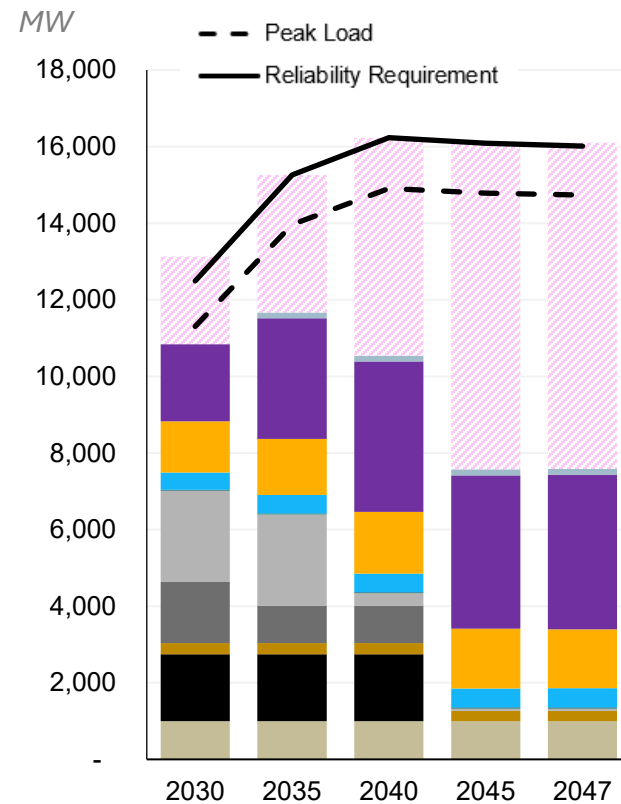
Annual energy needs are primarily met by clean energy across the forecast horizon. After 2040, the region is no longer a net exporter.

Installed Capacity



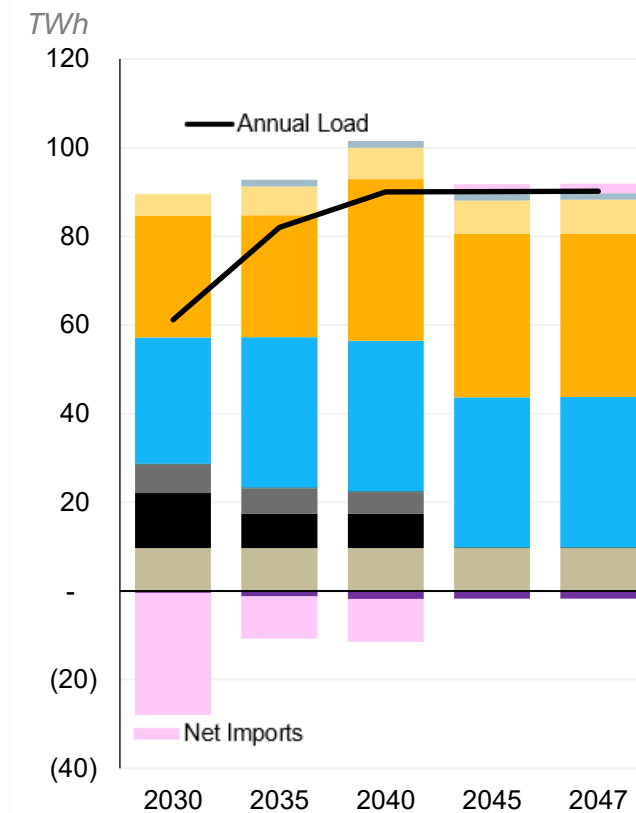
Note different y-axis

Firm Capacity



Note different y-axis

Generation



Note different y-axis

- Out of State Capacity Purchases
- Nuclear Uprate
- Nuclear Light Water Reactor
- Long Duration Energy Storage
- Demand Response
- Li-ion Battery (4-hr)
- Distributed Solar
- Solar
- Wind
- Gas - CT
- Gas - CC
- Oil
- Coal
- Nuclear

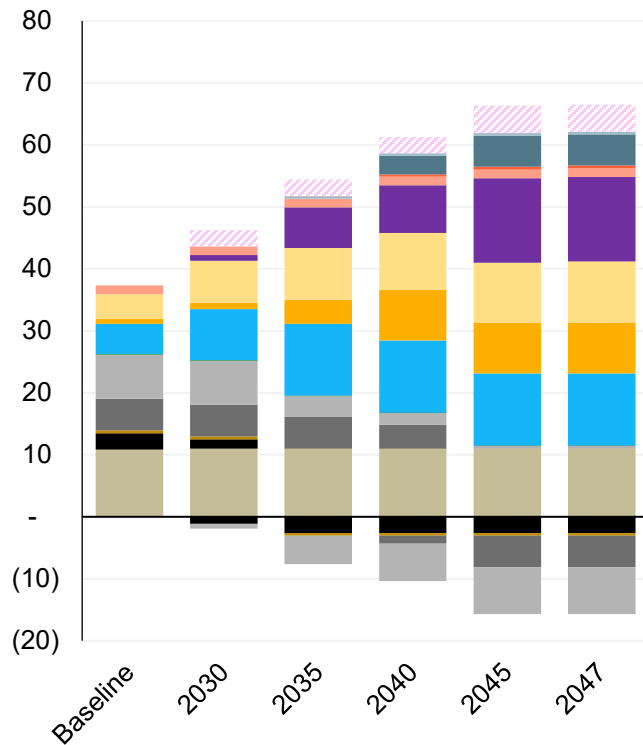
ComEd Results: Reference Case

By 2050 **ComEd's in-zone capacity increases by 66%** (in nameplate GW) .

As CEJA retirements occur, firm capacity is provided by **storage, out of state gas capacity, and new nuclear plants.**

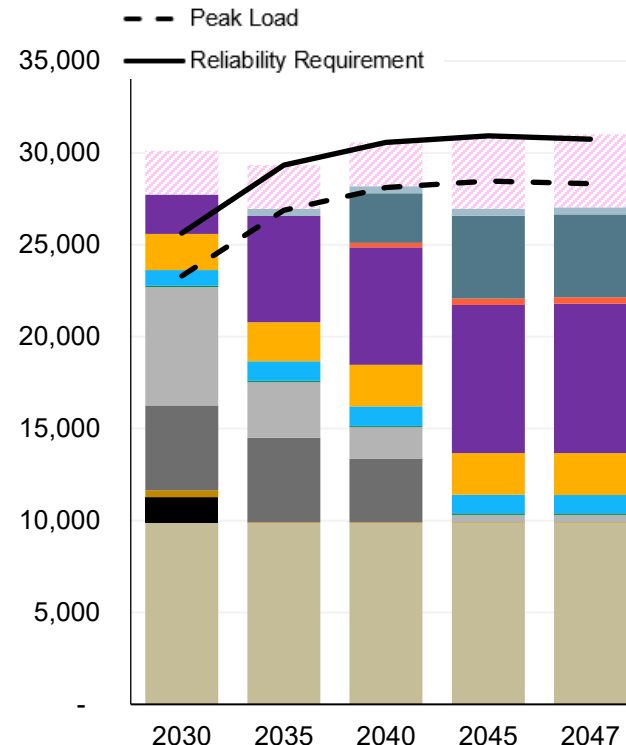
ComEd increases net exports over time, as new nuclear is built to meet reliability needs and excess generation from nuclear and renewables is exported to the rest of PJM.

Installed Capacity
GW



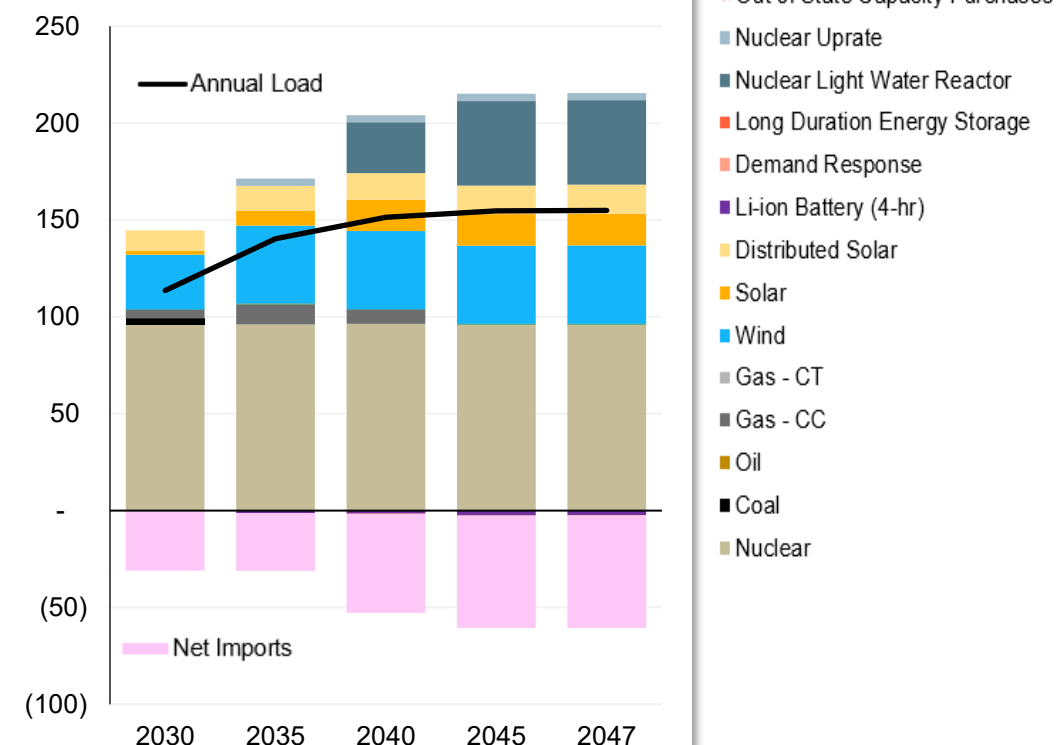
Note different y-axis

Firm Capacity
MW



Note different y-axis

Generation
TWh



Note different y-axis

2026 IL PLEXOS Results: CEJA Extension Case



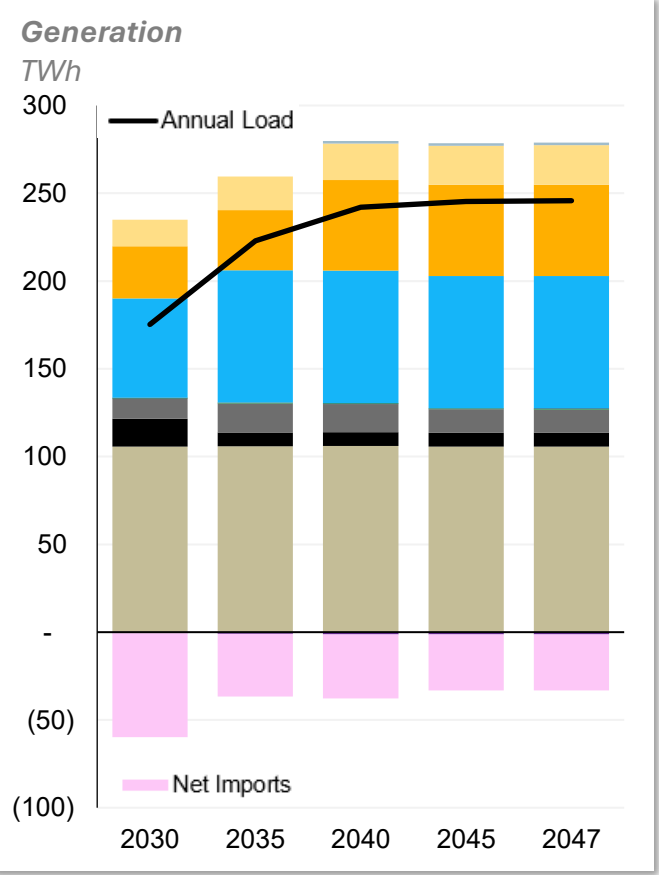
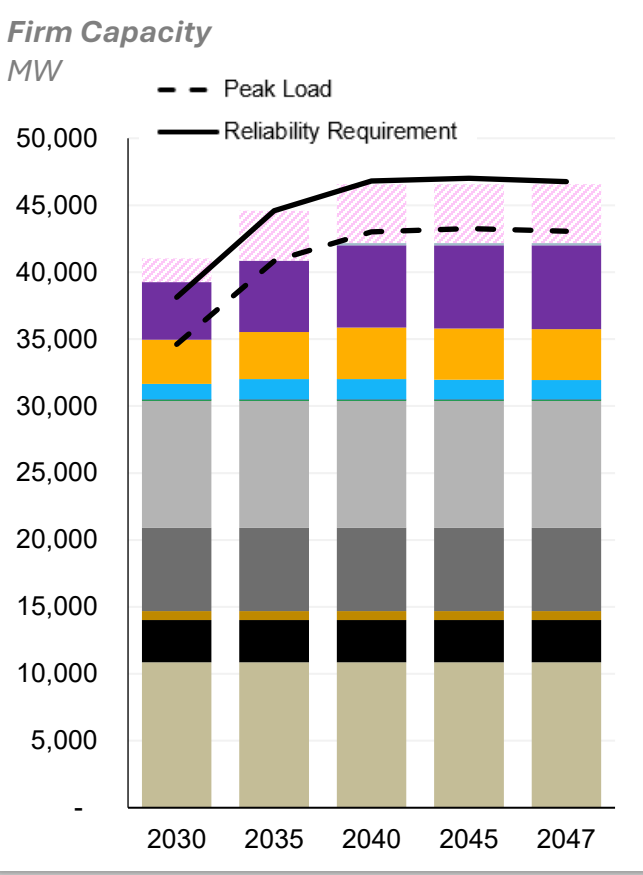
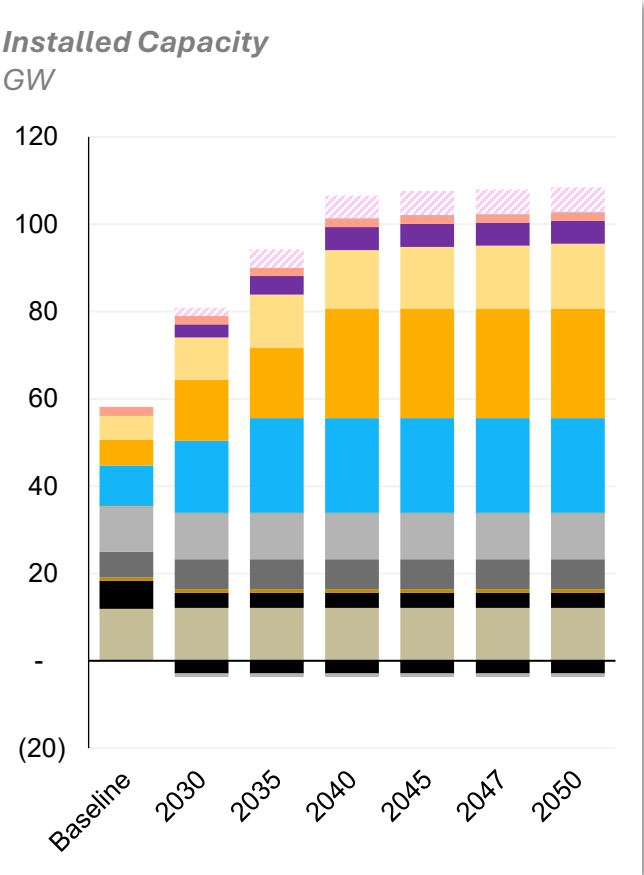
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Illinois Results: CEJA Extension Case

When CEJA units are not retired, the system must still grow 90% to meet increased demand, but less than in Reference Case.

With CEJA units maintained on the system, **gas generators are the largest share of firm capacity**, while generating infrequently.

In 2030, 88% of in-state generation is clean. Even as CEJA units remain online, **92% of in-state generation is clean by 2045.**



Note different y-axis

Note different y-axis

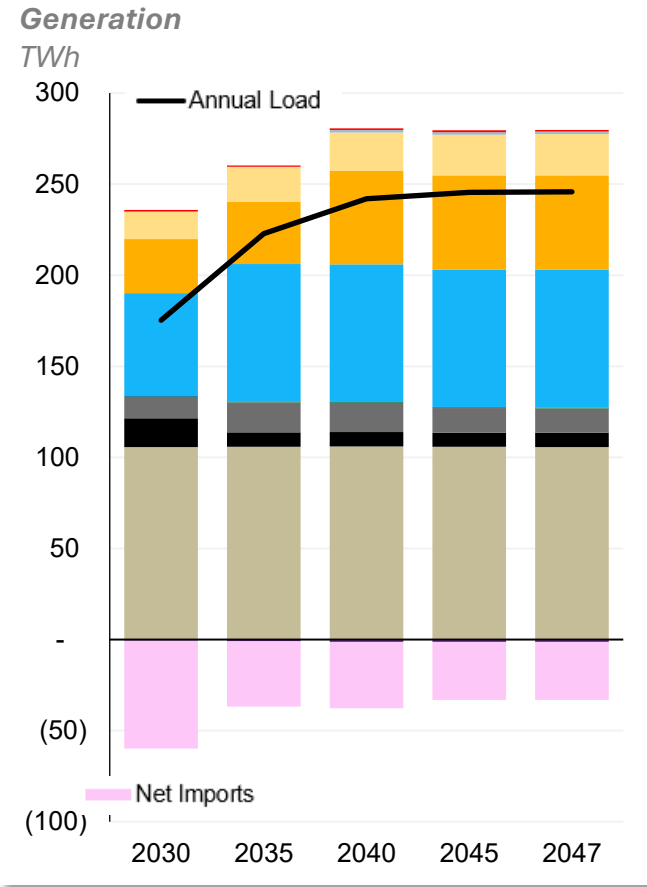
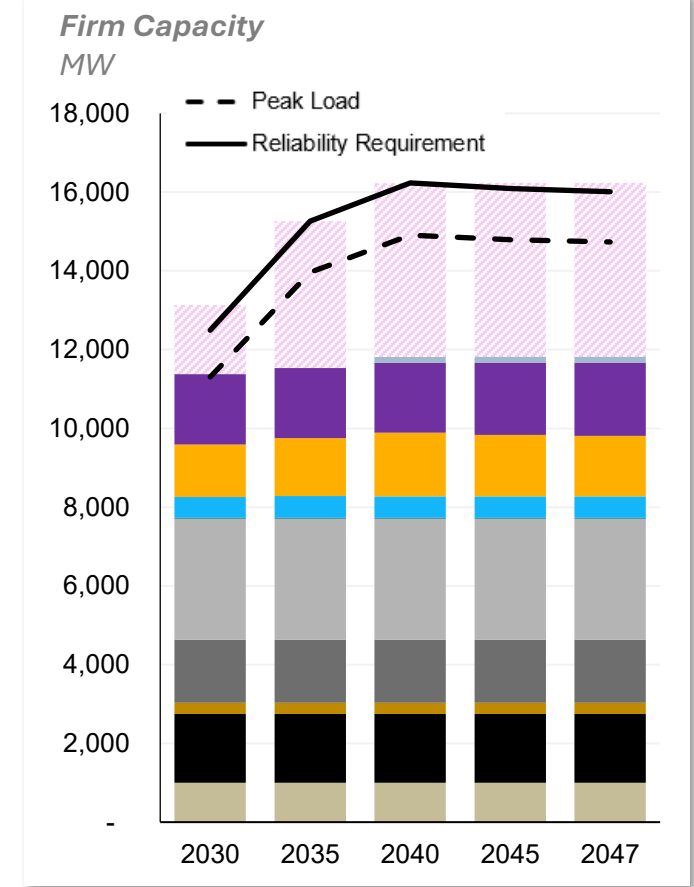
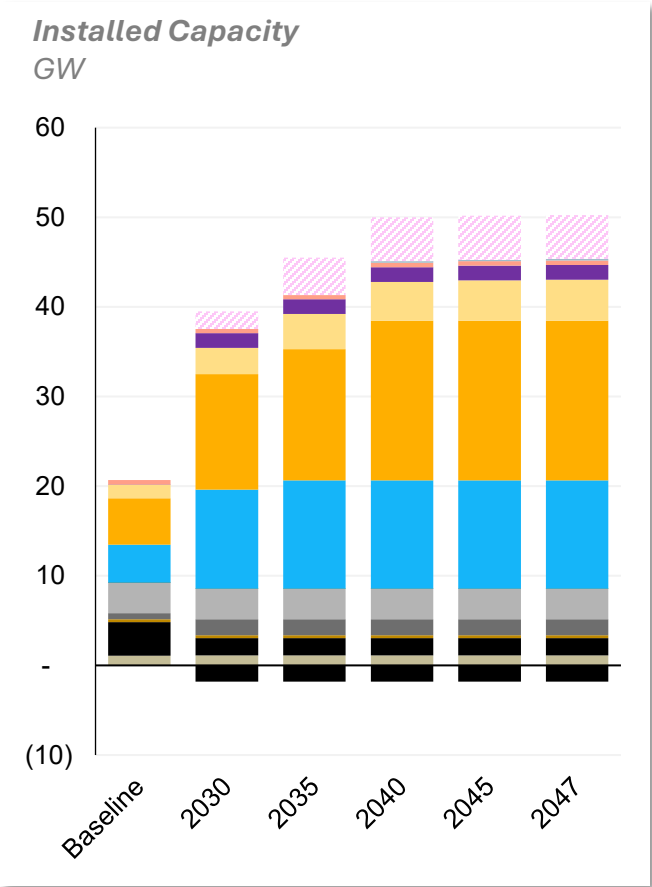
Note different y-axis

LRZ4 Results: CEJA Extension Case

The LRZ4 in-state system grows 125% between today and 2040.

Even with CEJA units available, LRZ4’s system increasingly relies on imports to meet firm capacity needs over time.

81% of LRZ4 in-state generation is clean by 2030, increasing to 89% by 2045, even as CEJA units remain online.



Note different y-axis

Note different y-axis

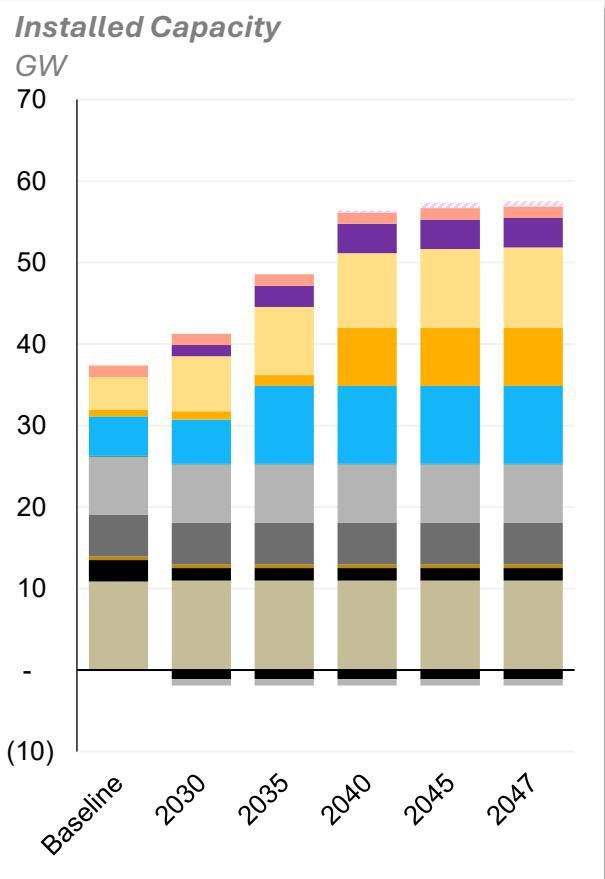
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ComEd Results: CEJA Extension Case

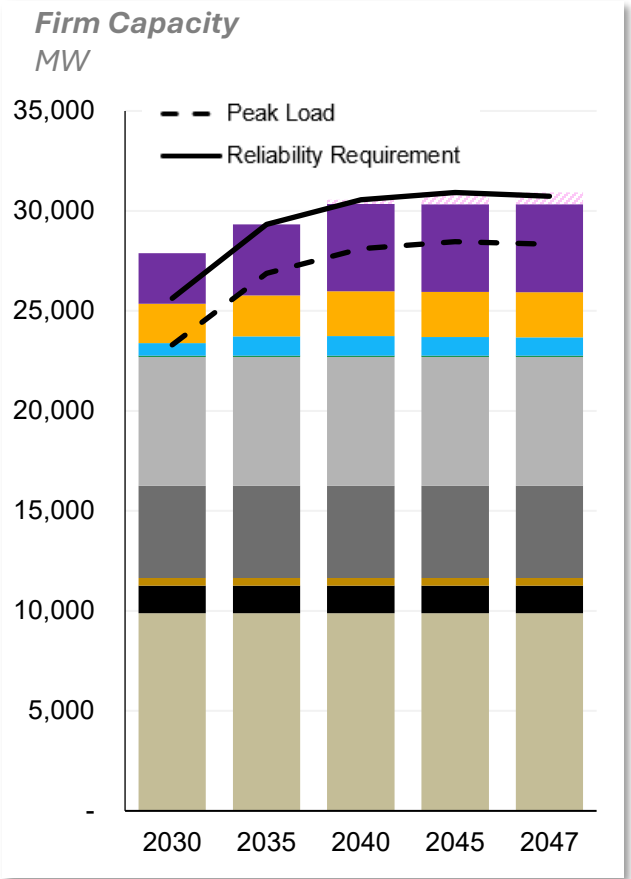
ComEd's system continues to be a mix of nuclear, fossil resources, renewables and storage over time.

With fossil units available to meet capacity needs, **only 5 GW of new capacity is needed in ComEd from 2030-2050.**

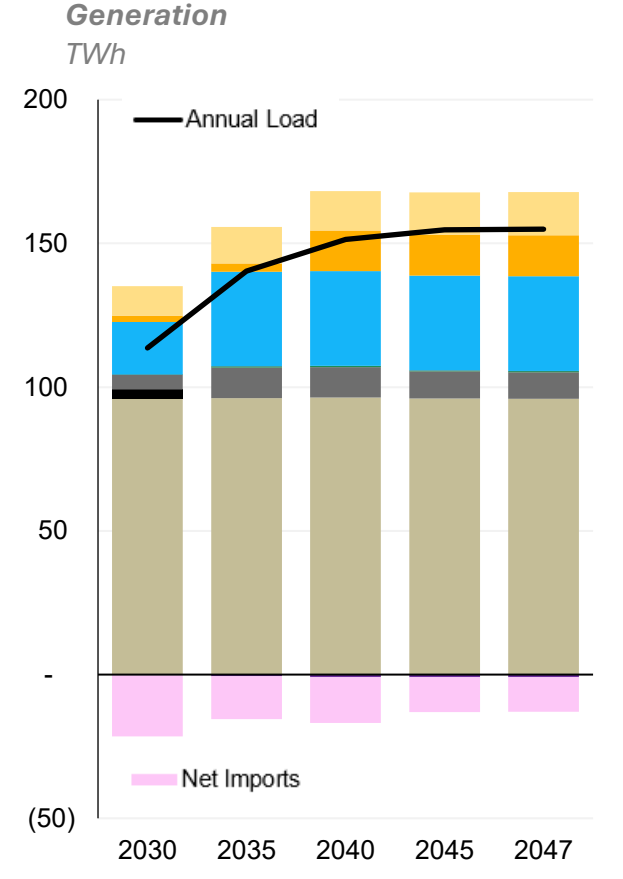
94% of ComEd in-state generation is clean in both 2030 and 2045. CEJA units are assumed to remain constrained by emissions limits even when extended.



Note different y-axis



Note different y-axis



Note different y-axis

- Out of State Capacity Purchases
- Nuclear Uprate
- Nuclear Light Water Reactor
- Long Duration Energy Storage
- Demand Response
- Li-ion Battery (4-hr)
- Distributed Solar
- Solar
- Wind
- Gas - CT
- Gas - CC
- Oil
- Coal
- Nuclear

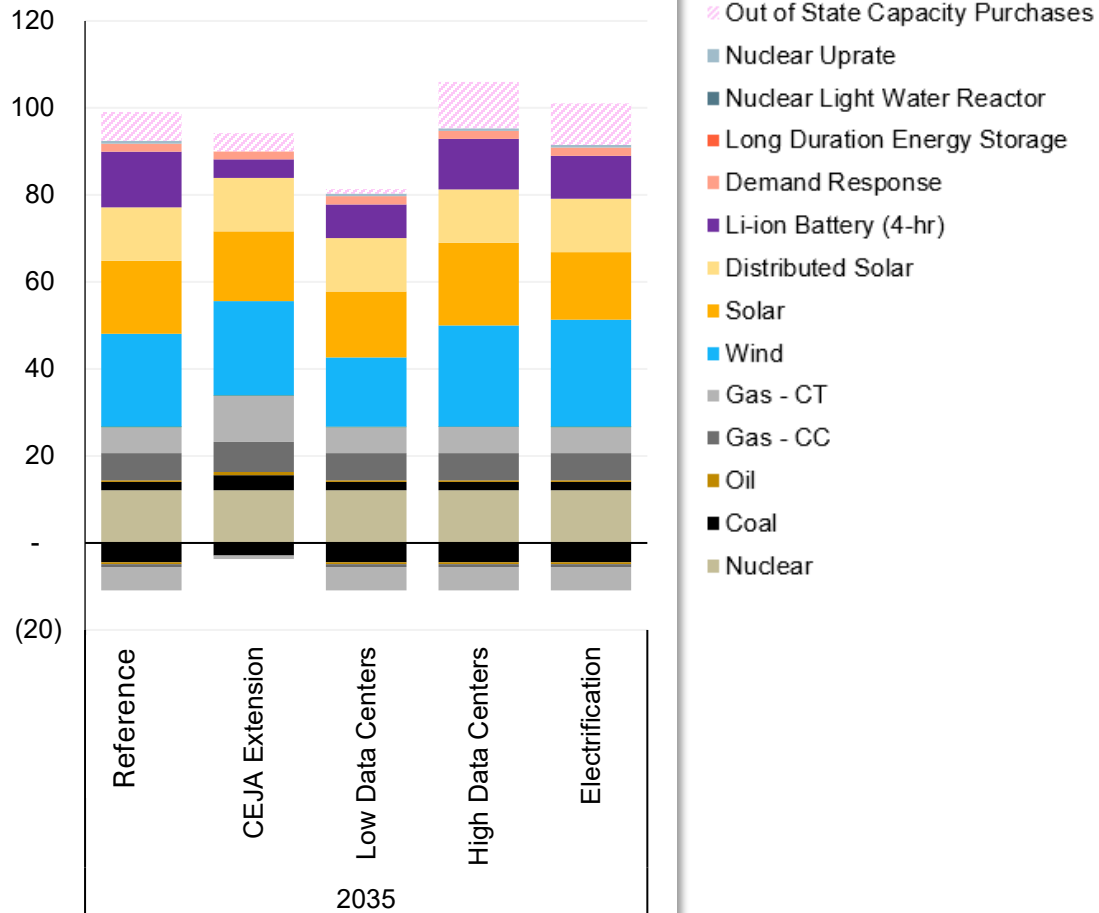
Draft Results: Comparing Scenarios



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All Scenarios: Installed Capacity Comparison (2035)

Installed Capacity, Illinois
GW



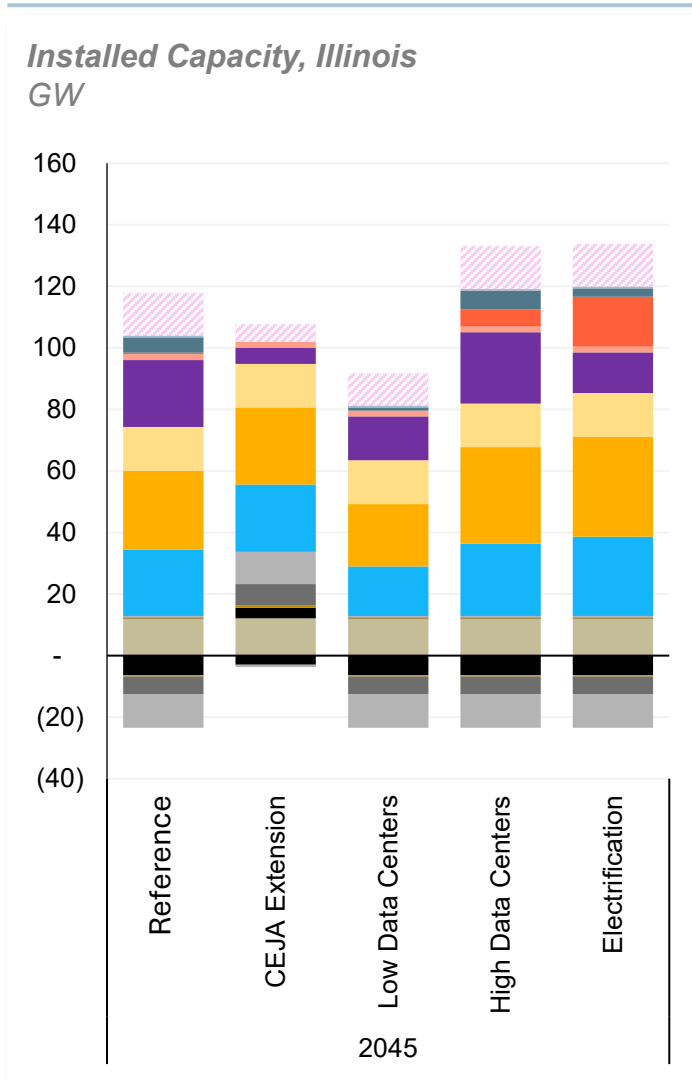
+ Installed Capacity includes:

- Existing capacity, less firm retirements
- Planned additions (like distributed solar)
- New economically selected resources

+ In 2035, installed capacity varies by ~25 GW between the Low and High data center cases.

+ Across all cases, renewables make up the largest share of nameplate capacity on the system.

All Scenarios: Installed Capacity Comparison (2045)



- + By 2045, the gap in installed capacity between low and high load cases grows to 45 GW (77% of Illinois's system today), highlighting how different load scenarios could lead to very different long-term system buildouts.
- + The higher load cases (High Data Center and Electrification) build out larger amounts of new nuclear and long duration energy storage.
 - The difference between the nuclear and long duration storage buildouts of these two scenarios reflect the different load shapes between the two.
 - The High Data Center case has 'flatter' loads which is more conducive to nuclear generation.
 - Whereas the Electrification case has a more variable shape, which can be served by long duration energy storage.

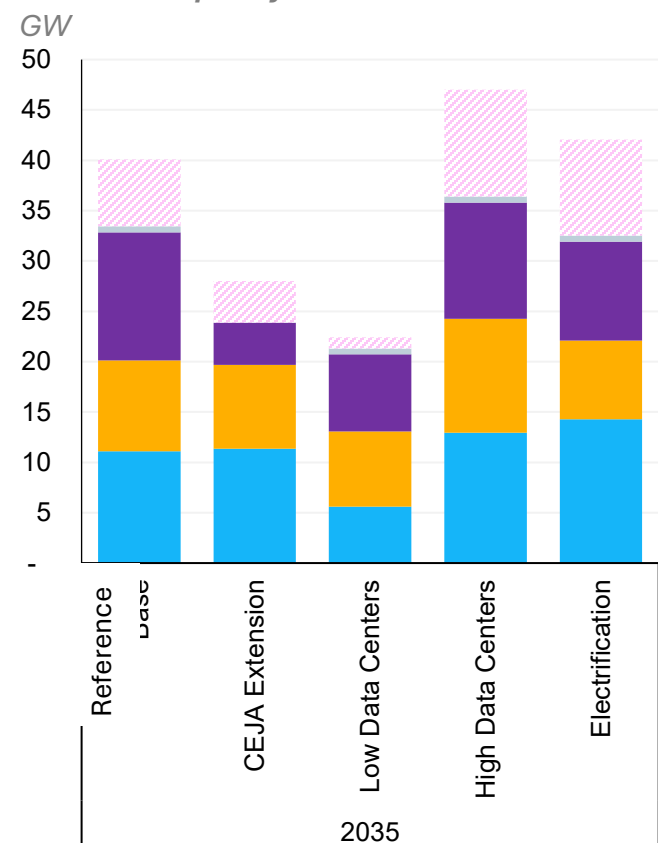
All Scenarios: 2035 Selected Capacity, Generation and Firm Capacity

In the near term, the model largely selects **wind, solar, storage, nuclear uprates and imports** to meet IL system needs.

Reliability needs are met by existing thermal resources, capacity purchases, and 4-hr batteries in the near term.

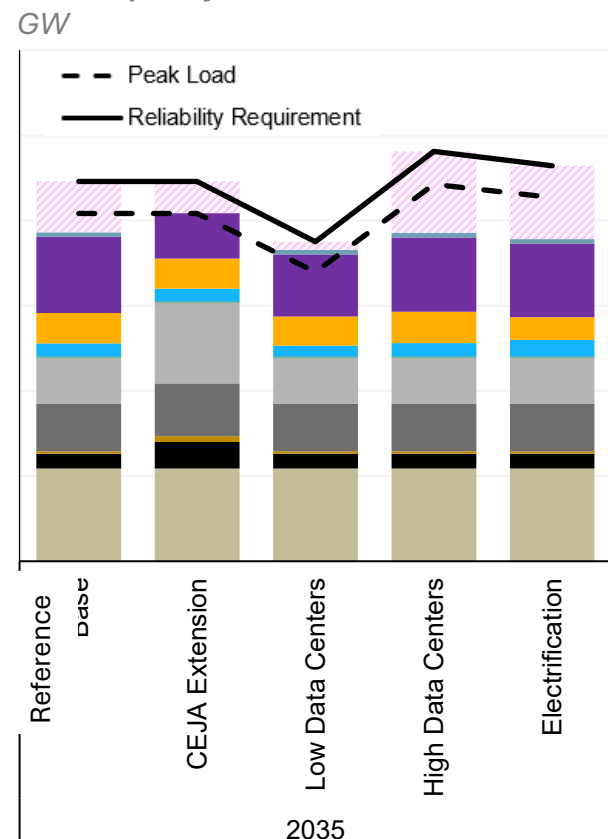
Across IL, most energy needs are being met by **clean energy**: nuclear, solar and wind. IL is a **net exporter in every scenario**.

Selected Capacity

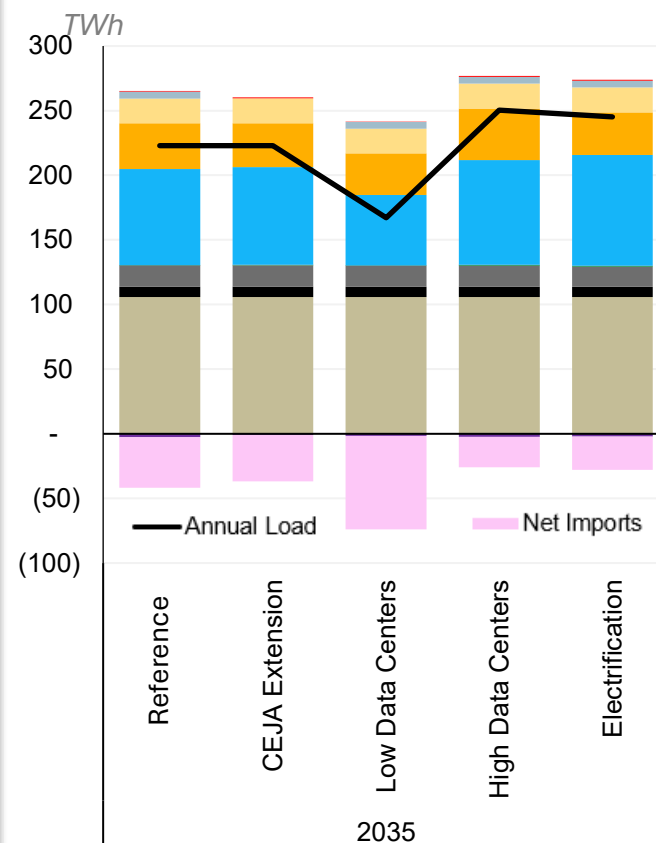


Note different y-axis

Firm Capacity



Generation



- Out of State Capacity Purchases
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- Solar
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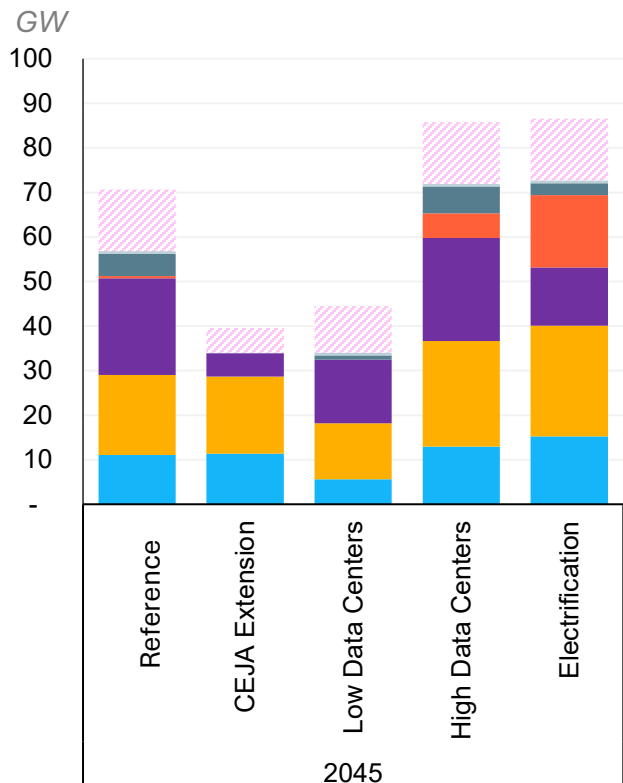
All Scenarios: 2045 Selected Capacity, Generation and Firm Capacity

Through 2045, the **CEJA Extension Case** needs the fewest new resources, even with higher load than the Low Data Center Case. Illinois relies on capacity resources out of state alongside in-state resources.

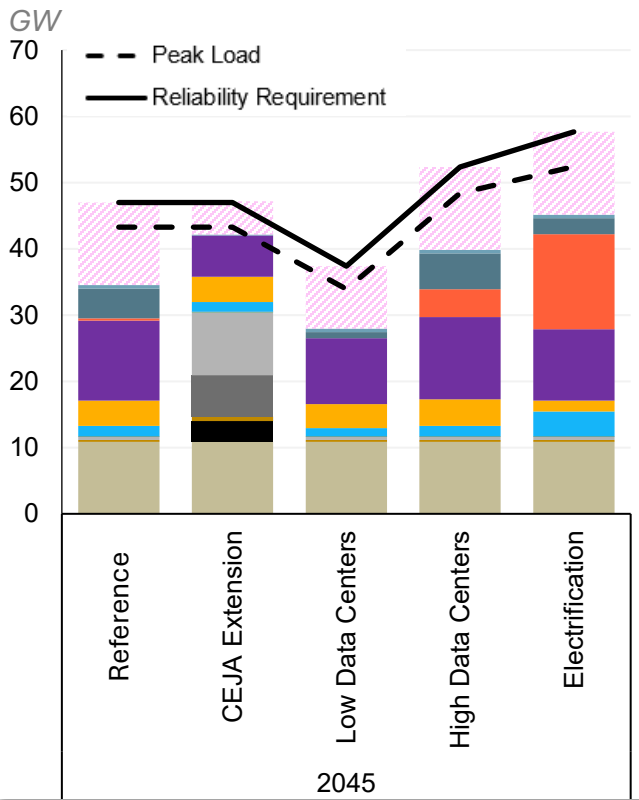
In the CEJA Extension case, CEJA units provide significant resource adequacy MW, reducing the need for out-of-state capacity, new nuclear, and long-duration storage.

Most demand is served by clean energy. IL is a net exporter across all scenarios except Electrification.

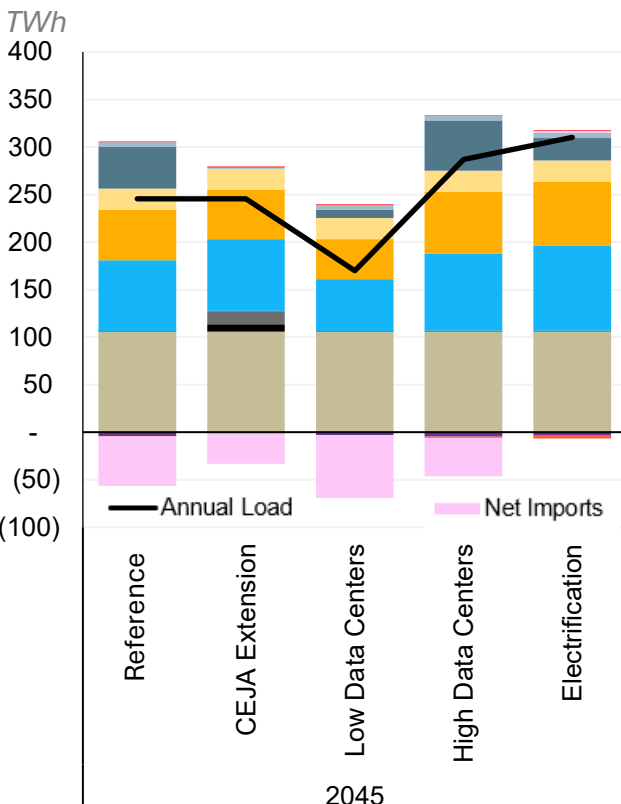
Selected Capacity



Firm Capacity



Generation



- Out of State Capacity Purchases
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Note different y-axis

Key Messages and Next Steps



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In reviewing draft results, some key themes are emerging



Illinois faces a persistent capacity challenge that reflects broader regional and national trends and is intensified by load growth.



Illinois can meet its clean energy goals through a diverse portfolio driven by new renewable energy resources with reliability contributions from storage and complementary firm resources.



A reliable, decarbonized electricity system requires both clean energy and firm capacity, which serve distinct but complementary needs.

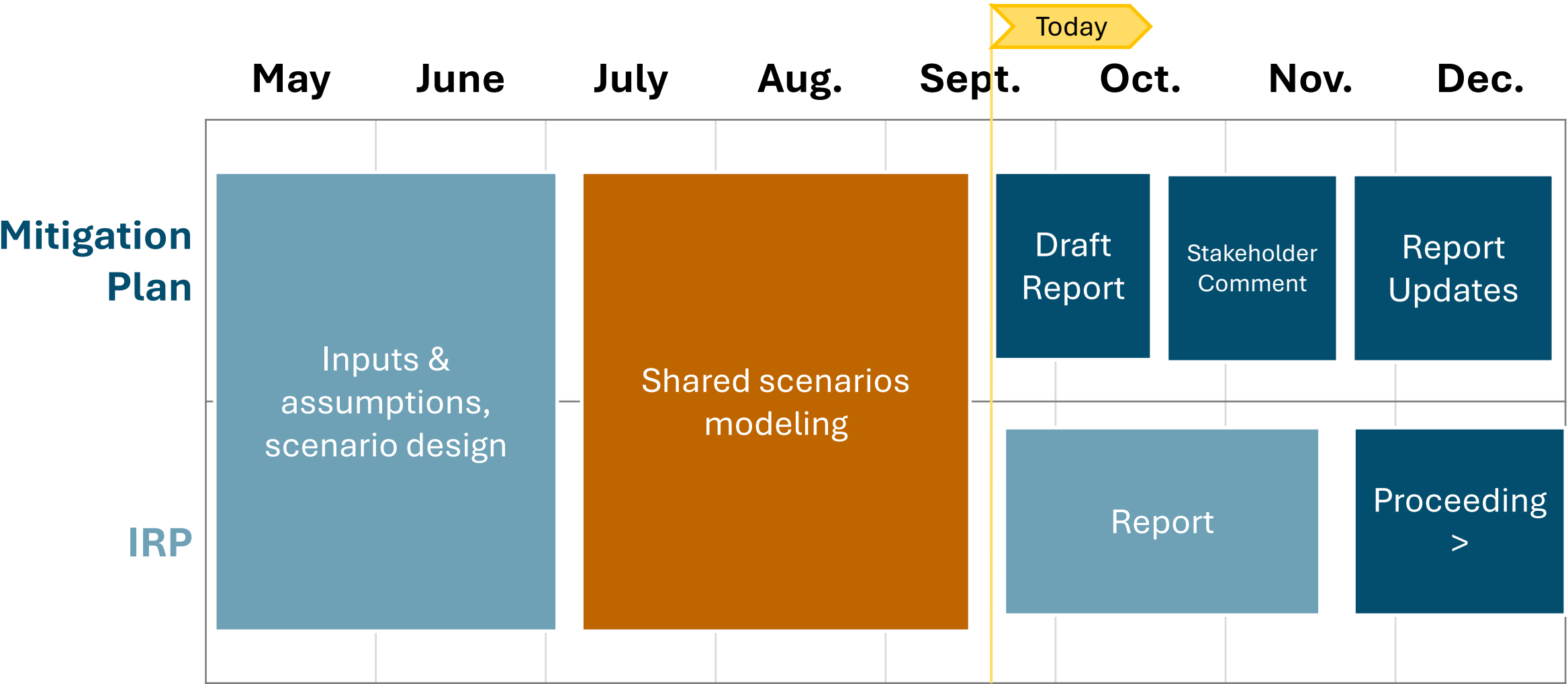


Heightened uncertainty calls for deliberate near-term action while preserving flexibility and laying the groundwork for longer-lead resources that may be needed.



Illinois can act directly on the levers within its control while also influencing regional markets, with careful attention to who bears costs and receives benefits.

The IRP and Mitigation Plan use a shared modeling framework for each report, both to be published this fall



Stakeholder Feedback and Q&A



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How Can Stakeholders Submit Comments?

+ Submit comments in response to this workshop

- Comments should be submitted within **14 days – October 8th, 2026**
- The stakeholder comment form can be accessed after this session [here](#) or by using the QR code below

+ All comments should be submitted via the comment form

+ If there are other attachments or data that you are unable to include on the comment form, these can be sent via email to:

- Richelle Sampson: richelle@viridis-consulting.com
- Subject Line: IRP Stakeholder Comments – Workshop #5
- Please ensure all attachments meet [accessibility requirements](#)

IRP Stakeholder Workshop #5:
Draft Results



Q&A



- If you have a question or comment about a particular slide, please make note of that slide number in your question
- Please use the Raise Hand feature to ask a question, provide feedback and comments – unmute when a moderator calls on you and please share your name and organization when you speak
- You can also use the Chat feature which will be moderated

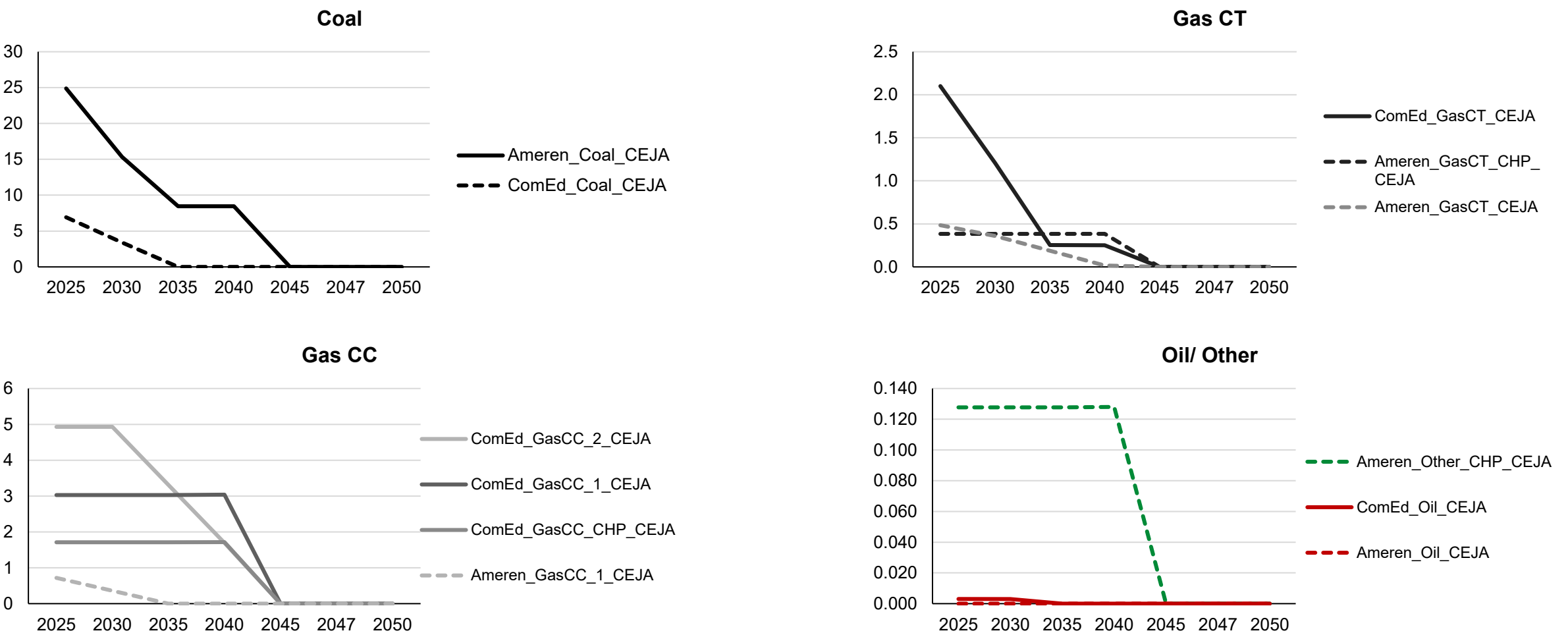


Appendix



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CEJA Emissions Caps by Resource Type (Millions of Short Tons)



Note different y-axes;
"Other" represents Biomass; Dashed lines are used to differentiate between Ameren and ComEd; 2025 value represents the published historic emissions average from 2018- 2020. PLEXOS begins modeling in 2030

Existing & Generic Import Capability

- + Existing import capability represents capacity purchases (modeled as out-of-state gas resources) serving IL resource adequacy needs up to the current transmission capability.

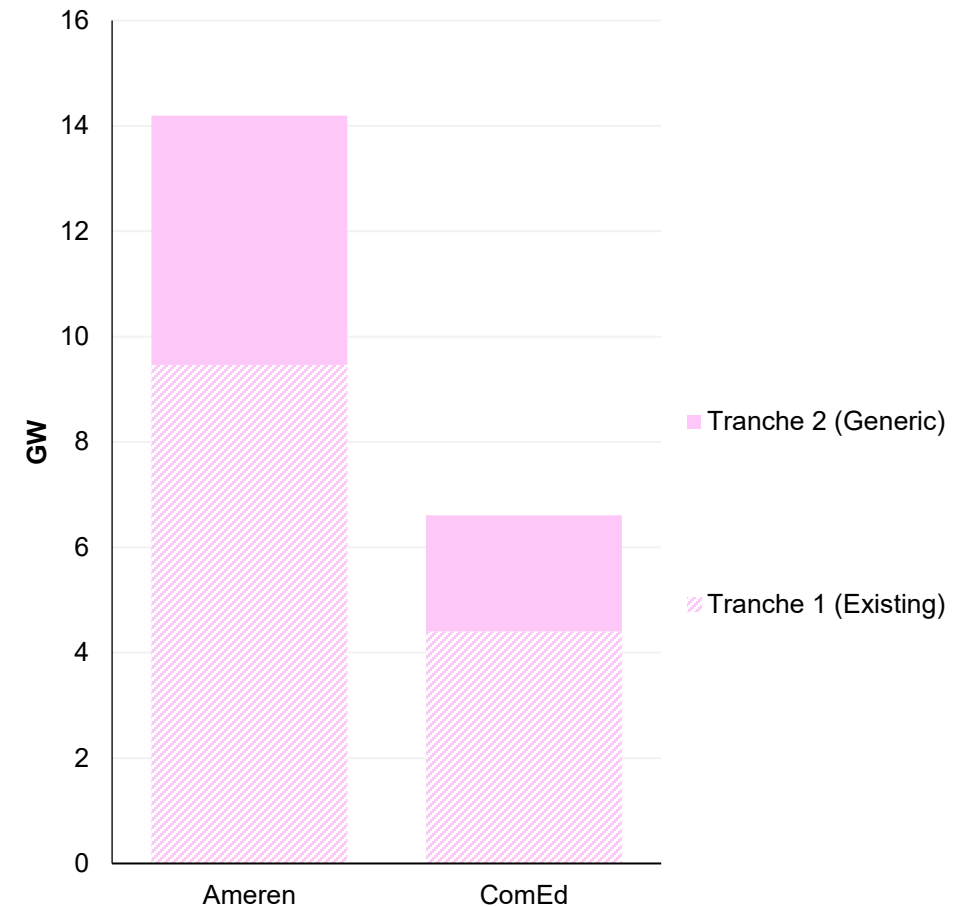
Limits are informed by:

- Capacity Energy Transfer Limit (**CETL**) in ComEd of 4.4 GW
- Zonal Import Ability (**ZIA**) in LRZ4 of 9.5 GW

- + For the cases where the model is allowed to select to build incremental transmission to import resources from out of state, import capability is modeled as:

- Tranche 1 is existing transmission- limited to 1x CETL/ZIA
- Tranche 2 is limited to 0.5x CETL/ZIA
- Costs of the transmission expansion were modeled as:
 - MISO- 100 miles, \$6,000/MW-mile
 - PJM- 200 miles; \$7,500/MW-mile

Import Capability by Tranche. GW



CEJA Unit Updates from 2025 RA Study

+ PJM CEJA Reliability Extension Agreements impact (shift from 2030 retirement date to 2031):

- Calumet Energy Center
- Fisk Units 31, 32, and 34
- Powerton Units 5 and 6
- Waukegan Units 31 and 32
- Aurora Units 1-10
- University Park South Units 31-1, 31-2, 32-1, 32-2, 33-1 and 33-2
- Rockford Units 11, 12 and 21
- University Park North Units 1-12
- Zion Energy Units 1-3
- Crete Generating Station Units 1-4

+ Changes in Ownership:

- Elwood: 3 units transferred to Dairyland with new retirement date of 2045, remaining 6 units retired in model in 2026.
- Rocky Road: sold to Dairyland with new retirement date of 2045 for all units except TG3, which retired in 2026.
- Elgin: sold to Dairyland with new retirement date of 2045.

+ Changes in timeline:

- Baldwin previously set to retire in 2026, now assumed to retire in 2028.
- Kincaid previously set to retire in 2027, now assumed to retire in 2028.
- Newton previously set to retire in 2027, now assumed to retire in 2028.