Resource Adequacy Study Workshop 1

IPA, ICC, & IEPA Collaborative

June 16, 2025 ; 10a-12p Central

Agenda

1. **Introduction – Illinois Power Agency (15 min)**
   - Logistics
   - Agency leadership introductions and welcome
   - Workshop Intent
   - Statutory Requirements
   - Stakeholder Engagement
2. **Work Plan Overview – E3 (45 min)**
   - Contextualizing Resource Adequacy & Reliability in Illinois
   - Analytical Framework & Key Risk Factors to Explore
   - Overarching Study Schedule & Milestones
3. **Alignment Across Illinois Processes (25 min)**
   - Collaboration Amongst the Agencies
   - ICC: parallel / adjacent studies & responsibilities
   - IEPA: overarching duties & role of the study
   - IPA: current electric procurement & policy landscape
4. **Stakeholder Comments & Responses to Questions (30 min)**
5. **Closing & Next Steps (5 min)**

Introduction

Logistics, Workshop Focus, Statutory Requirements, Stakeholder Collaboration, and Timeline

Disclaimer

- Any statements made during this workshop are intended to provide stakeholders with summary information of the intended Resource Adequacy Study ("RA Study") process. Resulting efforts or activities may change over time as necessary to meet the needs of the underlying statutory requirements.

- This slide deck is for informational purposes only and does not represent any legal interpretation or statement of policy by any of the Agencies (IPA, ICC, or IEPA), Staff, or their consultants.

- Any of the content presented herein, or views and opinions expressed during the Workshop do not represent a legal interpretation, statement of policy, or statement of fact by any of the Agencies (IPA, ICC, or IEPA), Staff, or their consultants.

Workshop Logistics

- Given the packed agenda for this workshop, we ask that you hold your questions unless you have a very specific, short, technical ask that would enable stakeholders to better understand the topics being discussed. (*Such as explanation of a term or clarifying a presented concept.*)
  - If you have a question, please use the "raise hand" feature.

- There will be a section for stakeholder discussion and input at the end of the workshop, with Agency-prompted questions.
- This presentation will be posted to the IPA's **Resource Adequacy webpage** after this workshop for all stakeholders to view.

Workshop Logistics (cont.)

- This workshop is being recorded. The recording will be posted on the RA Study webpage as well.

- In addition to the questions discussed in today's workshop, the Agencies will be issuing additional questions seeking stakeholder feedback through written responses. This will be discussed later, at the end of the workshop session.
- To better communicate with stakeholders going forward, please visit the RA Study webpage and sign up to be added to the RA Study email distribution list. This list will be used throughout the process to communicate:
  - When new materials are available
  - Forthcoming workshops or other stakeholder engagements
  - Provide updates on processes, schedule, and other related items

Agency Leadership Welcome

Jon Feipel **– Director of the Illinois Commerce Commission**

Laura Roche **– Chief of Staff, Illinois Environmental Protection Agency**

Brian Granahan **– Director of the Illinois Power Agency**

Workshop Intent

This workshop is intended to inform all interested stakeholders of the process the Agencies intend to use to complete the RA Study.

- In addition to the questions discussed in today's workshop, the Agencies will be issuing addition questions seeking stakeholder feedback through written responses.
- The focus of the questions will be on RA Study goals, scenarios, study approach, and data assumptions.

Stakeholders will leave with an understanding of:

- The statutory requirements driving the RA Study process, deliverables, and timing;
- The end-to-end schedule, including those items that are statutorily required and those sub-tasks that are embedded as components of the study process;
- The key elements of the RA Study – a foundational understanding of resource adequacy studies, the methodological approach to be pursued, the underlying analytical framework, an introduction to the core study topics, and concept design underpinning scenario development; and,
- The roles of the Agencies and activities each are responsible for.

Section 9.15(o) – Requirements

Analysis and Report Focus

- **Evaluates**: the state's current progress to renewable energy goals, status of CO_2e and co-pollutant emissions reductions, current state and progress towards developing & implementing green hydrogen technologies, and the current and projected status of electric resource adequacy and reliability throughout the state. The evaluation us also expected to include proposed solutions to alleviate any findings identified.
- This process specifically evaluates electric resource adequacy and reliability throughout the State for the period beginning 5 years ahead – ***this would at least focus on the period through 2030/2031.***

9.15(o) – Requirements (cont.)

Fundamentally, the statute defines a very clear pathway through the RA Study process itself.

- **IF:** RTO data, the pace of renewable resource development, the pace of energy storage development or demand response ("DR") utilization, transmission capacity, and CO_2e and co-pollutant emissions reductions required ***reasonably demonstrate a resource adequacy shortfall***;
  - Including whether there is sufficient in-state capacity to meet zonal requirements (MISO Zone 4 and PJM ComEd Zone), or the RTO determines that a reliability violation will occur during the time-frame of the study.
- **THEN:** the IPA and the IEPA, shall develop a plan to consider a suite of options, including the use of renewable energy, energy storage, demand response, transmission, or potentially adjustments to the clean energy targets or emission standards (but only to the extent and duration necessary to meet resource adequacy and reliability needs).

In effect, if there is an identified shortfall, the Agencies will develop a plan aimed to alleviate that shortfall with the goal of achieving Illinois policy goals AND reliability and resource adequacy.

9.15(o) - Schedule

There are a series of explicit targets and milestones contained within the Statute, establishing the broad schedule for each study cycle.

This is the "RA Study" discussed herein.

- **Process Cadence**: Every 5 years, starting in 2025
- **Report**: to be issued publicly by December 15th of each year (starting Dec. 15, 2025)
  - Issued to the General Assembly
- **Plan**: If the report finds a resource adequacy shortfall a plan to alleviate the shortfall shall be developed, including a stakeholder workshop and stakeholder 60-day comment period, to be filed with the ICC within 30-days following the stakeholder comment period.
- **Post-Filing, ICC Steps**:
  - +60-day period for objections to be filed; followed by
  - +30-day period for ICC to determine if an evidentiary hearing is necessary
  - Within 90-days of plan filing: ICC to also host 3 public hearings
  - If an evidentiary hearing is required, ICC shall enter an order within 180 days

Stakeholder Collaboration

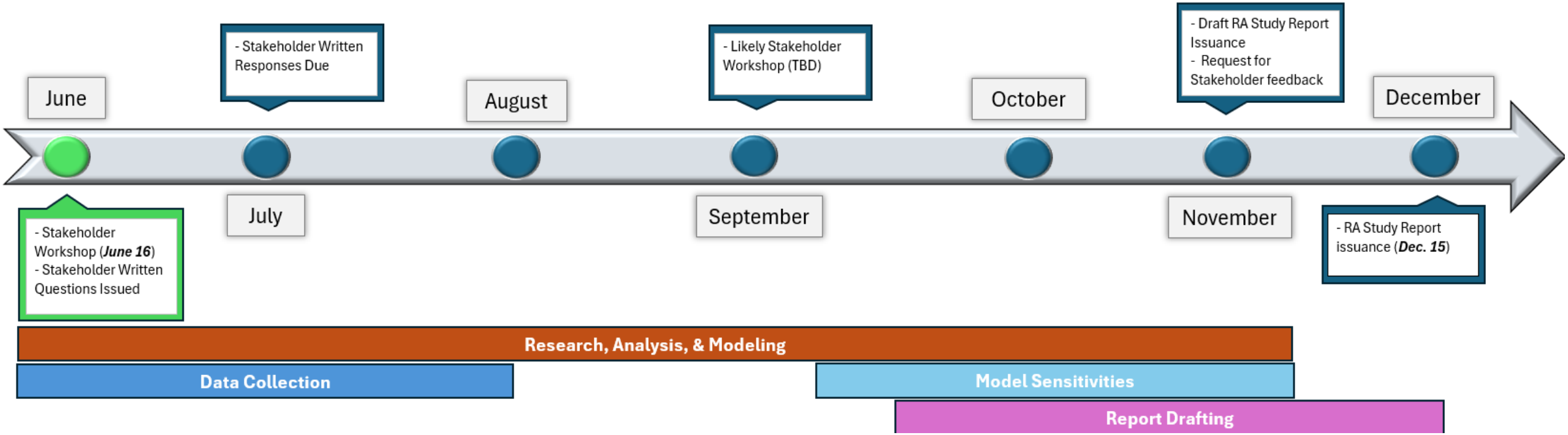
Section 9.15(o) directs:

- **Consultation** with PJM Interconnection ("PJM") & Midcontinent Independent System Operator ("MISO") with a focus toward forecasting resource adequacy and reliability needs, anticipated new generation, new transmission development or upgrades, and any announced large GHG-emitting generating asset closures.
- **Additional Stakeholder Input** on the prospective IPA/IEPA Plan to achieve resource adequacy and policy goals. This includes at least one workshop, public posting of the plan to provide stakeholders and ability to review the plan, and a 60-day comment period on the plan.
  - *NOTE: This specific stakeholder session & comment period is a component of the Plan development.*

The Agencies will also provide additional stakeholder engagement:

- **Workshop #1:** (June 16th) providing insight into the RA Study approach and including a segment to solicit stakeholder feedback on a series of questions.
- **Written Feedback**: Agencies to issue a series of questions and request stakeholder written responses.
- **Future Workshop:** to provide stakeholders with insight into preliminary modeling results and solicit additional feedback on the results, scenarios, sensitivities, and additional considerations.

Summary Timeline



Work Plan Overview (E3)

Collaboration Between Agencies, and Agency Specific Activities Overlapping With and/or Contributing To the RA Study Process.

Contextualizing Resource Adequacy & Reliability in Illinois

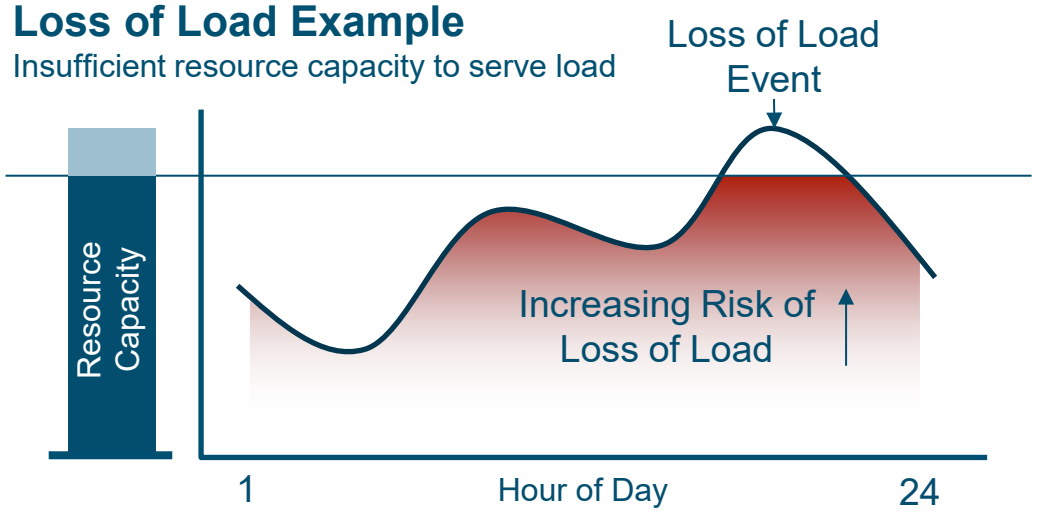
Energy+Environmental Economics

What is resource adequacy?

NERC Definition of Resource Adequacy:
"The ability of supply-side and demand-side resources to meet the aggregate electrical demand (including losses)"

Source: NERC Glossary of Terms

- **No system is planned to achieve 100% perfect reliability.**
- **The most common standard used throughout North America is a "one-day-in-ten-year" standard**



Resource Adequacy Roles in Deregulated Markets: States, ISOs, and Utilities

A resource adequacy construct is needed to ensure that all Load-Serving Entities (LSEs) procure their share of the total system need and can't lean on the system

- Regional construct provides load and resource diversity benefits
- RA "markets" provide the signal for investment in new capacity

Independent System Operators

MISO

pjm

- Sets the loss-of-load standard & determines resource accreditation
- Allocates need to individual LSEs

Market Participants

Ameren ILLINOIS

comed SM AN EXELON COMPANY

MIDAMERICAN ENERGY COMPANY

States

- Regulates how LSEs meet their allocated need using ISO rules
- Ensures policy compliance

Illinois Participates in Two Regional Markets with Separate Resource Adequacy Constructs

+ PJM Reliability Pricing Model

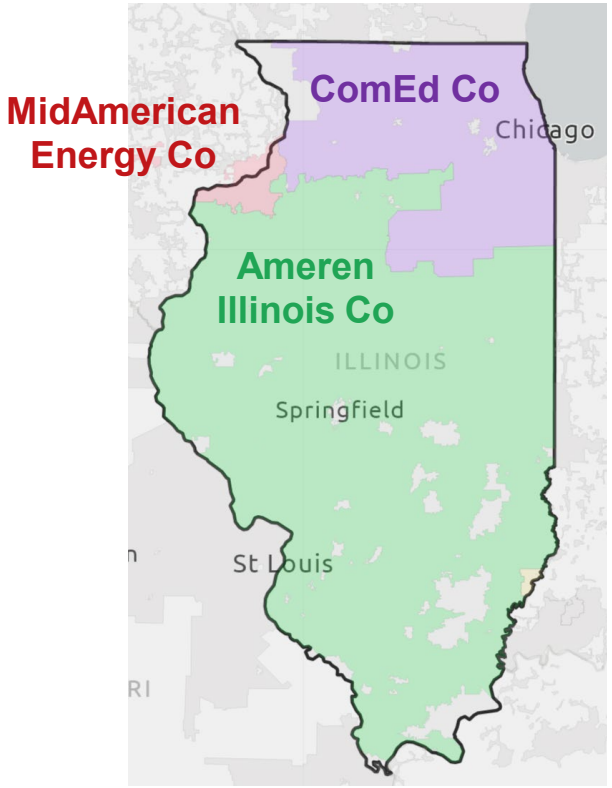
- Mandatory 3-year forward auction
- Administrative sloped demand curve
- Move to Marginal ELCCs in 2024 significantly de-rated thermal fleet, leading to a lower achieved reserve margin and higher prices

+ MISO's Planning Resource Auction

- Residual 1-year forward auction
- Sloped demand curve
- RA prices spiked in 2023 and have persisted due to capacity tightness
- Moving toward seasonal showings and Direct Loss-of-load (DLOL) approach for accreditation (essentially Marginal ELCC)

As part of RTOs, Illinois capacity prices will be largely driven by broader market dynamics & import/export capabilities with other zones

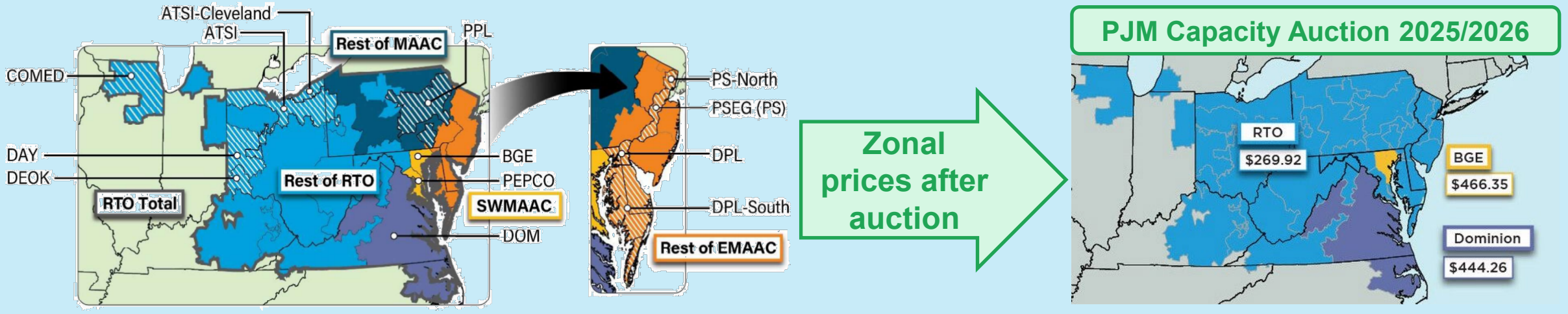
Utility Footprints



ISO Footprints

PJM's Capacity Market Overview

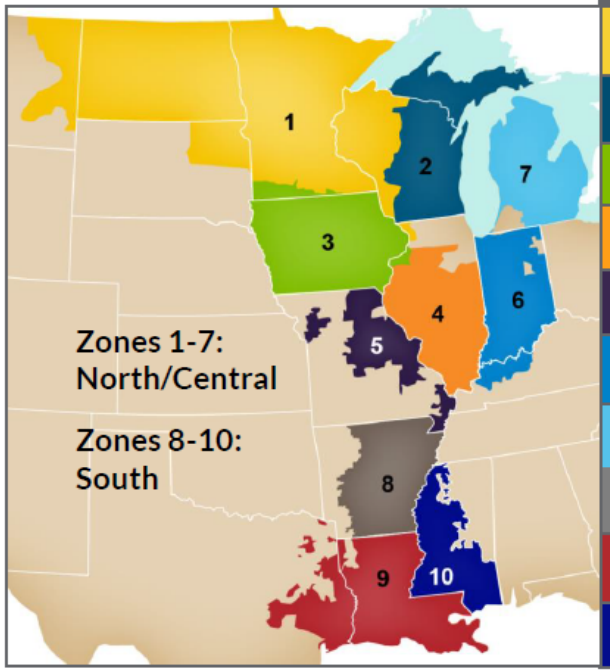
- PJM's capacity market clears on an annual basis and secures resource capacity commitments for reliability needs 3 years into the future
- Zonal capacity prices are driven by peak demand, resource additions and retirements, net import levels, and resulting point on the sloped demand curve in the auction
- *Capacity prices differ across zones only when transmission constraints limit imports into a zone(s)*



MISO's Capacity Market Overview

- MISO utilizes a residual auction construct, as most capacity is already contracted bi-laterally (~95%)
- Resource adequacy needs are defined seasonally, so 4 auctions occur per year
- Zonal prices similarly clear based on supply & demand balance, net imports, and point on the demand curve
- *Again, prices differ across zones only when transmission constraints exist*

MISO Resource Adequacy Zones

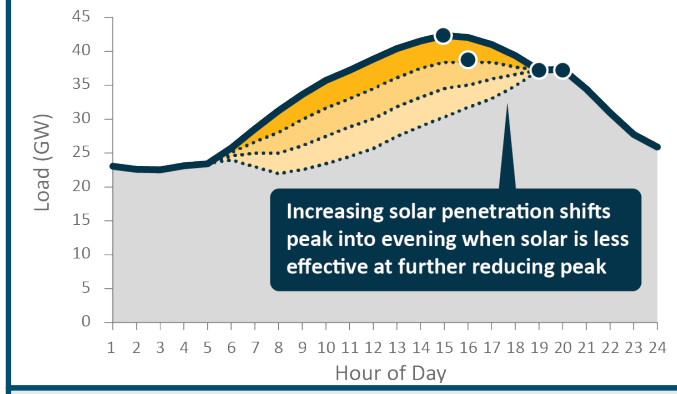


2025 PRA Results

	Price/MW-Day			
	Summer	Fall	Winter	Spring
1	$666.50	$91.60	$33.20	$69.88
2				
3				
4				
5				
6				
7		$74.09		
8				
9				
10				

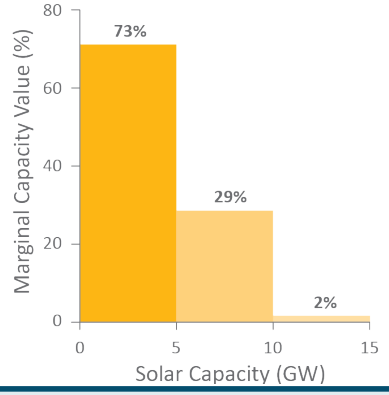
Key Topics in Resource Adequacy

Critical Hours Shifting



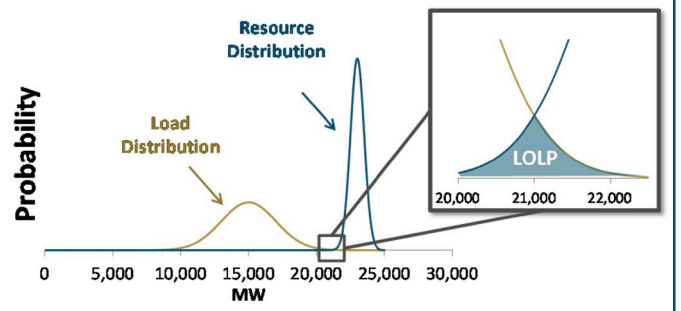
Renewable penetration is changing critical system hours (shift from peak to net peak)

Diminishing Returns



Resource ELCCs saturate as capacity is added, especially for renewables & batteries (can't replace a peaker 1-for-1)

Correlated Outages



All outage correlations need to be captured – winter gas performance issues included (fuel security issues)

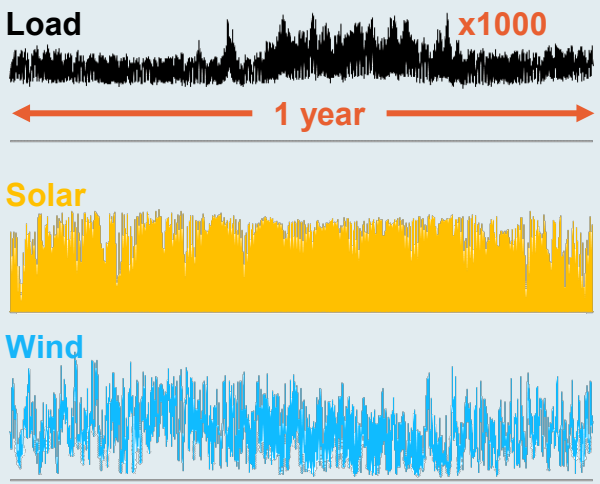
System reliability is heavily dependent on the resources on the system, so evaluating future portfolios using a scenario-based approach is crucial in resource adequacy & reliability analyses

Best Practice for Determining Capacity Needs is Loss-of-Load Probability (LOLP) Modeling

+ **LOLP modeling can be thought of as an organized way to analyze the potential for extreme weather and other events to cause a supply shortfall**

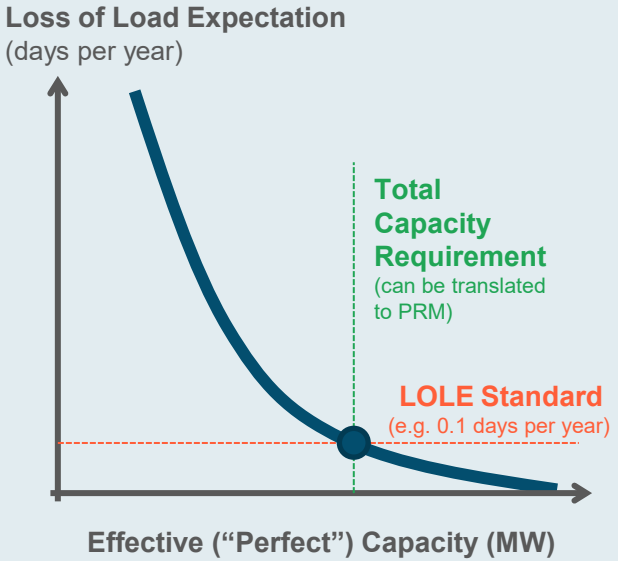
Develop a representation of the loads and resources of an electric system in a loss of load probability model

LOLP modeling allows a utility to evaluate resource adequacy across all hours of the year under a broad range of weather conditions, producing statistical measures of the risk of loss of load



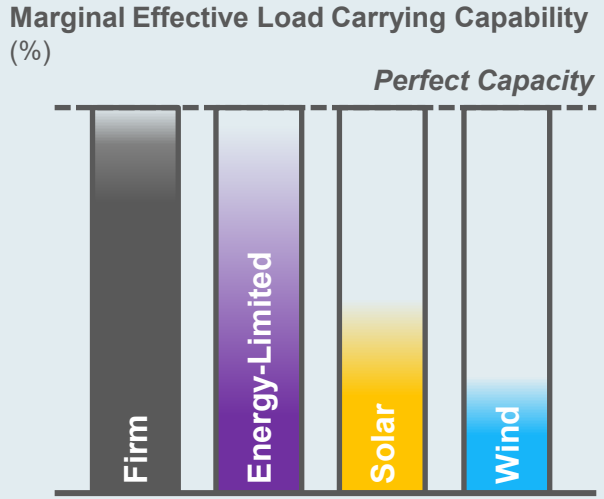
Identify the amount of perfect capacity needed to achieve the desired level of reliability

Factors that impact the amount of perfect capacity needed include load & weather variability, operating reserve needs



Calculate capacity contributions of different resources using effective load carrying capability

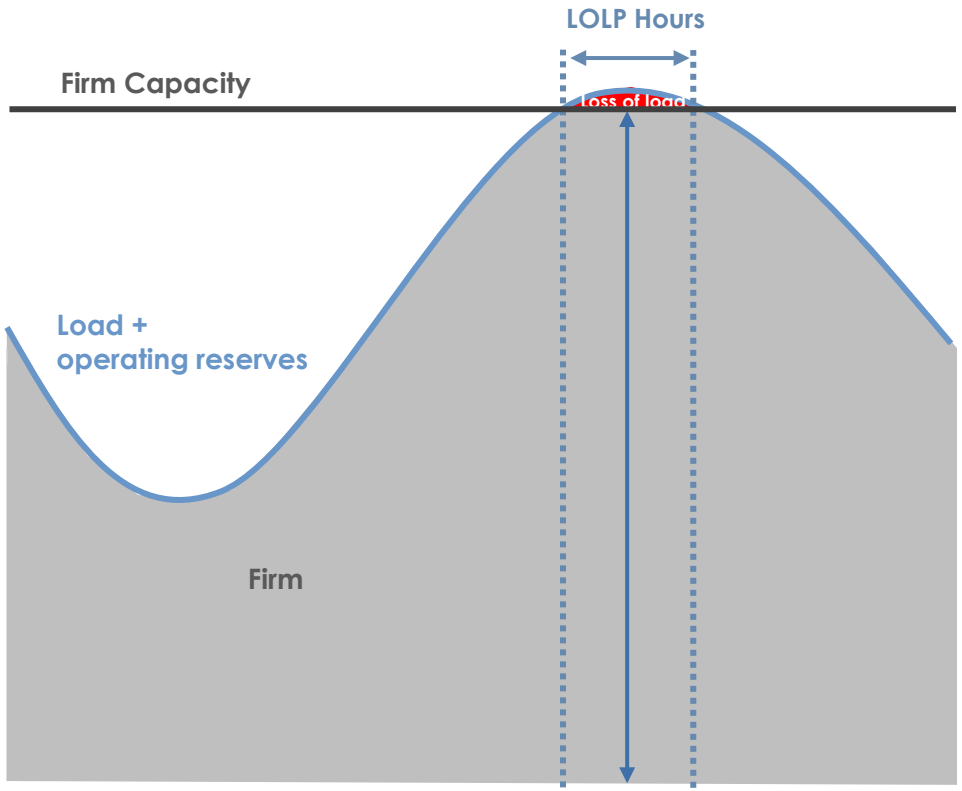
ELCC measures a resource's contribution to the system's needs relative to perfect capacity, accounting for its limitations and constraints



Evolving Capacity Market Design in PJM & MISO

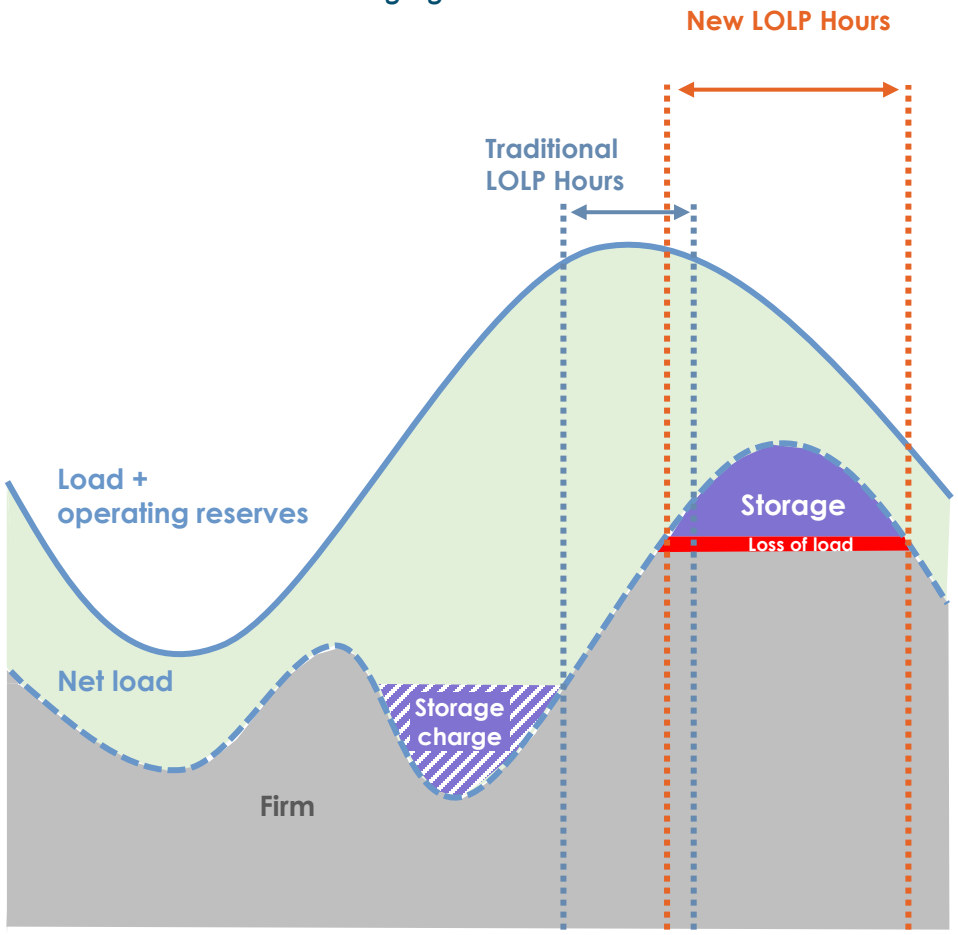
Previous Capacity Market Design

In this world, market design revolved around firm resources and capacity needs during peak loads – if you could serve load during the most challenging high load hours, then you could serve load in all other hours



Current/Future Capacity Market Design

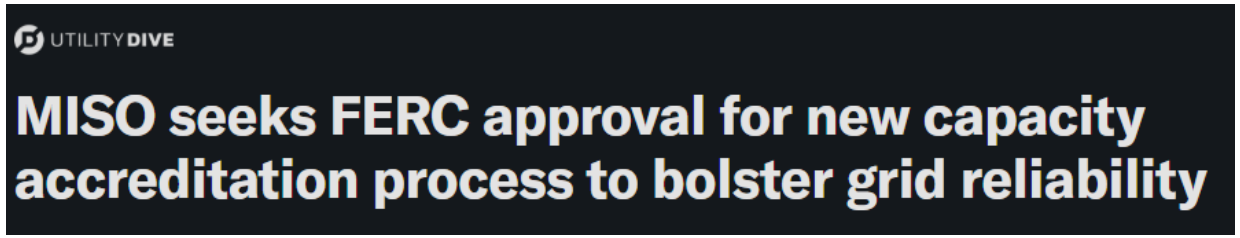
New design adapted for increased variable resources and to evaluate all hours to determine which hours are most likely to be challenging to serve load



Both PJM & MISO have been adopting new practices in response to these evolving topics in the industry

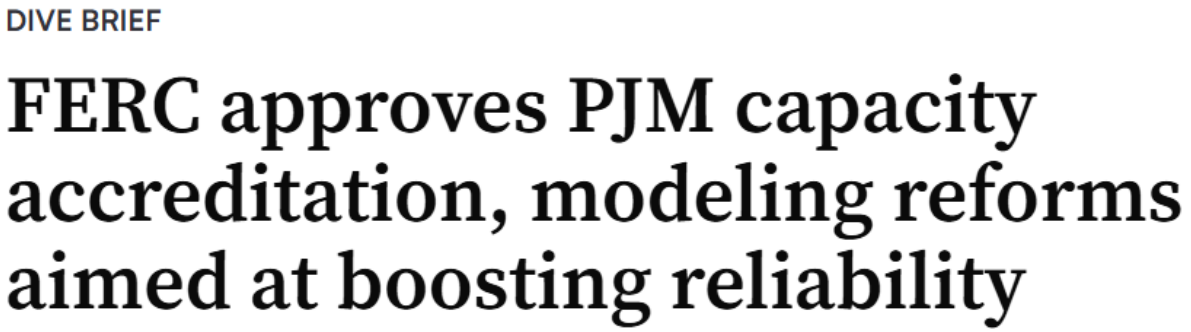
+ MISO capacity market reforms

- Adopting the DLOL framework for need determination & resource accreditation on a seasonal basis via LOLP modeling
- Utilizes a sloped demand curve after transitioning from a vertical demand curve



+ PJM capacity market reforms

- Migrated from an average to marginal ELCC framework for resource accreditation
- Already utilizes LOLP modeling to determine need



E3 is using the same approach in its reliability analysis for the RA study

Analytical Framework & Study Outline

Energy+Environmental Economics

Resource Adequacy Study Goals

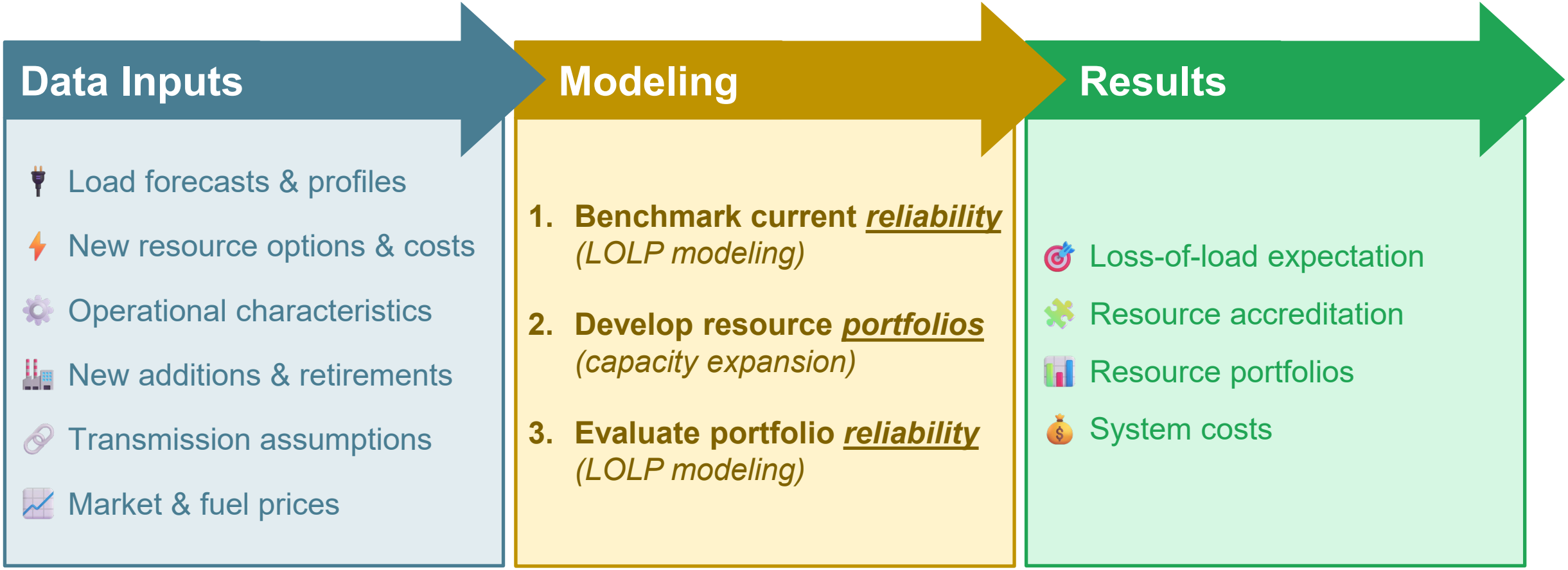
The Resource Adequacy Study must accomplish two objectives:

1. *Identify whether a resource adequacy shortfall will occur in IL during the 5-year forecast period; and*
2. *Develop an action plan to address the shortfall, which may reduce or delay emissions reductions requirements for in-state generators, as necessary, or identify resource needs to address the issue*

+ **The RA Study is intended to inform policymakers and stakeholders the state of RA today and going forward in Illinois, while evaluating the impact of state energy policies and identifying potential solutions.**

Analytical Workflow for RA Study

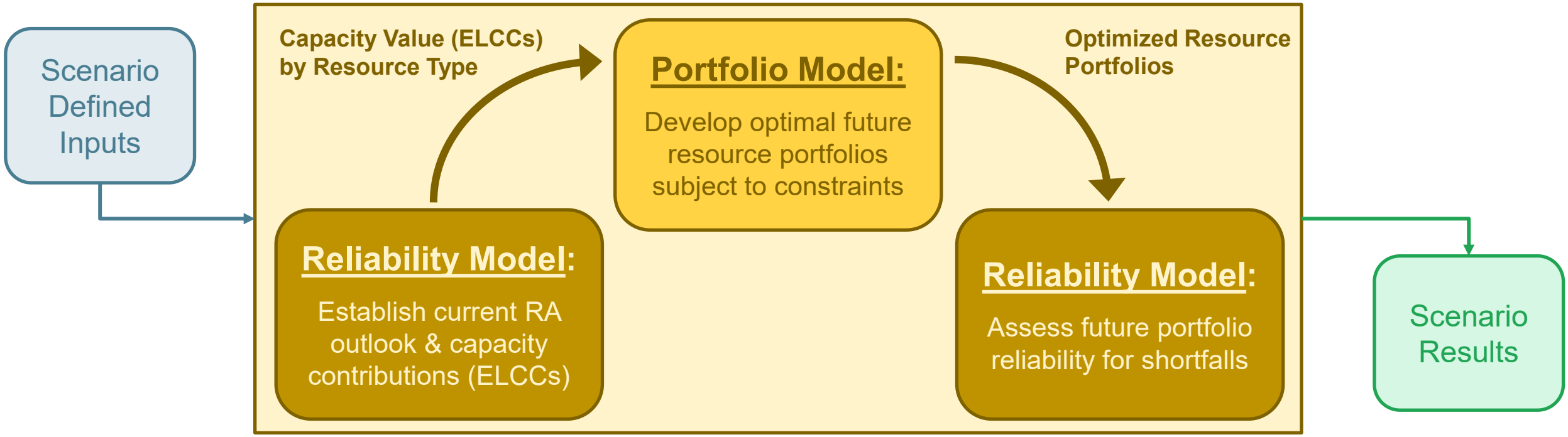
+ **For each scenario, this sequence will be followed to identify any potential shortfalls & solutions**



Resource Adequacy Study Modeling Framework

*E3 will leverage a **portfolio optimization model** in tandem with a **reliability (LOLP) model**, to:*

1. *Develop future portfolio scenarios that are cost-optimal, CEJA compliant, and reliable… and*
2. *Evaluate the reliability & resource adequacy over a broad range of weather conditions*



This iterative process ensures reliability and resource adequacy is evaluated for many potential future portfolios and under a range of system conditions

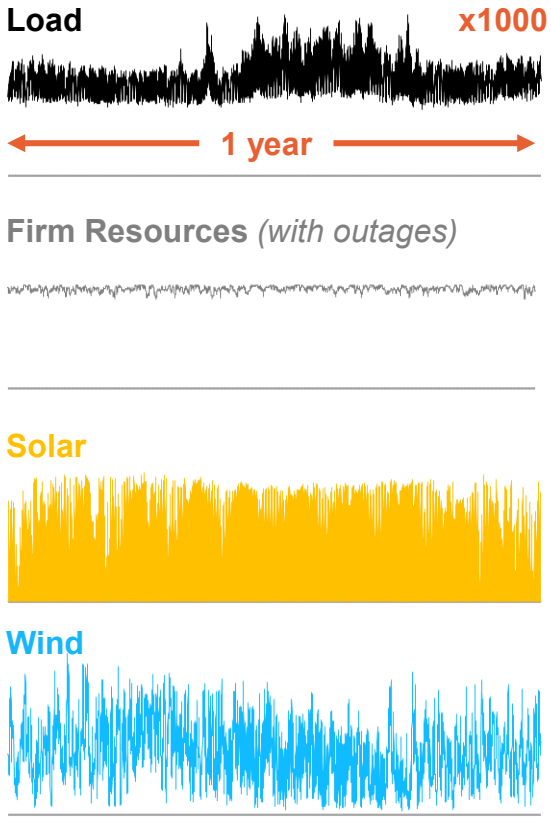
E3's RECAP: Loss of Load Probability Modeling

+ **RECAP's is a loss-of-load probability (LOLP) model**

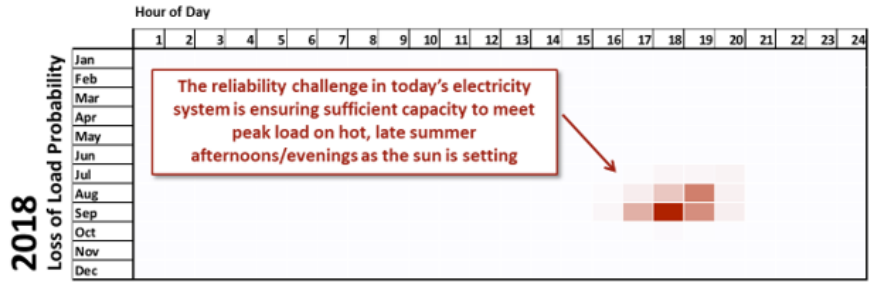
+ **Monte Carlo simulations consider system operations across a range of conditions**
  - Broad range of loads & renewables
  - Randomly simulated plant outages
  - Dispatch of use-limited resources

+ **Primary results include:**
  - Loss of load frequency, duration, and magnitude
  - Derivations of PRM requirements and ELCCs of different resources

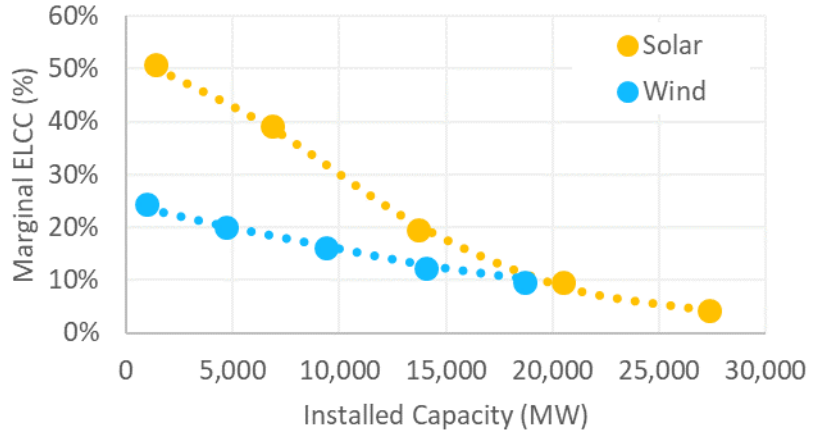
Monte Carlo simulation of loads, renewable profiles, and generator outages used to simulate 1,000 years of plausible system conditions



System reliability measured relative to "one day in ten year" standard; periods of high loss of load probability identified



Effective load carrying capability (ELCC) for a wide range of types of resources evaluated



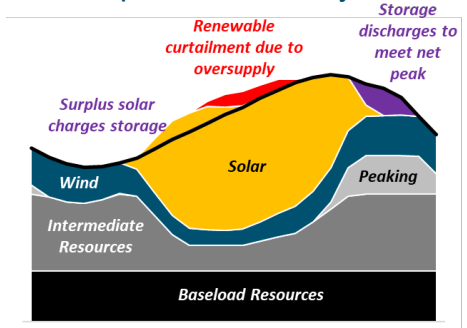
Example RECAP result from *Long-Run Resource Adequacy under Deep Decarbonization Pathways for California* (Calpine, 2019)

PLEXOS LT: Portfolio Optimization Modeling

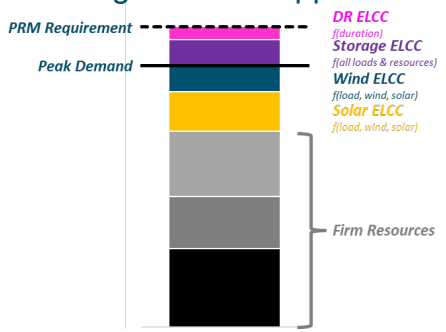
+ **PLEXOS LT is a long-term capacity expansion model that uses linear optimization**

+ **Optimization identifies least-cost resource portfolios that balance:**
  - Fixed costs of new investments
  - Variable costs of system operations
  - System constraints (i.e. policy, reliability, operational)
  - Long-term system needs

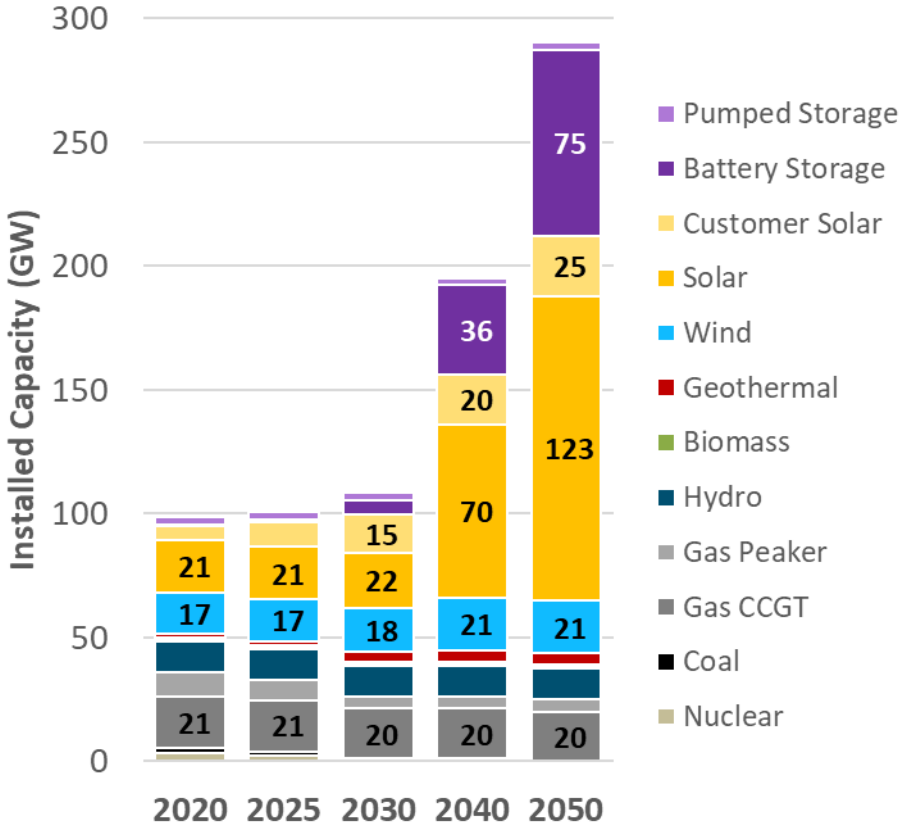
Operational module simulates hourly system operations for a sample of representative days



Reliability module ensures portfolio can meet load during extreme conditions using an ELCC approach



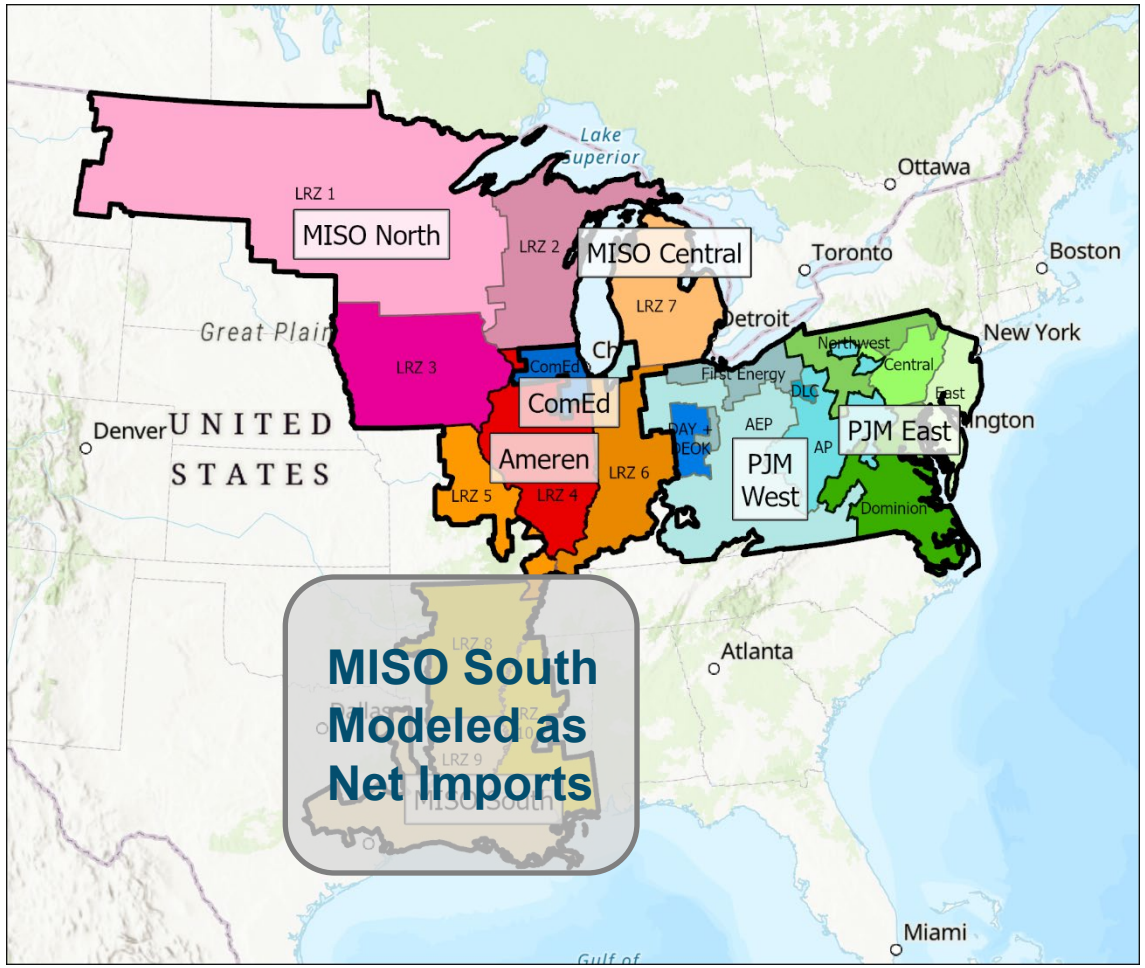
Least-cost plan co-optimizes investments and operations to meet clean energy policy targets, selecting from a diverse set of potential resources including wind, solar, storage, DSM, and natural gas



Model System Topology

- **The two Illinois zones within each RTO market are represented explicitly to evaluate RA & reliability**
  - PJM's ComEd Zone
  - MISO Illinois LRZs
- **MISO & PJM external zones are also modeled to ensure interactions between Illinois zone resource adequacy and the rest of the markets are captured**
  - Primarily driven by imports / exports limited by transmission interconnections between zones
- **Reliability and resource adequacy requirements set by RTOs will be reflected**
  - Seasonal considerations & resource accreditation / reserve margin formulation
- **Future portfolio scenarios will be aligned across all zones to ensure consistency**

Zones Modeled for PLEXOS / RECAP Analysis



RA Study Topics to Explore / Scenario Development

Energy+Environmental Economics

Key Illinois RA Drivers and Policy Considerations

External Forces

Market Resource Adequacy Constructs

- Resource capacity accreditation (ELCC)
- Need determination (reserve margins)
- Transmission buildout / queue reform

Electric Demand Growth

- Data centers & industrial loads
- Building & transportation electrification
- Population growth & economic factors

Technology Availability

- Deployment barriers (costs, constraints)
- Clean, firm resources
- Demand-side management

Policy Decisions

Regulation

- Resource-specific mandates
- REC / ZEC incentives
- Compliance monitoring / enforcement

Risk Management

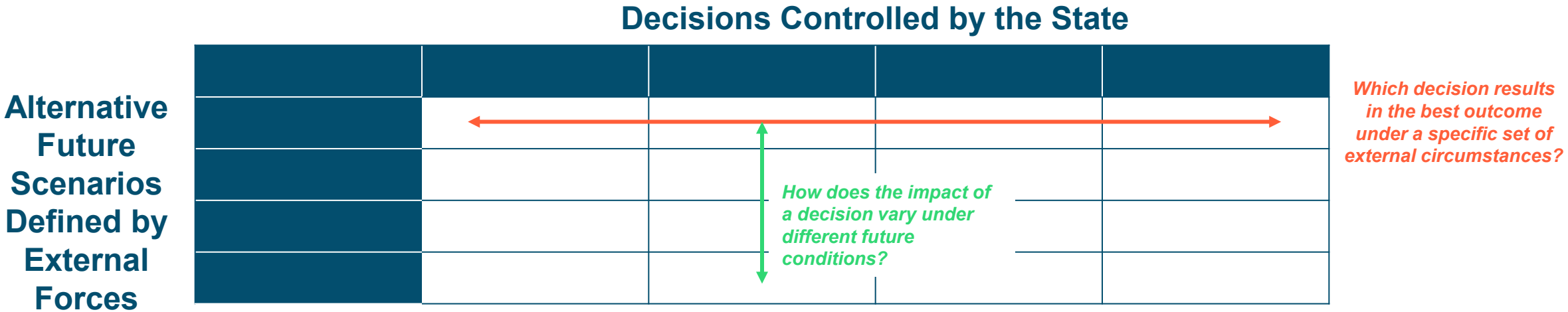
- Firm generation strategy (retire / retain)
- Contingency planning
- Policy achievement trajectory

Scenario Design for the RA Study Should Distinguish between External Forces and Policy Decisions

Policy Decisions
Future choices made by the State of Illinois to meet objectives

VS.

External Forces:
Certain or uncertain variables outside of Illinois's control that present risks to resource adequacy



Sensitivity Analysis
Variation of a single parameter or variable within a scenario in order to understand its impact on key metrics

Schedule / Key Milestones

May – June	June – July	July – October	October – December
Study Design	***Input Development***	***Analysis***	***Conclusion***
• Key questions / goals • Scenarios / sensitivity design & definition • Analytical approach	• Input data developed • Model buildup & testing • Key scenario / sensitivity assumptions	• LOLP & capacity expansion modeling • QA / QC • Draft results	• Finalized results • Key findings • Actions / next steps

Thank You

Energy+Environmental Economics

Alignment Across the Illinois Agencies

Coordination and roles of the Agencies, and overviews by the ICC, IEPA, and IPA

Collaboration Amongst the Agencies

Each of the Agencies brings an important and unique suite of capabilities, vital to the underlying framework for the RA Study.

- **Systems, planning, and costs** (e.g., Transmission and distribution planning and development, interconnection, customer costs, and rates);
- **Generation and procurement** (e.g., renewable energy, customer programs, wholesale energy and capacity markets, and equity standards); and,
- **Environmental** (e.g., emissions monitoring and reductions, clean energy, permitting)

Combining the Agencies' capabilities and focus, with the analytical capabilities of E3 and other consultants creates a balanced and complete approach to the RA Study process, aimed at achieving the statutory mandates and expanding beyond to enable the state to meet reliability, resiliency, and clean energy policy goals for Illinois.

IEPA ACT SECTION 9.15(o) RESOURCE ADEQUACY STUDY WORKSHOP

JUNE 16, 2025

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Renewable Energy Access Plan (REAP)

Objective: The REAP, pursuant to Public Act 102-0662 (CEJA), **identifies zones** in the state that are **suitable for renewable energy development**. The REAP, seeks to both highlight those zones and develop a **plan for connecting the REAP zones with sufficient transmission capacity**.

First REAP Approval: The Commission adopted the first REAP in Docket No. 22-0749 on May 30, 2024.

https://www.icc.illinois.gov/docket/P2022-0749/documents

Second REAP Development: ICC Staff is currently conducting workshops and drafting the second REAP.

https://www.icc.illinois.gov/informal-processes/Renewable-Energy-Access-Plan

Partial Overlap with Section 9.15(o):

- Staff is to track Illinois' progress towards CEJA's goals related to clean energy, renewable energy, and economy-wide decarbonization.
- Staff is to conduct a study to understand the economy-wide strategies and pace of electrification required to meet 100% economy-wide decarbonization, and refine the outlook for renewable and clean energy supply needs that must be achieved.

United States Department of Energy National Labs Assistance

National Renewable Energy Laboratory

- Capacity Modeling
  - Objectives:
    - **Understanding the impact of combustion retirements** on the state's generation fleet.
    - **Assessing the adequacy and reliability of Illinois' energy resources** over a five-year outlook.
    - **Integrating modeling insights into policy recommendations** for the state's clean energy transition.
    - **Ensuring Illinois agencies have the capability to independently use modeling tools** for future reports and decision-making.
  - Methodology: NREL aims to develop an initial **Sienna model** for Illinois, consisting of **a nodal Production Cost Model (PCM) combined with detailed power flow studies**, integrating load forecasts, generation fleet data, and transmission system constraints.

United States Department of Energy National Labs Assistance

Lawrence Berkeley National Laboratory

- Load Forecasting
  - Objectives: Assist ICC Staff in forecasting electric loads.
  - Methodology: Workshops on load forecasting including the impacts of increasing DER penetration and new load from data centers. Discussions about top-down vs. bottom-up approaches and critical questions to ask utilities about their modelling.

United States Department of Energy National Labs Assistance

Pacific Northwest National Laboratory

- Battery Storage
  - Objectives: Identify storage needed for resource adequacy, it will explore storage's role in future transmission planning, provide objective analysis regarding storage procurement and to conduct cost-benefit analyses to guide power purchasing decisions.
  - Methodology: Capacity expansion and production cost modeling tools will be utilized to conduct comprehensive zonal analyses, as well as conducting a cost benefit analysis of energy storage technologies that the agency can use to guide analysis and procurement guidelines of energy storage
- GIS Modeling
  - Objectives: Provide GIS modeling of the transmission system for purposes of the ICC's REAP development. Including a master layer list and exploratory map, finer scale REAP zone creation, green-house gas emissions analysis, Grid Enhancing Technology site suitability analysis.
  - Methodology: GIS

Select Other ICC Action Related to Resource Adequacy

Facilitation of Supply Resources (in addition to REAP and RPS)

- Multi-Year Integrated Grid Planning
  - Pursuant to CEJA, Ameren and ComEd are to perform **distribution planning in order to accelerate progress on Illinois clean energy and environmental goals** and hold electric utilities publicly accountable for their performance. The plans, among other things, shall:
    - "… to the maximum extent practicable, achieve or **support the achievement of Illinois environmental goals,** including those described in Section 9.10 of the Environmental Protection Act and Section 1-75 of the Illinois Power Agency Act, and emissions reductions required to improve the health, safety, and prosperity of all Illinois residents …"

  https://www.icc.illinois.gov/informal-processes/Performance-Metrics-and-Grid-Plan-Workshops
- Distributed Generation Rebates
  - Provides for up front rebates for qualifying behind-the-meter and community solar projects and energy storage paired with such systems. It is designed to compensate systems for the system-wide grid services associated with distributed generation.
- Net Metering
  - Provides for payments or credits to distributed generation that supply electricity to the distribution system.

Selected Other ICC Activity Related to Resource Adequacy

Load Impacting Activities

- Beneficial Electrification
  - Pursuant to CEJA, Ameren and ComEd are to offer programs designed to, among other things, accelerate the adoption of electric vehicles through programs that expand electrification related infrastructure investment and offer electrification incentives.
- Future of Gas
  - Pursuant to Commission direction in several gas rate case orders, ICC Staff is conducting a workshop process to explore issues tied to decarbonization of the gas distribution system, including how the gas system may need to adapt.
- Energy Efficiency
  - Pursuant to the Public Utilities Act, Ameren and ComEd have been offering energy efficiency programs dating back to 2008.

ICC Involvement in Federal Energy Activity

Federal policy and Federal rules and regulations have a significant impact on Illinois energy markets, including on the ability of Illinois to meet its Illinois energy goals.

The ICC is an active participant in Federal and regional energy policy issues at both the Federal Energy Regulatory Commission (FERC) and with the Regional Transmission Organizations (RTO). The ICC participates both directly and through the following organizations:

- Illinois is a member of the Organization of PJM States (OPSI) – Commissioner McCabe represents the Commission on OPSI matters.
- Illinois is a member of the Organization of MISO States (OMS) – Commissioner Carrigan represents the Commission on OMS matters.

The ICC has Staff within its Federal Policy Program dedicated to working on FERC and RTO issues.

ICC Analysis of Resource Adequacy in the Ameren Illinois Service Area

On May 1, 2017, MISO sent a letter to Illinois regarding structural challenges in the MISO Zone 4 energy market.

In response, the Governor asked ICC Staff to provide a brief paper on the technical and structural background underpinning the current challenges in the MISO Zone 4 market. ICC Staff was also asked to gather stakeholder input and facilitate an open discussion surrounding these issues.

The ICC White Paper, dated November 2017, examines MISO Zone 4 and explores several policy solutions to address long-term resource adequacy concerns including:

- Continue to rely on existing competitive forces and market structures
- Impose additional capacity requirements on load serving entities
- Create a Resource Adequacy Portfolio Standard
- Reconfigure RTO Participation

The White Paper can be found at https://www.icc.illinois.gov/informal-processes/miso-zone-4-workshops.

Resource Adequacy Study Workshop
June 16, 2025

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IEPA Role in CEJA

Oversee generator facility compliance with decarbonization provisions that phase out fossil fuel power sector emissions by 2045

- ***Prioritize environmental justice and equity investment eligible communities, and facilities with higher emission rates***

- ***Implement pathway for facility exception event reporting***

IEPA Role in Resource Adequacy Study

- **Report on status of GHG emissions reductions**
- **Consult with state agencies and RTOs on announced facility closure dates**
- **Collaborate with IPA on report stakeholder comments, revisions, and filing of plan with ICC**

Zero Carbon Emission Deadlines

- **Private coal and oil-fired units: January 1, 2030**
- **Municipal coal units: December 31, 2045**
  - **Interim emissions reductions in 2035 or 2038, or retirement**
- **Private natural gas units: January 1, 2045**
  - **Priority deadlines in 2030, 2035, and 2040 for units with higher emissions rates and those in or near EJ areas**
- **Municipal natural gas units: January 1, 2045**
- **Cogeneration or combined heat and power units: January 1, 2045**

Emissions Data Compilation

IEPA will track and provide emissions data for over 200 individual units at over 40 facilities

- ***Facility Annual Emission Reporting (AERs)***
- ***June 2025: IEPA begins publishing annual CEJA GHG emissions reporting***

Annual Emissions Limit Tracking: Private Natural Gas

- **Under CEJA, private natural gas units are also subject to a rolling annual emission limit. Any facility with a unit that exceeds its emissions limit (with or without a statutory or regulatory exception) is required to notify IEPA.**

- **These sources generally already report their hourly CO_2, NOx, and SO_2 emissions to USEPA on at least a quarterly basis.**

Exception Events Tracking

- **CEJA contains provisions that allow units to temporarily continue operating after an emissions deadline if necessary to maintain power grid supply and reliability. If an RTO provides notice to the generator that the continued operation of a unit is required, the unit may continue operating until the issue is resolved.**

- **PJM and MISO guidance documents, developed in consultation with the State, delineate scenarios in which they would utilize the statutory provisions to enable generators to continue to run beyond an applicable emissions limit.**
  - **Examples: system restoration, capacity emergencies, testing to ensure readiness, etc.**

- **Facility owner/operators are required to follow a process to report information related to these "exception events" to the IEPA within 30 days.**

ILLINOIS POWER AGENCY

IPA Plans, Studies, and RA Study-related Activities

Jim Rouland
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IPA - Energy Plans

Electricity Procurement Plan

- Focuses on Utility Default Service supply procurements – Ameren IL, ComEd, and MidAmerican
- Procuring block energy (peak and off-peak) for each utility, and also procuring capacity hedges for Ameren customers.

Long-Term Renewable Resource Procurement Plan

- Includes a series of foundational components: (1) utility-scale renewable energy resource procurements (solar, brownfield solar, wind, and hydro), (2) customer Program including Illinois Shines (Adjustable Block Program) and Illinois Solar for All, (3) evaluation criteria for adjacent state resource procurement considerations, and (4) a Self-direct Program aimed to recognize large-customer bilateral renewable energy contracting.
- Each activity drives to meet Illinois RPS and Clean Energy goals through renewable energy resource project development.

Both Plans are mandated under the IPA Act and are filed with the ICC for approval and implementation.

IPA - Policy Study

- **Initiated through Section 1-129 of the IPA Act (through PA 103-0580)**
- **Analyzed the impact of three policy proposals:**
  - **Deployment of energy storage** (indexed credit procurement, 15-year contract, for 7.5 GW of utility-scale 4-hour storage and 1 GW distributed storage)
  - Opportunity to **conduct an offshore wind pilot program** (one project, generating up to 700,000 MWh per year, over a 20-year period)
  - Implementation of a procurement process to use RECs to **support high voltage direct current (HVDC) transmission line development** (SOO Green HVDC Link project; 25-40 year term)

IPA - Policy Study Recommendations

Energy Storage

- **Ensuring procurement flexibility for utility-scale projects** (e.g. targets and alignment with needs)
- Development of a dedicated program for income-eligible customers
- Calibration and correction for available incentives
- **Explore long-duration storage**
- Consider forward procurements
- Adopting requirements for storage valuation

Offshore Wind

- **Expanded analysis of challenges faced by peer states**
- Require access to detailed project economics before a procurement event
- Evaluate federal funding
- Adoption of recommendation from Lake Michigan OSW Advisory Rpt.
- **Comprehensive review of environmental impacts**
- **Requiring additional information on OSW interconnection point and site improvements as a condition for contract award**

HVDC

- **Require additional information on renewable energy resource interconnections to the line**
- Require equity commitments
- **Ensure unresolved capacity market participation issues are satisfactorily resolved**
- Consider timing of cost recovery
- Creating a different system for managing maximum bid prices and determining amount of public financial support for the line.

Future Opportunities

The nature of the IPA's works means we are continuously focused on market evolution and how those changes impact both default service products & procurements, and how they impact renewable energy development – utility-scale and the solar Programs.

Energy Storage was a key focus of the Policy Study and stands to play a pivotal role in the wholesale and retail energy markets going forward.

The RA Study results will help inform the IPA's processes, including procurements for resources currently captured within the IPA Act (wind, solar, and hydro); driving program enhancements for smaller, customer owned or accessed renewables; and prospectively, the opportunity to drive other procurements forward such as energy storage.

Agency Questions for Stakeholders

Question 1

The RA Study is focused on investigating the impact of a series of policy and procurement initiatives, and their potential impact on resource adequacy; while also analyzing broader Illinois-specific reliability and resource adequacy needs with the intent in developing solutions to maintain state reliability and achieving key clean energy policy initiatives. With this effort, there are a multitude of variables the study could evaluate, including various policy considerations and underlying drivers – each resulting in potentially differently impacting results to resource adequacy.

Which variables are the highest priority to explore throughout the RA Study process? Are there important policies or drivers missing that should shape scenario development?

Question 2

A RA Study process is tasked with focusing on a specific set of drivers when building scenarios and evaluating results. While many are important, the Agencies are particularly interested in understanding stakeholder opinions in which drivers are of the greatest importance.

Which of the following drivers are most critical to explore in the resource adequacy modeling scenarios and why?

i. Extreme weather
ii. Demand growth
iii. Thermal retirements
iv. Transmission build and future needs
v. Generation resource diversity
vi. Out-of-state reliance on generation resources
vii. Some other driver not described above

Question 3

The RA Study is focused on investigating the impact of a series of policy and procurement initiatives, and their potential impact on resource adequacy. Given the nature of this analysis, there are likely additional situations, considerations, or scenarios that stakeholders may seek to investigate which are valuable to identify and contextualize either as a component of this study or in future analyses.

What blind spot or gaps in the RA Study process do you worry might be overlooked or otherwise not addressed?

Conclusion

Next Steps

Release of Stakeholder Questions

- **Seeking written stakeholder feedback on a series of targeted questions. To be posted on the IPA RA webpage.**
- **Targeted issuance 6/17** (*an announcement will be issued when the questions are posted*)
- **Responses due 7/14 by 5p CPT**

The Agencies will be reaching out to targeted stakeholders to solicit specific data and information (e.g., RTOs and utilities).

The Agencies also expect to have a future workshop to provide insight into initial modeling results. The exact timing has not yet been set, but likely in late summer (around September) subject to modeling being completed.

Thank you for your participation and support.