



# Planning for the Future of Power Generation in Kansas

*October 9, 2024*

*Joint Committee on Kansas Security*

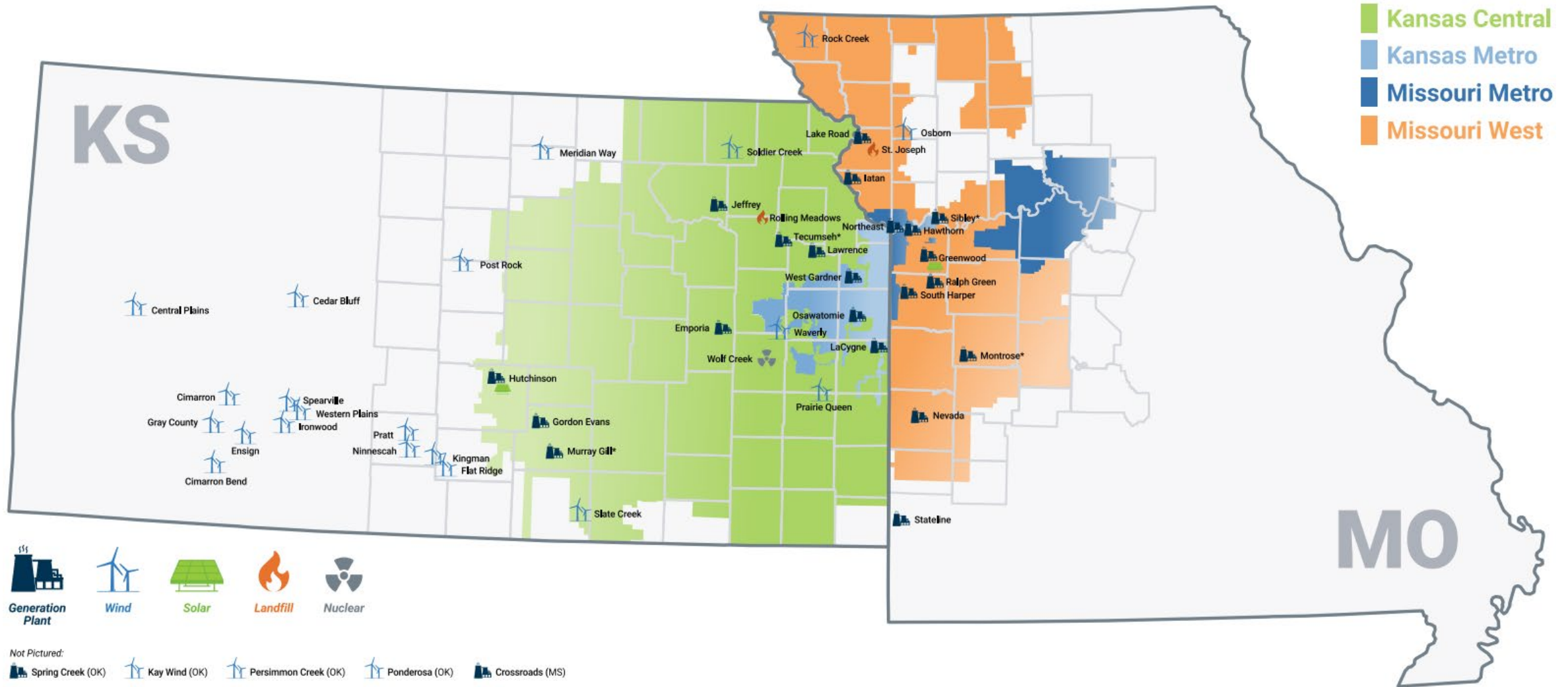




# Agenda

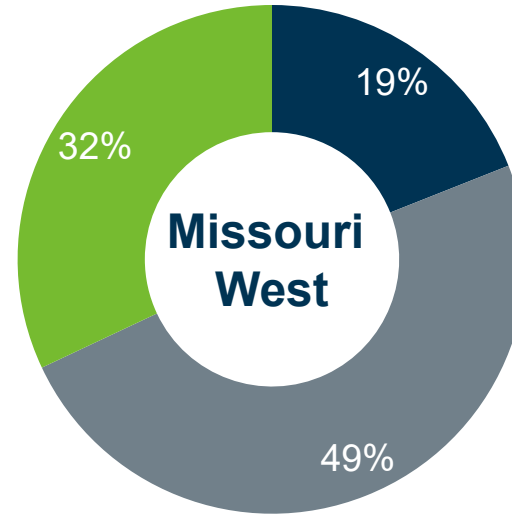
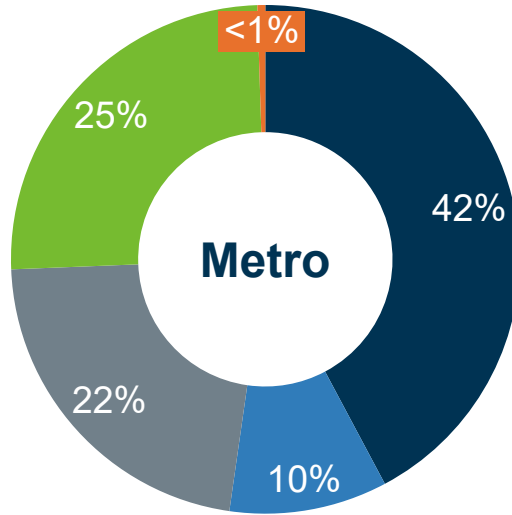
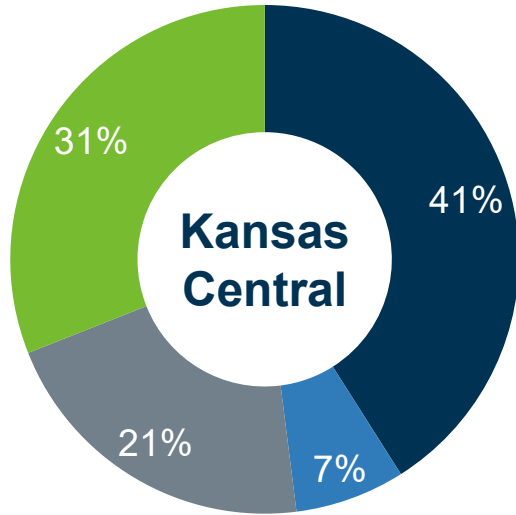
- Evergy Overview
- What are the current evolving planning dynamics impacting Evergy's Integrated Resource Plan (IRP)?
- What are capacity and energy requirements and how do they differ?
- How is a Preferred Resource Portfolio selected?
- Evergy's Current Preferred Resource Portfolio and Future Considerations

# Evergy's Service Territory

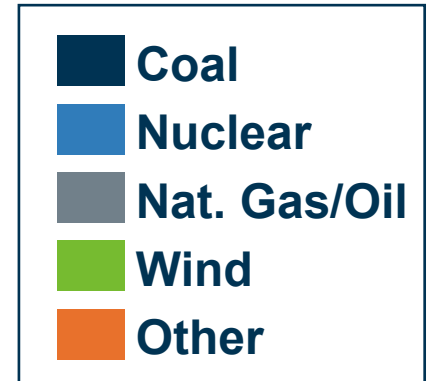
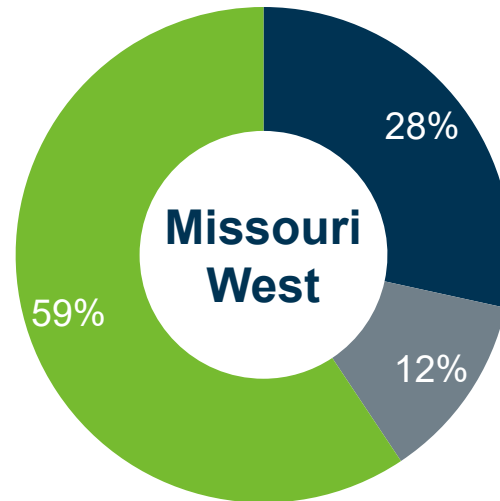
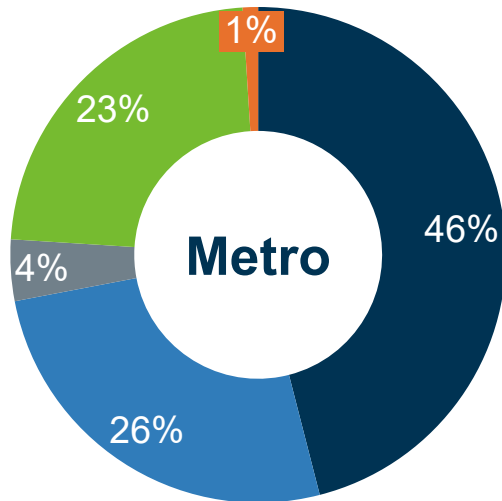
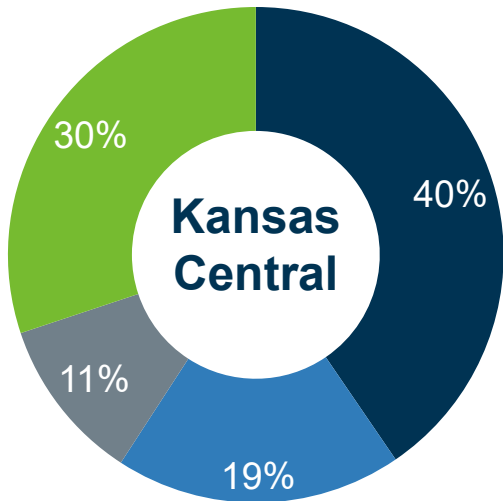


# Capacity & Energy Profiles (Year-end 2023)

**Capacity** ➤



**Energy** ➤



# Core Tenets of Evergy's Generation Strategy



# Evergy's Resource Planning



# What is an Integrated Resource Plan (IRP)?

- Regulatory requirement – **Triennial Filing every three years** with annual updates every year
- The IRP process ultimately **results in the selection of a Preferred Portfolio**
- Preferred Portfolio contains expected retirements, demand- and supply-side additions over the **20-year planning horizon**
- Preferred Portfolio is selected with a goal of identifying “the portfolio of resources that **meets customer requirements at the lowest reasonable cost given an uncertain future**”
- This assessment is informed by **risk analysis of potential uncertain factors which could ultimately impact long-run utility costs** (e.g., Net Present Value Revenue Requirement “NPVRR” is calculated across a variety of market price scenarios which vary based on gas price and carbon restrictions)



# Building Energy's IRP

## Evolving Planning Dynamics

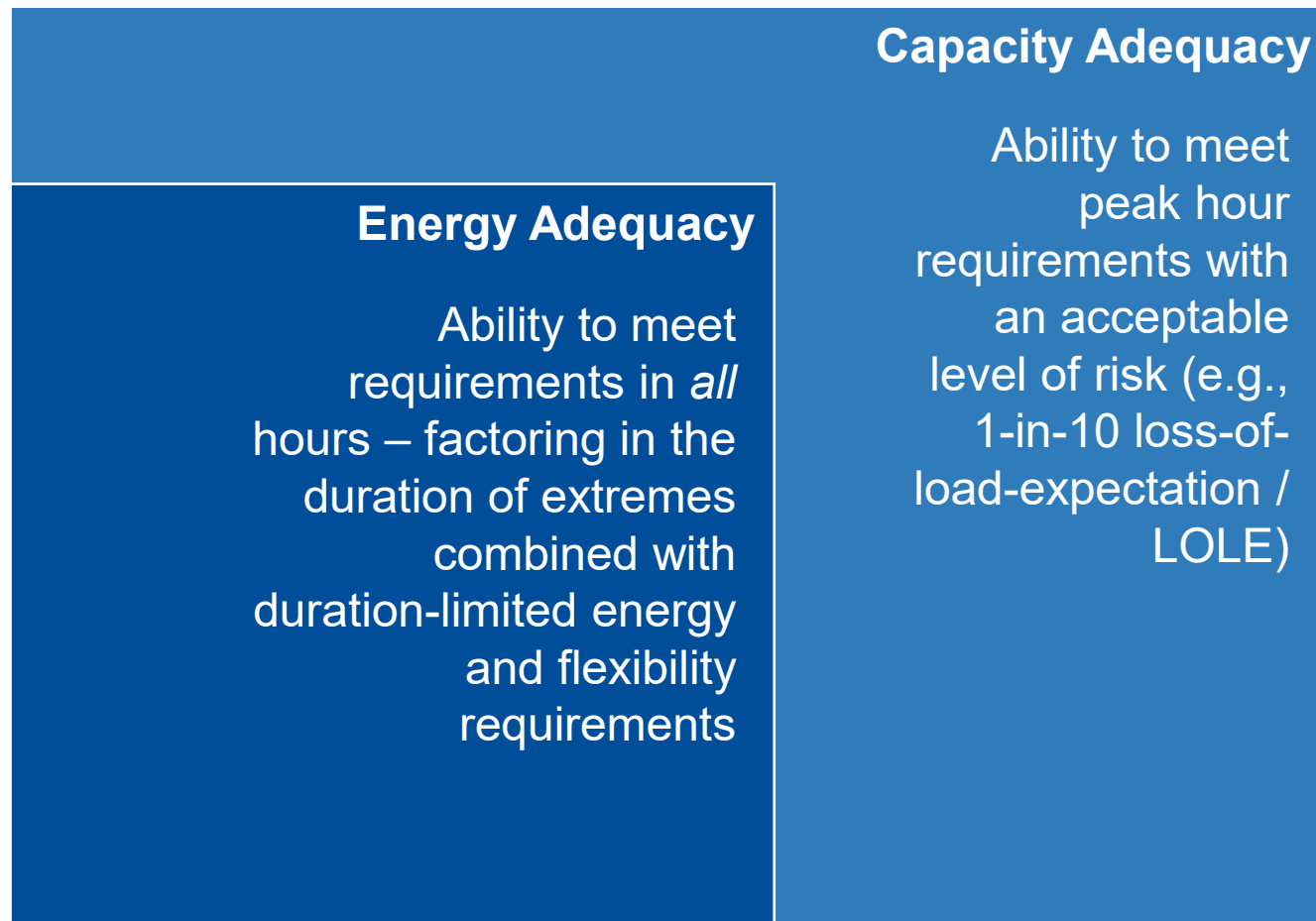
- Capacity and Energy Requirements
- Relative Technology Economics & Trade-offs
- Carbon Restrictions / Other Regulations





# Capacity Requirements: Resource Adequacy

## *Defining Resource Adequacy*

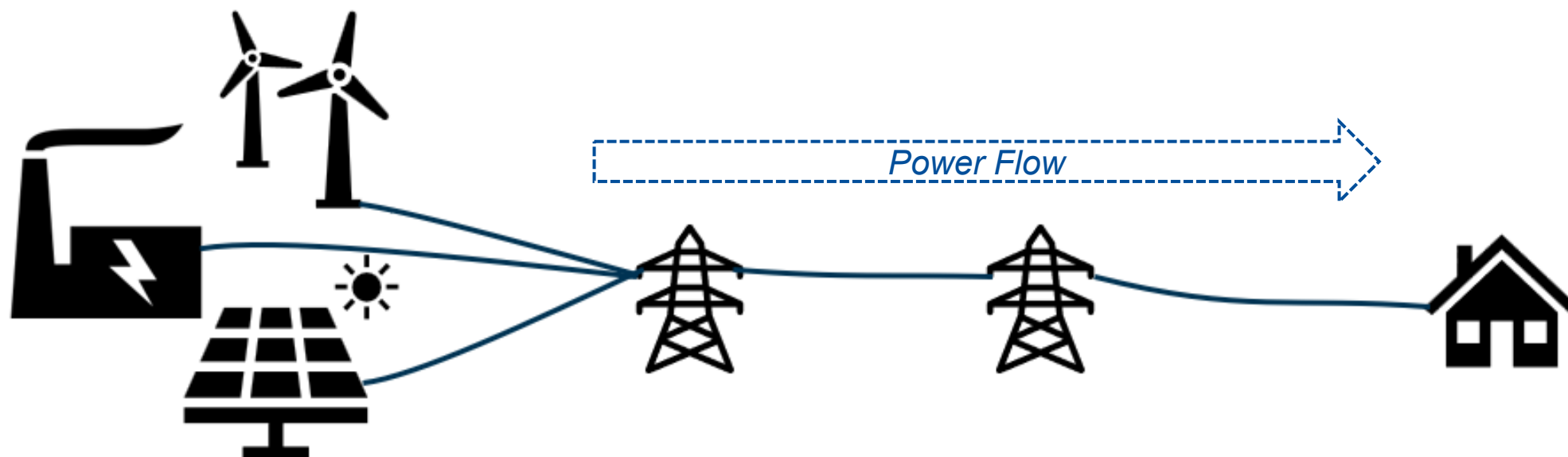




# Factors Impacting Resource Adequacy

NOT EXHAUSTIVE

Duration of Event (i.e., energy vs. peak)



## Generation

Renewable Resource

Forced Outage Rate

Fuel Availability

Flexibility

## Transmission & Distribution

Import Availability

Congestion

Outages

## End Use

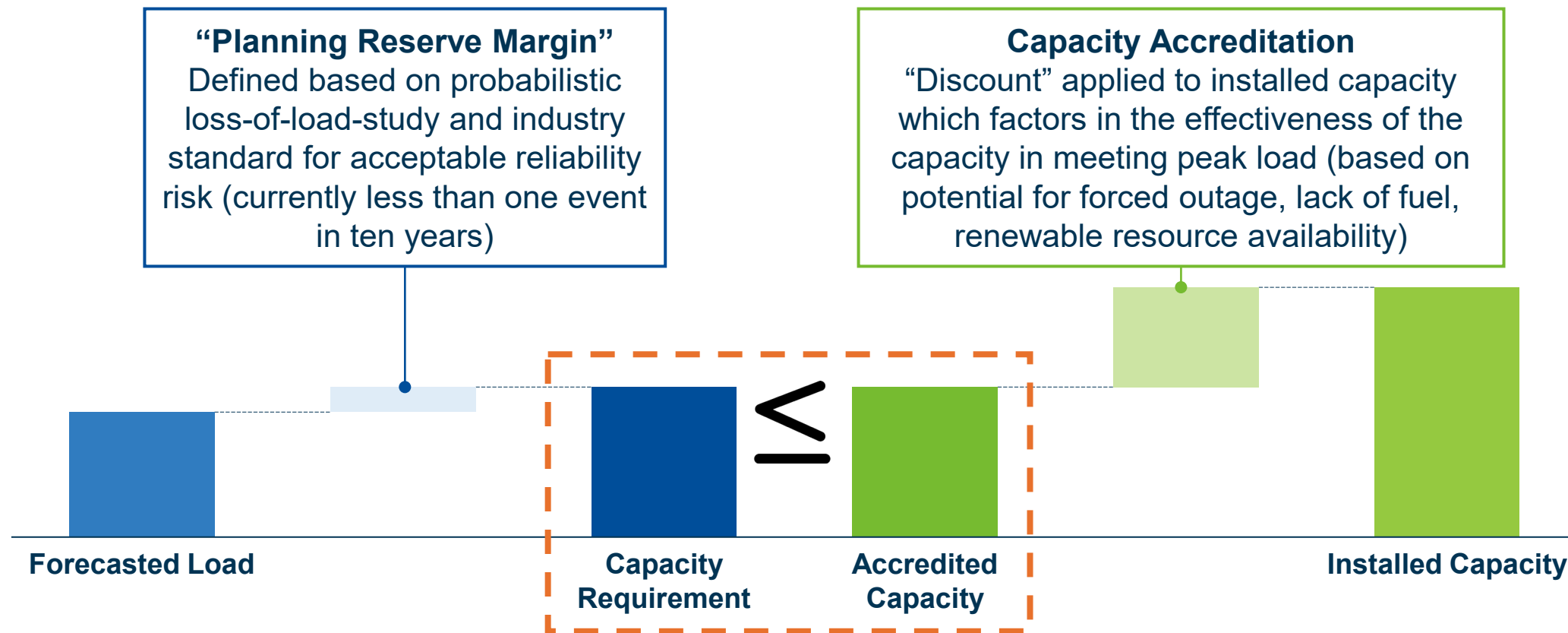
DER/DR Availability

Load

Consistency of Weather-Driven Assumptions



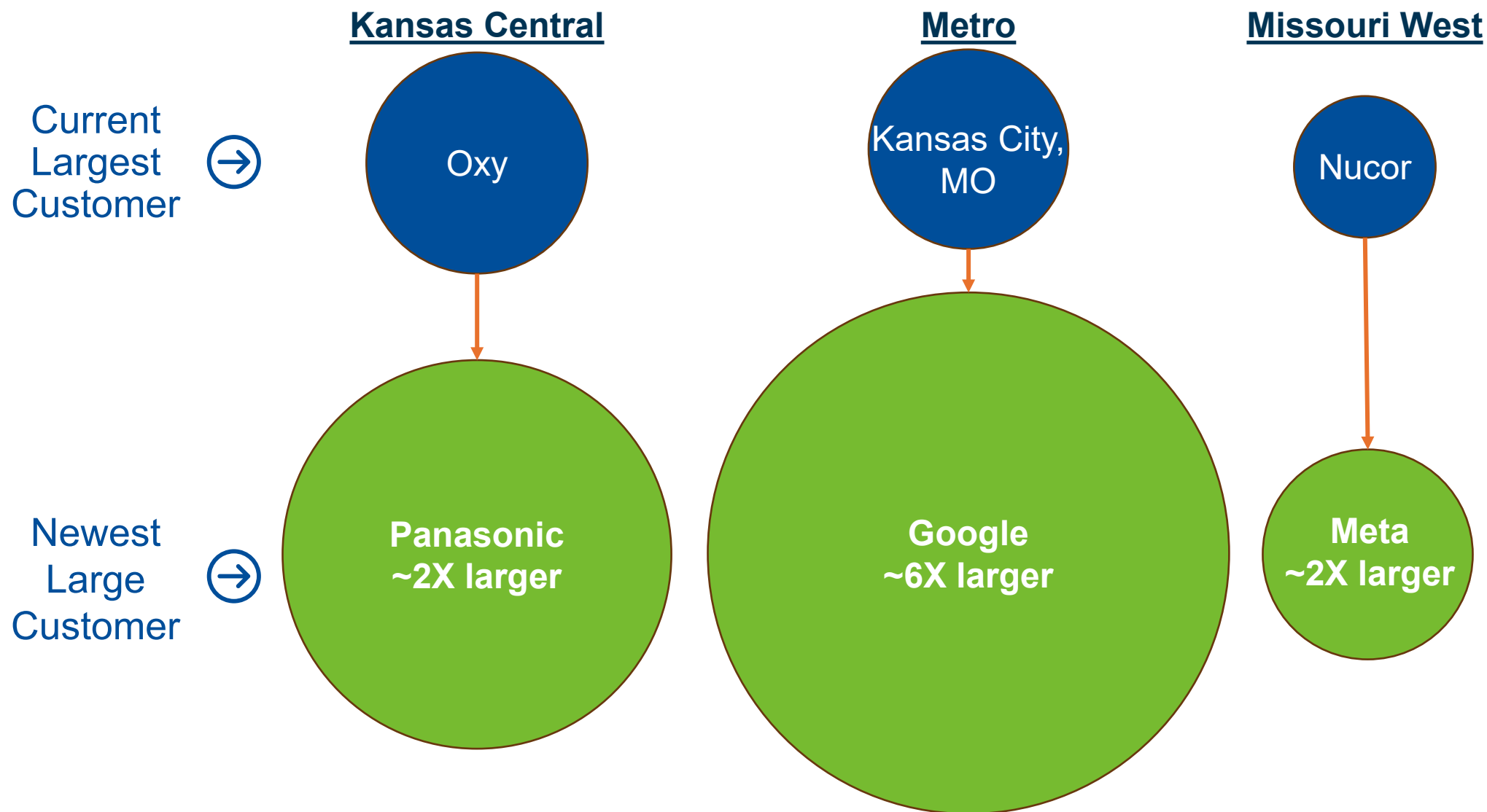
# Capacity Requirements



*Ultimately, capacity requirements (the need for installed capacity) is driven by expected load, but also by a variety of other reliability risk constructs which all combine to create “Resource Adequacy Requirements”*



# New Large Manufacturing & Data Center Customers Are Reshaping Economic Development Opportunities...

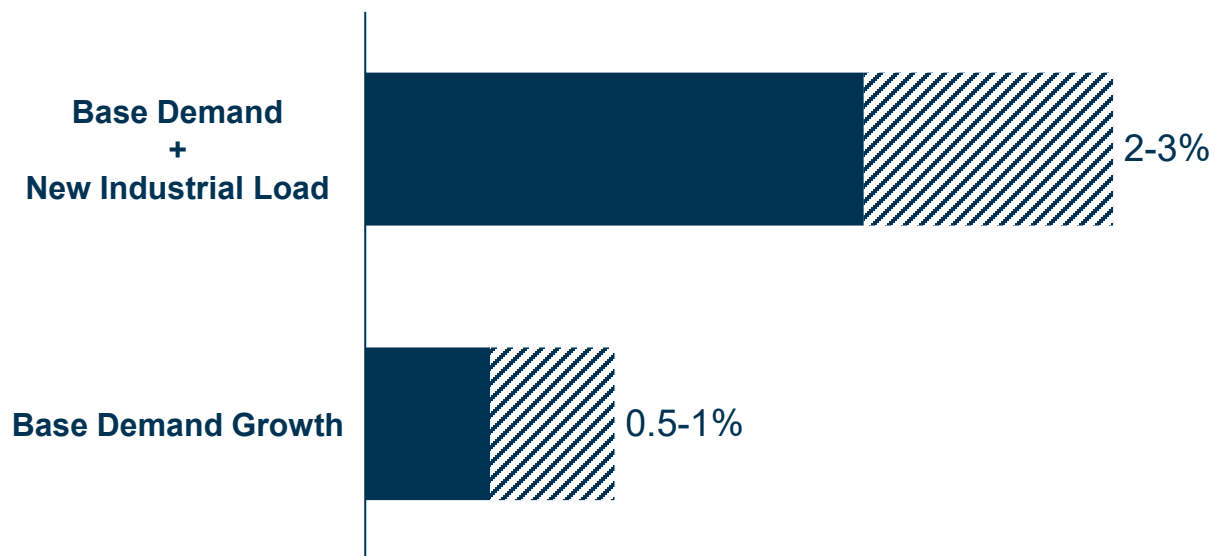




# ...And Resulting In Demand Growth Potential Higher Than Historic Trends

## Weather-Normalized Demand Growth

2023-2028E CAGR



Google

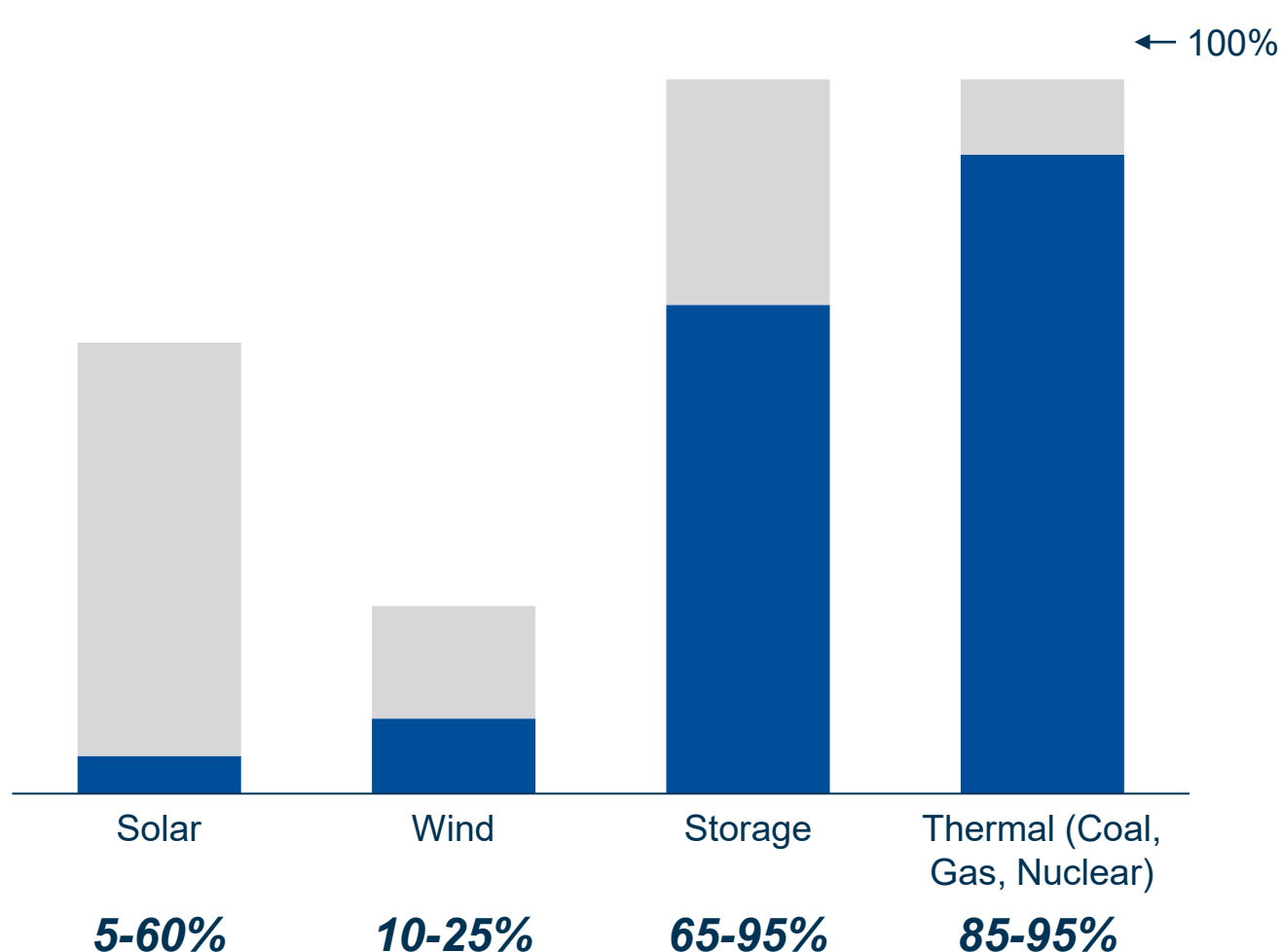
Panasonic

Meta



# Capacity Accreditation Varies By Resource Type

**Illustrative Range of Capacity Credit (% of Nameplate)**

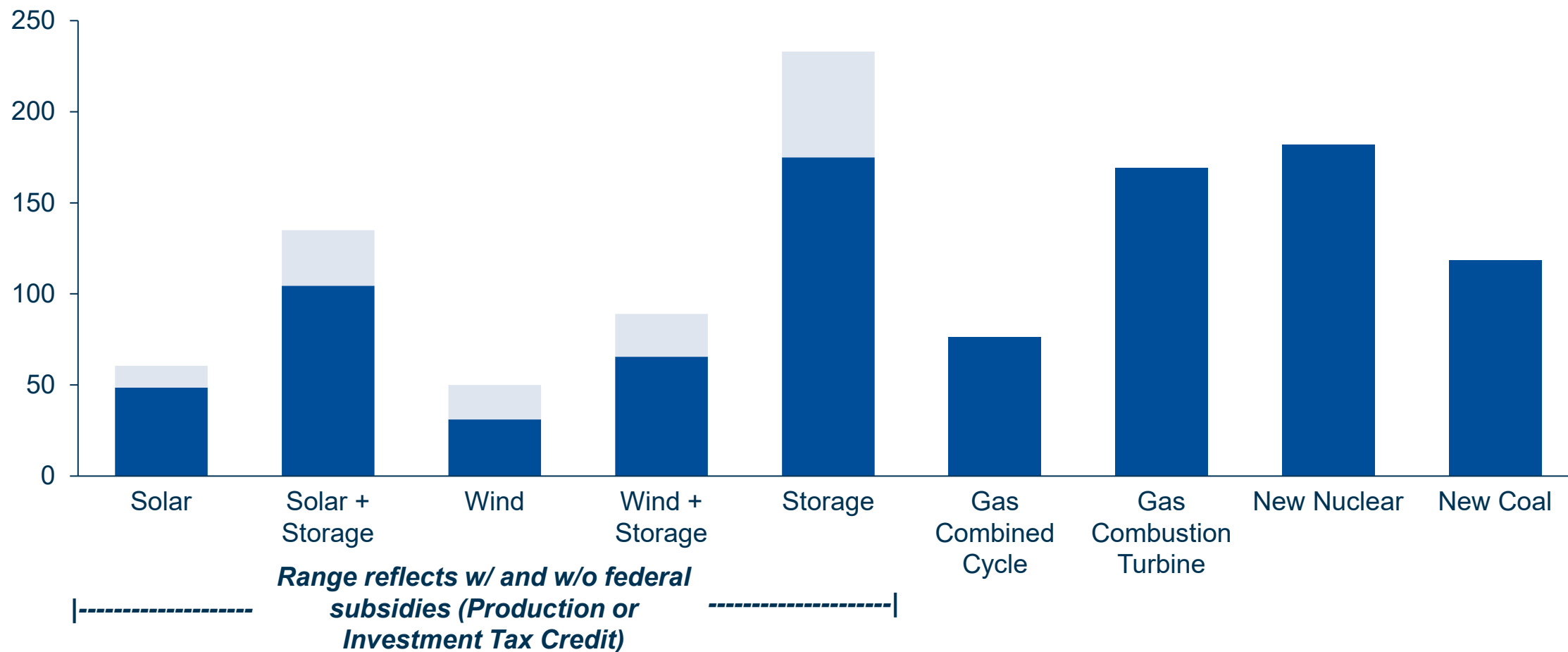


- Capacity Accreditation rules are established by SPP and are the measure of how much a certain MW of generation “counts” toward capacity requirements (can vary by season)
- Expectation is that wind, solar, and storage will all be accredited using Effective Load Carrying Capability (ELCC)
- In parallel, SPP is implementing Performance Based Accreditation for thermal resources which will accredit resources based on their reliability



# Relative Technology Economics

## Lazard Levelized Cost of Energy (\$/MWh)

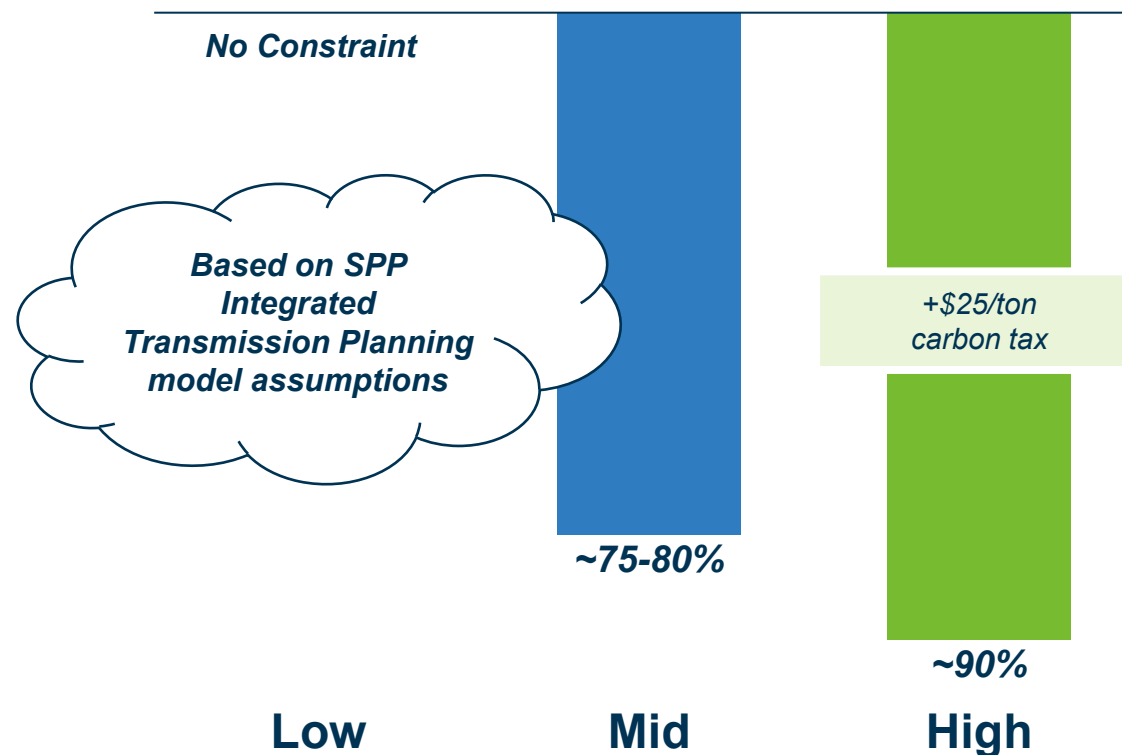




# Carbon Restrictions

- Passage of Inflation Reduction Act signaled that progress toward carbon reductions is likely to be “incentive-focused” (promoting clean energy build-out) for the foreseeable future as opposed to “penalty-focused” (taxing emissions)
- In combination, new and proposed Environmental Protection Agency (EPA) regulations focus on restricting emissions from generators without explicit taxes

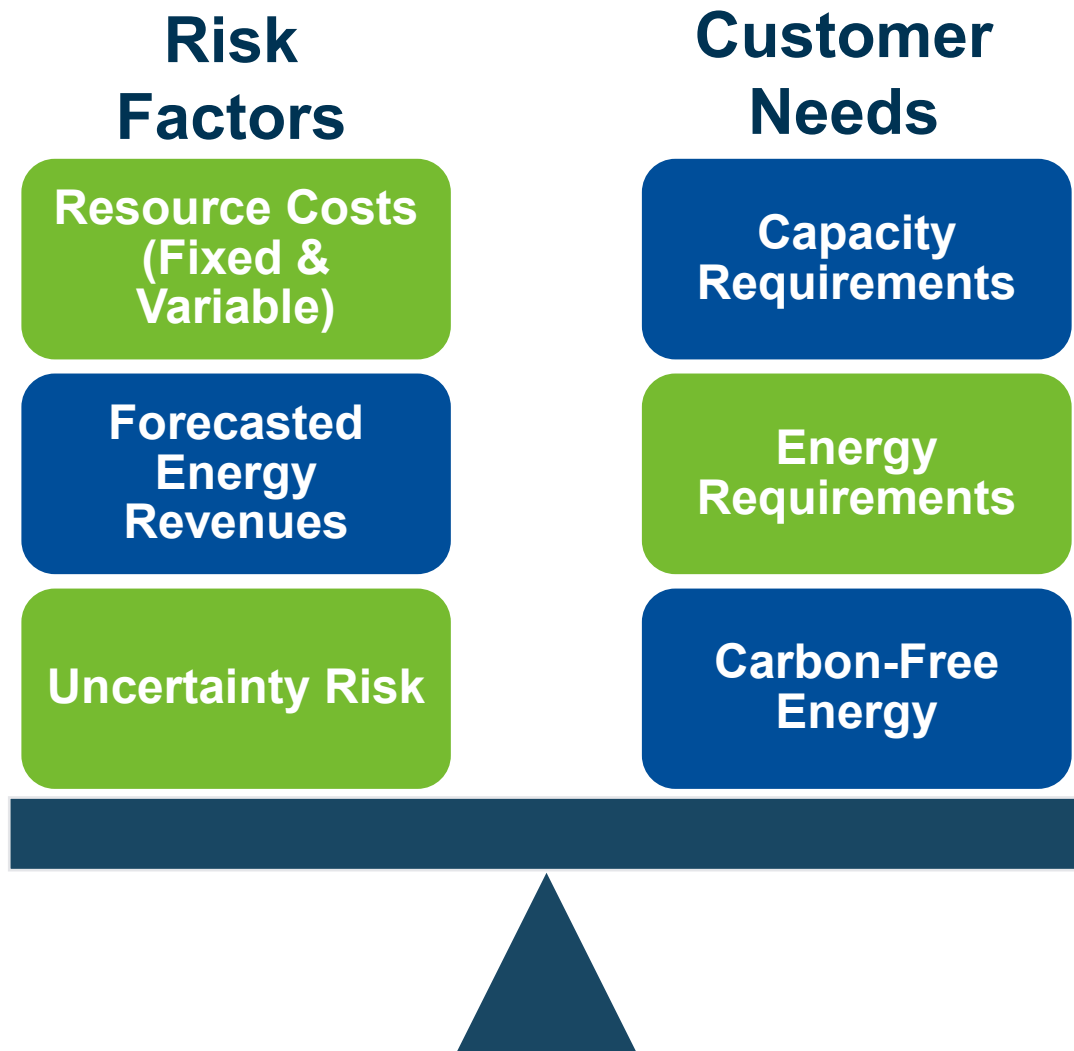
## 2024 IRP Carbon Constraint Scenario Analysis (% Reduction vs 2005 by 2040)



**\*\*Upcoming 2025 IRP Annual Update will incorporate EPA's final GHG Rule\*\***

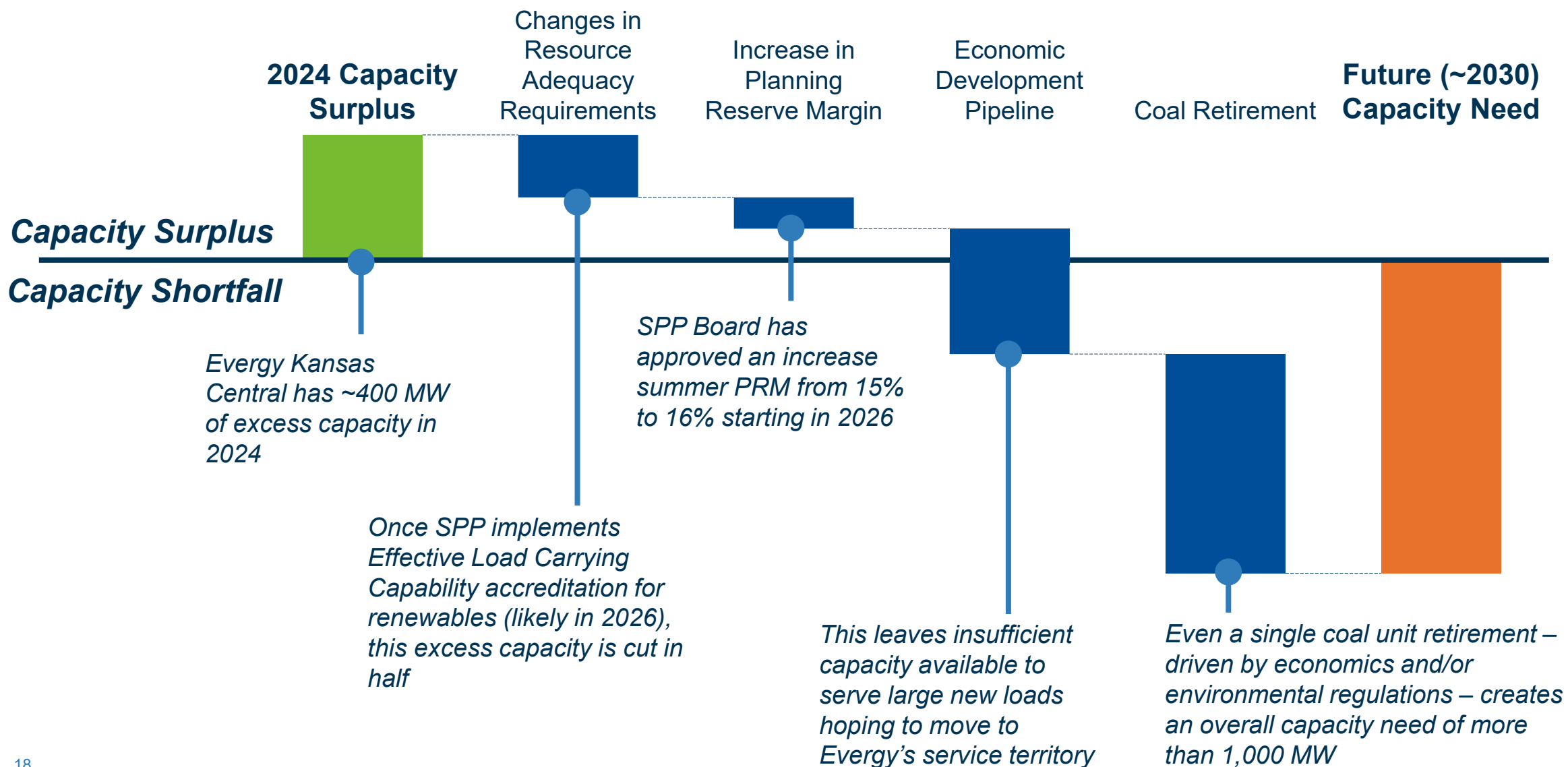


# Selecting a Preferred Portfolio



- In an IRP, portfolios are assessed based on 1) how well they meet future customer needs and 2) how well they perform in a variety of scenarios given an uncertain future
- Plans are constructed with an eye to both quantitative (e.g., market price) and qualitative (e.g., future reliability requirements, fuel diversity) risks

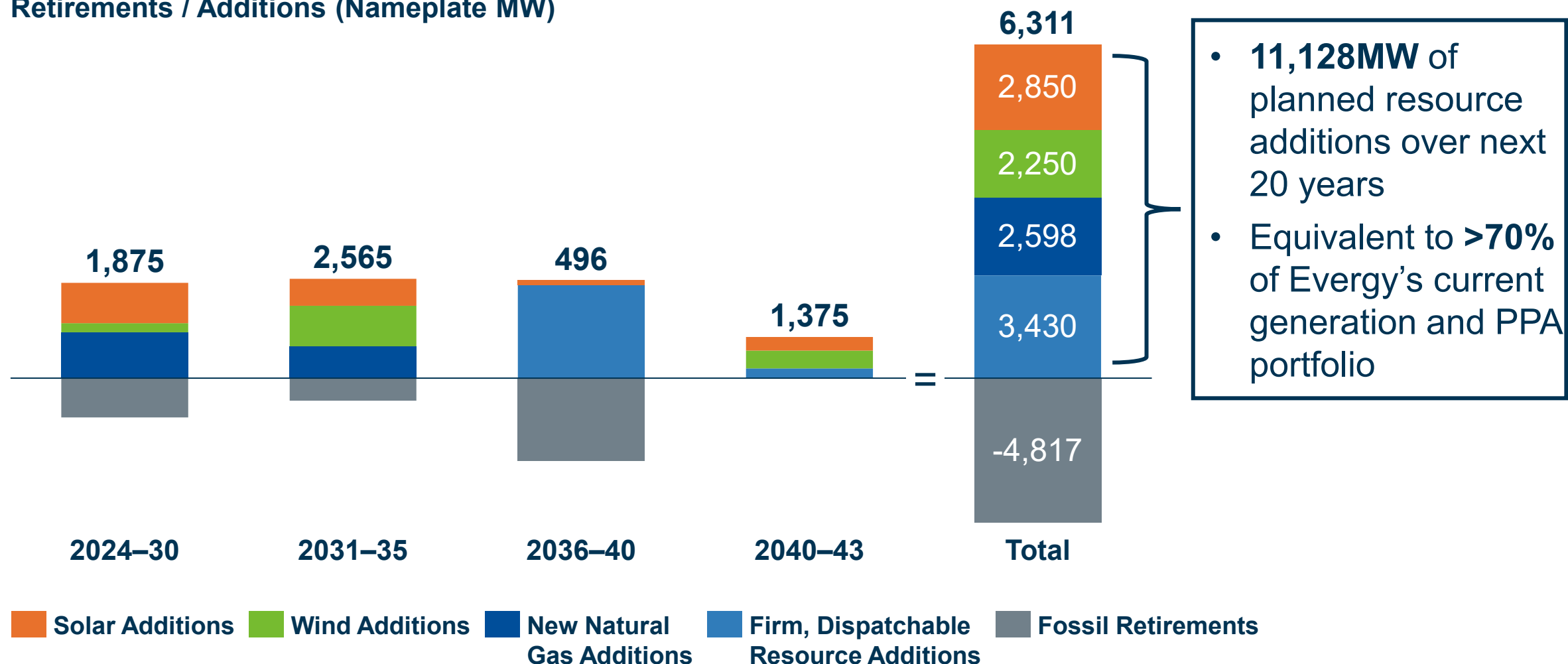
# Future Capacity Needs *(Indicative Capacity Position)*



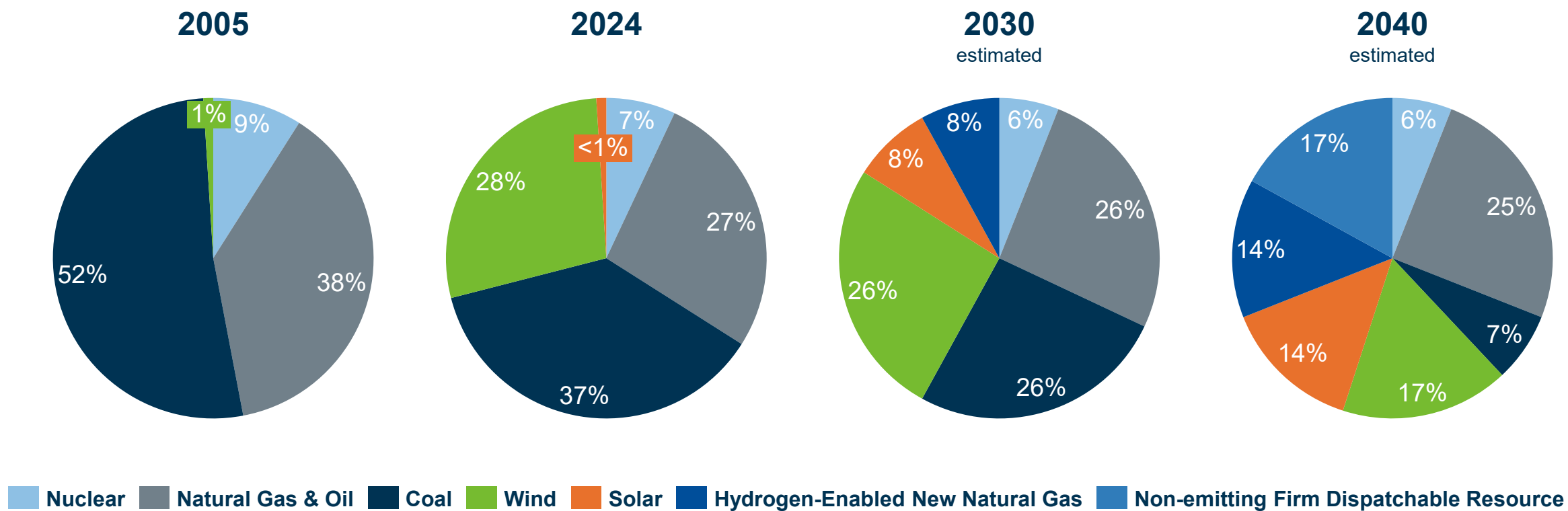


# Evergy's 2024 Preferred Portfolio

Retirements / Additions (Nameplate MW)



# Evergy's Preferred Portfolio





# Future Considerations

- Near-term execution of renewable and thermal additions will have to manage ongoing supply chain and transmission interconnection-driven delays
- Continued acceleration of economic development activity could impact ability to retire coal / could require additional new capacity resources
- EPA's final GHG Rule allows for coal / natural gas co-firing option that adds optionality to retain capacity at some coal plants, but may cause acceleration of other coal retirements
- Ongoing monitoring on dispatchable, non-emitting technologies (nuclear, long-duration energy storage, hydrogen) to determine feasibility / economics

# Evergy Security Update



# Evergy Cybersecurity: Defense In Depth<sup>1</sup> Model



***Evergy's use of this multi-layered approach with intentional redundancies increases the security of a system as a whole and addresses various attack vectors***

<sup>1</sup> Defense In Depth (DiD) is a best practice cybersecurity approach that utilizes multiple layers of defensive mechanisms to protect valuable data and assets



# Ongoing Cyber Program Enhancements

## PROTECTION and DEFENSE

### Completing Network Segmentation

Creating layers/separation within network; reduces accessible footprint if network is compromised; restricts movement within network if compromised

### Adopting a 'Zero Trust' Model

Multi-step verification of user identities (MFA, strong identity and access management, next generation endpoint security)

### Access Management

Password vault structure – credentials expire after each use; continue to enhance MFA to improve identity access management

### Retained Cybersecurity Incident Responders

Specialty firms with deep experience retained for any IT or OT incidents

## PROGRAM MATURITY and MITIGATIONS

### Created AI Acceptable Use Policy

Open-source options blocked; usage is exception based; setup "private" instance of Microsoft Bing Chat/Copilot

### Cybersecurity Incident Response Plan

Added new Securities and Exchange Commission (SEC) and Cybersecurity and Infrastructure Security Agency (CISA) reporting requirements; drilled plans as part of GridEx

### Third-Party Assessments

Multiple third-party security and maturity assessments validate strengths and define focused areas of improvement

### Adherence to Federal Agency and Intelligence Guidance

Continued alignment with federal agency guidance, including recent FBI briefings; creating Evergy-hosted vault for NERC CIP compliance artifacts to be shared securely

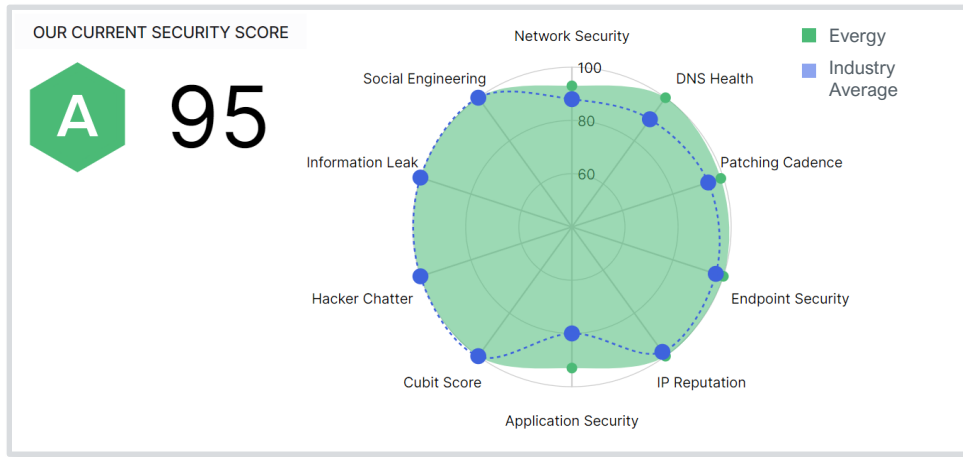


***Ongoing efforts continue to strengthen the Evergy cybersecurity program; internal actions taken to increase protections and third parties leveraged for latest threat intelligence***



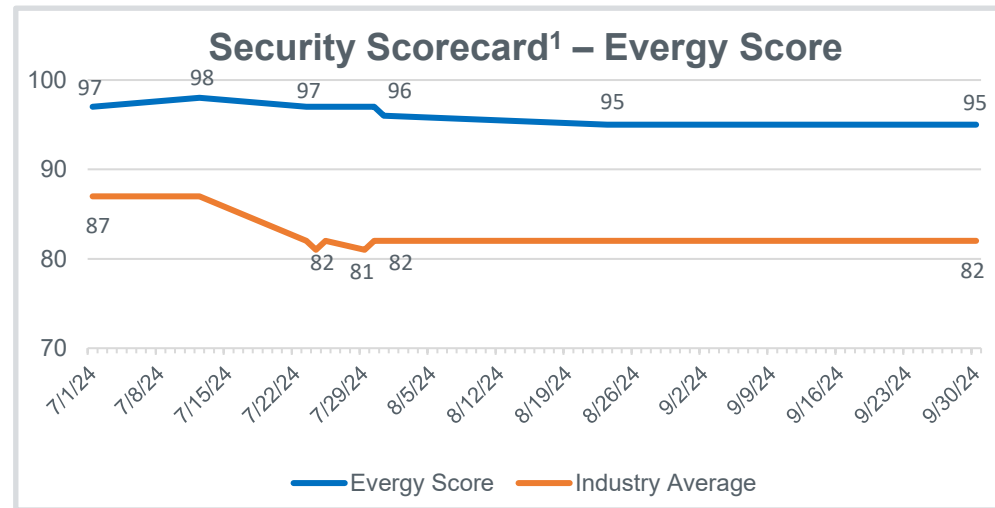


# Evergy External Cybersecurity Rating



The cyber score remains in first quartile among industry benchmarks, reflecting completion of ongoing action items

Evergy monitors the data that drives scoring changes and engages teams to address findings; algorithm changes alter Industry Average



Utility Cybersecurity Rating Comparisons		
Grade & Score	Company	
A 95	Con Edison	
A 94	Ameren	
A 93	OGE Energy Corp	
A 92	DTE Energy	
A 91	PSEG	
A 91	Duke Energy Corporation	
A 90	Southern California Edison	
A 90	Dominion Energy Inc	
A 90	Consumers Energy	
A 90	Georgia Power	
B 89	American Electric Power	
B 84	Pacific Gas & Electric Company	
B 81	Florida Power & Light Company	
B 81	NextEra Energy Resources	

**Most recently, Evergy scored at the top of the first quartile among those benchmarked**

1) Security Scorecard is the third-party information security company Evergy uses to rate its external cybersecurity posture



# Substation Security

- Evergy developed a tiering system for our substations based on industry best practices, known risk, and impact
- 2024 focus has been on high priority substations
  - 12' tall concrete ballistic walls with expanded steel gates
  - enhanced physical security technology packages which includes but is not limited to updated cameras, access control, audio notification system
  - currently conducting proof of concept testing for advanced radar intrusion detection.



***Evergy is working to enhance physical security of critical substations.***

# Thank You

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