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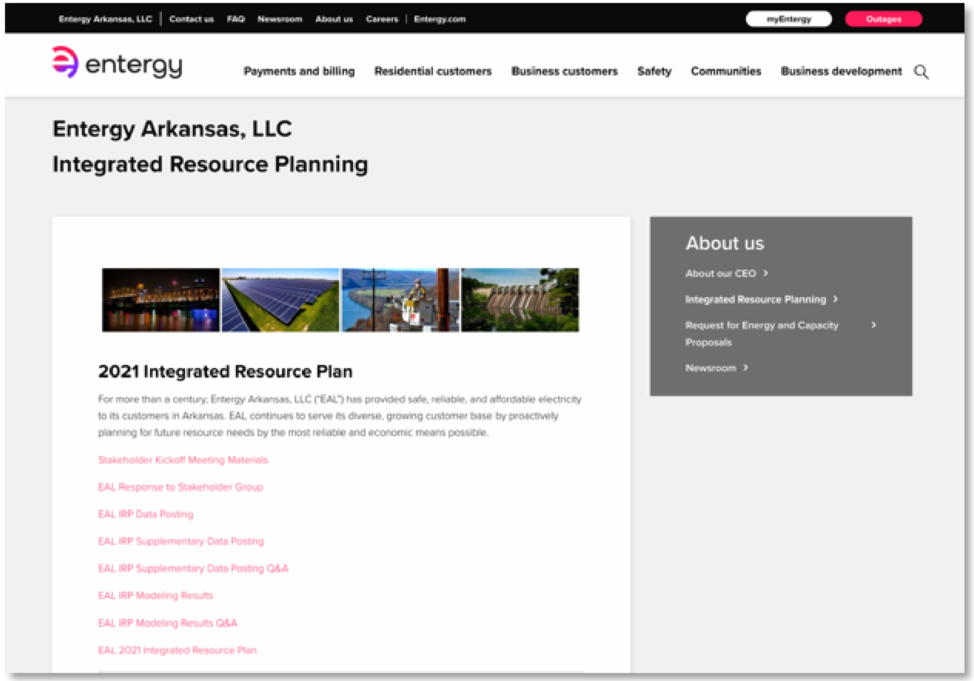
2024 Integrated Resource Plan Stakeholder Meeting #2

August 15, 2024

Welcome and meeting guidelines



- EAL is pleased to welcome the IRP Stakeholder Group to the second meeting of the 2024 Integrated Resource Plan ("IRP") process.
- Please mute your line to reduce background noise and prevent interruptions.
- Q&A Process
  - Questions can be submitted during today's meeting via the WebEx. Chat Window or to the EAL IRP inbox at EALIRP@ENTERGY.COM
  - Questions will be gathered during the meeting for a Q&A Session following the presentations.
  - Time constraints may limit the number of questions answered during today's meeting; EAL will post written responses to all questions to its IRP website . https://www.entergy-arkansas.com/integrated_resource_planning/

Meeting objectives

Discuss EAL’s Integrated Resource Plan Results

- Technology cost and performance updates
- Futures overview
- Capacity expansion results
- Total relevant supply cost (“TRSC”)
- Qualitative risk assessment
- Preferred portfolio

Outline 2024 IRP Action Plan

Provide information & engage stakeholders

Meeting agenda

Topic	Presenter
Meeting Kickoff	Sahabia Ahmed
Technology Assessment Changes	Jonathan Alvis
Modeling Overview & Futures	Daniel Boratko
Modeling Results	
Total Relevant Supply Cost	Christian Smith
Risk Assessment	Monica Chandra
Preferred Portfolio & 2024 IRP Action Plan	Kandice Fielder
2024 IRP Schedule and Next Steps	Sahabia Ahmed
Stakeholder Feedback / Q&A	All

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IRP scope

EAL's IRP guides long-term generation decisions

Where do we start ?

1. EAL's current capacity and energy status (existing and planned units).
2. Assessment of EAL's long-term capacity and energy needs given the changing peak load and energy demand over time.
3. Use the IRP as a compasss to guide near-term resource decisions and re-evaluate every three years.

Current State

Existing and planned resources

Gap (Need)

Growing demand and aging generation

Plan

Add new resources (type, size, and timeline)

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01

Technology cost and performance updates

Jonathan Alvis

Technology cost updates

Material changes in technology cost outlook triggered updates from January 2024 estimates

Continued inflationary impacts seen on capital costs, except solar

- **Labor and materials costs** have continued to rise significantly
  - Installation & labor costs have increased >50% relative to previous year's cost
- **Natural gas resources capital costs** have increased significantly – cost increases also associated with high demand for turbines (costs up >10%)
- **Raw materials costs** on solar and batteries (e.g., silicon, lithium) have decreased slightly
  - Solar module prices have decreased >25%

Cost: Thermal resources

Technology	Installed Capital Cost Nominal [$/kWac]	Fixed O&M L. Real [2024$/kW-yr.]	Variable O&M L. Real [2024$/MWh]	Levelized Cost of Electricity L. Real [2024$/MWh][2]
CT	$1,543	$7.85	$6.76	$184
CCCT (1x1) w/ duct firing	$1,752	$14.26	$4.70	$57
CCCT (2x1)	$1,487	$10.91	$4.22	$51
Aeroderivative CT	$4,285	$26.93	$9.21	$183
RICE	$2,171	$36.18	$13.83	$164

Technology	Installed Capital Cost Nominal [$/kWac]	Fixed O&M L. Real [2024$/kW-yr.]	Variable O&M L. Real [2024$/MWh]	Levelized Cost of Electricity L. Real [2024$/MWh]
SMR	$11,242	$156.17	$6.49	$145

1. Sources: Sargent & Lundy and Entergy Capital Projects
2. The LCOE includes transmission interconnection costs, but the installed capital cost excludes interconnection costs.
3. Costs for natural gas units identified in May 2024

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Performance: Thermal resources

Technology	Summer Net Maximum Capacity [MW]	Full HHV Summer Heat Rate [Btu/kWh]	Assumed Capacity Factor [%]	Life [Yr.]	H2 Capable (%)
CT	428	9,177	10%	30	30%
CCCT (1x1) w/ duct firing	733	6,816	73%	30	30%
CCCT (2x1)	1,230	6,365	73%	30	30%
Aeroderivative-CT	88	9,797	30%	30	30%
RICE	129	8,440	20%	30	N/A

Technology	Summer Net Maximum Capacity [MW]	Assumed Capacity Factor [%]	Life [Yr.]
SMR	876	90%	60

Sources: Sargent & Lundy, Entergy Capital Projects, EPRI, NREL

Cost: Renewable and storage resources

Technology	Installed Capital Cost Nominal [$/kWac]	Fixed O&M L. Real [2024$/kW-yr.]	Levelized Cost of Electricity L. Real [2024$/MWh][2]
Utility-Scale Solar	$1,763	$17.07	$63
Hybrid: Solar + BESS	$2,889	$23.08	n/a
On-shore Wind, MISO South	$2,672	$37.54	$72
On-shore, Off-system Wind (SPP)	$2,521	$35.09	$107[3]
Storage (4hr, Li-Ion)[4]	$2,417	$15.03	n/a

1. Sources: S&P Global, Wood Mackenzie, EPRI, NREL, ArcVera, Burns & McDonnell, Entergy Power Development
2. The LCOE includes transmission interconnection costs, but the installed capital cost values in the second column exclude interconnection costs.
3. Includes transmission HVDC costs for a 600 mile line
4. BESS Installed Capital Cost includes 10% initial oversizing in year 1 to account for Depth of Discharge (DoD), followed by an additional 10% augmentation every five years (year 6, 11, and 16). This corresponds to a degradation rate of 2% of BESS capacity per year.

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Performance: Renewable and storage resources

Technology	Max Summer Capacity [MW-ac]	Assumed Capacity Factor [%]	Life [Yr.]	DC:AC Ratio [%]	Degradation [%]
Utility-Scale Solar	100MW	25.3%[1]	30	1.3	0.5% per year
Hybrid: Solar + BESS	100MW 50MW/200MWh	25.3%	30 (Solar) / 20 (BESS)	1.3	0.5% per year (Solar only)
On-shore Wind, MISO South	100 - 200 MW	32.1%[2]	30	n/a	n/a
On-shore, Off-system Wind (SPP)	100 - 200 MW	44%[2]	30	n/a	n/a
Storage (4hr, Li-Ion)	50MW / 200MWh	n/a	20	n/a	Displaced by augmentation

1.Solar resources assume a 0.3% improvement in capacity factor in each subsequent year installed. Therefore, the capacity factor for solar resources installed in the second year of the outlook improves from 25.26% to 25.34%.
2.Wind resources assume a 0.1% improvement in capacity factor in each subsequent year installed.

Sources: Burns and McDonell, ArcVera, EPRI, NREL, S&P Global, Entergy Power Development

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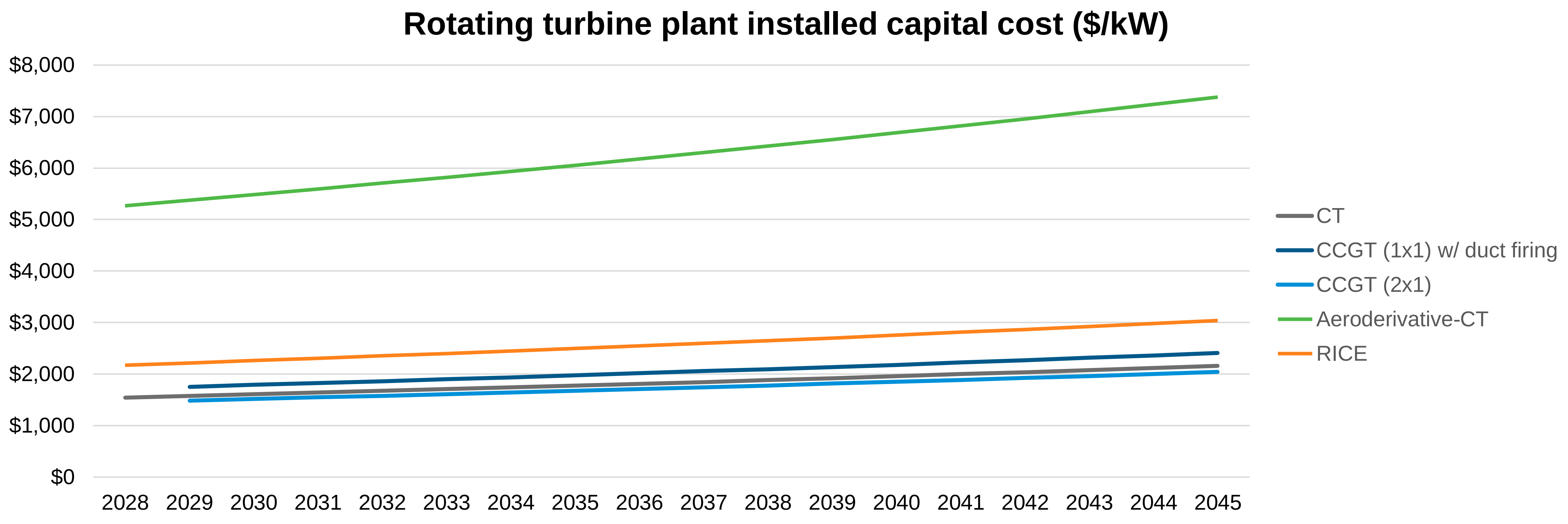
Rotating turbine plant long-term cost projections



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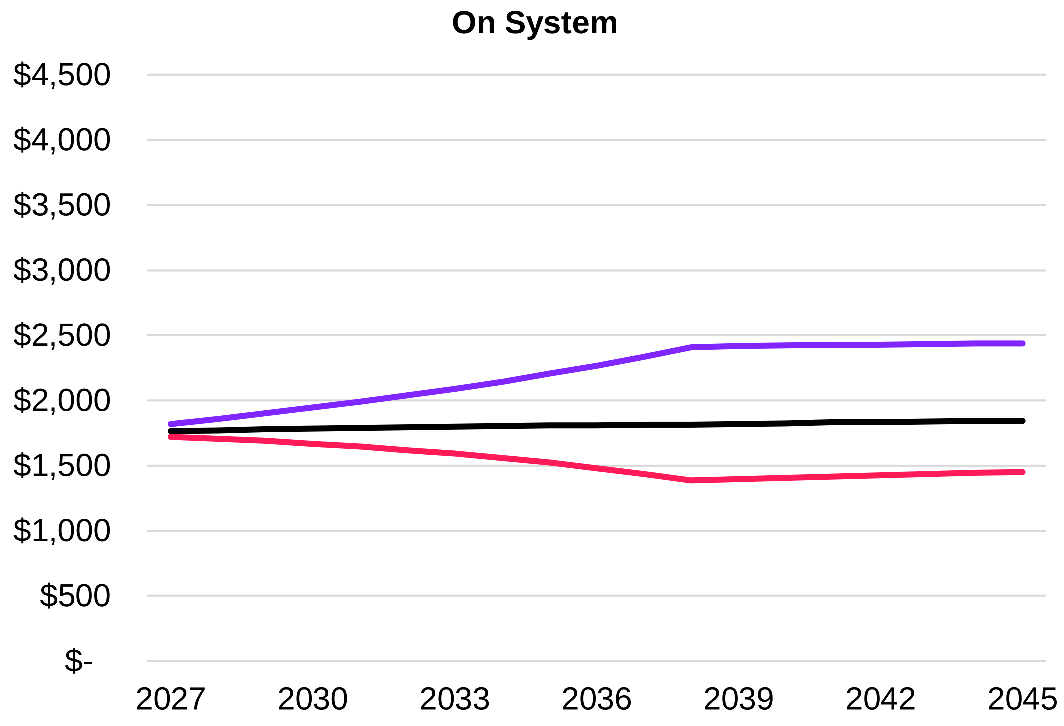
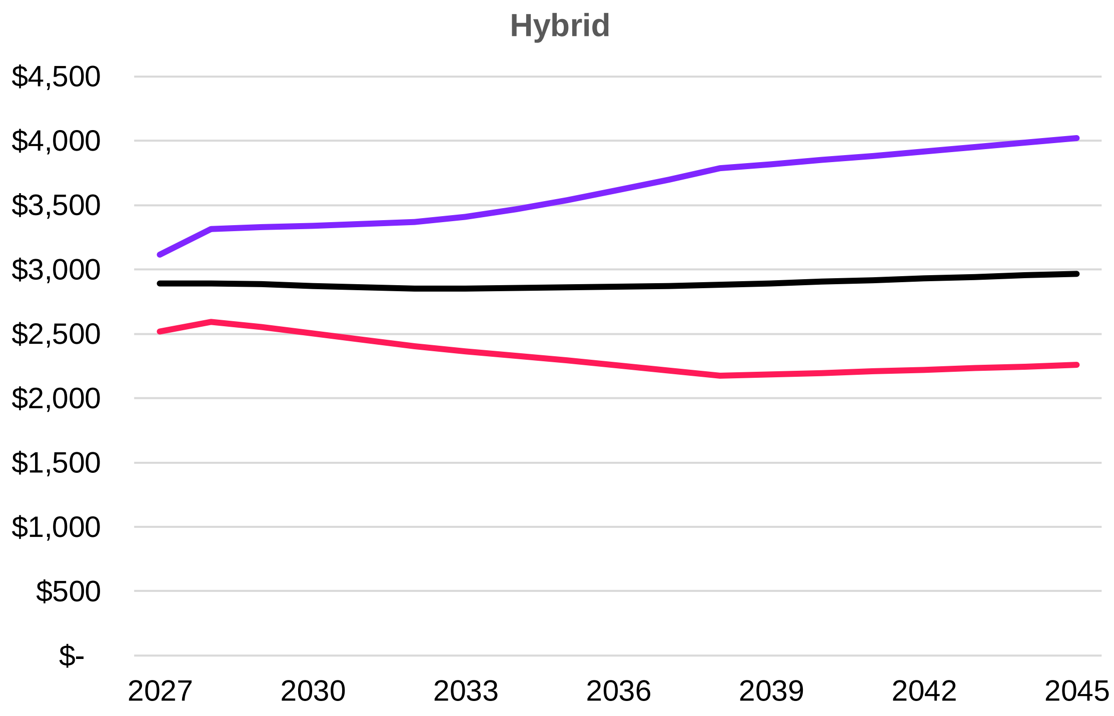
Solar long term cost projections

Costs below reflect installed capital cost ($/kW-ac)

Legend
- Reference
- Low
- High





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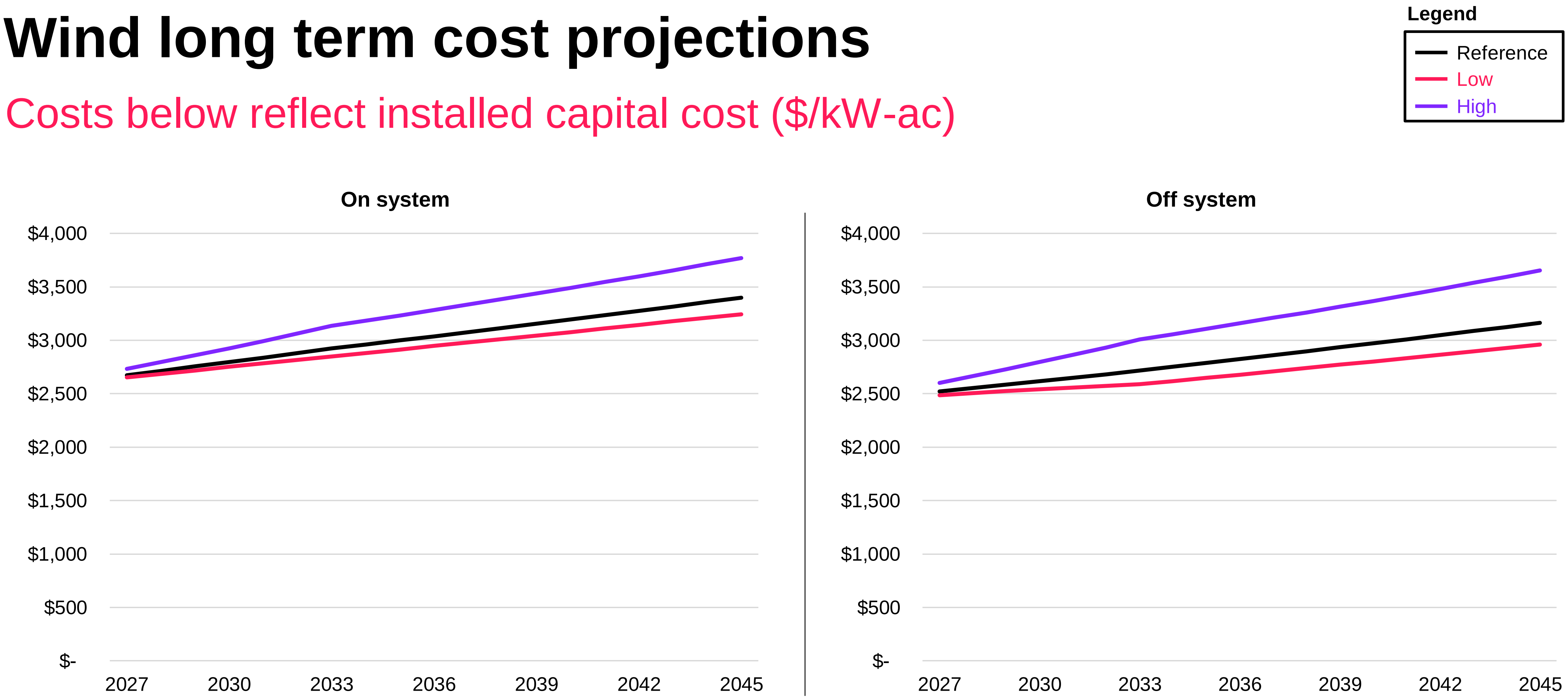
Wind long term cost projections

Costs below reflect installed capital cost ($/kW-ac)



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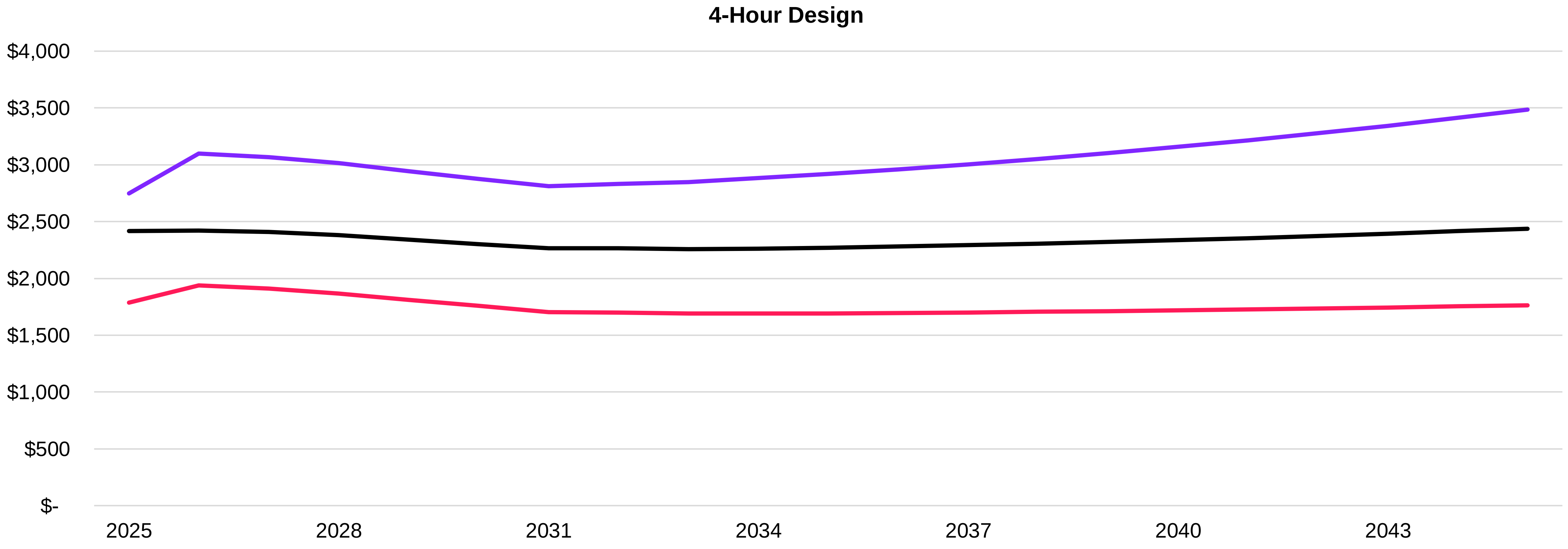
BESS long term cost projections

Costs below reflect installed capital cost ($/kW-ac)

Legend
- Reference
- Low
- High



02

Futures and AURORA modeling results

Daniel Boratko

IRP futures

EAL relied on the four futures outlined below to assess supply portfolios across a range of market outcomes. The Long-Term Capacity Expansion (LTCE) for all futures was conducted on a summer and winter basis to approximate MISO's new seasonal construct.

	Future 1 - Existing fleet	Future 2A - Business as usual	Future 2B - CAA 111	Future 3 - Accelerated change
Peak load & energy growth	Low	Reference	Reference	High
Natural gas prices	Low	Reference	Reference	High
MISO coal deactivations[1]	All ETR coal by 2030 All MISO coal aligns with MTEP Future 1 (46 year life)	All ETR coal by 2030 All MISO coal aligns with MTEP Future 2 (36 year life)	All ETR coal by 2030 All MISO coal by 2030	All ETR coal by 2030 All MISO coal aligns with MTEP Future 3 (30 year life)
MISO natural gas CT and CC deactivations[1]	50 year life	45 year life	45 year life	35 year life
MISO natural gas other deactivations[1]	46 year life	36 year life	Steam gas EGUs by 2030	30 year life
Carbon tax scenario	No Cost	Reference Cost	Reference Cost	High Cost
Renewable capital cost	High Cost	Reference Cost	Reference Cost	Low Cost
Narrative	Lower growth from the residential and industrial sector is forecasted which reduces the need to transition from the existing fleet. Renewable cost assumed to be high.	Moderate amount of industrial growth forecasted which would drive the need for new development.	Entergy and utilities across MISO deactivate existing units early to be compliant with proposed changes to Clean Air Act Section 111(d). New resources built would comply with proposed changes to 111(b).	High energy growth from both industrial and residential sectors forecasted. Renewable cost assumed to be low due to more efficient supply chain.

1. See MISO Futures Report Series 1A for additional detail

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Modeling framework summary

- The AURORA LTCE model was used to develop five optimized future portfolios.
- P1 serves as a low bookend and P3 serves as the upper bookend for the range of potential capacity additions.
- Additional sensitivity case within Futures 2A was added to provided robustness and stress test the more expected cases in a targeted manner.

CAA 111

- Future 1
  - P1
- Future 2A
  - P2A-Ref
    EAL Ref Load
  - P2A-CC
    EAL Ref Load + 2030 1x1
- Future 2B
  - P2B-Ref
    EAL Ref Load
- Future 3
  - P3

There will be a supply portfolio, total relevant supply cost metric, and qualitative risk assessment for each portfolio

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EPA CAA 111 rule modeling assumptions

Resource Type	Timing	Assumption
All coal and steam gas	Deactivate by 2030	This is based on proposed 111(d) regulations and modeled in lieu of natural gas co-firing or other restrictions on existing coal and legacy gas unit operations
Existing CCCTs	Starting 2035	Limited to 50% capacity factor
Existing CTs	Starting 2030	Limited to 20% capacity factor
New CCCTs added to the MISO market or EAL	Starting at unit COD	Include 95% carbon capture Modeling reflects a derate to the unit capacity to account for CCS auxiliary load. Energy offers include the 45Q tax credit and additional CCS VOM
New CTs added to the MISO market or EAL	Starting at unit COD	Limited to 20% capacity factor (breakpoint for intermediate load subcategory under April 2024 final rule) [1]

1. New-build CTs may achieve 1,170 lb/MWh standard for intermediate load subcategory

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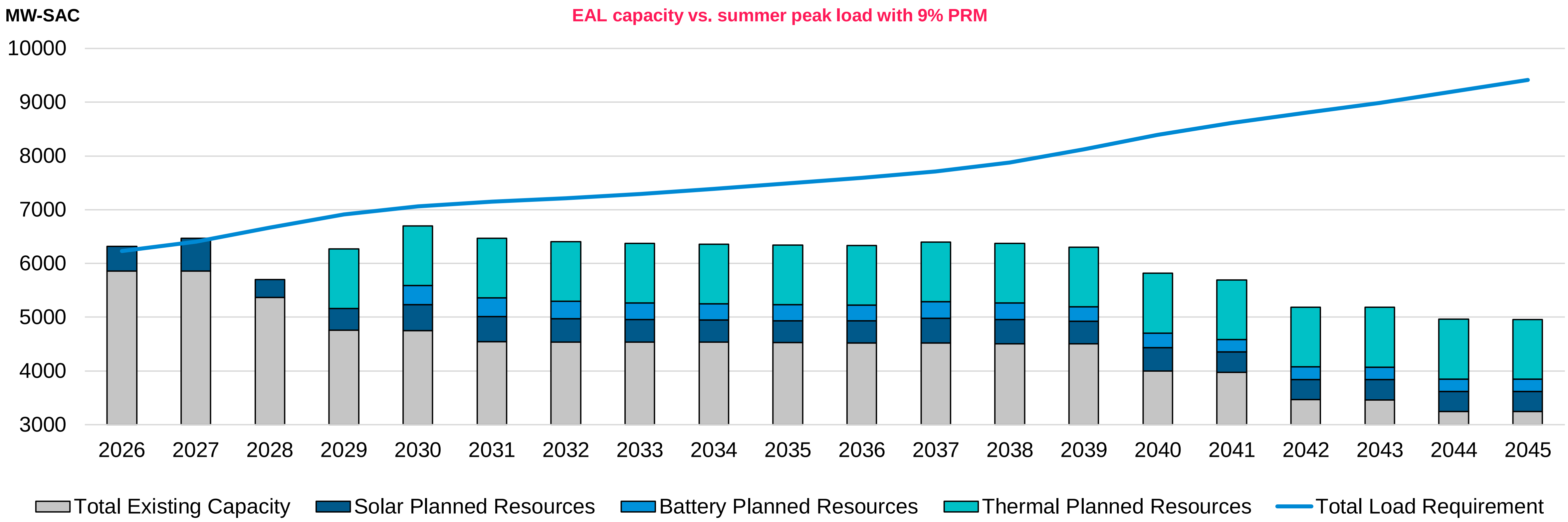
Assessment of capacity need before IRP build (Summer)
2026-2045



Planning Year	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035	2036	2037	2038	2039	2040	2041	2042	2043	2044	2045
Surplus/Deficit	92	62	(961)	(640)	(364)	(683)	(801)	(921)	(1,029)	(1,149)	(1,259)	(1,317)	(1,507)	(1,822)	(2,577)	(2,915)	(3,615)	(3,802)	(4,241)	(4,459)

1. *Notes:*
- Surplus/Deficit table reflects the average seasonal accredited capacity and a load requirement of the summer MISO coincident peak with a PRM of 9%. Existing thermal resource capacity reflects current SAC ratings. Non-thermal capacity reflects estimated average Effective Load Carrying Capability ("ELCC"). Existing and planned non-thermal resource ELCC varies based on market and EAL solar, wind, and battery storage capacity.
- The total load requirement is based on the 2024 IRP Reference Case load forecast scenario.

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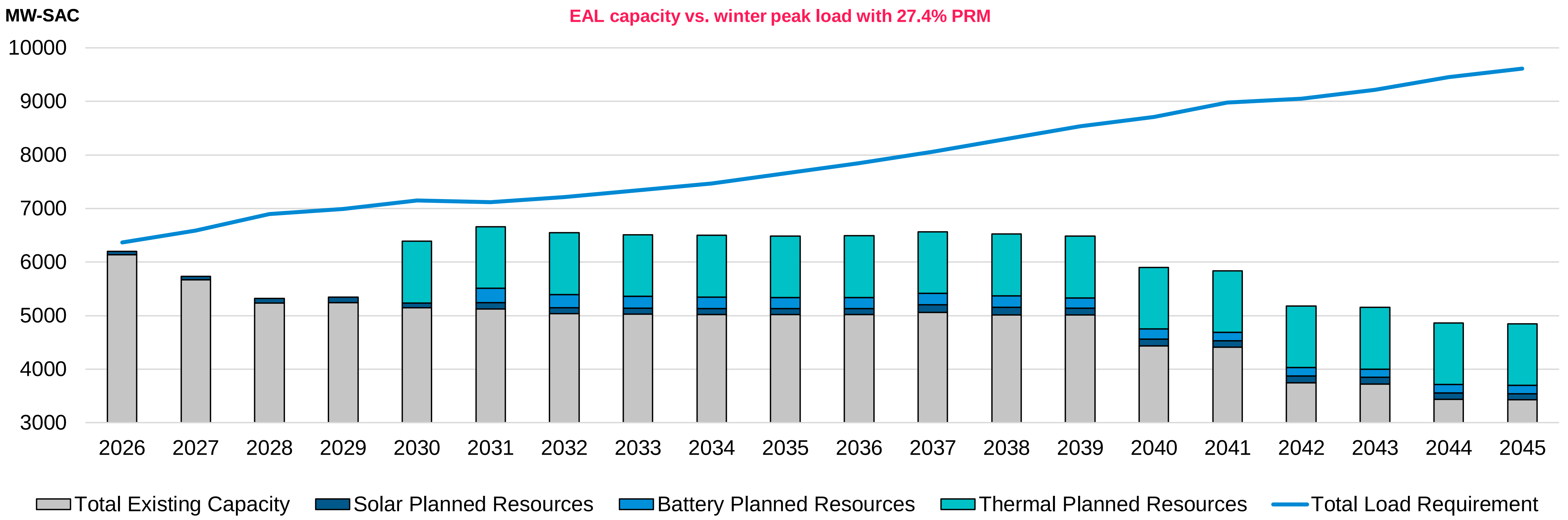
Assessment of capacity need before IRP build (Winter)

2026-2045



Planning Year	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035	2036	2037	2038	2039	2040	2041	2042	2043	2044	2045
Surplus/Deficit	(164)	(853)	(1,580)	(1,648)	(765)	(455)	(667)	(831)	(966)	(1,168)	(1,360)	(1,498)	(1,781)	(2,052)	(2,806)	(3,145)	(3,869)	(4,067)	(4,594)	(4,760)

1. Notes:

- Surplus/Deficit table reflects the average seasonal accredited capacity and a load requirement of the winter MISO coincident peak with a PRM of 27.4%. Existing thermal resource capacity reflects current SAC ratings. Non-thermal capacity reflects estimated average Effective Load Carrying Capability ("ELCC"). Existing and planned non-thermal resource ELCC varies based on market and EAL solar, wind, and battery storage capacity.
- The total load requirement is based on the 2024 IRP Reference Case load forecast scenario.

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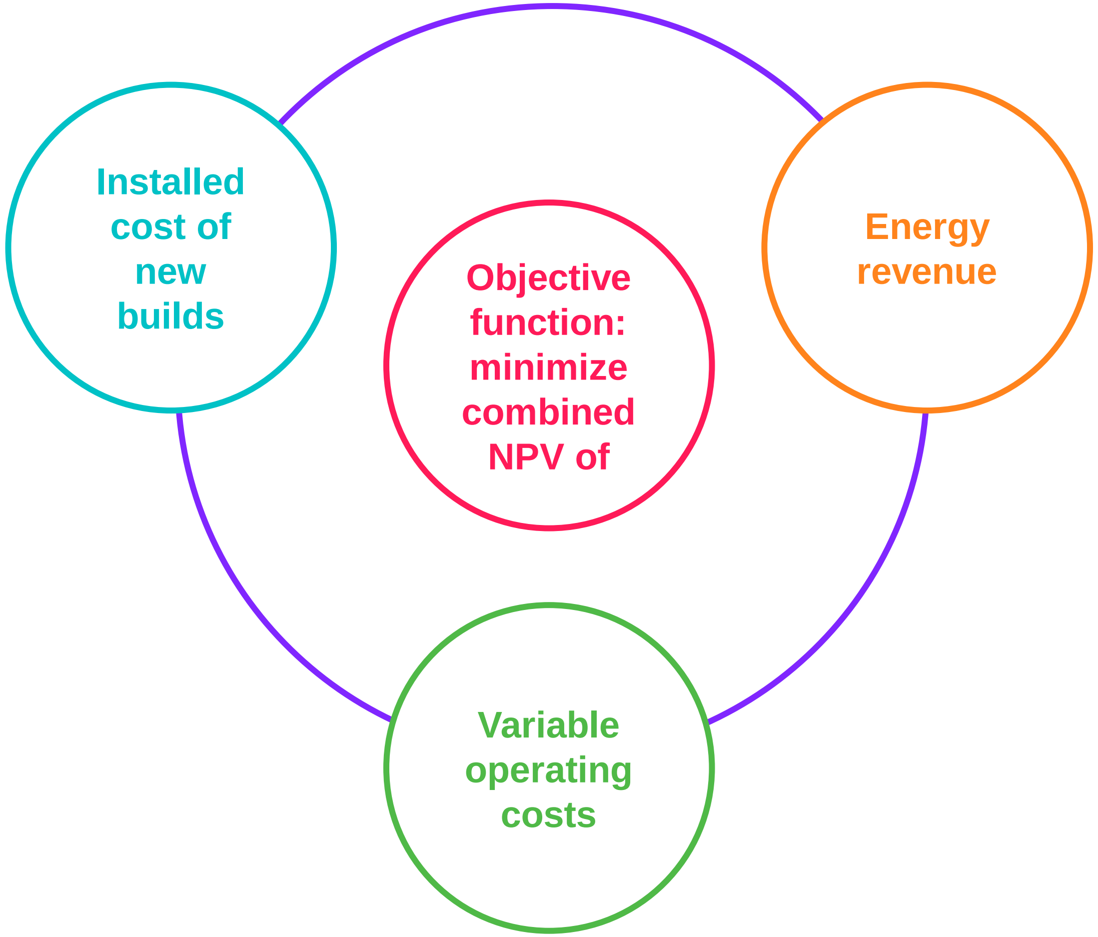
Aurora capacity expansion

Aurora capacity expansion was used to find the **optimal portfolio additions** over the long-term planning horizon given defined input assumptions and constraints (e.g., magnitude of capacity need, capacity credit assumptions, technology cost and performance).

Logic seeks to build the **most valuable resources** to the system **based on the combination of fixed and variable costs** as well as energy revenue from the hourly dispatch for the whole simulation period.



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MISO market capacity expansion results

MISO market model build summary

Summer installed capacity (MW)	F1	F2A	F2A CC	F2B	F3
2x1 CCCT	91,042	92,273	89,812	116,049	27,067
CT	6,417	8,556	8,128	8,128	23,101
Solar	400	40,000	43,200	24,800	105,200
Battery Hybrid	0	0	0	2,000	26,000
Wind	0	11,600	16,400	0	160,000
Total MW built	**97,859**	**152,429**	**157,540**	**150,977**	**341,368**

2045 summer effective capacity (MW)	F1	F2A	F2A CC	F2B	F3
2x1 CCCT	89,549	90,759	88,339	114,146	26,623
CT	6,191	8,255	7,842	7,842	22,288
Solar	135	14,949	16,211	8,755	17,698
Battery Hybrid	0	0	0	1,900	13,684
Wind	0	4,106	5,770	0	56,527
Total MW built	**95,875**	**118,068**	**118,162**	**132,643**	**136,820**

- Capacity expansion was performed for the MISO market without EAL.
- Annual limit of 10 GW of solar and 10 GW of wind allowed.
- The market build capacity expansion targeted meeting a MISO reserve margin of 9% in the summer and 27.4% in the winter.
- Values in the table represents the cumulative summer capacity additions for 2024-2045.
- The subsequent slides on MISO market portfolio build reflect installed capacity based on summer ratings for thermal resources.

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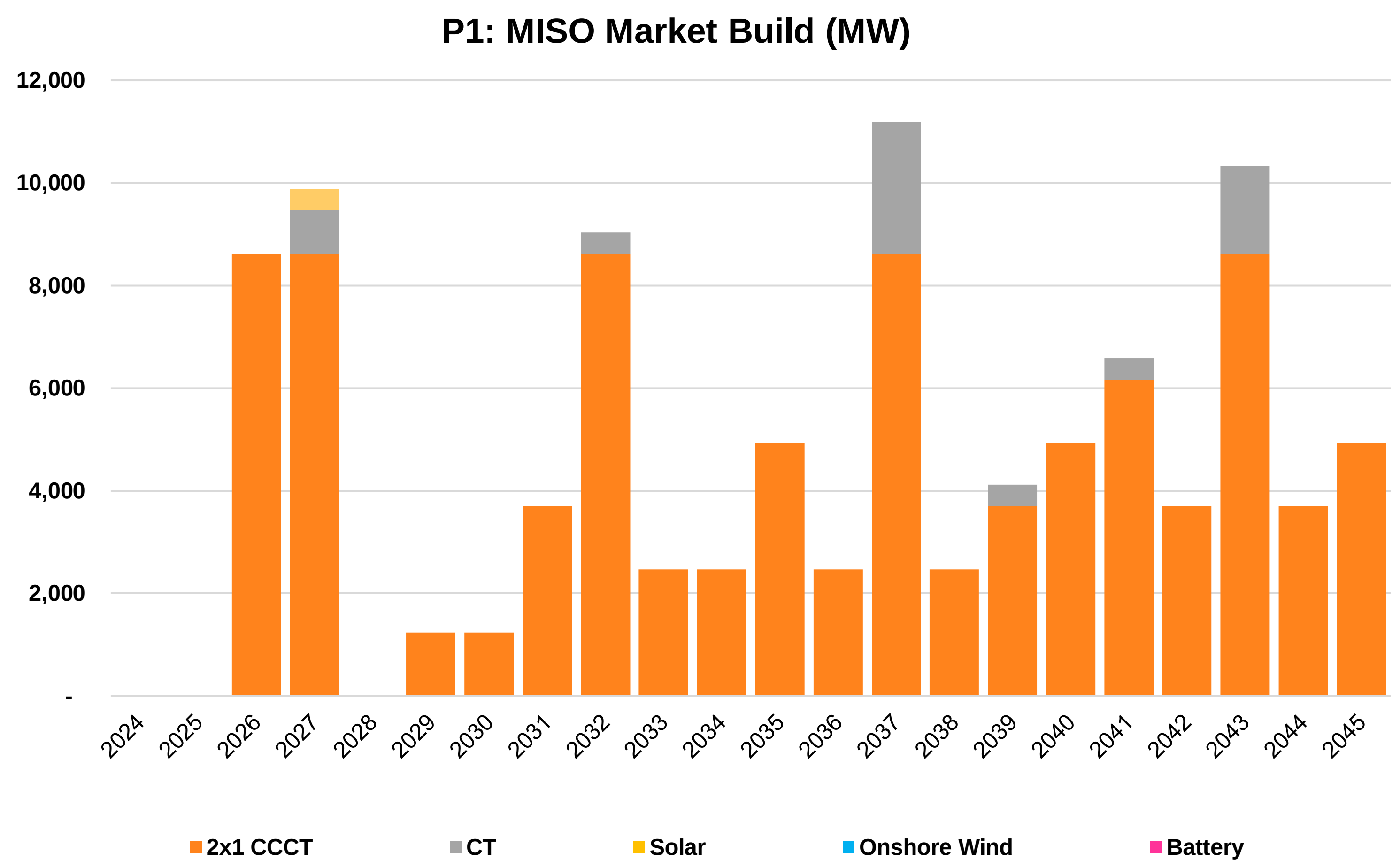
Portfolio 1 result

Low gas, No CO_2, Low load,
High renewable cost

MISO market model build portfolio 1



Future 1 (MW)	
2x1 CCCT	91,042
CT	6,417
Solar	400
Battery Hybrid	0
Wind	0
Total	**97,859**

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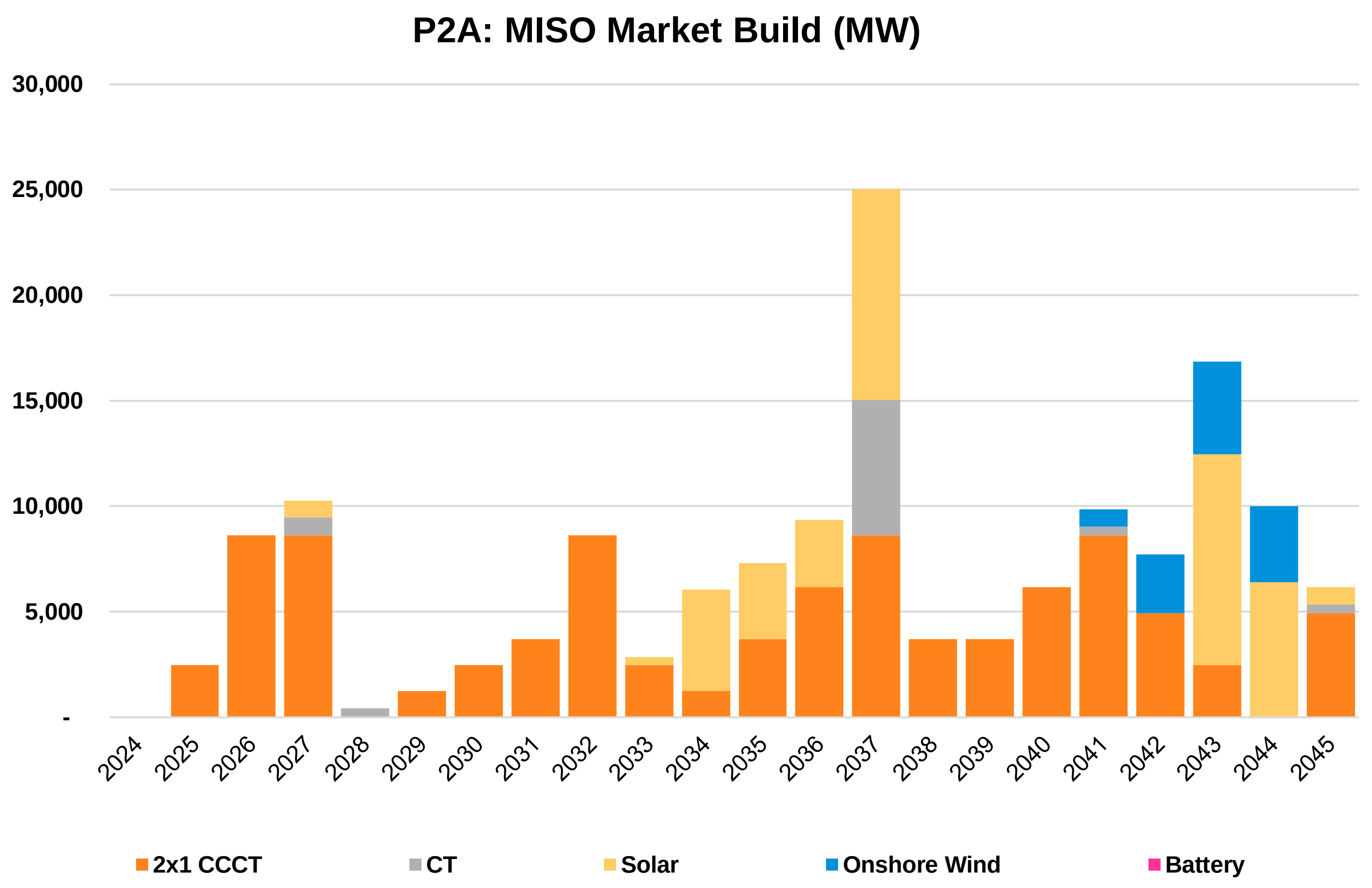
Portfolio 2 results

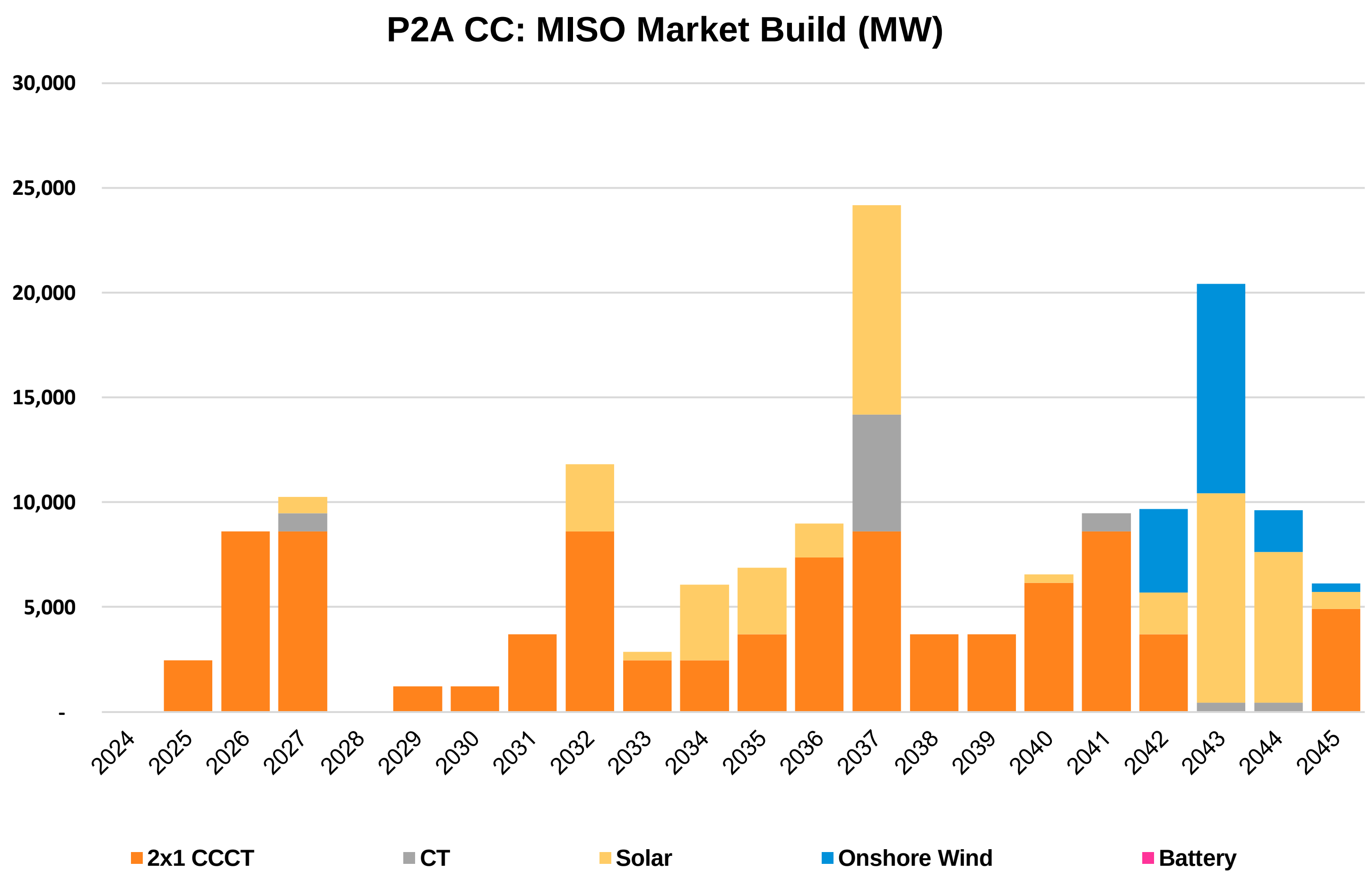
Ref gas, Ref CO_2, Ref load, Ref renewable cost

MISO market model build portfolio 2A



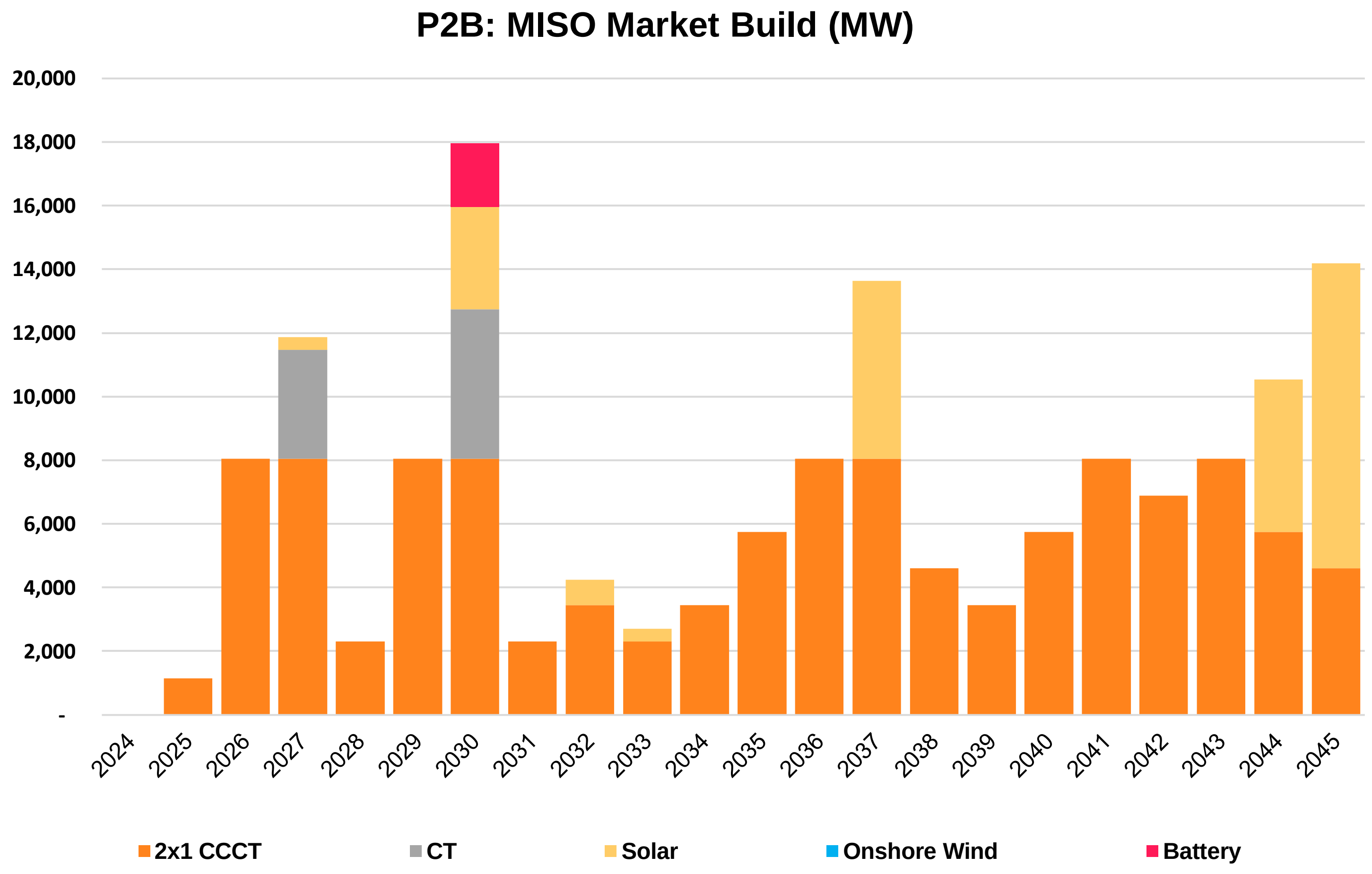
Future 2A (MW)	
2x1 CCCT	92,273
CT	8,556
Solar	40,000
Battery Hybrid	0
Wind	11,600
Total	**152,429**

MISO market model build portfolio 2A CC



Future 2A CC (MW)	
2x1 CCCT	89,812
CT	8,128
Solar	43,200
Battery Hybrid	0
Wind	16,400
Total	**157,540**

MISO market model build portfolio 2B



Future 2B (MW)	
2x1 CCCT	116,049
CT	8,128
Solar	24,800
Battery Hybrid	2,000
Wind	0
Total	**150,977**

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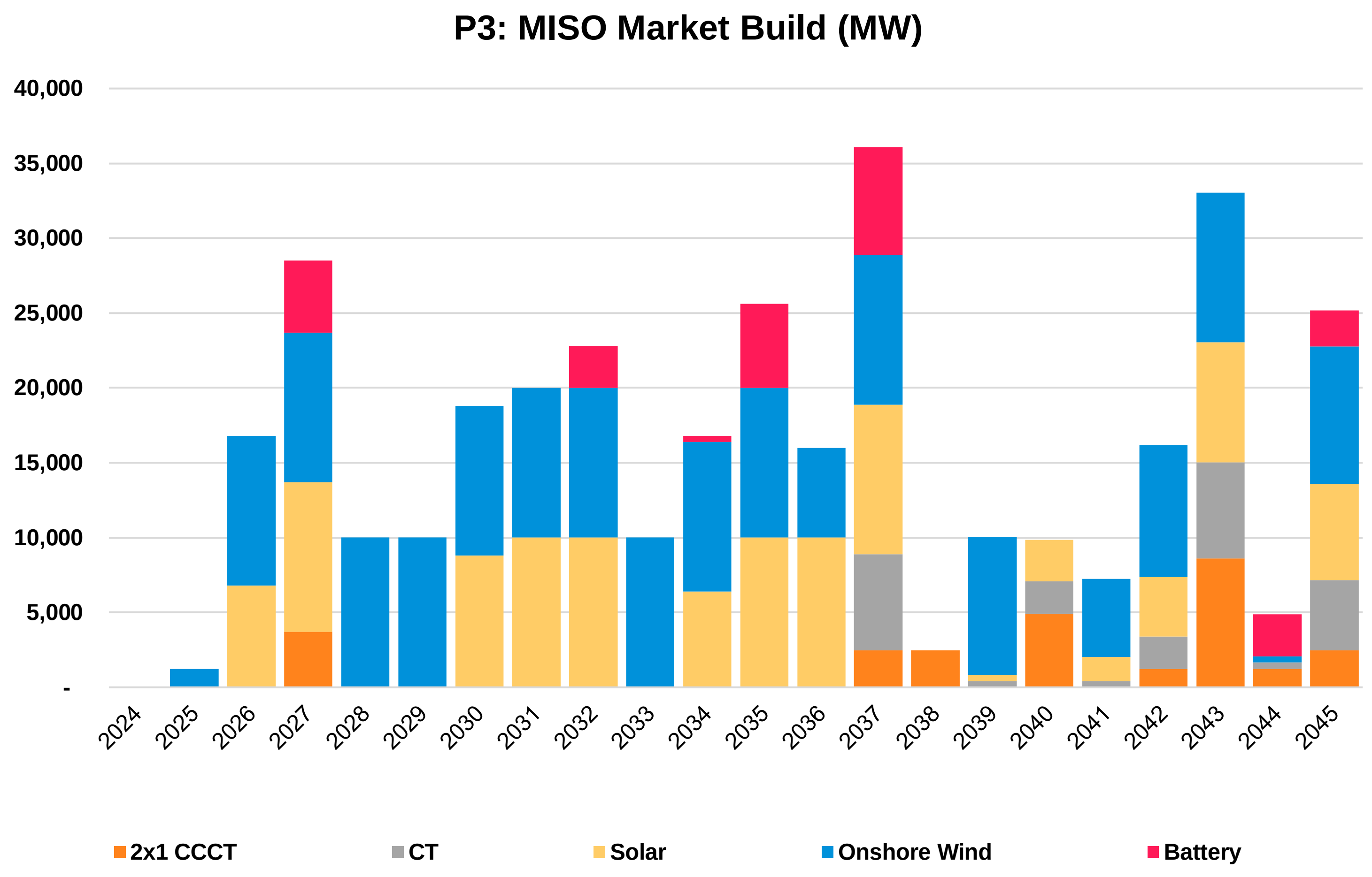
Portfolio 3 result

High gas, High CO_2, High load,
Low renewable cost

MISO market model build portfolio 3



Future 3 (MW)	
2x1 CCCT	27,067
CT	23,101
Solar	105,200
Battery Hybrid	26,000
Wind	160,000
Total	**341,368**

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EAL
capacity expansion results

EAL results summary

	Summer Installed Capacity MW					
Portfolio	**Solar**	**Wind**	**Battery (Hybrid)**	**CCCT**	**CT / RICE**	**Total Build**
P1 - Low	400	-	750	733	1,840	**3,723**
P2A - Ref	700	600	-	1,230	3,815	**6,380**
P2A-CC Ref	1,400	600	-	1,963	2,995	**6,957**
P2B-Ref	500	200	300	3,681	1,412	**6,093**
P3 - High	4,200	5,800	2,200	3,428	2,995	**18,622**

- EAL's capacity expansion targeted meeting a MISO reserve margin of 9% in the Summer and 27.4% in the Winter.
- Annual limit of 1GW of solar and 2GW of wind allowed each year.
- Values in the table represent the summer installed capacity additions for 2030-2045.
- The subsequent slides on EAL portfolio builds reflect installed capacity based on summer ratings for thermal resources.

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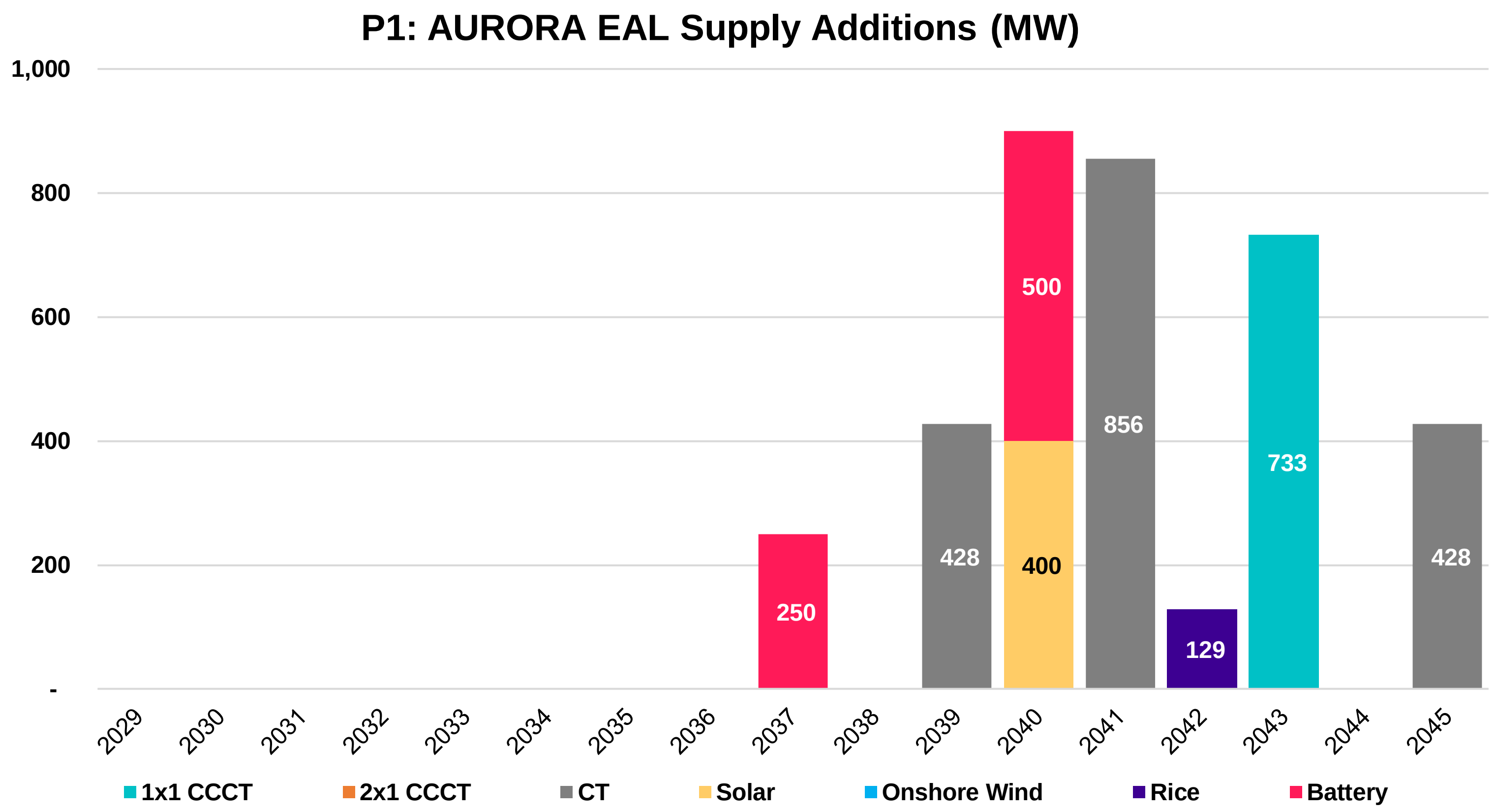
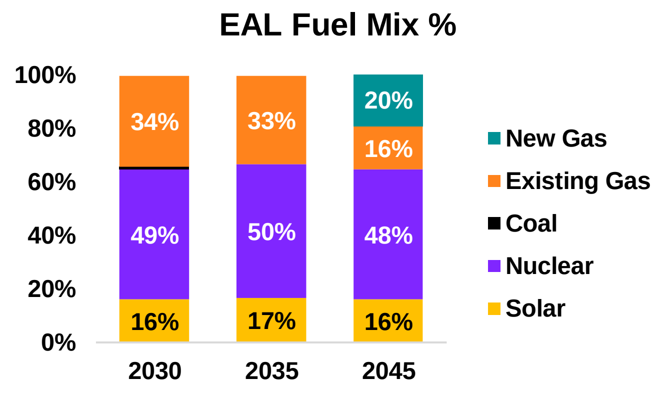
Portfolio 1 Result

Low gas, No CO_2, Low load,
High renewable cost

EAL portfolio 1 results



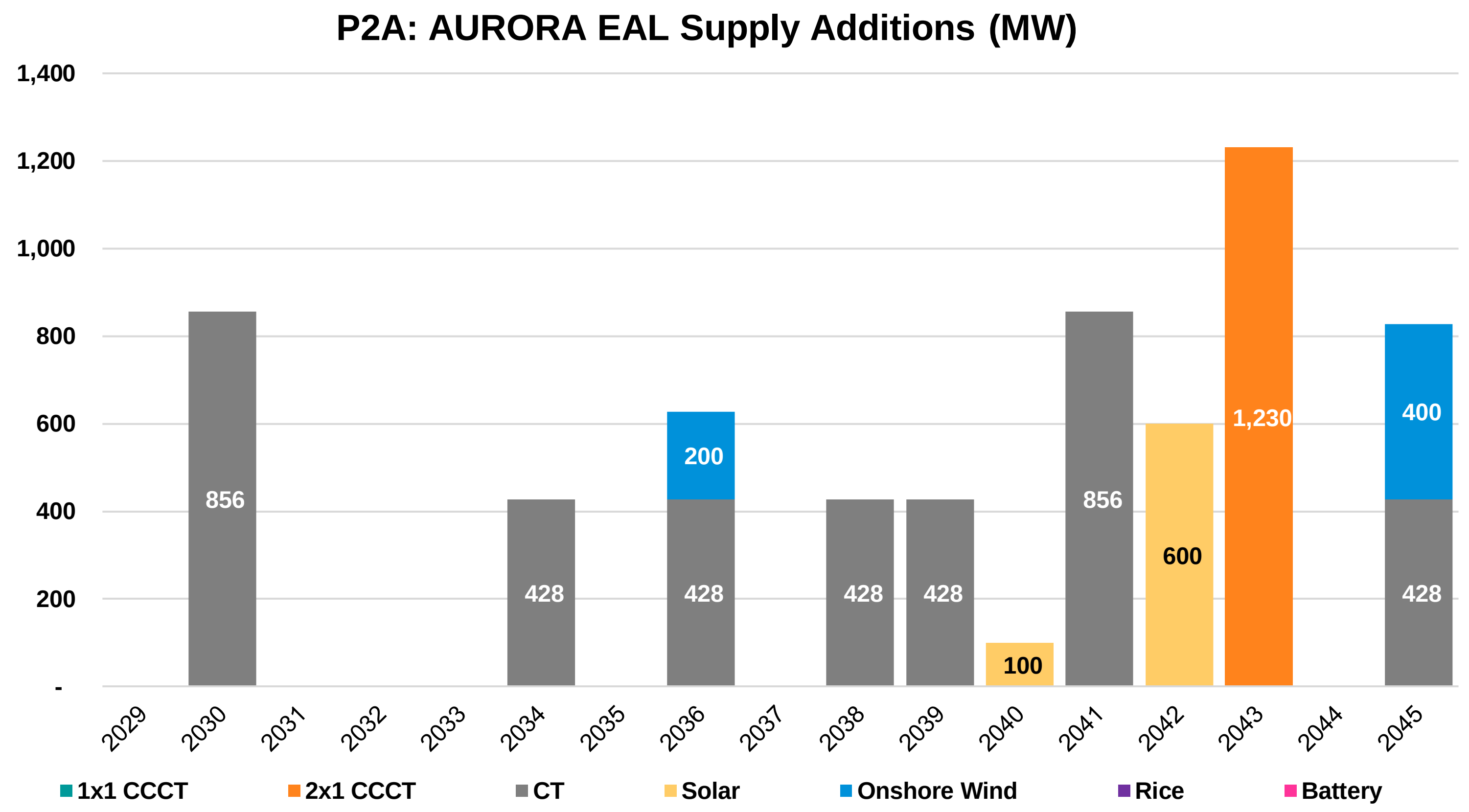
Future 1 (MW)		
	EAL	MISO Market
Solar	400	400
Battery Hybrid	750	-
Onshore Wind	-	-
1x1 CCCT	733	-
2x1 CCCT		91,042
CT	1,711	6,417
RICE	129	-
Total	**3,723**	**97,859**



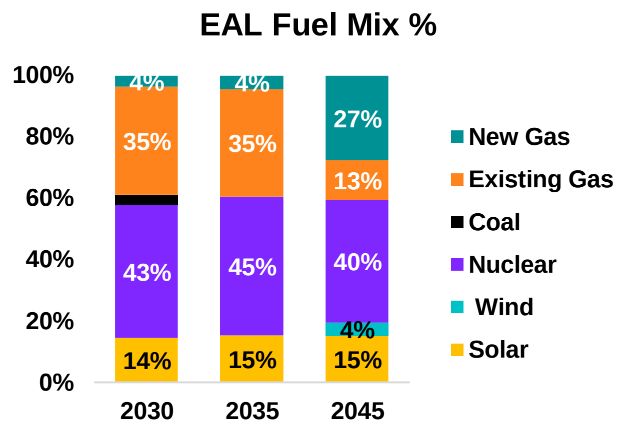
Portfolio 2 results

Ref gas, Ref CO_2, Ref load, Ref renewable cost

EAL portfolio 2A results



Future 2A (MW)		
	EAL	MISO Market
Solar	700	40,000
Battery Hybrid	-	-
Onshore Wind	600	11,600
1x1 CCCT	-	-
2x1 CCCT	1,230	92,273
CT	3,815	8,556
RICE	-	-
Total	6,380	152,429



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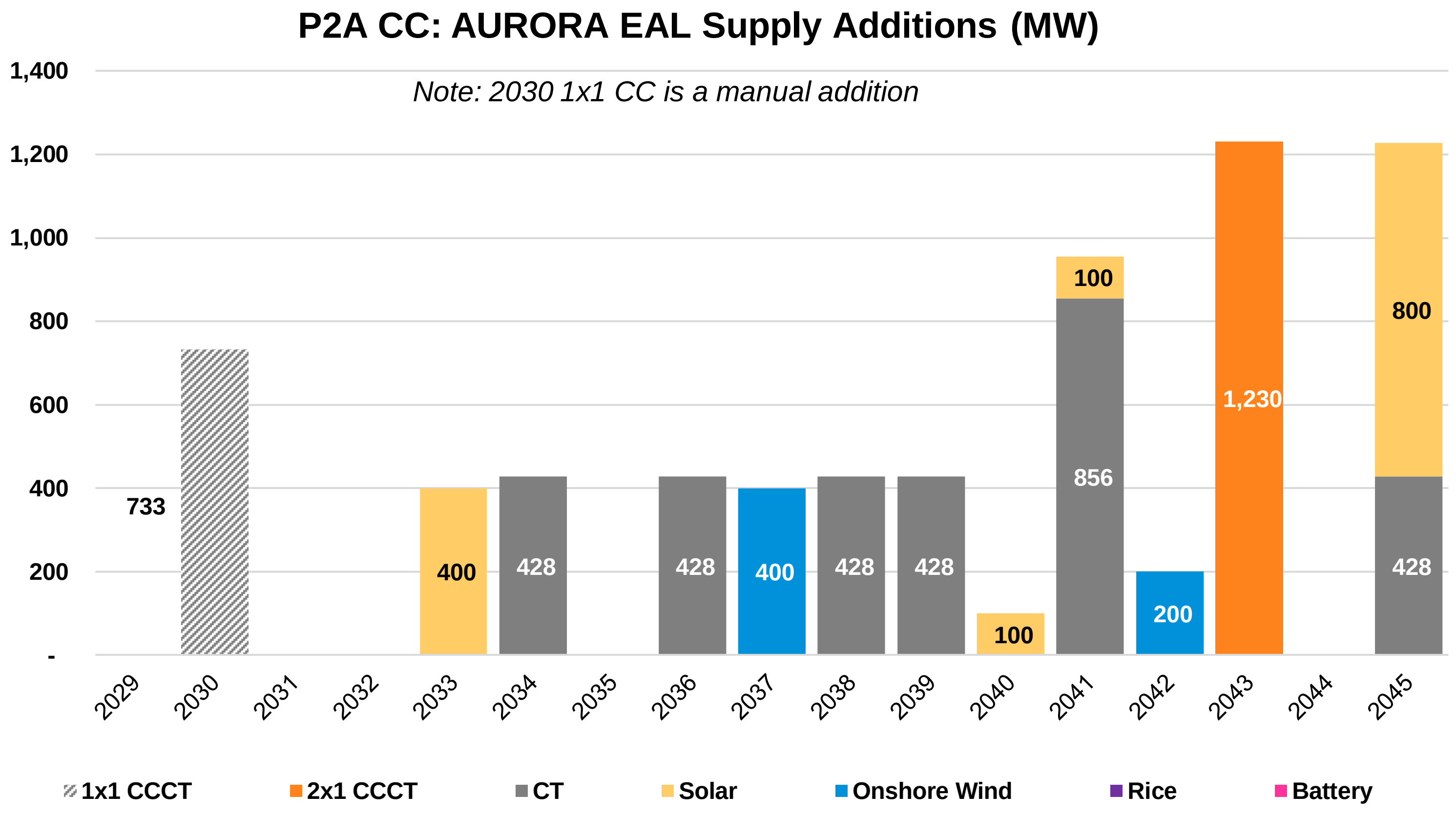
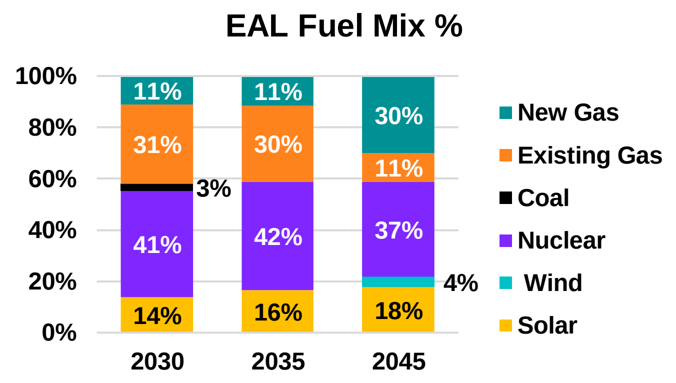
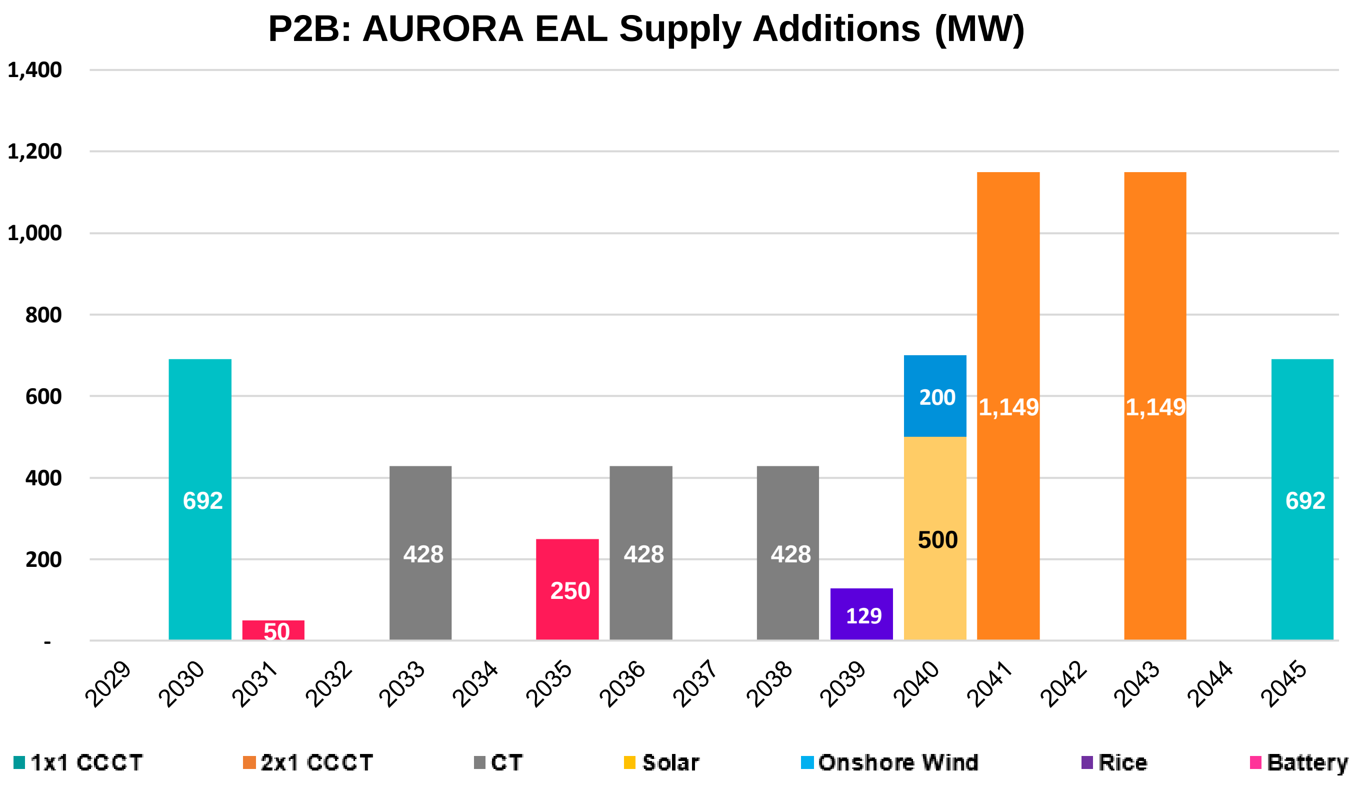
EAL portfolio 2A-CC results



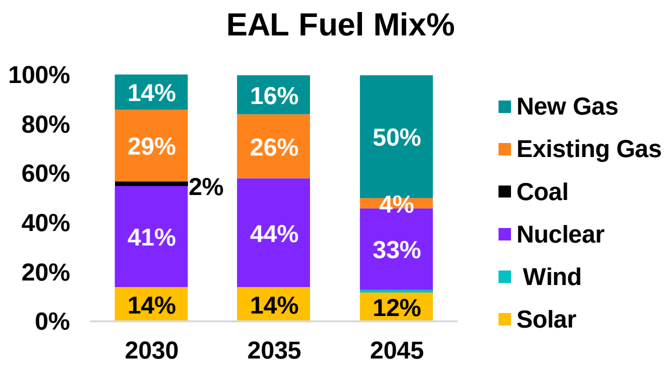
Future 2A CC (MW)		
	EAL	MISO Market
Solar	1,400	43,200
Battery Hybrid	-	-
Onshore Wind	600	16,400
1x1 CCCT	733	-
2x1 CCCT	1,230	89,812
CT	2,995	8,128
RICE	-	-
Total	**6,957**	**157,540**



EAL portfolio 2B results



Future 2B (MW)		
	EAL	MISO Market
Solar	500	24,800
Battery Hybrid	300	2,000
Onshore Wind	200	-
1x1 CCCT	1,383	-
2x1 CCCT	2,298	116,049
CT	1,283	8,128
RICE	129	-
Total	**6,093**	**150,977**



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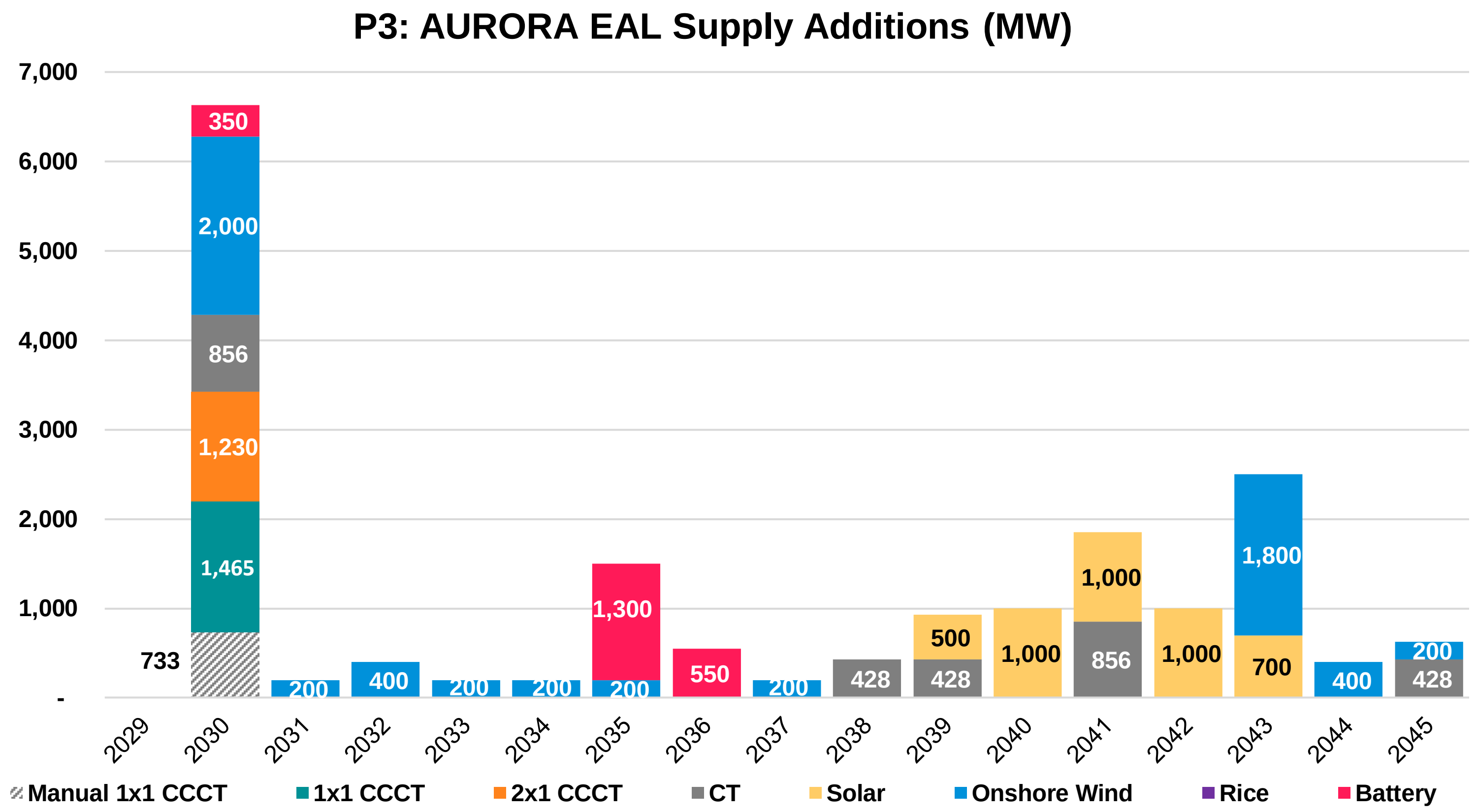
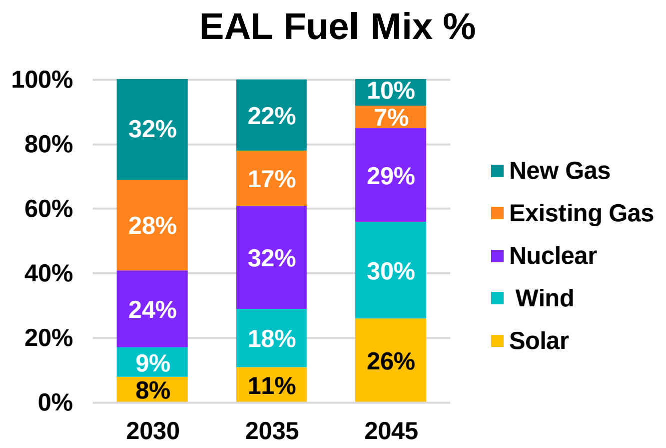
Portfolio 3 result

High gas, High CO_2, High load,
Low renewable cost

EAL Portfolio 3 Results



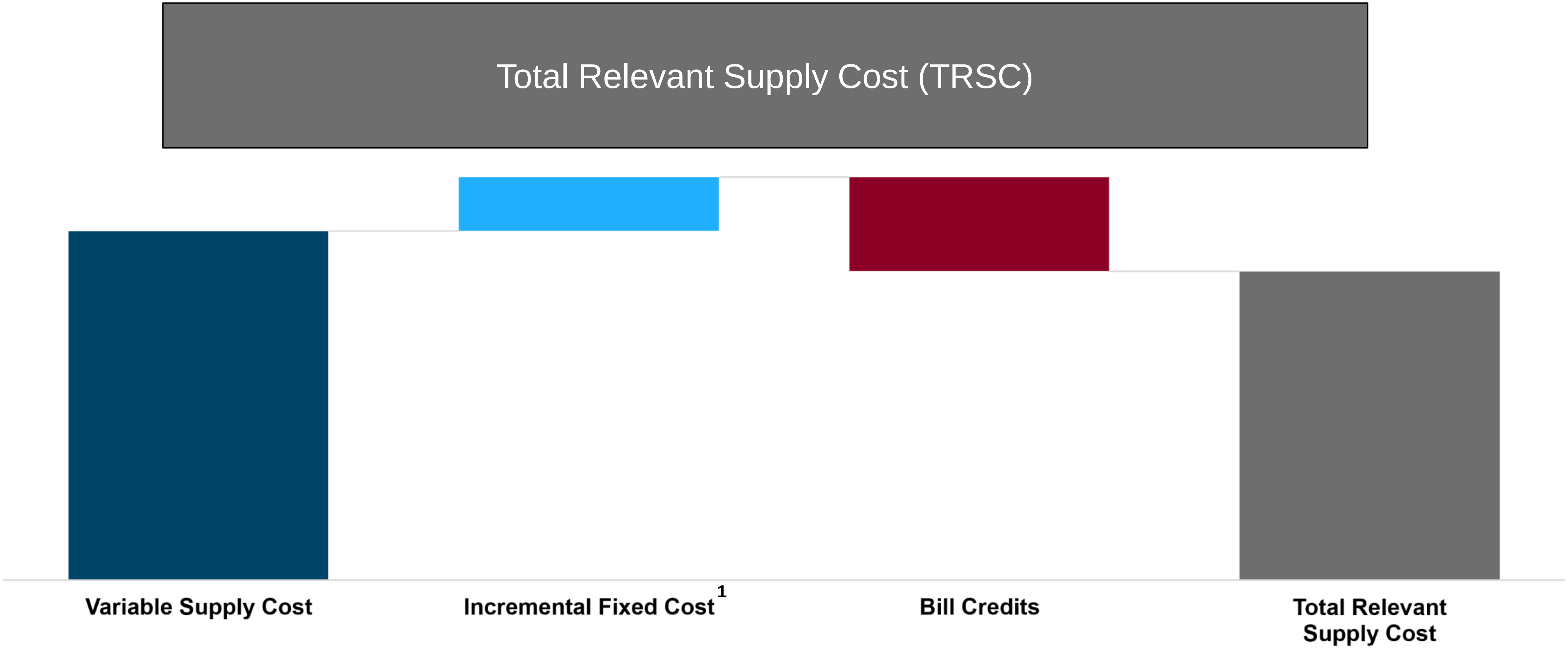
Future 3 (MW)		
	EAL	MISO Market
Solar	4,200	105,200
Battery Hybrid	2,200	26,000
Onshore Wind	5,800	160,000
1x1 CCCT	2,198	-
2x1 CCCT	1,230	27,067
CT	2,995	23,101
RICE	-	-
Total	18,622	341,368



03 Total relevant supply cost

Christian Smith

TRSC Components



1. *Incremental Fixed Costs include an adjustment for capacity purchases/sales

Total relevant supply cost results

The TRSC for each portfolio was calculated for the future for which it was developed. The TRSC is calculated using:

- **Variable Supply Cost** – The output from the AURORA model for all of Entergy Arkansas' fleet, which includes fuel costs, variable O&M, emissions costs, startup costs, energy revenue, make-whole payments, uplift revenue, and 45Q tax credits for CCS units where applicable.
- **Levelized-Real Non-Fuel Fixed Costs** – Return of and on capital investment, fixed O&M, insurance, and property tax for the incremental resource additions in each portfolio, calculated on a levelized real basis.
- **Bill Credits** – Bill credits associated with EAL's ratemaking treatment for production tax credits for renewable resources.
- **Capacity Purchases/(Benefit)** – The capacity above or below the target reserve margin in each portfolio multiplied by the assumed capacity value.

Portfolio Name	TRSC Results [$MM, 2024$ NPV]
P1 - Low	$7,571
P2A - Ref	$14,602
P2A CC - Ref	$14,514
P2B - Ref	$12,623
P3 - High	$42,664

Note: the above portfolios are not directly comparable to each other as each portfolio was optimized for the future for which it was developed

04 Qualitative risk assessment

Monica Chandra

The qualitative risk assessment supplements the TRSC assessment

Energy Market Risk	• Reviewing relative energy coverage metrics allows EAL to assess the level of exposure to energy market prices for each portfolio.
Reliability	• Performing a reliability analysis provides EAL the ability to understand the relative reliability attributes of each portfolio for reasonably balancing regional requirements related to capacity, transmission, and reliability.
Executability & Optionality	• Assessing the executability and optionality of the portfolios allows EAL to evaluate the risks associated with procurement, execution, and adaptability of the portfolios.
Fuel Supply Diversity	• Measuring the seasonal fuel diversity of each portfolio supplements the quantitative elements included in the variable supply cost analysis.
Sustainability	• Analyzing the CO_2 emission intensity of EAL's fleet in each portfolio provides EAL with the ability to understand the risks associated with changing laws, regulations, and market pressures, including recent proposed revisions to Clean Air Act Section 111.

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Qualitative risk analysis results

The qualitative risk analysis resulted in similar total average scores for all portfolios, with the more diverse portfolios performing better on average.

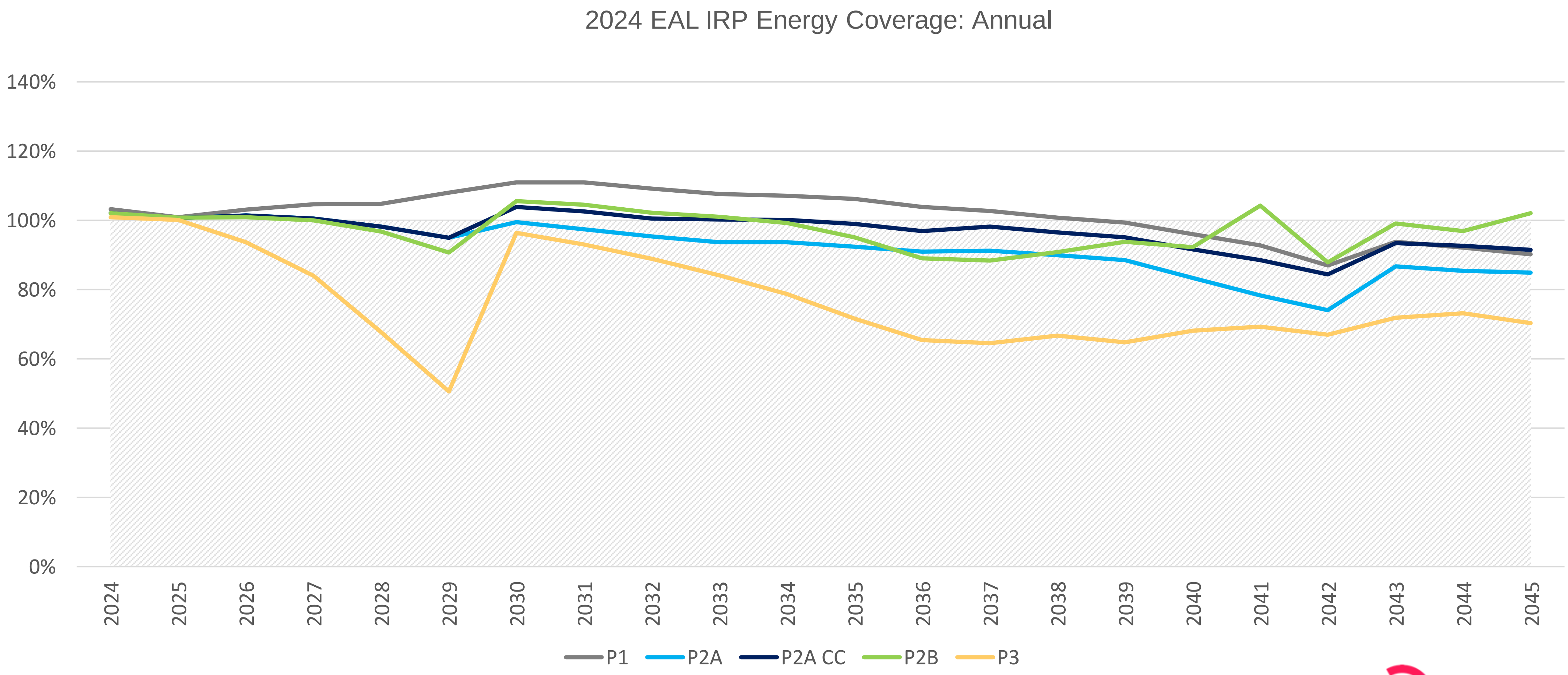
Details on each risk metric are presented in the subsequent slides.

Portfolio	Market Risk	Reliability	Executability & Optionality	Fuel Supply Diversity	Environmental
1					
2A					
2A CC					
2B					
3					

= highest possible score

= lowest possible score

Market Risk: Energy coverage by portfolio



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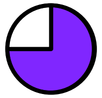
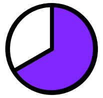
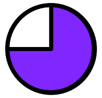
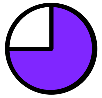
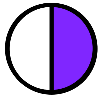
Market risk: Seasonal energy coverage by scenario

Measuring energy coverage allows EAL to assess the level of exposure to market prices for each portfolio. The energy coverage metric does not perfectly account for the physical hedge provided by the ability for the resources in each of the EAL IRP portfolios to increase beyond the optimal economic dispatch levels of the resources if system conditions merit doing so. However, it does indicate the extent to which each portfolio's variable supply cost relies on the simulated market LMPs.

- Portfolios 1, 2A, 2A CC, and 2B provide similar levels of estimated energy coverage annually and reasonably match up with EAL's seasonal demand, with 2B being more closely aligned to the 100% coverage line.
- Portfolio 3 energy coverage dips drastically in 2029 and in the outer years relative to P1, P2A, and P2B, indicating higher reliance on the MISO energy market.

Portfolio 1	Portfolio 2A	Portfolio 2A CC	Portfolio 2B	Portfolio 3
				

Reliability risk: attributes

A qualitative analysis was performed on the following list of reliability attributes to assess the reliability performance of each portfolio

Reliability Attribute	Tier [1]	Description
Modular Capacity	1	Ability for resource capacity to be sited in smaller increments or to enter partial outage configurations, lessening single point of failure risk
Energy Duration	1	Ability to provide energy continuously throughout the day
Dispatchability	1	Ability to respond to directives from system operators regarding its status and output
Planned & Forced Outages	1	Ability to be operationally available due to minimal planned outages and forced outages
Operational Flexibility	1	Ability to cycle on and off, ramp up and down quickly, and have low minimum uptimes
Fast Start	1	Ability to quickly respond from an offline state to an online state
AGC Capable	2	Ability to be placed on Automatic Generation Control, allowing output to be ramped up or down automatically to respond immediately to system changes
Inertia (non-inverter)	2	Ability to stabilize the system using large rotating machinery (turbines, shafts, stators, exciters, etc.)
Volt-Ampere Reactive (VAR) support	2	Ability to send VARs out onto the system or consume excess VARs to control voltage
Fuel Independence	2	Ability to operate without reliance on a fuel deliverability system or the ability to store fuel onsite
Proximity to Customers	2	Ability to be sited near customers; Operating Company specific conditions may influence scoring for this attribute
Black Start	2	Ability to help with system restoration after a widespread system outage

1. Tier 1 attributes are considered to have greater impact on system reliability than tier 2 attributes. Tier 1 attributes are scored on a zero to five scale and tier 2 attributes are scored on a zero to three scale. Analysis is focused on resources' physical reliability attributes and does not consider specific MISO ancillary service requirements.

Reliability risk: Technology scores per 100 MW of UCAP

Each technology type is given a score on a per 100 MW of UCAP basis for the various reliability attributes.[1] Tier 1 attributes are scored from 0 to 5, while tier 2 attributes are scored from 0 to 3.

	Reliability Score per 100 MW of UCAP							
	2x1 CCCT	1x1 CCCT	CT (J Frame)	Aero CT	RICE	Battery [2]	Solar	Onshore Wind
	Tier 1 (0 - 5)							
Modular Capacity	1	2	3	5	5	5	5	5
Energy Duration	5	5	3	4	4	1	1	1
Dispatchability	3	3	5	5	5	5	1	1
Planned & Forced Outages	3	3	1	1	3	5	5	5
Operational Flexibility	2	2	3	5	4	3	0	0
Fast Start	1	1	3	5	5	5	0	0
	Tier 2 (0 - 3)							
AGC Capable	3	3	3	3	3	3	0	0
Inertia (non-inverter)	3	3	2	1	1	0	0	0
VAR support	3	3	3	3	3	3	1	1
Fuel Independence	0	0	0	0	0	3	3	3
Black Start	0	0	0	3	3	1	0	0
Total score per 100 MW of Unforced Capacity (UCAP)	**24**	**25**	**26**	**35**	**36**	**34**	**16**	**16**

1. Where applicable, qualitative assessment scores are based on a review of comparative data from the new Technology Assessment used in 2024 IRP
2. The ability of battery resources to provide value to the system at any given time is dependent on the battery state of charge, which is a limiting factor that is unique to batteries

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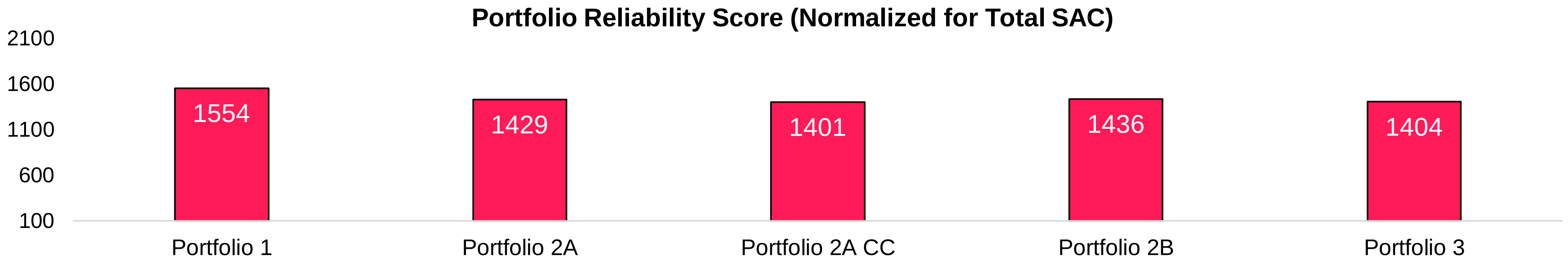
Reliability risk: Results

- Portfolio 1 consists of a mix of gas, battery, and solar resource types, earning the highest relative reliability score
- Portfolios 2A, 2A CC, 2B, and 3 perform similarly, with P2A achieving a slightly higher score partially driven by the higher number of CTs
- Portfolio 3 relies on a heavy buildout of wind and solar resources, resulting in lower VAR, inertia, and AGC scores



Portfolio	2x1 CCCT	1x1 CCCT	CT (J-Frame)	Aero CT	RICE	Battery	Solar	Onshore Wind	Total Portfolio Score	Variance to Top Score	Final Score
1	-	337	779	-	83	322	32	-	1554	0	
2A	326	-	1050	-	-	-	34	19	1429	125	
2A CC	319	198	800	-	-	-	66	18	1401	153	
2B	598	371	322	-	46	71	22	6	1436	118	
3	183	227	459	-	-	318	114	102	1404	150	

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Executability and optionality

(portfolio procurement, execution, and adaptability)

Portfolios are assessed based on:

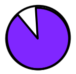
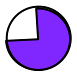
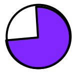
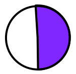
- Overall feasibility of procurement and execution of resources within the portfolio (e.g., availability of resources, lead time prior to initiating procurement)
- Adaptability (e.g., ability of the portfolio to adjust to unforeseen changes in load or retirements) and optionality associated with resource types (e.g., supply role adaptability such as hydrogen-capable CTs and CCCTs that may change supply roles)

Portfolio 1 does not build its first resource until 2037, which increases the lead time available prior to initiating procurement. It contains one of the lowest number of resources, making it one of the most feasible. It also includes hydrogen-capable CTs and CCCTs that may change supply roles, therefore increasing adaptability.

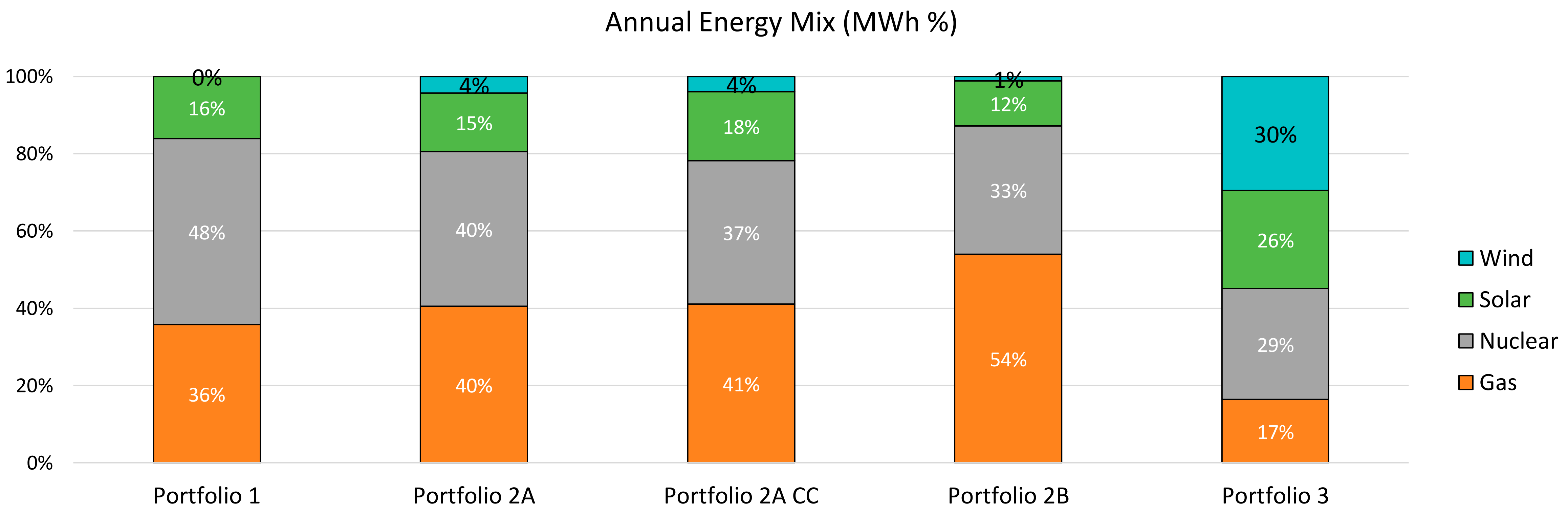
Portfolio 2A and 2A CC start building resources in 2030, shortening the lead time required to begin procurement of resources. Similarly, they both require the execution of relatively few resources, making them more feasible compared to the other portfolios.

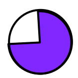
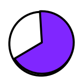
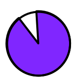
Portfolio 3 contains many resources starting in 2030 and consists of a mix of gas, battery, solar, and wind through the entirety of the planning period. The development lead time and regulatory requirements for such a large portfolio reduces this portfolio's score. Wind resources are not currently widely available to EAL, and if procured in large quantities may require excessive reliance on off-system resources, which may entail additional transmission cost.

Portfolio 2B has a similar number of resources to P1 and P2A starting in 2030. Portfolio 2B includes the construction of a 1x1 CCCT within the timeframe that allows the resource to be eligible to receive 45Q tax credits under the Inflation Reduction Act (IRA) for the associated carbon capture sequestration (CCS) infrastructure, which will lower the costs of implementing the CCS significantly. However, the geology of the state makes the execution of a CCS project challenging, especially the sequestration of the captured carbon, reducing the executability score of the portfolio.

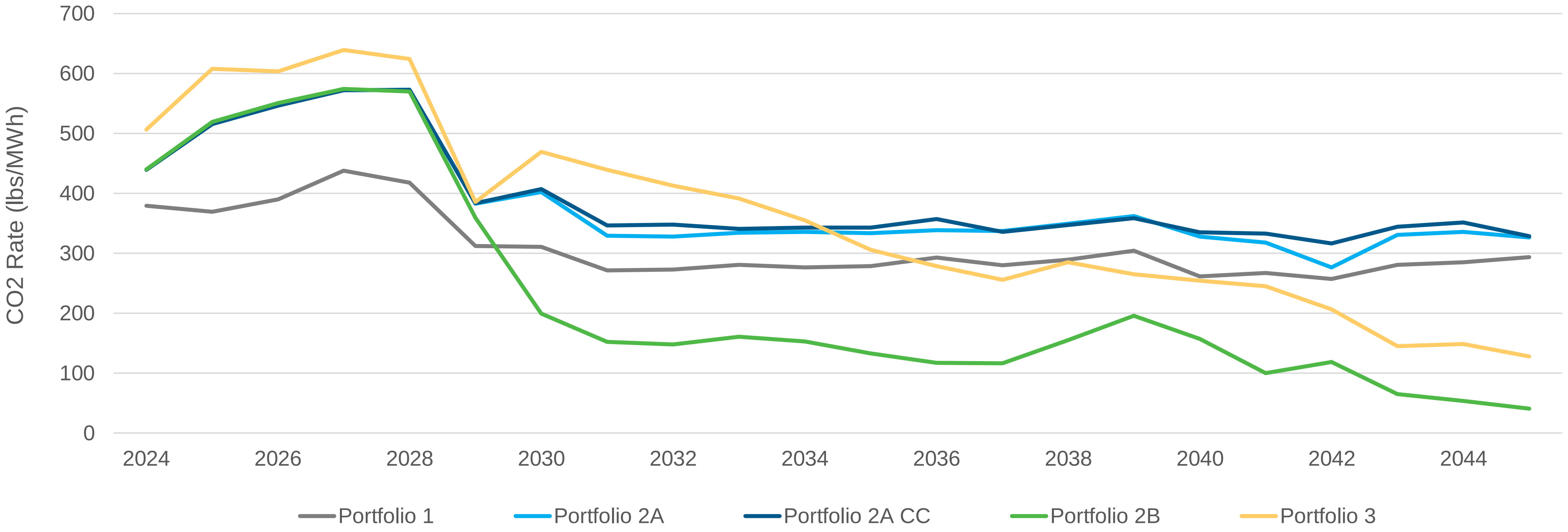
Portfolio 1	Portfolio 2A	Portfolio 2A CC	Portfolio 2B	Portfolio 3
				

Fuel supply diversity: 2045 energy mix by portfolio



Portfolio 1	Portfolio 2A	Portfolio 2A CC	Portfolio 2B	Portfolio 3
				

Environmental: Annual CO_2 rate by portfolio



Portfolio 1	Portfolio 2A	Portfolio 2A CC	Portfolio 2B	Portfolio 3

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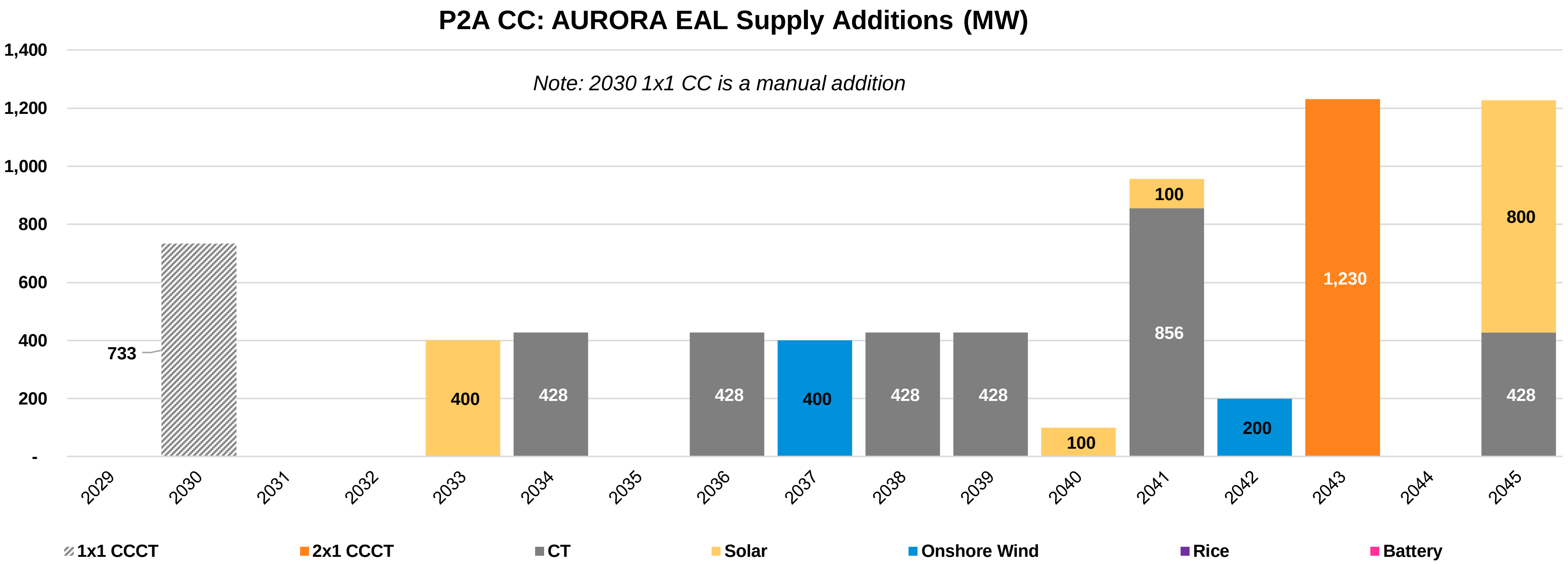
05

Preferred portfolio and 2024 IRP action plan

Kandice Fielder

Preferred resource plan- P2A CC

The Preferred Portfolio maintains the planning assumptions for existing units and begins adding gas resources starting in the 2029-30 time frame, followed by renewables and CTs to support integration of renewables.



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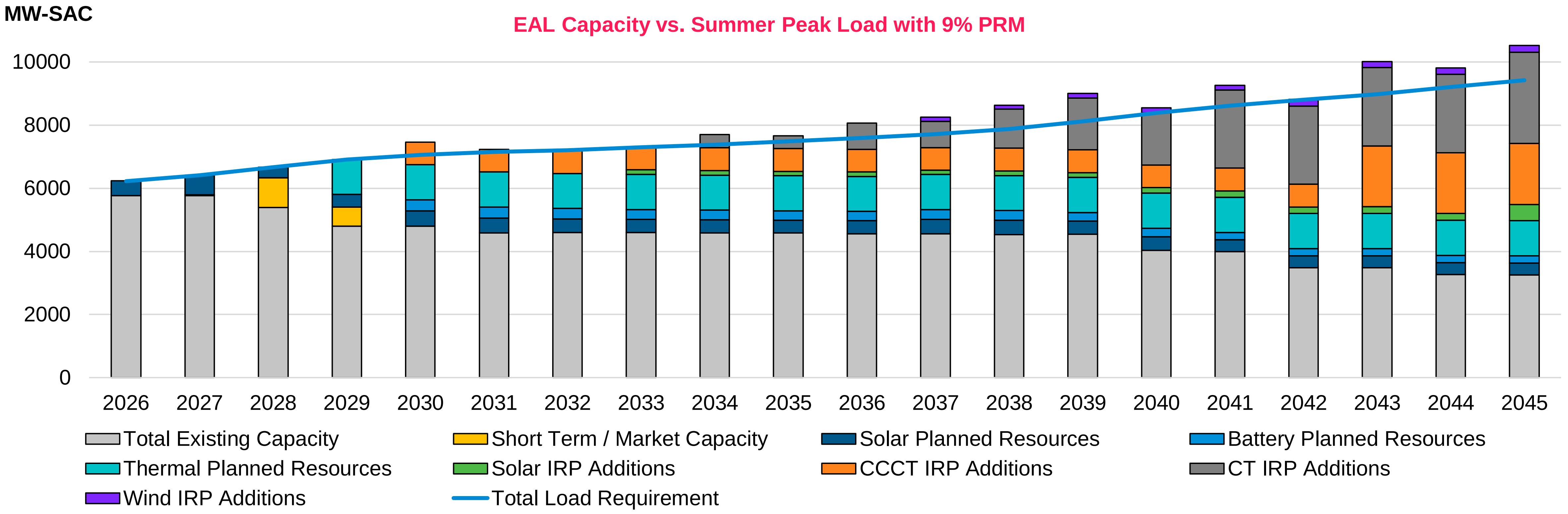
Capacity build (Portfolio 2A CC - summer)

2026-2045



Planning Year	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035	2036	2037	2038	2039	2040	2041	2042	2043	2044	2045
Surplus/Deficit	9	0	0	0	402	85	(20)	17	312	176	468	533	751	880	152	654	13	1030	613	1104

1. *Notes:*
- Surplus/Deficit table reflects the average seasonal accredited capacity and a load requirement of the summer MISO coincident peak with a PRM of 9%. Existing thermal resource capacity reflects current SAC ratings. Non-thermal capacity reflects estimated average Effective Load Carrying Capability ("ELCC"). Existing and planned non-thermal resource ELCC varies based on market and EAL solar, wind, and battery storage capacity.
- The total load requirement is based on the 2024 IRP Reference Case load forecast scenario.

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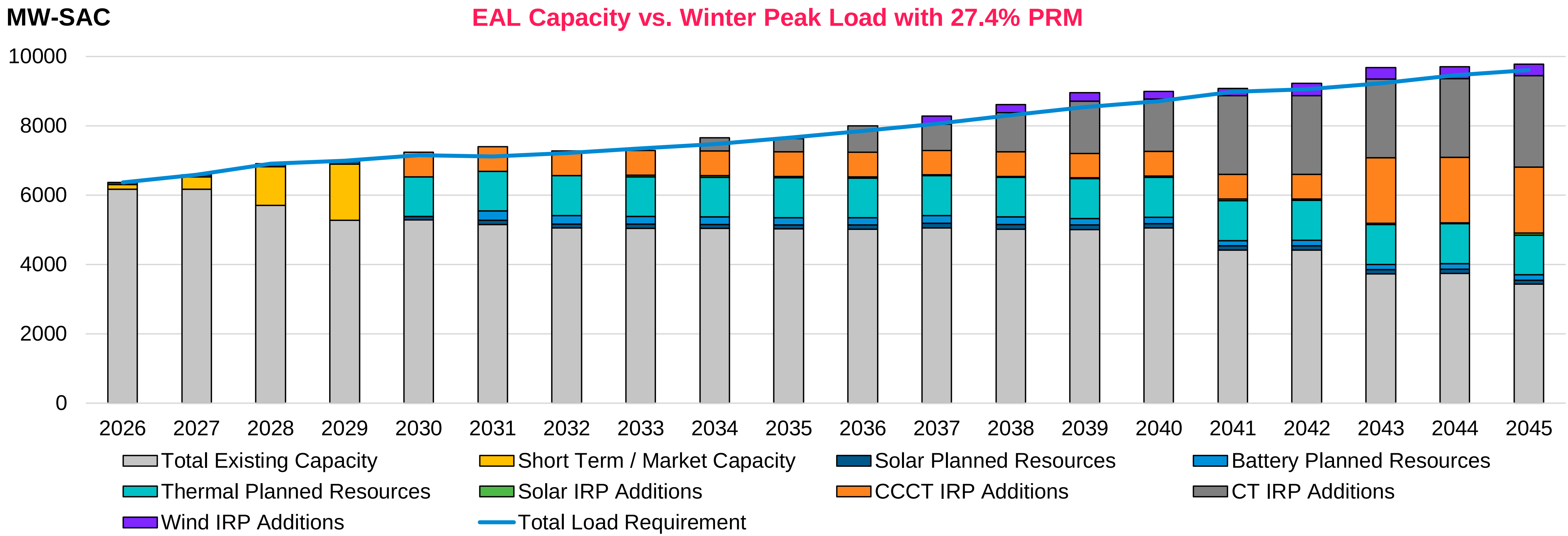
Capacity build (Portfolio 2A CC - winter)

2026-2045



Planning Year	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035	2036	2037	2038	2039	2040	2041	2042	2043	2044	2045
Surplus/Deficit	0	0	0	0	85	278	59	(58)	188	(29)	143	218	313	426	283	95	179	465	251	170

1. *Notes:*
- Surplus/Deficit table reflects the average seasonal accredited capacity and a load requirement of the winter MISO coincident peak with a PRM of 27.4%. Existing thermal resource capacity reflects current SAC ratings. Non-thermal capacity reflects estimated average Effective Load Carrying Capability ("ELCC"). Existing and planned non-thermal resource ELCC varies based on market and EAL solar, wind, and battery storage capacity.
- The total load requirement is based on the 2024 IRP Reference Case load forecast scenario.

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2024 IRP Action Plan

- Complete agreements and seek approval of resources selected in the 2022 Renewable RFP
- Monitor MISO Resource Adequacy Requirements
- Generation replacement at Lake Catherine
- Continue Participation in EE
- Evaluate opportunities for adding dispatchable resources to serve capacity and energy needs in the future
- Pursue power resiliency
- Monitor viability for CCS, hydrogen and renewables to complement future gas-fired resource additions
- Evaluate stakeholder engagement

06

2024 IRP schedule and next steps

Sahabia Ahmed

2024 IRP stakeholder timeline

Stakeholder engagement is a cornerstone of the 2024 EAL IRP process

Any additional updates will be communicated via email, if necessary

Stakeholder Committee Report will be included as part of this filing

- 2024 IRP Stakeholder Report should be sent to EALIRP@entergy.com

Sep 28 2023
Information Posting

Jan 30 2024
Stakeholder Engagement:
Meeting 1

Aug 15 2024
Stakeholder Engagement:
Meeting 2

Oct 2024
Filing of EAL's IRP Report and Stakeholder Report

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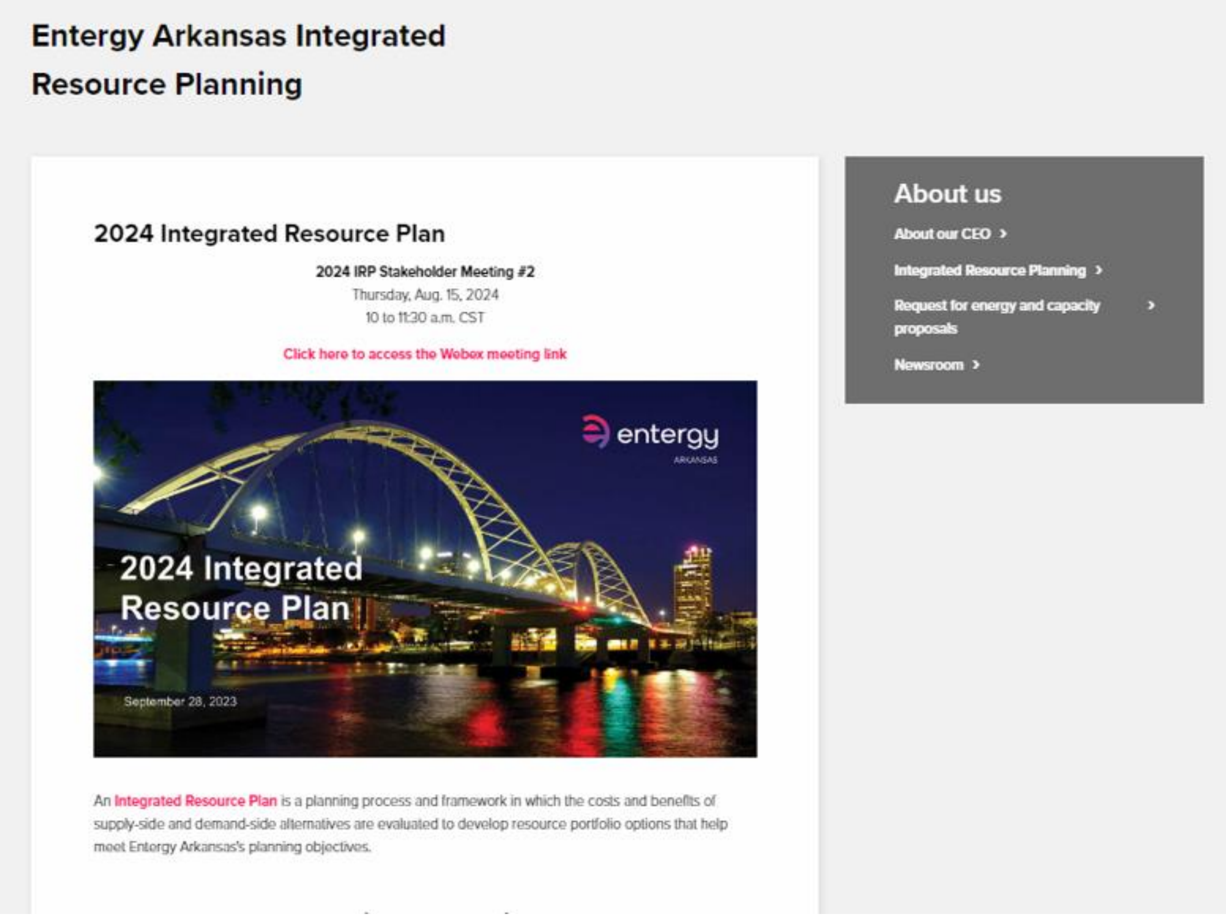
2024 IRP website

EAL’s IRP website will serve as a central point of communication.



Website Link:

[Entergy Arkansas, LLC Integrated Resource Planning (entergy-arkansas.com)]

IRP inbox:

EALIRP@entergy.com

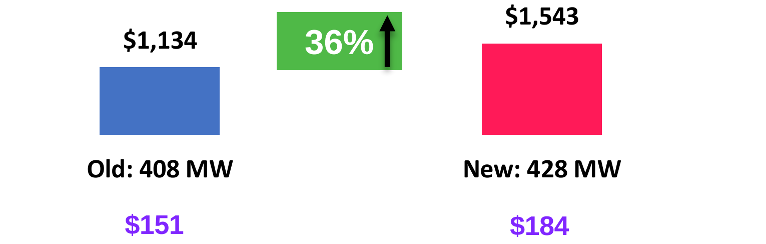
07

Stakeholder Q&A

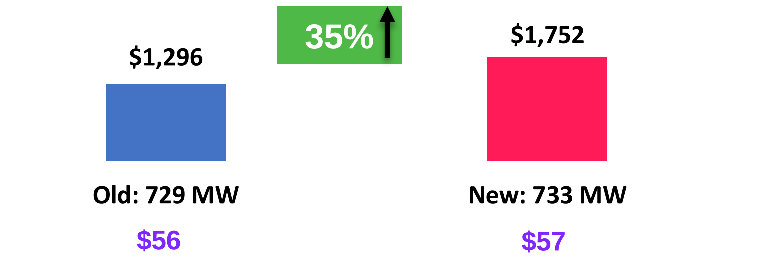
08 APPENDIX

Thermal Resources Installed Cost ($/kWac) & Levelized Cost ($/MWh) Old vs New

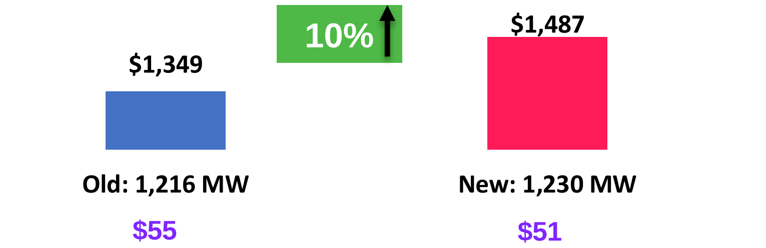
CT



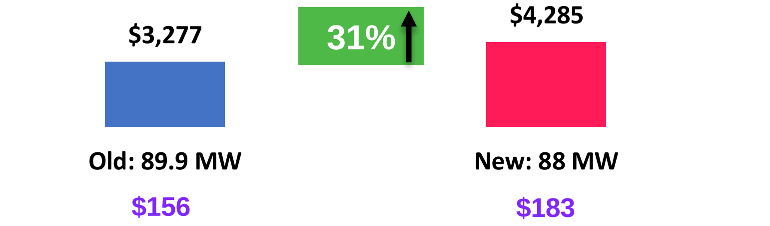
CCCT 1X1 w/duct firing



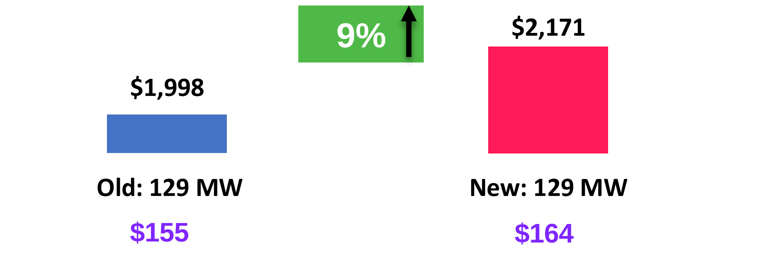
CCCT 2X1



Aeroderivative CT



RICE



- On average thermal resource cost is 30% higher

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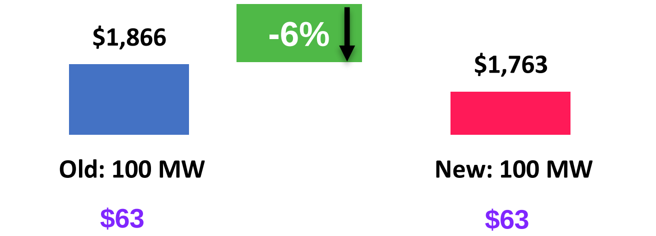
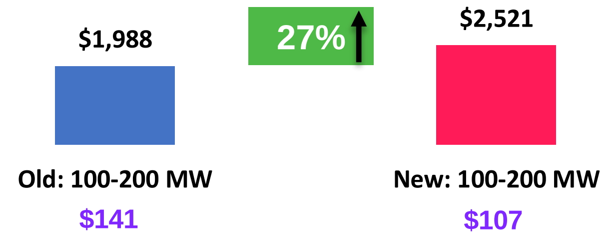
Renewable Resources Installed Cost ($/kWac) & Levelized Cost ($/MWh) Old vs New

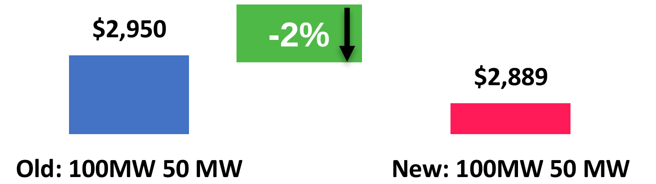
Utility Scale Solar



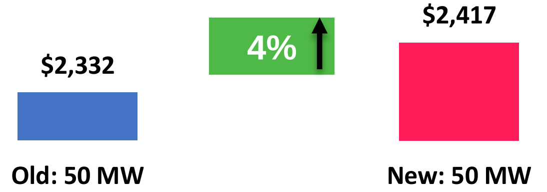
On-shore, Off-system Wind (SPP)



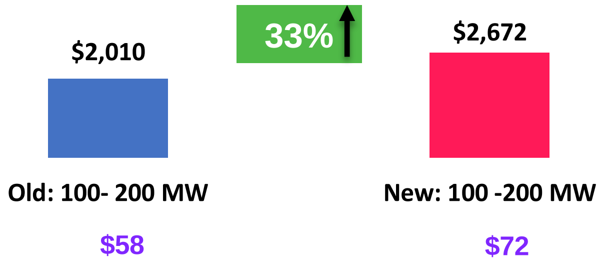
Hybrid Solar + BESS



Storage (4hr, Li-Ion)



On-shore Wind, MISO South



- Wind cost are about 30% higher
- Solar cost has gone down about 6 %
- Storage cost has gone up about 4 %