MIDAMERICAN ENERGY COMPANY®

RESOURCE EVALUATION STUDY

REPORT

NOVEMBER 1, 2024

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GLOSSARY OF ACRONYMS

AFUDC	Allowance for Funds Used During Construction
CAGR	Compound Annual Growth Rate
CCCT	Combined-Cycle Combustion Turbine
CO2	Carbon Dioxide
CT	Simple-Cycle Combustion Turbine
DLOL	Direct Loss of Load
DSM	Demand Side Management
EIA	Energy Information Administration
EPA	Environmental Protection Agency
EPC	Engineering, Procurement, and Construction
EST	Eastern Standard Time
EV	Electric Vehicle
FERC	Federal Energy Regulatory Commission
FRED	Federal Reserve Economic Data
GDP	Gross Domestic Product
IRA	Inflation Reduction Act of 2022
ITC	Investment Tax Credit
kW	Kilowatt
kWh	Kilowatt-Hour
LMP	Locational Marginal Price
LMR	Load Modifying Resources
LOLE	Loss of Load Expectation
LRZ	Local Resource Zone
MISO	Midcontinent Independent System Operator
MMBtu	Million British Thermal Units
MW	Megawatt
MWh	Megawatt-Hour
NPV	Net Present Value
NREL ATB	National Renewable Energy Laboratory Annual Technology Baseline
NYMEX	New York Mercantile Exchange
O&M	Operations and Maintenance
OEM	Original Equipment Manufacturer
PRM	Planning Reserve Margin
PRMR	Planning Reserve Margin Requirement
PTC	Production Tax Credit
RBDC	Reliability Based Demand Curve
RES	Resource Evaluation Study
SAC	Seasonal Accredited Capacity
SMR	Small Modular Reactor

MIDAMERICAN ENERGY COMPANY

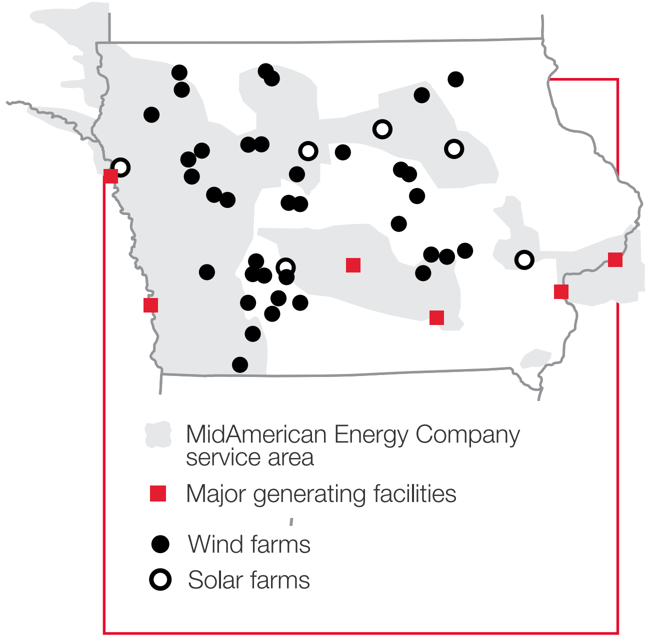
RESOURCE EVALUATION STUDY

EXECUTIVE SUMMARY

NOVEMBER 01, 2024

EXECUTIVE SUMMARY

MidAmerican Energy, headquartered in Des Moines, Iowa, serves **820,000** electric customers in Iowa, Illinois and South Dakota, and **797,000** natural gas customers in Iowa, Illinois, Nebraska and South Dakota.



For decades, MidAmerican has been **obsessively, relentlessly serving customers** by delivering reliable and affordable energy that is more and more sustainable. These priorities – reliable, affordable and sustainable – make up the three-legged stool that supports MidAmerican's value proposition and promise to its customers.

By putting customers' needs first, MidAmerican has been able to successfully balance the development of renewable energy with the commitment to deliver reliable and affordable energy. But the energy landscape is evolving – as are customers' needs.

Because of development timelines, regulatory requirements and siting issues, planning for generation resources must occur years before those resources are expected to serve customers. MidAmerican has **proven to be a leader** in this area with a reputation for staying ahead of the curve, leveraging new technologies and making prudent, future-focused decisions that best serve customers.

That forward-looking approach has been bolstered by supportive energy policies at both the state and federal levels that have been championed by thoughtful leaders spanning political parties and administrations.

SUPPORTIVE POLICIES

Twenty years ago, the shared vision by policymakers, stakeholders and utilities created an environment ripe for early adoption of renewable energy that resulted in MidAmerican's position as a renewable energy leader.

At the state level, in 1983 the Iowa Legislature passed a renewable portfolio standard, requiring utilities to purchase a certain amount of energy from renewable energy projects – the first state to do so.

At the federal level, in 1992 lawmakers incentivized renewable energy growth by establishing the production tax credit for each kilowatt hour of electricity generated by certain types of renewable or zero-carbon emission projects. This tax credit, created under the Energy Policy Act of 1992, jumpstarted and then helped grow the country's renewable energy industry.

In 2001, state lawmakers passed legislation that advanced the adoption of renewable electric generation by strongly encouraging its development and use. The policy – advance ratemaking principles – outlined a regulatory process to assess the reasonableness of plans for developing generation assets to serve current and future energy needs while providing certainty on how those generation assets would be treated when included in the utility's rates. That prospective review created strong regulatory oversight while also allowing utilities and their customers to take advantage of emerging technologies that use zero-cost fuel. The result was a unique regulatory construct that allowed Iowa to be an early adopter of renewable generation technologies. That, in turn, has been a key competitive advantage for the state's economic development efforts and directly resulted in rates that are **26% lower** than the national average among investor-owned utilities.

These policies, along with MidAmerican's commitment to deliver more renewable energy to meet customer demand, helped pave the way for MidAmerican's renewable energy.

RENEWABLE ENERGY TIMELINE

1983
Iowa is the first state in the nation to adopt a renewable portfolio standard

1992
The United States Congress established production tax credits under the Energy Policy Act, encouraging renewable energy development

2001
Iowa lawmakers pass legislation creating advance ratemaking principles process

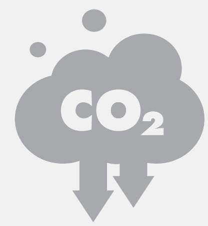
2004
All electric utilities operating in Iowa are required to offer green power options to their customers

SUSTAINABLE ENERGY LEADER

The result of that 20-year investment in renewables is more than 3,400 wind turbines in operation across 32 Iowa counties, positioning MidAmerican as the owner and operator of more wind energy than any other rate-regulated utility.

The focus on renewables has created a shift in how energy is generated. In 2023, wind and solar energy accounted for 60.5% of the company's owned energy production. MidAmerican also owns natural gas, coal and nuclear generating resources.

Carbon emissions have also seen dramatic reductions. Since 2005, MidAmerican has reduced its overall carbon dioxide emissions rate by 69% and nitrogen oxide and sulfur dioxide emission rate by 88% (Metric Ton/MWh).



Since 2005, MidAmerican has reduced its overall carbon dioxide (CO2) emissions rate by

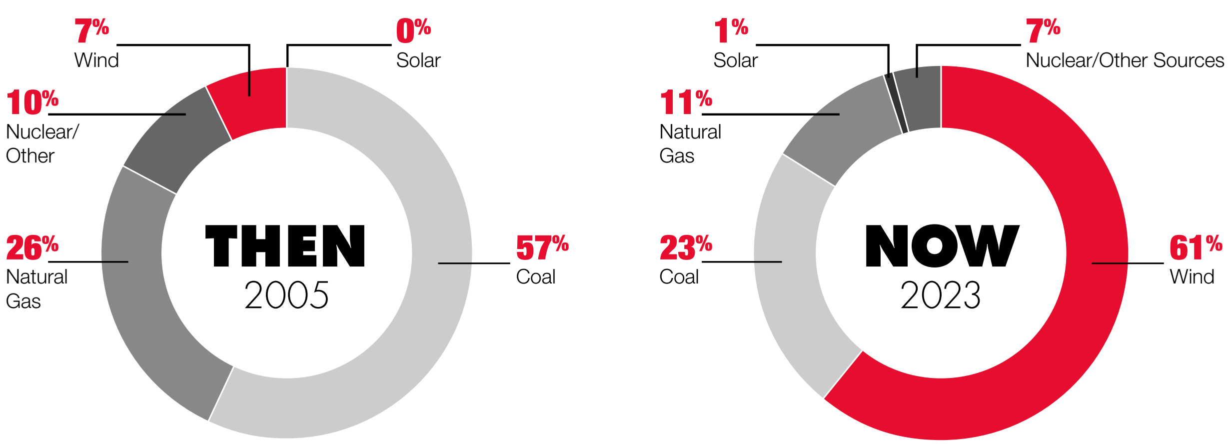
69%

RENEWABLE AND CARBON-FREE

As the energy landscape continues to evolve, MidAmerican's focus on renewable and carbon-free energy continues to evolve too. Renewable resources like wind and solar energy remain an important and growing part of MidAmerican's energy mix and are even more powerful when paired with other carbon-free dispatchable resources like nuclear energy.

Thanks to MidAmerican's 25% ownership in the Quad Cities Clean Energy Center located near Cordova, Illinois, MidAmerican's Iowa customers were allocated 3,341 GWh of zero-carbon nuclear energy based on retail sales in 2023, equating to 12.2% of the energy used by those customers over the year.

GENERATION CAPACITY



In 2023, MidAmerican generated more than 24 GWh of energy from its wind and solar fleet. Energy from its renewable fleet was equivalent to 88.7% of the energy used by its customers in Iowa over the course of the year. The Iowa Utilities Commission verified that percentage through the GreenAdvantage program in its order in June 2024.

The energy generated from MidAmerican's wind and solar resources, as well as nuclear energy from the Quad Cities Clean Energy Center, is equal to 100% of MidAmerican's Iowa retail customers' usage on an annual basis with carbon-free energy.

IOWA'S COMPETITIVE ADVANTAGE

The long-term vision created decades ago and nurtured by careful planning, wise investments and disciplined project management has yielded benefits for MidAmerican's customers and the state of Iowa as a whole.

The diversified portfolio mix – with a heavy focus on renewable energy – has been good for customers' bottom lines. Utilizing more generation from zero-fuel cost resources like wind – and more recently solar – have enabled MidAmerican to pass that low-cost energy on to customers. In 2023, MidAmerican's rates were 42% below the national average.

MidAmerican continues to focus on maintaining low rates and creating a business model that puts customers first – creating a competitive advantage for the state of Iowa and positively impacting the state's ability to attract and retain its economic base.

Low electric rates coupled with a high percentage of renewables equals economic development success – from businesses that have been attracted to our state as a result or the new industries that cropped up to support it, the entire state of Iowa has benefited in the way of jobs, capital investment, tax revenue and general vibrancy.

MIDAMERICAN'S ENERGY RATES ARE

42% BELOW

NATIONAL AVERAGE

9th LOWEST RATES

IN THE NATION

PROJECTED CAPACITY NEEDS

While this energy mix has served customers well, MidAmerican is currently experiencing above average load growth, creating a need to add capacity in the near future.

Reliable, affordable energy is paramount to supporting a growing economy, particularly in a state that is home to heavy energy users like advanced manufacturers, high-tech companies and agricultural-focused businesses.

To continue to support the state's growing economy — where existing industry is expanding and new companies are locating here and creating new jobs — as well as the workforce that comes with it, it is essential that Iowa create and adopt policies that support responsible energy generation development.

In January 2022, MidAmerican proposed Wind PRIME through an advance ratemaking principles filing with the Iowa Utilities Board (now the Iowa Utilities Commission). After a long regulatory process, the Commission approved Wind PRIME ratemaking principles that allow MidAmerican to add up to 2,092 megawatts of wind and solar energy to serve the growing energy demands of today's customers, as well as those of the future.

However, even as MidAmerican continues to develop projects associated with Wind PRIME, real world demand coupled with forecasted growth, including large loads under contract, shows a generation capacity need. Changes in MISO's reliability criteria to ensure resource adequacy, will drive the need to evaluate and invest in various generation resources.

RESOURCE EVALUATION STUDY

It is on that historical foundation of planning, stakeholder engagement, focus on customers and great success that MidAmerican developed this Resource Evaluation Study (RES). The RES has been a timely and important effort to undertake now with the help of interested stakeholders because the energy landscape is rapidly evolving.

MidAmerican continuously conducts resource evaluation as a part of normal business practice, but the RES has provided parties with access to modeling inputs and the opportunity to provide comments throughout the development of the study. The RES has added transparency to MidAmerican's generation resource planning process. MidAmerican engaged in a collaborative process with participants that consisted of five meetings and comment periods at various stages of the process. Participants to the RES included various regulatory and customer groups.

The RES has been ongoing since February 2024. Thanks to a collaborative and iterative process, the active and thoughtful participation and comments and suggestions by the participants have created a valuable information exchange that has resulted in adjusted assumptions and modeling. The process has included multiple participant meetings, comments and data requests by involved parties.

The parties have had opportunities to learn about MidAmerican's resource needs, options to meet those needs, and the projected performance and risks of different resource selections. MidAmerican has provided participants with licenses to Energy Exemplar's Aurora generation capacity expansion software and all modeling information that allows them to view the inputs that MidAmerican utilizes in its resource planning process. It also provides the information necessary to enable the participants to complete their own analyses and the opportunity to participate in discussions associated with their results.

MidAmerican's completion of the RES with key stakeholder engagement provides a foundation for MidAmerican to take the next steps in the resource planning and development process. MidAmerican's Preferred Portfolio includes a near-term Action Plan that recommends 750 MW of solar and two 233 MW combustion turbines to be installed within the first five years of the planning horizon. This Action Plan focuses on near-term customer needs through 2030 to address the higher load growth that MidAmerican is currently experiencing.

MidAmerican selected seven scenarios for this RES to compare potential resource portfolios across a range of price, load, reliability and policy conditions. Each scenario included a set of assumptions to reflect possible economic, regulatory and customer trends that could impact how MidAmerican expands its capacity to address load growth.

The Reference Case represents MidAmerican's current demand and energy forecast. The Early Retirement Scenario introduces early retirement for two of MidAmerican's coal units. The Low Gas Scenario considers the impacts of lower natural gas prices in the future, while the High Gas Scenario assumes higher natural gas prices. The Direct Loss of Load Scenario uses information from MidAmerican's regional grid operator (MISO) to consider the impacts of future capacity accreditation rules and marginal energy supply that MidAmerican may be asked to contribute to the MISO region. The High Load Scenario considers even higher potential demand growth due to economy-wide decarbonization including digitization and electrification of heating, industrial processes, and vehicles. The EPA Scenario models the impacts of recently adopted U.S. Environmental Protection Agency rules regarding carbon dioxide emission standards at power plants.

MidAmerican used sophisticated modeling software to evaluate each scenario and compare each scenario's relative ability to address expected load growth. All scenarios considered market prices for energy and fuel, opportunities to purchase energy in the marketplace, carbon dioxide emissions and net present value of costs to serve load. All scenarios also considered the impact of different weather patterns and hourly demand patterns. After MidAmerican established modeling inputs for the scenarios, including feedback from the RES stakeholders, the model generated a proposed resource expansion portfolio for each scenario. In total, MidAmerican analyzed seven scenarios and five capacity expansion sensitivities to demonstrate the relative attributes of resource portfolio alternatives to address increasing load growth and replacement of retiring resources through the twenty-year planning horizon.

MidAmerican compared the results based on planning criteria that it has historically employed when conducting resource planning. MidAmerican prioritizes affordability, reliability and sustainability in resource planning and uses criteria that focus on these areas to compare prospective resource portfolios. It is important for the planning criteria to incorporate quantitative and qualitative analyses to

SEVEN SCENARIOS FOR THE RES

REFERENCE CASE

EARLY RETIREMENT

LOW GAS

HIGH GAS

DIRECT LOSS OF LOAD

HIGH LOAD

EPA GREENHOUSE GAS RULE

fully evaluate each proposed portfolio. MidAmerican adds quantitative metrics where appropriate for certain criteria along with a score for each metric to allow a side-by-side comparison of portfolios.

MIDAMERICAN'S PLANNING CRITERIA

AFFORDABILITY CRITERIA

- reasonableness of cost components for each resource type
- future variability in fuel costs and potential future environmental policies that impact fuel costs
- exposure to global market volatility, geo-political instability, regulatory and legislative uncertainty and local public reaction to a particular type of development
- local and global access to a particular resource and its price stability over time

RELIABILITY CRITERIA

- reliability, adequacy and security
- fuel type, type of technology and operational mode
- ability of a particular technology to respond to changing conditions, consideration of fuel switching and the ability to decommission a resource at a reasonable cost

SUSTAINABILITY CRITERIA

- each technology's impact to air and water, as well as each technology's byproducts
- value to the local area and state of a particular type of resource including work force, property tax revenues and royalties or other benefits within the state

MIDAMERICAN'S PREFERRED EXPANSION PORTFOLIO

Based on the modeling results and the planning criteria, MidAmerican has identified a preferred expansion portfolio for the 20-year planning period from 2025 through 2044 that includes regular periodic additions of new solar and natural gas-fired simple cycle combustion turbines to meet customer needs for affordable, reliable and sustainable energy. MidAmerican's RES results identify the need for MidAmerican to purchase energy in the marketplace, especially in the latter years of the 20-year planning horizon. To reduce that market purchase reliance, the Preferred Portfolio includes a small modular reactor nuclear facility with salt storage in the mid-2030s. The salt storage adds dispatch flexibility to the nuclear facility and shows a lower net present value cost relative to the nuclear-only scenario.

The Preferred Portfolio, summarized below, provides a reasonable balance between the affordability, reliability and sustainability goals for MidAmerican's resource mix.

	Preferred Portfolio			
Year	**CT**	**Solar**	**SMR**	**Salt Storage**
2024	-	50	-	-
2025	-	300	-	-
2026	-	300	-	-
2027	-	100	-	-
2028	233	-	-	-
2029	233	-	-	-
2030	-	-	-	-
2031	233	-	-	-
2032	-	-	-	-
2033	233	-	-	-
2034	-	300	-	-
2035	233	300	-	-
2036	-	-	345	155
2037	-	250	-	-
2038	-	300	-	-
2039	-	300	-	-
2040	-	300	-	-
2041	699	300	-	-
2042	466	200	-	-
2043	466	-	-	-
2044	699	50	-	-
Total	3,495	3,050	345	155

RES units are in megawatts unless otherwise noted.

ACTION PLAN

After identifying its Preferred Portfolio, MidAmerican developed a near-term Action Plan that accounts for feasible regulatory and construction timelines. MidAmerican did not develop an action plan for the latter years of the study period because MidAmerican recognizes that conditions change, and additional studies will be necessary as those later years fall within the near-term planning horizon.

Summer Season Accreditation	Model Builds		Feasible Timeline	
	Simple Cycle Combustion Turbine	Solar	Simple Cycle Combustion Turbine	Solar
2024	0	50	0	0
2025	0	300	0	0
2026	0	300	0	0
2027	0	100	0	0
2028	233	0	233	250
2029	233	0	233	500
2030	0	0	0	0

While the Preferred Portfolio and Action Plan are presented in this report, resource planning is a continuous process. MidAmerican will continue to evaluate its resource mix in subsequent resource planning work and is committed to providing affordable, reliable and sustainable energy as customer needs evolve.

MIDAMERICAN ENERGY COMPANY®

RESOURCE EVALUATION STUDY

FULL REPORT

NOVEMBER 1, 2024

RES PROCESS

WIND PRIME ADVANCED RATEMAKING PRINCIPLES

In January 2022, MidAmerican filed an application with the Iowa Utilities Commission (then known as the Iowa Utilities Board) seeking advance ratemaking principles for the Wind PRIME project under Iowa Code § 476.53. The Iowa Utilities Commission docketed the Wind PRIME proceeding as docket RPU-2022-0001. MidAmerican entered a partial settlement in December 2022, in which MidAmerican agreed to complete a RES within two years. On December 14, 2023, following an additional year of proceedings in the Wind PRIME docket, the Iowa Utilities Commission approved a revised settlement and advance ratemaking principles, including RES terms and conditions, which can be found in Appendix A. Like the initial 2022 settlement, the revised 2023 settlement and the Iowa Utilities Commission's ratemaking principles order included the RES:

> MidAmerican commits to complete a Resource Evaluation Study ("RES") within 24 months of MidAmerican's acceptance of a Board Order establishing ratemaking principles in this proceeding. The RES results will be filed as an informational filing in a non-contested docket with the Board; MidAmerican agrees the Company will not file its next advance ratemaking principles application, a tariff for customer program(s) that include new generation facilities with an interconnection greater than fifty (50) megawatts or general Iowa electric rate case until the RES results are on file with the Board, unless the Settlement Parties agree in writing to allow MidAmerican to file such a proceeding before the RES is completed and filed. The RES results must be on file with the Board for at least ninety (90) days prior to an advance ratemaking principles application or a general Iowa electric rate case, unless the Settlement Parties otherwise agree in writing. MidAmerican further agrees to complete an update to the RES within three (3) years of the filing of the RES. The full terms and conditions of the RES, which include dispute resolution provisions agreed to by the Settlement Parties, are described in Exhibit A of the RPU-2022-0001 Revised Stipulation and Agreement.[1]

MidAmerican's acceptance of the revised settlement and associated ratemaking principles on December 18, 2023, set in motion the 24-month timeline to complete a RES. In reality, MidAmerican began planning for the study in December 2022 after reaching the first settlement, positioning MidAmerican to begin the study process promptly after accepting the Wind PRIME ratemaking principles in December 2023.

RESOURCE EVALUATION STUDY TRANSPARENCY

It was MidAmerican's goal to engage in a comprehensive and transparent RES process with participants for a multitude of reasons. First, it allows MidAmerican to be better informed in its planning process and understand the interests of

[1] Iowa Utilities Commission Docket RPU-2022-0001, Rehearing Final Order and Concurrence (Dec. 14, 2023), p. 18-19.

stakeholders in different resource types and modeling best practices. The RES was a collaborative process where participants provided comments about the capacity expansion portfolios and commented on modeling inputs and assumptions during and following each stage of the process.

Participants to the RES included the Iowa Utilities Commission, the Office of Consumer Advocate, Iowa Business Energy Coalition, the Iowa Association of Municipal Utilities, the Environmental Law and Policy Center, Iowa Environmental Council, Sierra Club, Microsoft and Google.

MidAmerican held meetings beginning in early 2024 and over the course of the year, with participant comments and data requests received along the way:

- MidAmerican initiated the RES with a kick-off meeting on February 7, 2024. The settlement agreement called for four meetings, but this meeting was added to ensure a smooth process for exchanging information and to provide background information for some of the key issues, such as resource adequacy.
- MidAmerican held the first RES meeting on March 7, 2024. At this meeting, MidAmerican provided its load forecast to be used for the study and provided proposed inputs to the modeling process, such as MidAmerican's seasonal load and capability position, existing resource costs, candidate resource costs, book lives and fuel costs. MidAmerican also provided its planned scenarios that would be studied to determine an optimal portfolio of resources. Following the meeting, five parties submitted data requests and/or comments, to which MidAmerican responded.
- MidAmerican held the second RES meeting on June 19, 2024. At this meeting, MidAmerican reviewed the modeling inputs, including changes stemming from comments received from the parties. MidAmerican also reviewed the resource selections for six scenarios and provided information such as prices, capacity factors and market purchases for the various scenarios. Following the meeting, four parties submitted data requests and/or comments, to which MidAmerican responded.
- MidAmerican held the third RES meeting on September 5, 2024. At this meeting, MidAmerican provided a new scenario reflecting the Environmental Protection Agency (EPA) Greenhouse Gas (GHG) rule and five sensitivities. MidAmerican also presented its market purchase reliance risk analysis and provided a view of common themes. At this meeting, the environmental interveners presented on cost assumptions. Following the meeting, four parties submitted data requests and comments, to which MidAmerican responded.
- MidAmerican held a fourth and final RES meeting on October 29, 2024, where MidAmerican presented its Preferred Portfolio and Action Plan. MidAmerican anticipates receiving comments from participants following the submission of this report.

Participation in the RES was governed by a RES-specific non-disclosure agreement to address confidential information exchanged during the process, including confidential data belonging to third parties. Consistent with its obligations to protect confidential information, MidAmerican has redacted a limited amount of data in the public version of this report. MidAmerican also provided access to a secure file storage site where participant input and feedback was posted, along with MidAmerican responses to that feedback. MidAmerican provided meeting agendas and materials one week in advance of each meeting on the secure file storage site to allow participants time to review and provide feedback or add items to the agenda.

In participant meetings, MidAmerican described the input forecasts and modeling results. By providing full access to the model, participants were able to review the inputs in their native Aurora format and to test model performance. MidAmerican provided project-specific software licenses for the Aurora generation capacity expansion software for Wind PRIME settling parties and one additional participant. This license provided access to the Aurora model, access to learning modules provided by Energy Exemplar and access to resources from Energy Exemplar's support team to answer questions about functionality and features subject to the license restrictions.

MISO RESOURCE ADEQUACY

MidAmerican is a member of MISO and is subject to the MISO tariff and its policies concerning resource adequacy. Resource adequacy is the ability of the electric system to serve load and maintain reliability in all hours of the year while considering uncertainties that include resource outages and load changes. Resource adequacy is vital to the resource planning process and compliance with NERC policies and the MISO tariff.

EXISTING RESOURCE ADEQUACY PROCESS

MISO's existing resource adequacy process includes consideration of the expected availability of supply side resources in all hours of the year to meet expected load. A PRM is defined as a requirement to have supply side resources above the hourly load requirement to address uncertainties in the availability of resources and uncertainties in the hourly load. Each of these factors impacts capacity expansion solutions and other quantitative and qualitive considerations of capacity expansion alternatives.

RESOURCE CONTRIBUTION TO RESOURCE ADEQUACY

The ability of supply side resources to meet capacity obligations is measured through accreditation. Resource accreditation is a critical aspect of resource adequacy because it measures the ability of various resources to contribute to reliability during periods of risk. Currently, MISO accreditation is determined differently for three main categories of capacity resources: conventional thermal resources, energy limited resources and load modifying resources (LMR), each of which is discussed below.

Conventional thermal resource accreditation is defined under Schedule 53 of the MISO Tariff. Schedule 53 applies to MidAmerican's coal, natural gas and oil-fired resources. Reliability studies determine the forecasted class average contributions to reliability, which are then allocated to resources based on each unit's historical performance. A Loss of Load Expectation (LOLE) study determines class average Seasonal Accredited Capacity (SAC) values. Seasons are defined as summer (June, July, August), fall (September, October, November), winter (December, January, February) and spring (March, April, May). To allocate class average capacity, MISO measures individual capacity resource operational performance over a rolling three-year period. Within the three-year period, MISO applies a two-tiered weighting system. Resource Adequacy Hours where generator operating margins are low or emergency events occur make up Tier 2 hours. All other hours of the season make up Tier 1 hours. Tier 2 hours receive 60% weight in the 2024-25 Planning Year and increase to 80% weight in the 2025-26 Planning Year.

MISO determines accreditation for energy limited resources such as wind and solar by historical performance coincident with seasonal peaks. Wind capacity accreditation is determined by using information from the annual LOLE study to determine the MISO-wide class average capacity contribution and by individual wind resource operational performance during the eight hours of historical seasonal peak MISO load. Solar capacity accreditation is determined by individual solar resource operational performance during hours ending 15, 16 and 17 eastern standard time (EST) for the most recent spring, summer and fall months, and hours ending 8, 9, 19 and 20 EST for the most recent winter months.

LMRs, such as retail customer curtailment of load, behind the meter generation, or other resources not registered for the energy market, must be registered with MISO and provide performance data (generation) or curtailment capability (load). External resources such as MidAmerican's share of Quad Cities Clean Energy Center are registered with MISO in a manner that aligns with LMR registration.

LOAD

MISO uses load forecasts to identify periods of risk in the LOLE studies. Each year, MidAmerican submits load forecasts and load forecast documentation to MISO for use in the Planning Resource Auction. Energy and demand are submitted for three areas; Iowa/South Dakota, Illinois and MidAmerican loads within Alliant-IPL's balancing area. For each of these areas, MidAmerican submits a seasonal coincident peak demand forecast for the upcoming MISO Planning Year (June through May), a monthly/seasonal non-coincident peak demand forecast, a monthly/seasonal energy for load forecast and supporting documentation.

For Illinois, where retail choice is in place, MidAmerican also submits seasonal forecasts for total area load (Illinois retail load plus load served by alternate suppliers) and the base peak load contribution for the load served by alternate suppliers.

PLANNING RESERVE MARGIN

Resource needs above the baseline requirement are measured by the Planning Reserve Margin (PRM). According to the MISO Resource Adequacy Business Practices Manual[2], PRM must cover resource planned maintenance, resource unplanned or forced outages, resource deratings, weather variations and load forecast uncertainty. MISO's standard of 1 day in 10 years for LOLE defines the PRM to address load service risks. The Planning Reserve Margin Requirement (PRMR) is determined by multiplying the forecasted seasonal peak load by the PRM.

[2] https://cdn.misoenergy.org/BPM-011%20Resource%20Adequacy110405.zip

MISO RESOURCE ADEQUACY REDESIGN

In 2020, MISO developed the Reliability Imperative[3] framework to address changes to the electric grid. The Reliability Imperative addresses the electric system's transition to include increased levels of wind and solar resources. As the region's resource mix changes, MISO is initiating new studies and other initiatives to understand what resource capabilities are needed to maintain year-round reliability. The following sections address some of the changes MISO is making under the Reliability Imperative.

SEASONAL

Effective with the 2023-24 Planning Year, MISO implemented a seasonal resource adequacy construct. Rather than focusing only on a summer coincident peak load forecast, MISO calculates accreditation and reserve margin requirements on a seasonal basis. Season definitions are consistent with Schedule 53. For each Planning Year, MISO uses the three most recent historical years defined as September through August to determine Resource Adequacy (RA) hours. RA hours are based on declared MaxGen alerts, warnings and event hours, supplemented by the tightest 3% of hours until a minimum of 65 hours per season are identified. Finally, a maximum margin threshold is applied to exclude hours with an operating margin greater than 25%. The RES considers the seasonal aspect of MISO's RA framework.

RELIABILITY BASED DEMAND CURVE

On June 27, 2024, the Federal Energy Regulatory Commission (FERC) approved Docket No. ER23-2977 implementing changes to the MISO Demand Curve used in the Planning Reserve Auction. MISO states the purpose of the Reliability Based Demand Curve is to "(i) properly reflect the reliability value of capacity above and below the established Planning Reserve Margin ("PRM"); (ii) provide capacity prices that better inform resource investment, retirement and replacement decisions of Market Participants; and (iii) produce more economically efficient market outcomes reflecting the appropriate price of capacity and reducing price volatility created by the vertical demand curve."[4] The Reliability Based Demand Curve will be implemented with Planning Year 2025-26.

[3] https://www.misoenergy.org/meet-miso/MISO_Strategy/reliability-imperative/

[4] https://cdn.misoenergy.org/2024-05-13%20Docket%20No.%20ER23-2977-002632873.pdf

DIRECT LOSS OF LOAD

On March 28, 2024, MISO filed Docket No. ER24-1638 to establish the Direct Loss of Load (DLOL) methodology to be used for resource adequacy. DLOL is a new method of examining availability of different resource types when they are needed to maintain reliability. MISO's Resource Accreditation white paper states in part:

> "Significant growth of variable, energy-limited resources in the MISO footprint, along with changing weather impacts and operational practices, are shifting risk profiles in highly dynamic ways with implications to resource adequacy and planning. MISO's existing accreditation methods for non-thermal resources require further evaluation to ensure that the accredited capacity value reflects the capability and availability of the resource during the periods of highest reliability risk."[5]

MISO requested FERC approval for implementation in the 2028-29 Planning Year. DLOL is expected to impact resource accreditation and PRMRs. Uncertainties exist for both capacity resource accreditation and the PRMR, which will impact the amount of capacity needed to meet future resource adequacy and capacity auction requirements.

DLOL maintains the Tier 1 and Tier 2 risk hour concepts in MISO's current seasonal resource adequacy construct and expands these measurements to all resource types including intermittent and use-limited resources like wind, solar and storage. MISO's probabilistic approach determines availability for each resource type within the LOLE model by applying stochastic methods to forecast operational risks. MISO uses 30 years of wind, solar and load shapes as well as extreme weather events and allocates class level resource availability based upon individual resource historical performance. This method aligns with the existing Schedule 53 method and modifies the PRM from a measurement based on generator availability at the hour of the seasonal peak load to a measurement of availability during high-risk hours regardless of when they occur.

The DLOL framework was included as one of the scenarios in the RES to gain an understanding of how this new method impacts resource selections. DLOL is not embedded within all the scenarios due to lack of certainty concerning whether FERC will ultimately approve the filing.

LOAD MODIFYING RESOURCES

MISO is also proposing changes to LMR accreditation to align with the hours of need. These changes are in early discussion through the stakeholder process via the Resource Adequacy Subcommittee. MidAmerican is an active participant in this process and will monitor impacts to accreditation.

[5] https://www.misoenergy.org/meet-miso/MISO_Strategy/reliability-imperative/

LOAD FORECASTING METHODOLOGY

Load forecasting is another vital input to the resource planning process and therefore an important component of the RES. An overview of the forecasting methodology is discussed in this section. Forecast inputs specific to the scenarios are addressed in the Study Inputs section.

ENERGY

Energy forecasts for MidAmerican's load are based on a monthly linear regression model. Historical electric sales and customer data by class, as well as weather, economic and demographic data, are used in the model. Reasonableness of the model is evaluated on three factors: selection of variables that were likely to be key drivers of energy sales, presence of agreement between the historical and forecast growth numbers and statistical significance in independent variables.

PEAK DEMAND

Monthly linear regression models also underlie MidAmerican's peak demand forecast. Demand Side Management (DSM) program impacts are implicit in MidAmerican's historical load and any program savings are embedded in the demand history through lower demand. MidAmerican calculated gross peak demand by adding back demand response impacts to the measured demand. Adding back demand response ensures there is no double counting when they are submitted as capacity resources in the capacity auction.

Any economic projection of the demand history will contain the implicit assumption that comparable DSM programs will be operated in the future. MidAmerican received comments about this topic from stakeholders during the RES process. MidAmerican believes it is appropriate to base DSM projections on historical data at this time and will continue to evaluate its DSM projection methodology going forward. With respect to peak demand associated with projected load growth, MidAmerican considered committed large customers (customers who have signed facilities construction agreements with monetary commitments) based on information provided by the customers and historical load ramps. MidAmerican also included expected load decreases from large customers in the load forecast.

GROWTH

MidAmerican is experiencing a period of high load growth from data centers and other retail customers in the industrial class. Iowa/South Dakota load growth from 2012 through 2023 on a weather normalized basis is shown in Figure 1.

FIGURE 1: LOAD GROWTH HISTORY

Year	Weather Normalized Gross Peak Demand	Weather Normalized Net Energy for Load MWh
2012	3,957	21,206,020
2013	4,108	21,350,682
2014	4,137	22,009,762
2015	4,138	22,273,745
2016	4,250	23,018,904
2017	4,271	23,744,537
2018	4,533	24,612,761
2019	4,567	25,219,377
2020	4,630	25,919,535
2021	4,824	27,290,279
2022	4,954	28,519,347
2023	5,037	29,234,041
CAGR	2.2%	3.0%

To model this growth, the MidAmerican load forecast was split between historical load and new data center load to capture the changing hourly load profile and identify tight margin hours in Aurora. With data centers, the load forecast can be difficult to determine due to the timing of actual customer demands as compared to ramp schedules provided by the customer. MidAmerican relies on its 18 years of experience with data centers to inform its load forecast. The RES includes all data center loads that are under contract, which will provide MidAmerican the ability to meet those contracted data center loads. Executing the Action Plan of the RES is essential to meeting those needs in a timely basis to ensure the resource adequacy needs of all of MidAmerican's customers are met. For future data center load commitments, MidAmerican will work with the prospective customers to develop ramp schedules that it can reliably accommodate.

CURRENT MIDAMERICAN SYSTEM

LOAD AND CAPABILITY

MidAmerican uses a Load and Capability forecast to measure capacity requirements as determined by the MISO Resource Adequacy rules. The Load and Capability is developed by first determining the system coincident peak load for each season of the 20-year planning horizon. Then the SAC of the existing resources is determined for each of these seasons, calculated as:

Existing Resources (SAC) = Nuclear + Thermal + Wind + Solar + Hydro + Storage + Demand Response + LMR + Purchases – Sales

The peak load and existing demand response for each season are netted together for each of the seasonal system peaks to compute the seasonal peak obligation:

Obligation = Load

MidAmerican then calculates the volume of reserves to be added to the obligation. This is determined by the seasonal net system obligation calculation above multiplied by the seasonal PRM percentage. The MISO reserve requirements for the 2024-25 Planning Year are 9.0% for summer 2024, 14.2% for fall 2024, 27.4% for winter 2024-25 and 26.7% for spring 2025. The formula for this calculation is:

Planning Reserves = Obligation x PRM

Finally, the seasonal position is derived by adding the computed reserves to the obligation and then subtracting this amount from existing resources, as shown in the following formula:

System Position = (Existing Resources) – (Planning Reserves)

MidAmerican's current Load and Capability is shown below for the summer season of the first 10 Planning Years. The focus of this report is the summer season because it is the season of MidAmerican's peak load and the most limiting season for capacity. The 20-year Load and Capability for all seasons can be found in Appendix B.

CONFIDENTIAL FIGURE 2: CURRENT LOAD AND CAPABILITY

Summer of Planning Year	2025-26	2026-27	2027-28	2028-29	2029-30	2030-31	2031-32	2032-33	2033-34	2034-35
LOAD (MW)										
Total PRMR	[redacted]									
CAPABILITY (MW)										
Total Net Capability Before Buy/Build										
Total Net Capability After Buy/Build*										
Total Forecasted Surplus(+)/Shortfall(-)										

* Includes Wind PRIME resources not yet on-line

In the table above, a capacity shortfall is shown beginning with Planning Year 2025-26 and continues through the first 10 years of the forecast. MidAmerican's primary focus in this RES is addressing that shortfall, with an emphasis on the near-term shortfall through 2030, to ensure continued reliability for MidAmerican's customers in the future.

MISO

FIGURE 3: MISO LRZ MAP

The entire MISO system is modeled in Aurora to enable consideration of energy supplied from the reserve sharing pool and for market purchases and sales in the various scenarios and sensitivities being studied. Non-MidAmerican resources in the model include those included in the database provided by Energy Exemplar that are regularly reviewed and updated by MidAmerican. Primary drivers of updates include announced resource additions or retirements by utilities and other resource owners, MISO planning resource auction data and updates from Energy Exemplar. Example sources of information include the Energy Information Administration (EIA) 860, MISO Generation Interconnection workbooks for new and existing generators, MISO Promod models, MISO Network Integrated Transmission Service and Scheduling Rights, S&P Power Plant Profile data, S&P News Articles, MISO OASIS information, public IRP data, information from generator owner or purchaser websites and PJM Must Offer Obligations Postings.

LOCAL RESOURCE ZONES

MISO is divided into 10 Local Resource Zones (LRZs) as shown in the figure at right. Eight LRZs are modeled in Aurora (zones 8, 9 and 10 are combined).

The Aurora database models each of these zones. Import/export transfer capabilities in the model between each zone are based on the MISO LOLE study and are modeled as multi-links or area-to-area links to recognize and model limitations to transfer capability.

Regional transmission expansion projects from the MISO-approved Tranche 1 of the MISO Long Range Transmission Plan are expected to increase transfer capabilities across the MISO North region (Zones 1 through 7). Increases to import/export capabilities are included in the model beginning in 2029 to reflect the Tranche 1 benefit. A similar increase to import/export capabilities is included to reflect Tranche 2 transmission expansion projects.

JURISDICTION

This RES is for MidAmerican's Iowa and South Dakota jurisdictional load. Resource planning for MidAmerican's Illinois jurisdictional load is performed through the Illinois Power Agency and approved by the Illinois Commerce Commission. MidAmerican's Illinois jurisdiction receives an allocation of "historical" resources using a 10.86% allocation factor. The table below shows the percent allocation factor by resource by jurisdiction.

FIGURE 4: STATE JURISDICTION

Unit	IA/SD	IL
Coralville CT 1-4	89.14%	10.86%
Diesel Knoxville	89.14%	10.86%
Diesel Shenandoah	89.14%	10.86%
Diesel Waterloo	89.14%	10.86%
Electrifarm CT 1, 2, 3	89.14%	10.86%
Louisa	89.14%	10.86%
Merle Parr CT 1, 2	89.14%	10.86%
Moline CT 1-4	89.14%	10.86%
Neal 3	89.14%	10.86%
Neal 4	89.14%	10.86%
Ottumwa	89.14%	10.86%
Pleasant Hill CT 1, 2, 3	89.14%	10.86%
Quad Cities Nuclear 1	89.14%	10.86%
River Hills CT 1-8	89.14%	10.86%
Sycamore CT 1, 2	89.14%	10.86%
Walter Scott 3	89.14%	10.86%
Greater DM CCCT	100.00%	0.00%
Walter Scott 4	100.00%	0.00%
All Wind	100.00%	0.00%
All Solar	100.00%	0.00%

Illinois area interruptible retail customers registered as LMRs are allocated to Illinois. A small portion of MidAmerican's Iowa load is located outside of MISO and is not modeled in Aurora. This includes 56 MW at summer peak conditions, which is located within the Associate Electric Cooperative and Southwest Power Pool Balancing Areas. A corresponding amount of MidAmerican's capacity resources are exported outside of the Iowa/South Dakota system in the Aurora model to reflect this load serving obligation.

MIDAMERICAN RESOURCES

RES scenarios include MidAmerican's existing generation resources and the Wind PRIME wind and solar projects that were approved under RPU-2022-0001.

JOINT OWNED UNIT MODELING IN AURORA

MidAmerican has partial ownership in six coal units: Louisa Generating Station, Ottumwa Generating Station, Neal Energy Center Units 3 and 4 and Walter Scott Energy Center Units 3 and 4. The Aurora model splits each of these units into three separate resources for modeling purposes. The first is a MidAmerican share applicable to the Illinois jurisdiction. The second is a MidAmerican share applicable to the Iowa/South Dakota jurisdiction (not applicable to Walter Scott Energy Center Unit 4). The third is a share that assigns capacity to other joint owners.

In addition to the joint owned coal units, MidAmerican is a 25% owner of Quad Cities Clean Energy Center located in the PJM RTO which is scheduled into MISO as an import. The import receives the PJM interface price for energy imports; while it is modeled in Aurora, it is not included in the Iowa/South Dakota zone because it does not receive the Iowa energy price. MidAmerican's share of Quad Cities Clean Energy Center is treated as a Border External Resource for the capacity auction, which means it receives the LRZ 3 auction price.

COAL MODELING ASSUMPTIONS

For existing coal units, going forward costs are based on historical operating cost history from years 2018 through 2022. Historical costs are escalated to current costs using the Federal Reserve Economic Data (FRED) Gross Domestic Product (GDP) Implicit Price Deflator. An escalation rate of 2.25% is assumed for 2023 and beyond. Periodic unit-specific planned outage assumptions are included as follows: Neal 3 outages every six years, Neal 4 outages every seven years, Louisa and Walter Scott 3 outages every five years and Walter Scott 4 outages every four years. No major outage expenses are included in the two years immediately preceding plant retirements.

GAS MODELING ASSUMPTIONS

For existing natural gas units, going forward costs are based on historical operating cost history from years 2018 through 2022. Historical costs are escalated to current costs using the FRED GDP Implicit Price Deflator. An escalation rate of 2.25% is assumed for 2023 and beyond. Periodic unit-specific plan outage assumptions are included for Greater Des Moines Energy Center every five years. No major outage expenses are included in the two years immediately preceding plant retirements.

NUCLEAR MODELING ASSUMPTIONS

Quad Cities Clean Energy Center going forward costs are based on historical operating cost history from years 2018 through 2022 for fixed operations and maintenance (O&M) and capital costs. Historical costs are escalated to current costs using the FRED GDP Implicit Price Deflator. An escalation rate of 2.25% is assumed for 2023 and beyond. Variable O&M is based on historical operating costs from 2017 through 2021 and escalated at a rate of 2.50%. Periodic planned outage assumptions for refueling are included every other year in alternating years for the two units.

RENEWABLE MODELING ASSUMPTIONS

Variable costs for wind and solar resources are assumed to be zero. Future fixed O&M costs are determined based on historical year 2022 operating costs. Those costs are averaged across the wind or solar fleet and then applied to all wind or solar resources with a 2.25% escalation rate.

All MidAmerican resources, except for wind, include a $0.60/MWh variable O&M adder for the Iowa Replacement Property Tax. Refer to the Inputs Book in Appendix C for full unit specific operating parameters and cost forecasts for MidAmerican resources.

STUDY METHODOLOGY

AURORA

Aurora software by Energy Exemplar is an industry standard for resource evaluation and planning. Aurora's production cost model runs a chronological hourly simulation of the system being modeled and develops market price and production costs using forecast inputs that include the following:

- Load
- Accredited capacities of generators across the time horizon
- Remaining lives of existing generation assets
- Fuel costs, including delivered coal and natural gas
- Fixed and variable O&M costs of existing and candidate resources
- Transmission import/export limitations
- Production tax credits and investment tax credits for different types of resources

For purposes of the RES, while Aurora output results inform the decision-making for replacement resources, they are not in and of themselves determinative. MidAmerican considers factors that Aurora cannot appropriately evaluate and conducts evaluations of replacement candidates, including those determined by Aurora, before making any replacement or resource addition decision. The next two sections describe the settings used by MidAmerican in the Aurora capacity expansion and zonal runs.

CAPACITY EXPANSION OPTIMIZATION

Aurora performs long-term capacity expansion modeling through the user's selection of a separate module, which may include longer-term considerations such as load growth, capacity accreditation, PRMRs, existing resource going forward costs and new resource build costs over a study period (e.g., 20 years). MidAmerican conducted capacity expansion runs with simulations using all hours of the second week of every month over the study period. To model the 20-year period from 2025 through 2044, the model was run for years 2024 through 2047 to capture beginning and end effects, which provides model stability in the first and last years of the study.

ZONAL SIMULATIONS

Once capacity expansion plans are complete, the build patterns are run through the zonal module. Zonal runs include various system constraints to simulate energy market conditions such as hourly load shapes, unit capabilities defined by operational parameters and hourly availability, transmission constraints and planning reserves. Optimum dispatch ranks generators based on energy production costs, determines optimal unit commitment based on generator parameters and hourly load requirements over an operating horizon, determines optimal economic dispatch each hour based on the incremental cost of each generator that has been committed ("generation stack") and considers constraints in the model that require a shifting of the economic dispatch order (e.g., ramp rate, minimum up/down times, minimum resource loading, transmission constraints).

Congestion across the MidAmerican system is included as a variable cost in the Aurora model to enable modeling of transmission limitations that exist in the MISO market that are not included in zonal representations in the model. Each resource in the MidAmerican system receives either a dispatch cost reduction or increase to reflect energy price differences relative to the MidAmerican load zone. Near-term congestion through 2028 is based upon 2023 historical congestion calculated as the difference in Locational Marginal Prices (LMPs) between one location and another. Long-term congestion beginning with 2029 is based upon 2015 through 2019 average historical congestion where congestion was lower than the current conditions. Reducing the congestion cost is modeled concurrent with the Tranche 1 import/export adjustments in the model.

MidAmerican's zonal runs model every hour of every day for the 20-year study period for production cost analyses to capture the dynamics of the MISO market, hourly load, wind and solar shapes and the various thermal and storage resource operational constraints. This selection balances run times with the need for increased granularity to simulate the operation of renewable resources interacting with conventional resources and batteries to balance system resources and load. Within these simulations, unit commitment "look ahead" was every hour of the first day and every fourth hour of the second day.

STUDY INPUTS

Before beginning the RES modeling, MidAmerican provided its proposed model inputs for review by the RES participants. The inputs included MidAmerican generation parameters, natural gas prices and other items within the Inputs workbook. MidAmerican requested a review of key inputs during the first RES meeting so inputs could be locked down to allow MidAmerican and RES participants to produce the Reference Case. Any study that is completed over a long period of time runs the risk of new information being available by the end of the study timeline that was not available at the start of the study. In order to timely complete the study, MidAmerican needed to maintain consistent study inputs to enable appropriate comparisons between the scenarios, highlighting the importance of establishing the inputs early in the RES process.

CANDIDATE RESOURCES

MidAmerican's candidate resource set includes wind, solar, simple cycle natural gas generation, combined cycle natural gas generation, nuclear and battery storage. This is a reasonable set of candidate resources that enables consideration of various resource fuel types and technologies and provides directional information for the RES.

For each candidate resource class, overnight costs, fixed O&M and variable O&M are escalated to each applicable in-service year using 2.25% inflation. Book life, tax life, Allowance for Funds Used During Construction (AFUDC), discount rate, property tax and insurance are used to develop levelized costs. End effect considerations include levelization over the book life and extending capacity expansion runs three years past the 20-year planning period to mitigate end effects of the model.

For non-MidAmerican MISO areas, combined cycle and combustion turbine (CT) candidate resource types are available beginning in 2024. This allows for initial model year rebalancing for areas of MISO where complete generation and load information is unavailable and potentially unbalanced to meet the PRMR. Wind, solar and storage are available beginning in 2025. Nuclear is available beginning in 2035 to recognize the long implementation period of that resource.

The table below summarizes cost inputs and other assumptions used in the model for each candidate resource type. Support for and sources of these inputs are discussed for each resource class in the following sections.

FIGURE 5: CANDIDATE RESOURCE INPUTS

New resource	Overnight Cost ($/kW)	Fixed O&M ($/kW-year)	Variable O&M ($/MWh)	Book/Tax Life (Years)	Partial Builds MEC/MISO	Size for MEC (MW blocks)	Location	First/Last Year Available for MEC
CT-Large Frame	1,045	6.5	1.26	30/15	No/No	233	MISO-wide	2028
CCCT–Large Frame	1,207	12.54	2.87	30/20	No/No	727	MISO-wide	2028/2034
Utility-scale Wind	2,006	18.44	-	40/5	No/Yes	170	MISO-wide	2024
Utility-scale Solar	1,778	21.74	-	30/5	No/Yes	50	MISO-wide	2024
Storage, 4-hour	2,003	46.25	-	20/5	No/Yes	60	MISO-wide	2024
Nuclear-SMR	7,690	118.8	3.13	40/15	No/No	345	MISO-wide	2035

Annual build limits for each candidate resource type are based on historical MISO queue performance and allocated to each LRZ as shown in the table below.

FIGURE 6: ANNUAL BUILD LIMITS

	Annual Build Limits (MW)					
LRZ	**Wind**	**Solar**	**Storage (4-HR)**	**SMR**	**CT**	**CCCT**
1	1,000	400	14,000	14,490	6,524	15,267
2	300	400	10,000	10,350	4,660	10,905
3	1,100	300	6,000	6,210	2,796	6,543
4	700	800	6,000	6,210	2,796	6,543
5	300	400	4,000	4,140	1,864	4,362
6	400	700	12,000	12,420	5,592	13,086
7	400	300	4,000	4,140	1,864	4,362
8, 9, 10	700	1,600	16,000	16,560	7,456	17,448
Total	4,900	4,900	72,000	74,520	33,552	78,516

Assumptions common to all new resource candidates include the following: all overnight costs are adjusted regionally using the EIA 2023 Annual Energy Outlook information. Network upgrade costs and AFUDC are then added to the base overnight costs, unless already included. Insurance and property taxes are added in fixed O&M if not already included for all new resource candidates. Property taxes are not added to MidAmerican new resource candidates, as those resources are subject to a $0.60/MWh variable O&M adder for the Iowa Replacement Property Tax. MidAmerican new wind resource candidates are an exception to the Iowa Replacement Property Tax and have property taxes added. MidAmerican new storage resources candidates are also an exception to the Iowa Replacement Property Tax.

[6] https://www.eia.gov/outlooks/aeo/

NATURAL GAS COMBUSTION TURBINE/COMBINED CYCLE COMBUSTION TURBINE

For MidAmerican's area, natural gas candidate resources are not available until 2028 to recognize delays in the MISO generator interconnection queue. Combined Cycle Combustion Turbine (CCCT) natural gas resource types are not allowed to be built after 2034 to reflect recent EPA rules that could limit the usefulness of such a resource by that time. CT resources are modeled with a book life of 30 years. The modeled size is 233 MW and builds are allowed MISO-wide. CCCT resources are modeled with a book life of 30 years. The modeled size is 727 MW and builds are allowed MISO-wide.

CT and CCCT base overnight costs are sourced from the 2023 National Renewable Energy Laboratory Annual Technology Baseline[7] (NREL ATB) and include natural gas pipeline costs. Network upgrade costs and AFUDC are then added to the base overnight costs. The CT large frame fixed and variable O&M costs are sourced from Xcel Energy's Upper Midwest 2024 IRP[8]. The CCCT fixed and variable O&M costs are modeled after MidAmerican's Greater Des Moines Energy Center costs.

WIND/SOLAR

MidAmerican relied on experience with past renewable projects to develop the wind and solar cost estimates, including consideration of recent project costs, proposals, contracts and ongoing discussions with suppliers and developers. Overnight costs are adjusted regionally using the EIA 2023 Annual Energy Outlook information. Insurance and property taxes are added to fixed O&M, unless already included. Solar fixed O&M costs were sourced from the 2023 NREL ATB.

Wind is allowed to be built MISO-wide in 170 MW blocks with a book life of 40 years. Solar is also allowed to be built MISO-wide but in 50 MW blocks with a book life of 30 years. Annual build limits for MISO wind and solar are each set to 4,900 MW based on historical MISO queue performance and allocated to each LRZ as shown in the table above. In addition to the MISO interconnection queue timing limitations, local permitting issues, long development timelines and increased concerns from area residents have become factors in siting renewable projects. The large footprint of wind and solar projects results in many parties claiming to be affected by such projects which complicates and delays the permitting process and extends the development timeline. Given recent challenges, the likelihood of multiple wind and solar projects quickly getting through the MISO interconnection process, as well as through local permitting, and ultimately being fully developed and shovel-ready, is low.

Aurora applies a Production Tax Credit (PTC) benefit to all wind and solar candidate resources. PTCs are assumed to renew throughout the study horizon. Bonus PTCs are not considered for this RES as there are a limited number of geographic locations in the state of Iowa that qualify for the bonus credits under the Inflation Reduction Act (IRA), according to the United States Department of Energy.

[7] https://atb.nrel.gov

[8] https://www.xcelenergy.com/company/rates_and_regulations/resource_plans/integrated_resource_plan

An in-depth review of bonus PTC eligibility was performed after examining the IRA under the only applicable category available in Iowa, the "Coal Closure" category. The Coal Closure category includes the following two scenarios: (1) a coal mine has closed after December 31, 1999, or (2) a coal-fired electric generating unit has been retired after December 31, 2009. Applying the "Nameplate Capacity test," in which an Energy Community Project that has nameplate capacity is considered located in or placed in service within an energy community if 50% or more of the project's nameplate capacity is in an area that qualifies as an energy community, there are few locations in the state of Iowa that qualify for bonus credits that will be available to MidAmerican during the planning horizon.

However, there are areas around the Neal and Walter Scott coal units which appear to qualify for bonus tax credits. MidAmerican has been exploring the development of wind farm projects near the Neal and Walter Scott locations as part of the Wind PRIME project and has encountered local opposition to wind farms in these areas, with counties implementing siting requirements that make it difficult to develop such projects. Because the areas where a renewable facility may qualify for a bonus tax credit are limited, it is uncertain that a project could be developed in those areas and a bonus tax credit realized. It is therefore not reasonable to assume a bonus tax credit would be available for renewable energy projects at those locations. MidAmerican will pursue bonus credits if available for any projects that may be developed in those areas.

The bonus PTC for domestic content was excluded from the RES study as MidAmerican is unable to verify if the input cost of new resources qualifies for domestic content requirements without actual original equipment manufacturer bids. Without those bids, there is no basis to assume the domestic content minimum has been reached. The minimum adjusted percentage for manufactured product components of a qualified facility is 40%. The percentage increases to 55% for qualified facilities beginning construction after 2026 under IRA § 45Y(g)(11)(C).

NUCLEAR-SMALL MODULAR REACTOR

Nuclear small modular reactors (SMR) are modeled as 345 MW blocks with a book life of 40 years. The overnight, fixed O&M and variable O&M costs are sourced from the 2023 NREL ATB. Overnight costs have been adjusted to include off-site transmission costs, substation costs and AFUDC. SMR is available in the model starting in 2035, which is the first possible year given nascent nature of the technology and long lead time for construction. The Office of Nuclear Energy states "significant technology development and licensing risks remain in bringing advanced SMR designs to market … by the late 2020s or early 2030s."[9] Overnight costs are adjusted regionally using the EIA 2023 Annual Energy Outlook information.

Aurora applies a PTC benefit to all nuclear and SMR candidate resources, equal to the PTC available to wind and solar candidate resources. The PTC benefit for nuclear and SMR candidate resources is available beginning in 2025, per the IRA.

[9] https://www.energy.gov/ne/advanced-small-modular-reactors-smrs

PTCs are assumed to renew throughout the study horizon. Bonus PTCs are not considered for the reasons stated in the Wind/Solar section above.

Salt storage was included with a SMR as a sensitivity case. It was modeled as a 5.5-hour 155 MW unit with a book life of 40 years. MidAmerican applied a normalized Investment Tax Credit (ITC) modeled as a 30% ITC value and assumed 88% of salt storage overnight and AFUDC costs qualify for the ITC. Under IRA §48E rules, normalization tax treatment is required for utilities such as MidAmerican.

STORAGE

Storage resources are modeled as four-hour 60 MW blocks with a book life of 20 years. The overnight, fixed O&M and variable O&M costs are sourced from the 2023 NREL ATB. Fixed O&M includes battery augmentation costs. Storage overnight costs have been adjusted to include off-site transmission costs, substation costs, real estate costs and AFUDC. MidAmerican applied a normalized ITC modeled as a 30% ITC value and assumed 92% of storage overnight and AFUDC costs qualify for the ITC. Under IRA §48E rules, normalization tax treatment is required for utilities such as MidAmerican. Bonus credits are not considered for the reasons stated in the Wind/Solar section above.

Aurora modeling allows for storage arbitrage where storage resources receive revenue to offset the initial and ongoing cost of storage. The Aurora model also allows for the benefit of reduced wind and solar curtailments by allowing the storage to charge and discharge on an hourly basis based on price signals.

The four-hour duration is a reasonable representation of storage. Battery storage modeling increases the difficulty of the solution for linear program algorithms, increasing solution times and introducing risk to model stability. Modeling multiple battery duration options compounds this risk. Further, the MISO resource adequacy policy transition has increased complexity and uncertainty for any capacity expansion studies that may outweigh some of the resource type distinctions such as different lengths of battery duration and solar/battery hybrid configurations. MISO has also not provided sufficient accreditation information within the storage category to make reasonable distinctions by duration in time for this RES.

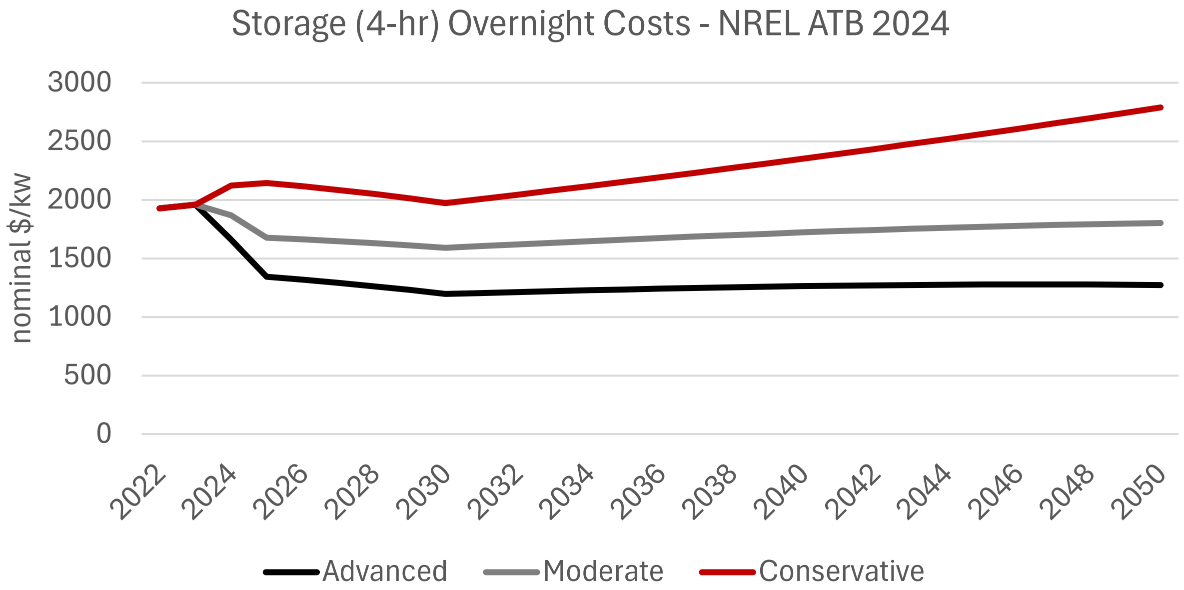
Aurora will provide solutions that minimize unserved energy for the storage resources selected regardless of the storage duration modeled, so it is assumed that a four-hour duration battery is representative of the storage resource type. Because Aurora capacity expansion runs will generally select the least costly resource from a set of resources with similar characteristics, if a resource type is selected as a candidate, then further exploration can be performed in subsequent studies to fine-tune those costs and consider alternative durations. The optimal storage duration will likely change over time as the resource mix evolves.

MATURITY CURVES

The cost inputs described above do not contemplate the use of maturity curves or supply/demand forces that could change those costs. The sensitivity analysis conducted by MidAmerican is an alternative method to using maturity curves because it provides a comparison of cost across resource options. Each sensitivity that includes a pre-selected resource provides an indication of the cost decline required for that resource to be competitive with other resource types. This is a more powerful tool than a maturity curve because it shows an entire range of cost decline across resources rather than one cost decline assumption.

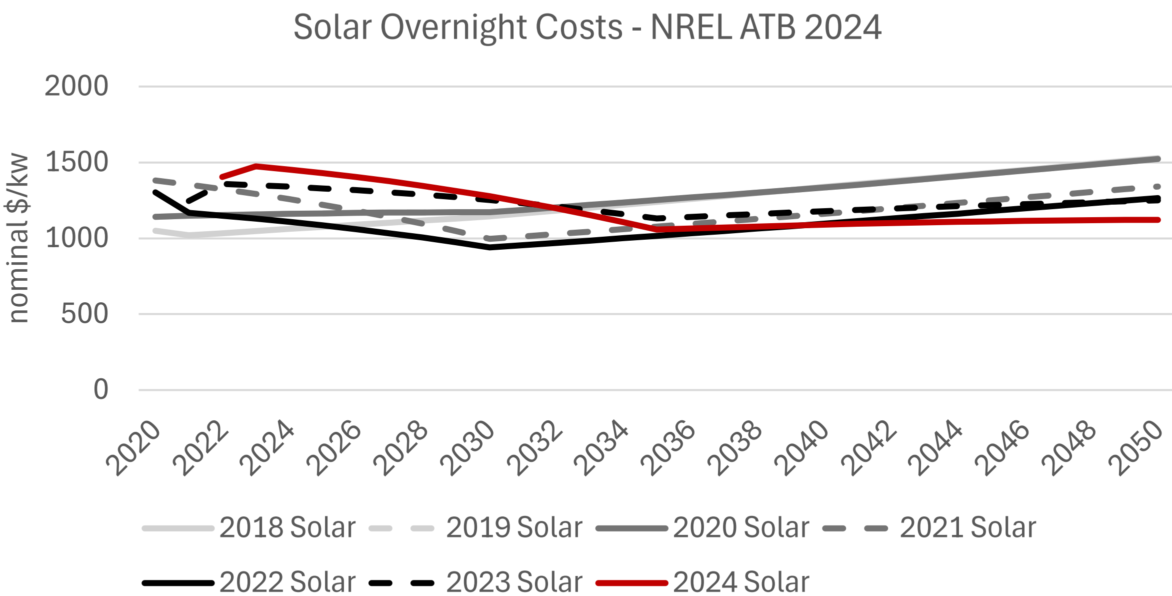
Additionally, there is not just one cost decline assumption, there are several variations of cost decline trajectories. MidAmerican is not aware of a clear industry consensus. For example, the graph below displays NREL's 2024 ATB lithium-ion storage (four-hour) overnight costs in nominal terms. The graph shows three disparate technology maturation curves that come from a single source from one year. Even within the NREL, there are diverse views of maturation curves and there is no industry consensus on technology maturation.

FIGURE 7: STORAGE MATURATION CURVES



The NREL data also shows that predicted cost declines due to maturation have not materialized and there is variability from year-to-year. For example, in 2018 NREL predicted 2024 solar costs would be in the range of $1,050/kW but in 2023 NREL had raised the 2024 cost to about $1,350/kW and in 2024 the cost increased to nearly $1,500/kW.

FIGURE 8: SOLAR MATURATION CURVES



Another complication with the use of maturity curves is the impact that increased solar penetration would have on shifting MidAmerican system risk hours to hours that MISO is already identifying as tight margin hours in DLOL studies, the evening hours. As that occurs, the solar capacity accreditation may be reduced to reflect the zero solar output during those evening hours, which will offset much of the maturity curve cost decline.

MidAmerican acknowledges comments received from the RES participants regarding maturity curves. There will be opportunities to analyze technology cost declines in future studies where more information may be available regarding declines (if any) and their impact on capacity accreditation. In particular, more information is needed from MISO. The MISO generation resource pool is co-dependent, and the resource mix of other load serving entities will impact MidAmerican resource accreditation values. MISO is uniquely positioned to provide information regarding capacity accreditation dynamics. MidAmerican has been an early and vocal advocate at Resource Adequacy Subcommittee meetings and in formal comments[10] for solar, wind and storage penetration studies to provide "bookend" capacity accreditation values that could be used by MISO members. MISO has committed to providing studies but none have yet been posted.

Participant requests for the application of maturity curves have been confined to wind, solar and battery storage. For consistency, the modeling assumption would have to be applied to all resource types. Technology cost declines are speculative and may obfuscate determinations of resource types, especially in the Early Retirement Scenario. It is also possible that supply/demand forces could outweigh technology cost declines under accelerated energy transition scenarios.

[10] https://cdn.misoenergy.org/MidAmerican%20Feedback%20on%20RASC%20Accreditation%20Reform%20(RASC-2020-4%20and%202019-2)%20(20240117)631758.pdf

OTHER RESOURCES NOT MODELED

Limiting the candidate resource set to wind, solar, simple cycle natural gas generation, combined cycle natural gas generation, and nuclear and battery storage enabled consideration of various fuel types and technologies without overwhelming the model. Including too many candidates in the resource set increases the capacity expansion run time, where the addition of each candidate is more than a linear increase in run times. For those reasons and others noted below, the following categories were not modeled:

- **Co-located hybrid resources:** Co-locating potential for either wind or solar is limited in eligible areas and depends on the availability of property, workable permitting, site conditions, substation configurations and other development considerations, in addition to eligibility and timelines in the tax rules.
- **Hydroelectric power:** MidAmerican did not consider uprates to its 3.6 MW of hydroelectric power due to its limited run of river capability and limited impact to the overall study objectives. Both hydroelectric and pumped hydro have a very limited application in Iowa. Environmental hurdles and high costs associated with such hydroelectric development will likely continue to limit development.
- **Biomass:** With presently available feedstocks, biomass generation will compete against other uses of biomass, especially ethanol production in Iowa. Currently, landfills and farm-based methane present the most likely sources for biomass generation but few landfills have installed generation. Farm-based methane largely relies on anaerobic digestion as a source of generating methane gas for microturbine generators or small internal combustion engines (approximately one-tenth MW – one MW) that are too small to model.

[10] https://cdn.misoenergy.org/MidAmerican%20Feedback%20on%20RASC%20Accreditation%20Reform%20(RASC-2020-4%20and%202019-2)%20(20240117)631758.pdf

LOAD FORECAST

Monthly demand and energy are modeled for the MidAmerican system and surrounding areas of MISO. Hourly profiles represent operating conditions throughout the year.

MISO

Energy forecasts for non-MidAmerican MISO zones are based on the Wood Mackenzie 2022 Base Case Update. The table below shows peak demand forecasts for other MISO zones which begin with the MISO Planning Year 2023-24 Planning Resource Auction forecast and use the Wood Mackenzie growth rate for escalation. MidAmerican energy and demand are removed from the LRZ 3 forecast.

CONFIDENTIAL FIGURE 9: MISO LOAD FORECAST

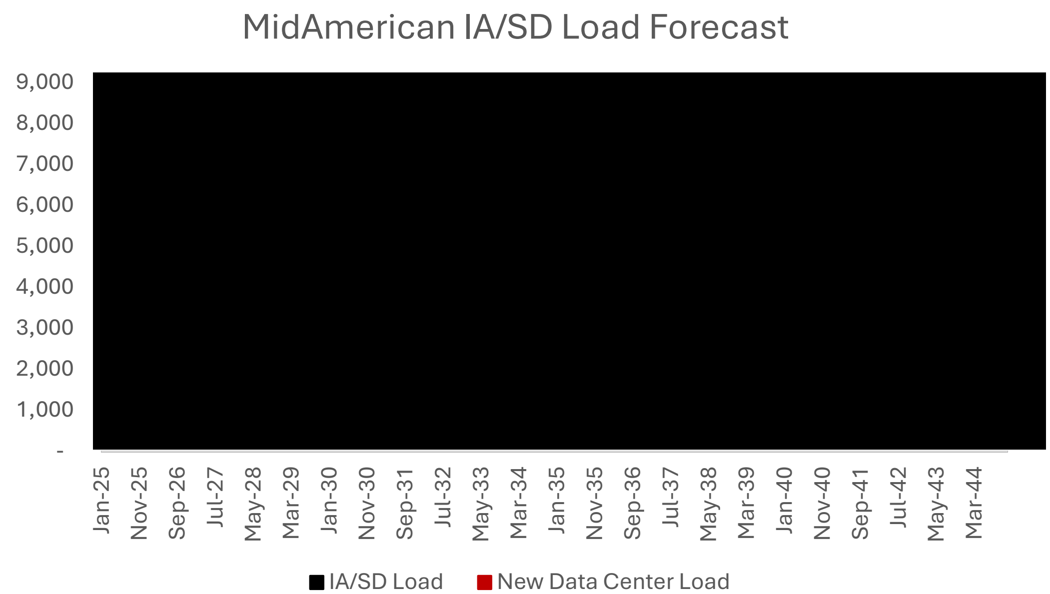
Peak (MW)	MISO LRZ 1	MISO LRZ 2	MISO LRZ 3 (non-MEC)	MISO LRZ 4	MISO LRZ 5	MISO LRZ 6	MISO LRZ 7	MISO LRZ 8	MISO LRZ 9	MISO LRZ 10
2025	[redacted]									
2026										
2027										
2028										
2029										
2030										
2031										
2032										
2033										
2034										
2035										
2036										
2037										
2038										
2039										
2040										
2041										
2042										
2043										
2044										

MIDAMERICAN

For the MidAmerican load forecast, a modeling technique was used where the load was split between historical load and new data center load to capture the changing hourly load profile and identify tight margin hours in Aurora. To do this, the MidAmerican Iowa/South Dakota hourly load shape is separated into two load shapes. The first is for post-2021 data center load and the second is for all other retail load. This separation increases the granularity for modeling of resource adequacy in hourly energy simulations and PRMR.

Iowa/South Dakota total retail load is projected to grow 2.3% per year (or 658 MW) over the next five years. The compound annual growth rate (CAGR) over the 20-year study horizon is 1.9% (or 2,270 MW).

CONFIDENTIAL FIGURE 10: MIDAMERICAN LOAD FORECAST



FUEL COST FORECAST

Delivered fuel costs discussed below can be found in the Inputs Book at Appendix C to this report.

COAL

The coal forecast is developed based on contracted coal volumes obtained through requests for proposals issued to coal producers and the resulting negotiations. Actual contract prices are used where available, and market prices of coal are used for any requirements beyond those contracted amounts. The market coal prices are based on information from producers and fuel forecasting services. A transportation (rail) charge is added to the cost at each generating plant based on existing contract agreements with railroads and expected future projections to arrive at a delivered price of coal.

Longer-term coal prices are based on third-party coal price forecasts for individual coal units in MISO including delivery costs.

GAS

MidAmerican's natural gas price forecast for electric generation is developed using Henry Hub prices plus a basis forecast including transportation to regional natural gas hubs. MidAmerican uses observable forward natural gas market prices for the near-term of the forecast period and then a forecasting service's natural gas price forecast is used for the long-term period. The basis from Henry Hub to the regional natural gas price hubs is developed from observable forward natural gas market prices for the near-term and the forecasting service where available for the long-term; where not available, historical basis differentials are used. MidAmerican then develops the burner tip prices for its generation by adding a delivery charge to the specific generating unit, where appropriate. Forecast services include Platts, a well-known third-party vendor that publishes New York Mercantile Exchange (NYMEX) futures prices; and Wood Mackenzie, an expert third-party multi-client vendor that publishes long-term price forecasts through their strategic planning outlook that provides a fundamental market forecast through 2050.

NUCLEAR

Nuclear fuel cost is the combined amortization of the cost of each fuel reload or vintage, calculated by applying the ratio of fuel burned divided by the total projected burn to the cost of each fuel reload. The amount of nuclear fuel amortization fluctuates with the allocation of each month's fuel burn between reloads of different cost and projected burn levels. The amount of nuclear burn is measured in MMBtu and the basis of each month's amortization of fuel cost is the amount of MMBtu obtained from each reload. These values are provided to MidAmerican by Exelon, the operating partner of Quad Cities Clean Energy Center.

STUDY SCENARIOS AND SCENARIO RESULTS

Seven scenarios were selected to reflect a range of price, load, reliability and regulatory conditions. Price changes are modeled with the Low Gas and High Gas scenarios. Load changes are modeled with the Reference Case and High Load scenarios. MidAmerican did not model a recessionary or low load scenario due to the prolonged period of high load growth and the existing customer commitments to add load. Reliability changes are modeled in the DLOL Scenario and regulatory changes are modeled in the EPA Scenario.

The following sections will discuss each scenario. All scenarios use the same underlying assumptions discussed above unless otherwise noted. Capacity expansion builds are shown for each scenario in two different formats. The “Incremental Portfolio Changes” and “Cumulative Portfolio” graphs show additions and retirements in MW of accredited capacity. The “Annual Builds” and “Cumulative Builds” tables show additions in MW of nameplate capacity. Comparisons across scenarios are explored in later sections.

SCENARIO 1 - REFERENCE CASE

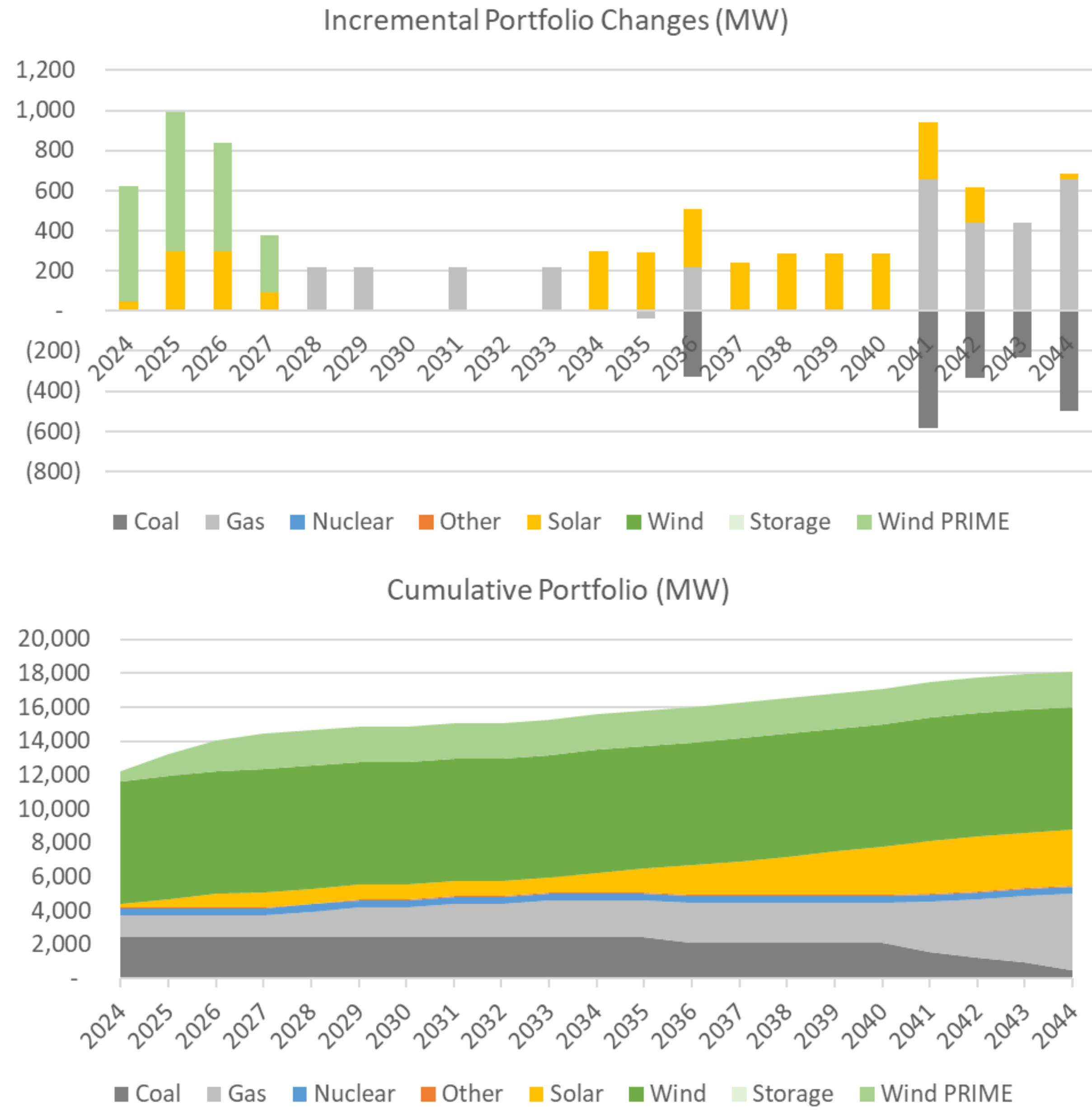
The Reference Case represents MidAmerican’s current demand and energy forecast. Resources reflect those in service as well as the Wind PRIME resources approved in RPU-2022-0001. Existing PTC rules apply where appropriate and existing MISO resource adequacy rules are modeled. Retirement assumptions are shown in the table below.

FIGURE 11: MODELED RETIREMENT DATES

Unit	Modeled Retirement Date
CTs (Coralville, Moline, River Hills, Merle Parr)	12/31/2034
Neal 3	12/31/2035
Louisa	12/31/2040
Ottumwa	12/31/2041
Neal 4	12/31/2042
Walter Scott 3	12/31/2043
Greater DM CCCT	12/31/2044
Diesels (Knoxville, Shenandoah, Waterloo)	12/31/2045
CTs (Electrifarm, Pleasant Hill, Sycamore)	12/31/2045
Walter Scott 4	12/31/2049
Quad Cities Nuclear	12/31/2052

The book life for Louisa, Ottumwa, Neal 4 and Walter Scott 3 are all December 31, 2040, but the modeled retirement dates are staggered to mitigate model instabilities caused by a large reduction in generation resources in a single year and at the end of the study period. For the same reason, Greater Des Moines Energy Center is modeled with a one-year retirement delay. All existing MidAmerican wind and solar resources are assumed to have life extension or replacement in kind.

FIGURE 12: REFERENCE CASE BUILDS



	Annual Builds (Nameplate MW)						Cumulative Builds (Nameplate MW)					
Year	CCCT	CT	Wind	Solar	Storage	SMR	CCCT	CT	Wind	Solar	Storage	SMR
2024	-	-	-	50	-	-	-	-	-	50	-	-
2025	-	-	-	300	-	-	-	-	-	350	-	-
2026	-	-	-	300	-	-	-	-	-	650	-	-
2027	-	-	-	100	-	-	-	-	-	750	-	-
2028	-	233	-	-	-	-	-	233	-	750	-	-
2029	-	233	-	-	-	-	-	466	-	750	-	-
2030	-	-	-	-	-	-	-	466	-	750	-	-
2031	-	233	-	-	-	-	-	699	-	750	-	-
2032	-	-	-	-	-	-	-	699	-	750	-	-
2033	-	233	-	-	-	-	-	932	-	750	-	-
2034	-	-	-	300	-	-	-	932	-	1,050	-	-
2035	-	233	-	300	-	-	-	1,165	-	1,350	-	-
2036	-	233	-	300	-	-	-	1,398	-	1,650	-	-
2037	-	-	-	250	-	-	-	1,398	-	1,900	-	-
2038	-	-	-	300	-	-	-	1,398	-	2,200	-	-
2039	-	-	-	300	-	-	-	1,398	-	2,500	-	-
2040	-	-	-	300	-	-	-	1,398	-	2,800	-	-
2041	-	699	-	300	-	-	-	2,097	-	3,100	-	-
2042	-	466	-	200	-	-	-	2,563	-	3,300	-	-
2043	-	466	-	-	-	-	-	3,029	-	3,300	-	-
2044	-	699	-	50	-	-	-	3,728	-	3,350	-	-

The Reference Case builds show 750 MW of solar in the first four years beginning 2024. CTs and solar are built throughout the rest of the study horizon. The annual solar build limit of 300 MW is met in nine of the 20 years studied with a total of 3,350 MW of the 6,000 MW allowed over the term. Beginning in 2041, the model builds CTs to meet capacity needs coinciding with retiring coal resources. The Reference Case build total is just over 7,000 MW of solar and CTs

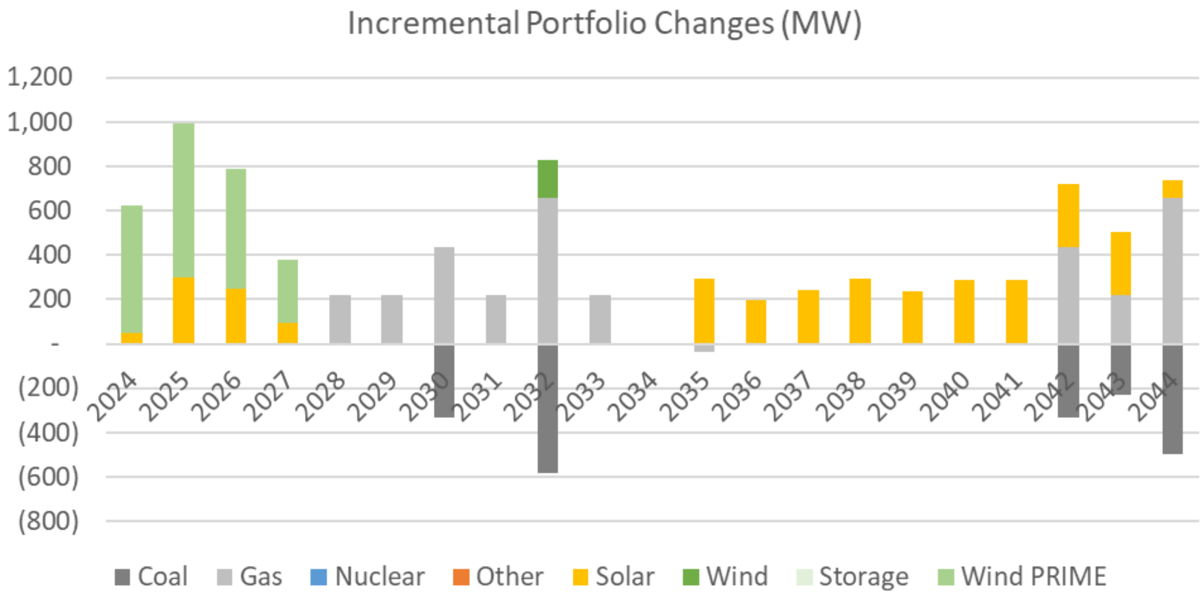
SCENARIO 2 - EARLY RETIREMENT

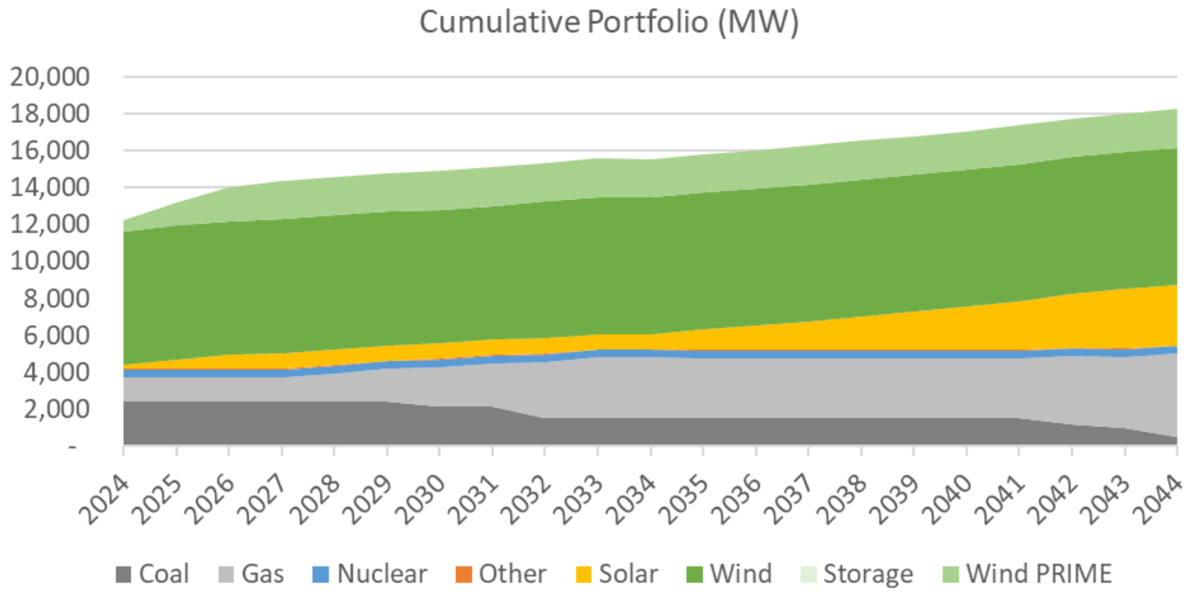
The Early Retirement Scenario is identical to the Reference Case except that the following early retirements were timed just before the next major overhaul that occurs with sufficient time to allow for consideration of MISO generation interconnection queue study timing and for construction of a replacement resource:

- Early retirement of Neal 3 from 12/31/2035 to 12/31/2029
- Early retirement of Louisa from 12/31/2040 to 12/31/2031

The Neal 3 and Louisa Early Retirement Scenario is a reasonable scenario to examine the effects of potential early retirements. These two units were selected for several reasons. They span the spectrum of a relatively smaller unit with an earlier book life (Neal 3) to a relatively larger unit with a later book life (Louisa). Impact on joint owners is minimized with these two units because Neal 3 will only impact two joint owners and the joint-owner shares of Louisa are relatively small.

FIGURE 13: EARLY RETIREMENT BUILDS





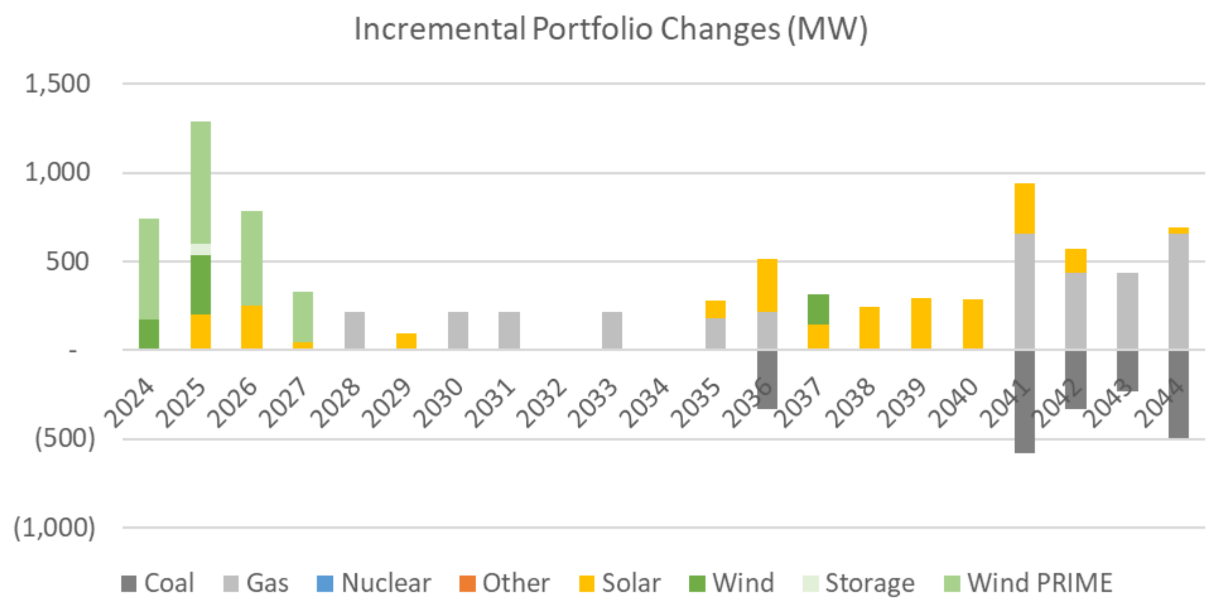
	Annual Builds (Nameplate MW)						Cumulative Builds (Nameplate MW)					
Year	CCCT	CT	Wind	Solar	Storage	SMR	CCCT	CT	Wind	Solar	Storage	SMR
2024	-	-	-	50	-	-	-	-	-	50	-	-
2025	-	-	-	300	-	-	-	-	-	350	-	-
2026	-	-	-	250	-	-	-	-	-	600	-	-
2027	-	-	-	100	-	-	-	-	-	700	-	-
2028	-	233	-	-	-	-	-	233	-	700	-	-
2029	-	233	-	-	-	-	-	466	-	700	-	-
2030	-	466	-	-	-	-	-	932	-	700	-	-
2031	-	233	-	-	-	-	-	1,165	-	700	-	-
2032	-	699	170	-	-	-	-	1,864	170	700	-	-
2033	-	233	-	-	-	-	-	2,097	170	700	-	-
2034	-	-	-	-	-	-	-	2,097	170	700	-	-
2035	-	233	-	300	-	-	-	2,330	170	1,000	-	-
2036	-	-	-	200	-	-	-	2,330	170	1,200	-	-
2037	-	-	-	250	-	-	-	2,330	170	1,450	-	-
2038	-	-	-	300	-	-	-	2,330	170	1,750	-	-
2039	-	-	-	250	-	-	-	2,330	170	2,000	-	-
2040	-	-	-	300	-	-	-	2,330	170	2,300	-	-
2041	-	-	-	300	-	-	-	2,330	170	2,600	-	-
2042	-	466	-	300	-	-	-	2,796	170	2,900	-	-
2043	-	233	-	300	-	-	-	3,029	170	3,200	-	-
2044	-	699	-	100	-	-	-	3,728	170	3,300	-	-

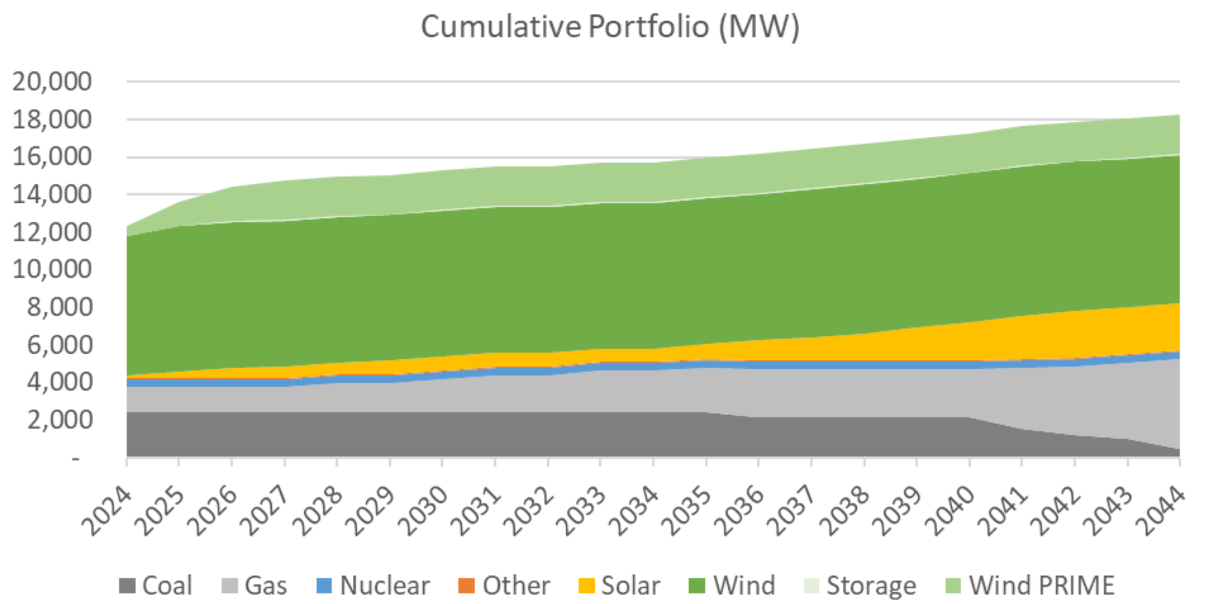
The Early Retirement builds are similar to the Reference Case with some additional CT capacity built earlier to coincide with the early retirements of Neal 3 in 2029 and Louisa in 2031. The annual solar build limit of 300 MW is met in seven of the 20 years studied with a total of 3,300 MW of the 6,000 MW allowed over the term. The Early Retirement build total is just over 7,000 MW of solar and CTs with 170 MW of wind in 2032.

SCENARIO 3 - LOW GAS

The Low Gas Scenario is identical to the Reference Case except a low gas cost forecast was determined using the Reference Case costs minus $1/MMBtu.

FIGURE 14: LOW GAS BUILDS





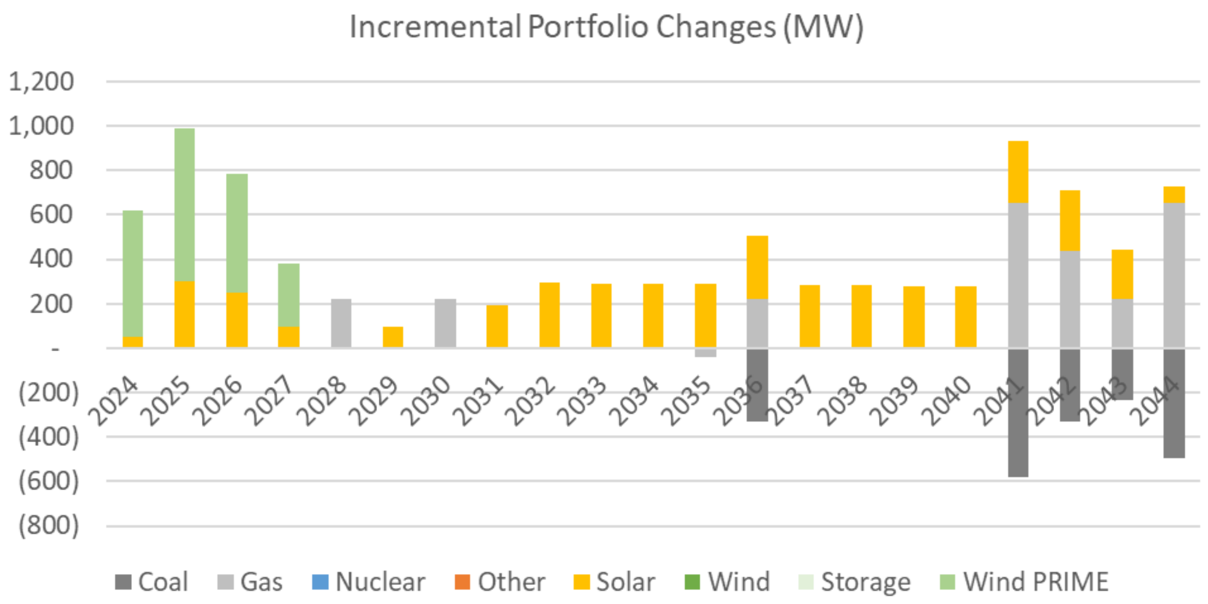
	Annual Builds (Nameplate MW)						Cumulative Builds (Nameplate MW)					
Year	**CCCT**	**CT**	**Wind**	**Solar**	**Storage**	**SMR**	**CCCT**	**CT**	**Wind**	**Solar**	**Storage**	**SMR**
2024	-	-	170	-	-	-	-	-	170	-	-	-
2025	-	-	340	200	60	-	-	-	510	200	60	-
2026	-	-	-	250	-	-	-	-	510	450	60	-
2027	-	-	-	50	-	-	-	-	510	500	60	-
2028	-	233	-	-	-	-	-	233	510	500	60	-
2029	-	-	-	100	-	-	-	233	510	600	60	-
2030	-	233	-	-	-	-	-	466	510	600	60	-
2031	-	233	-	-	-	-	-	699	510	600	60	-
2032	-	-	-	-	-	-	-	699	510	600	60	-
2033	-	233	-	-	-	-	-	932	510	600	60	-
2034	-	-	-	-	-	-	-	932	510	600	60	-
2035	-	466	-	100	-	-	-	1,398	510	700	60	-
2036	-	233	-	300	-	-	-	1,631	510	1,000	60	-
2037	-	-	170	150	-	-	-	1,631	680	1,150	60	-
2038	-	-	-	250	-	-	-	1,631	680	1,400	60	-
2039	-	-	-	300	-	-	-	1,631	680	1,700	60	-
2040	-	-	-	300	-	-	-	1,631	680	2,000	60	-
2041	-	699	-	300	-	-	-	2,330	680	2,300	60	-
2042	-	466	-	150	-	-	-	2,796	680	2,450	60	-
2043	-	466	-	-	-	-	-	3,262	680	2,450	60	-
2044	-	699	-	50	-	-	-	3,961	680	2,500	60	-

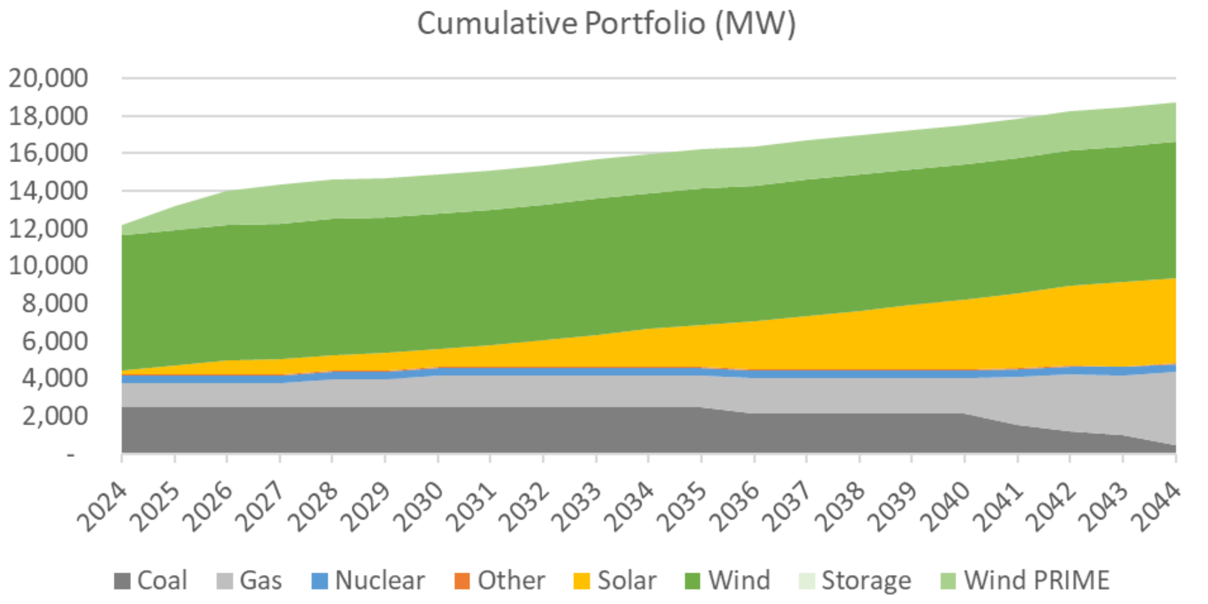
The Low Gas Scenario builds include some additional wind compared to the Reference Case and one small storage resource. The annual solar build limit of 300 MW is met in four of the 20 years studied with a total of 2,500 MW of the 6,000 MW allowed over the term. Total builds of 7,200 MW reflect the CT resource added as a result of lower fuel costs.

SCENARIO 4 - HIGH GAS

The High Gas Scenario is identical to the Reference Case except a high gas cost forecast was determined using the Reference Case costs plus $1/MMBtu.

FIGURE 15: HIGH GAS BUILDS





	Annual Builds (Nameplate MW)						Cumulative Builds (Nameplate MW)					
Year	CCCT	CT	Wind	Solar	Storage	SMR	CCCT	CT	Wind	Solar	Storage	SMR
2024	-	-	-	50	-	-	-	-	-	50	-	-
2025	-	-	-	300	-	-	-	-	-	350	-	-
2026	-	-	-	250	-	-	-	-	-	600	-	-
2027	-	-	-	100	-	-	-	-	-	700	-	-
2028	-	233	-	-	-	-	-	233	-	700	-	-
2029	-	-	-	100	-	-	-	233	-	800	-	-
2030	-	233	-	-	-	-	-	466	-	800	-	-
2031	-	-	-	200	-	-	-	466	-	1,000	-	-
2032	-	-	-	300	-	-	-	466	-	1,300	-	-
2033	-	-	-	300	-	-	-	466	-	1,600	-	-
2034	-	-	-	300	-	-	-	466	-	1,900	-	-
2035	-	233	-	300	-	-	-	699	-	2,200	-	-
2036	-	233	-	300	-	-	-	932	-	2,500	-	-
2037	-	-	-	300	-	-	-	932	-	2,800	-	-
2038	-	-	-	300	-	-	-	932	-	3,100	-	-
2039	-	-	-	300	-	-	-	932	-	3,400	-	-
2040	-	-	-	300	-	-	-	932	-	3,700	-	-
2041	-	699	-	300	-	-	-	1,631	-	4,000	-	-
2042	-	466	-	300	-	-	-	2,097	-	4,300	-	-
2043	-	233	-	250	-	-	-	2,330	-	4,550	-	-
2044	-	699	-	100	-	-	-	3,029	-	4,650	-	-

In contrast to the Low Gas Scenario, the High Gas Scenario included fewer CT builds as a result of higher fuel costs and more solar for a total of almost 7,700 MW. The annual solar build limit of 300 MW is met in 12 of the 20 years studied with a total of 4,650 MW of the 6,000 MW allowed over the term.

SCENARIO 5 - DLOL

The DLOL Scenario is identical to the Reference Case except that DLOL information from MISO was used to determine PRM and supply side resource accreditation estimates.

Planning Year Reserve Margin and accreditation values were adjusted starting with Planning Year 2028-29 to coincide with MISO's requested effective date for the DLOL parameters. MidAmerican utilized information provided by MISO during stakeholder meetings to estimate PRM and accreditation. MISO simulated PRM and accreditation impacts for Planning Year 2023-24 based on the resource mix from that year and actual resources and load registered for that capacity auction. They then published these results as indicative of the impact of DLOL on existing values.

MISO has committed to develop forecasts and scenarios to provide information regarding the MISO-wide effects of DLOL but has provided only minimal information regarding the impacts of DLOL. MidAmerican utilized information available from MISO at the time RES inputs were finalized. The tables below show pre- and post-DLOL assumptions with the data through Planning Year 2027-28 representing pre-DLOL and data for Planning Year 2028-29 representing post-DLOL.

FIGURE 16: DLOL SCENARIO PRM

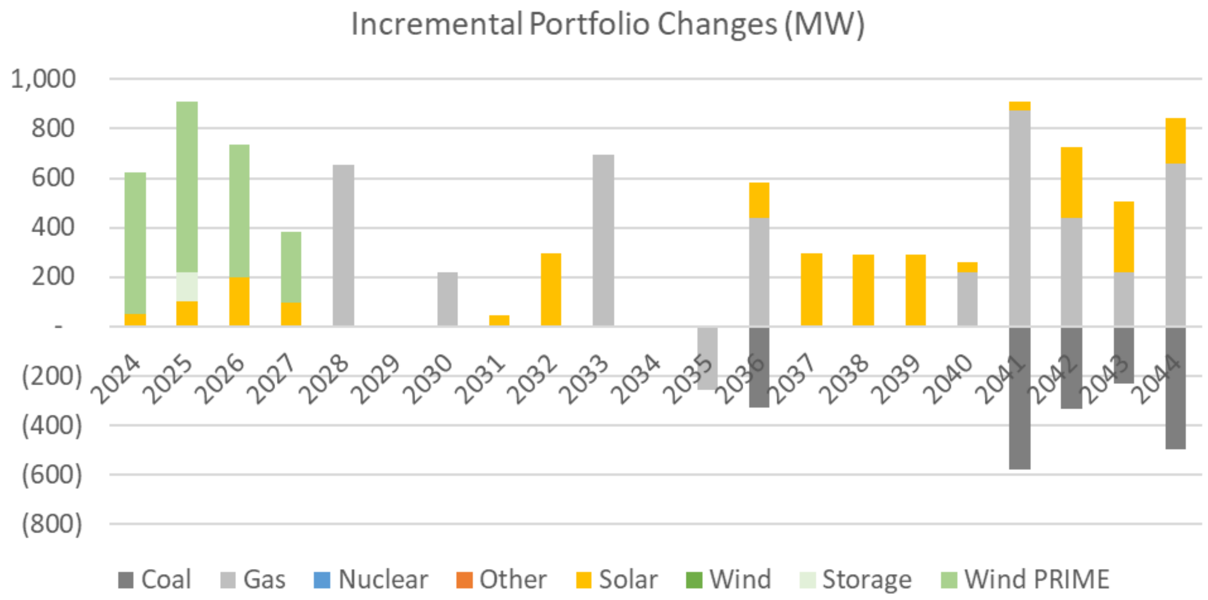
Planning Reserve Margin Period	Summer	Fall	Winter	Spring
Through 2027-28 Planning Year	9%	14%	27%	27%
2028-29 Planning Year and Beyond	3%	10%	1%	-1%

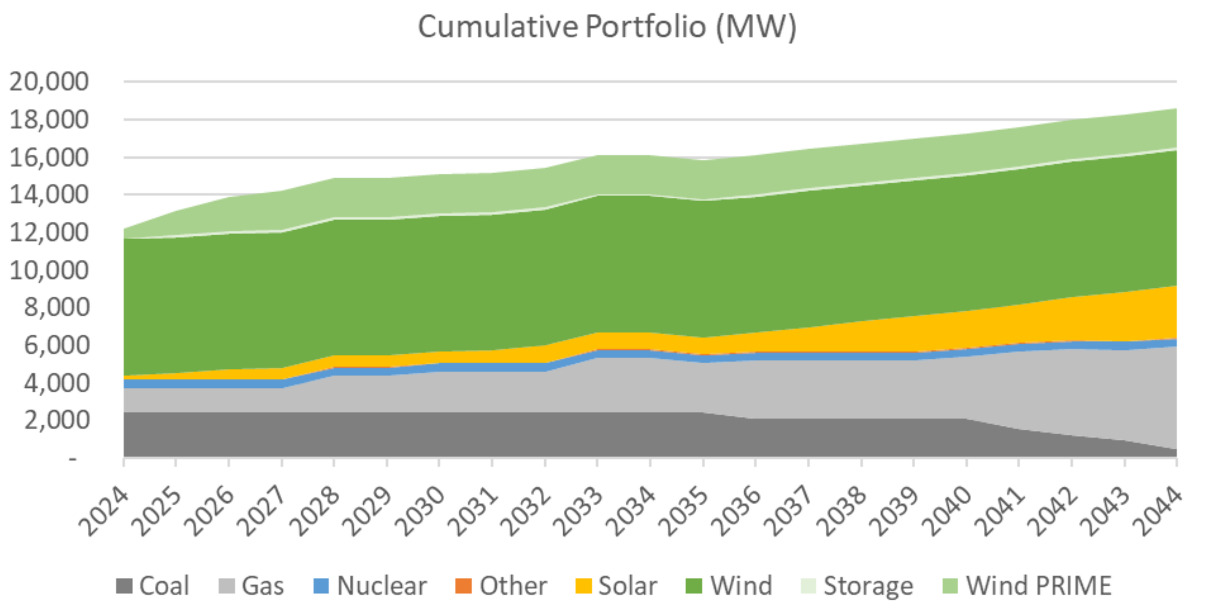
CONFIDENTIAL FIGURE 17: DLOL SCENARIO ACCREDITATION

		Existing Resources		New Resources	
Season	Type	2027-28	2028-29	2027-28	2028-29
Summer	Coal	[redacted]			
Summer	Gas CT				
Summer	Gas CCCT				
Summer	Nuclear				
Summer	Oil				
Summer	Wind				
Summer	Solar				
Summer	Storage				
Fall	Coal				
Fall	Gas CT				
Fall	Gas CCCT				
Fall	Nuclear				
Fall	Oil				
Fall	Wind				
Fall	Solar				
Fall	Storage				
Winter	Coal				
Winter	Gas CT				
Winter	Gas CCCT				
Winter	Nuclear				
Winter	Oil				
Winter	Wind				
Winter	Solar				
Winter	Storage				
Spring	Coal				
Spring	Gas CT				
Spring	Gas CCCT				
Spring	Nuclear				
Spring	Oil				
Spring	Wind				
Spring	Solar				
Spring	Storage				

*Gas resources include temperature considerations in each season

FIGURE 18: DLOL BUILDS





	Annual Builds (Nameplate MW)						Cumulative Builds (Nameplate MW)					
Year	CCCT	CT	Wind	Solar	Storage	SMR	CCCT	CT	Wind	Solar	Storage	SMR
2024	-	-	-	50	-	-	-	-	-	50	-	-
2025	-	-	-	100	120	-	-	-	-	150	120	-
2026	-	-	-	200	-	-	-	-	-	350	120	-
2027	-	-	-	100	-	-	-	-	-	450	120	-
2028	-	699	-	-	-	-	-	699	-	450	120	-
2029	-	-	-	-	-	-	-	699	-	450	120	-
2030	-	233	-	-	-	-	-	932	-	450	120	-
2031	-	-	-	50	-	-	-	932	-	500	120	-
2032	-	-	-	300	-	-	-	932	-	800	120	-
2033	727	-	-	-	-	-	727	932	-	800	120	-
2034	-	-	-	-	-	-	727	932	-	800	120	-
2035	-	-	-	-	-	-	727	932	-	800	120	-
2036	-	466	-	150	-	-	727	1,398	-	950	120	-
2037	-	-	-	300	-	-	727	1,398	-	1,250	120	-
2038	-	-	-	300	-	-	727	1,398	-	1,550	120	-
2039	-	-	-	300	-	-	727	1,398	-	1,850	120	-
2040	-	233	-	50	-	-	727	1,631	-	1,900	120	-
2041	-	932	-	50	-	-	727	2,563	-	1,950	120	-
2042	-	466	-	300	-	-	727	3,029	-	2,250	120	-
2043	-	233	-	300	-	-	727	3,262	-	2,550	120	-
2044	-	699	-	200	-	-	727	3,961	-	2,750	120	-

The DLOL Scenario builds include one combined cycle build in 2033 and two storage resources built in 2025 for a total of almost 7,600 MW. The annual solar build limit of 300 MW is met in six of the 20 years studied with a total of 2,750 MW of the 6,000 MW allowed over the term.

SCENARIO 6 - HIGH LOAD

The High Load Scenario is identical to the Reference Case but with a higher load due to electrification and electric vehicle (EV) growth across the MISO footprint. Demand growth due to digitization, economy-wide decarbonization including electrification of heating and industrial processes, and electric vehicles was included; the differing hourly shape of each class of load growth was modeled in Aurora through the development of different load zone areas within each Aurora load zone.

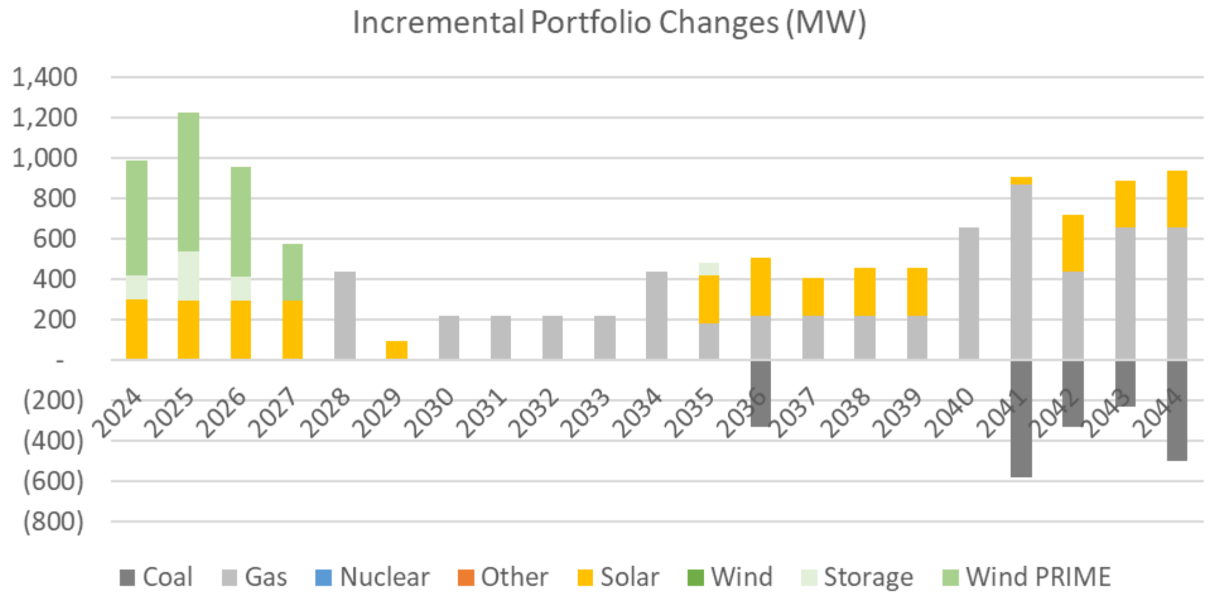
National level EV forecasts were used to serve as guidance for MISO state specific EV usage forecasts. MidAmerican obtained three independent EV forecasts. These differing forecasts were a high growth case, a medium growth case and a low growth case. State level forecasts were based on the independent growth forecast that most closely matched the historical growth rates within each state. MidAmerican considered the impact of company policies on EV growth within MidAmerican's territory. While MidAmerican's EV rebate program has ended, MidAmerican is partnering with local businesses to site DC fast-charging stations (currently more than 30 locations) and sponsors electric buses in Des Moines, Iowa City and the Quad Cities. MidAmerican also maintains EVs in the company fleet.

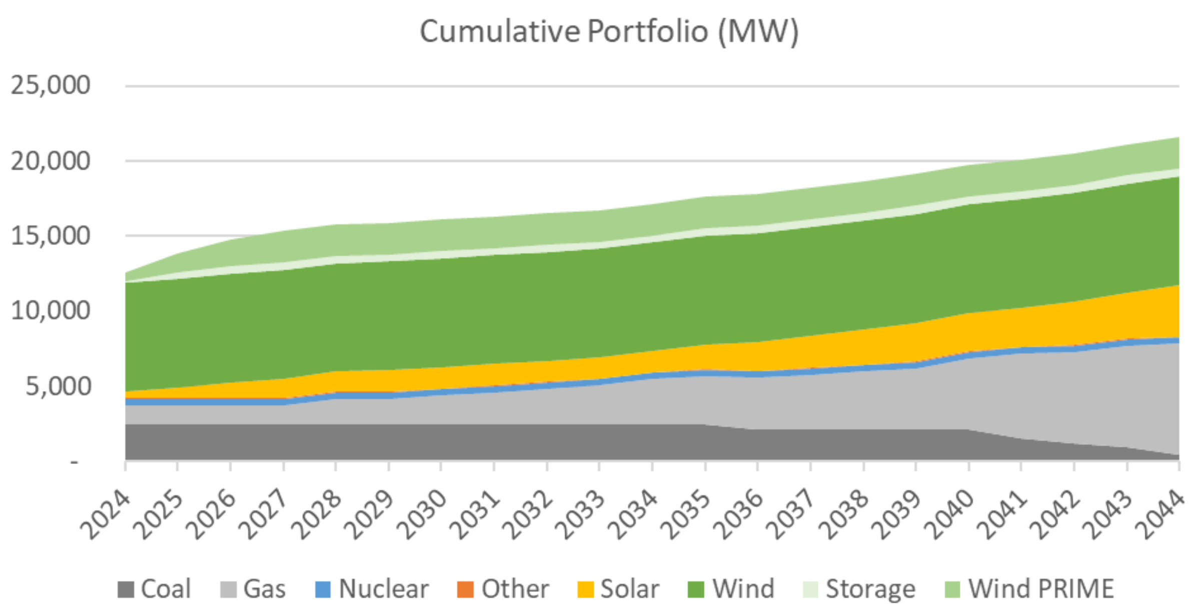
End-use electrification forecasting included many considerations, such as space heating, water heating, cooking and existing laws/ordinances for or against those processes. To establish bounds of potential electrification, MidAmerican reviewed natural gas usage data by sector and Census Region. Regional natural gas usage was allocated to states by population. In MISO, it is assumed that each state gains 1.5% market share annually of the total natural gas usage available in each sector for the duration of the forecast period. That amount was then converted into kWh for assumed electrification.

Load profiles were developed by state and MISO LRZ for EV charging and for end-use electrification. For end-use electrification, separate load profiles were developed for the residential, commercial and industrial sectors. For the residential and commercial sectors, the end uses selected were space heating and water heating. Source data used to develop the residential and commercial hourly profiles were taken from a 2018 NREL study. The industrial sector was represented by a profile developed using MidAmerican's Large Electric Service customer rate hourly profile. Finally, forecasted data center load growth in excess of that shown in the Reference Case was added to the MidAmerican Iowa/South Dakota load zone.

Iowa/South Dakota total retail load is projected to grow 3.4% per year (or 978 MW) over the next five years in the High Load Scenario compared to 2.3% per year (or 658 MW) in the Reference Case. The CAGR over the 20-year study horizon for the High Load Scenario is 3.7% (or 4,445 MW) compared to 1.9% (or 2,270 MW) in the Reference Case.

FIGURE 19: HIGH LOAD BUILDS





	Annual Builds (Nameplate MW)						Cumulative Builds (Nameplate MW)					
Year	CCCT	CT	Wind	Solar	Storage	SMR	CCCT	CT	Wind	Solar	Storage	SMR
2024	-	-	-	300	120	-	-	-	-	300	120	-
2025	-	-	-	300	240	-	-	-	-	600	360	-
2026	-	-	-	300	120	-	-	-	-	900	480	-
2027	-	-	-	300	-	-	-	-	-	1,200	480	-
2028	-	466	-	-	-	-	-	466	-	1,200	480	-
2029	-	-	-	100	-	-	-	466	-	1,300	480	-
2030	-	233	-	-	-	-	-	699	-	1,300	480	-
2031	-	233	-	-	-	-	-	932	-	1,300	480	-
2032	-	233	-	-	-	-	-	1,165	-	1,300	480	-
2033	-	233	-	-	-	-	-	1,398	-	1,300	480	-
2034	-	466	-	-	-	-	-	1,864	-	1,300	480	-
2035	-	466	-	250	60	-	-	2,330	-	1,550	540	-
2036	-	233	-	300	-	-	-	2,563	-	1,850	540	-
2037	-	233	-	200	-	-	-	2,796	-	2,050	540	-
2038	-	233	-	250	-	-	-	3,029	-	2,300	540	-
2039	-	233	-	250	-	-	-	3,262	-	2,550	540	-
2040	-	699	-	-	-	-	-	3,961	-	2,550	540	-
2041	-	932	-	50	-	-	-	4,893	-	2,600	540	-
2042	-	466	-	300	-	-	-	5,359	-	2,900	540	-
2043	-	699	-	250	-	-	-	6,058	-	3,150	540	-
2044	-	699	-	300	-	-	-	6,757	-	3,450	540	-

The High Load Scenario builds at least one CT every year beginning in 2030 and storage resources in the first three years. The annual solar build limit of 300 MW is met in six of the 20 years studied with a total of 3,450 MW of the 6,000 MW allowed over the term. In total, the model builds over 10,700 MW to meet the increased load forecast.

SCENARIO 7 – EPA GREENHOUSE GAS RULE

MidAmerican completed an EPA GHG Scenario to model the impacts of the recently finalized GHG rule. On April 25, 2024, the EPA announced final carbon pollution standards for power plants under section 111 of the Clean Air Act, Docket No. EPA-HQ-OAR-2023-0072. The standards are effective on July 8, 2024, but under section 111(d), states have 24 months to establish implementation and enforcement of those standards for existing resources. In certain cases, states may provide variances based on remaining useful life and other factors.

For purposes of this RES, MidAmerican has assumed the following capacity factor restrictions for CTs classified as "new" under the EPA rule:

- Base load turbines generating at least 40% capacity on an annual basis would require carbon capture and sequestration/storage.
- Intermediate load turbines with a capacity factor between 20% and 40% include combined cycle candidate resources limited to 40% capacity.
- Low load turbines generating less than 20% capacity on an annual basis include CT candidate resources limited to 20% capacity.

[11] https://www.epa.gov/stationary-sources-air-pollution/greenhouse-gas-standards-and-guidelines-fossil-fuel-fired-power

For existing MidAmerican coal generation, the following changes were made:

- Conversion to 40% co-fired natural gas beginning january 1, 2030, with retirement in 2038 for louisa, ottumwa, neal 3, neal 4 and walter scott 3.
- Conversion to 100% natural gas beginning january 1, 2030, with retirement in 2049 (same as reference case) for walter scott 4.

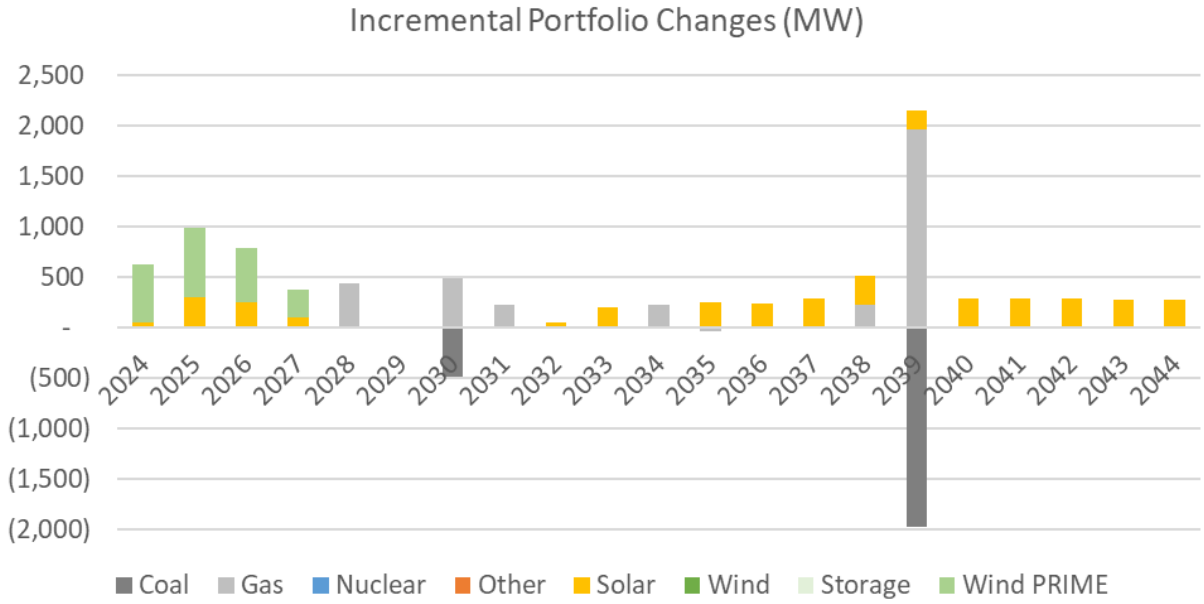
All existing non-MidAmerican coal plants in MISO are modeled as converting to 40% co-fired natural gas beginning January 1, 2030, with retirement in 2038.

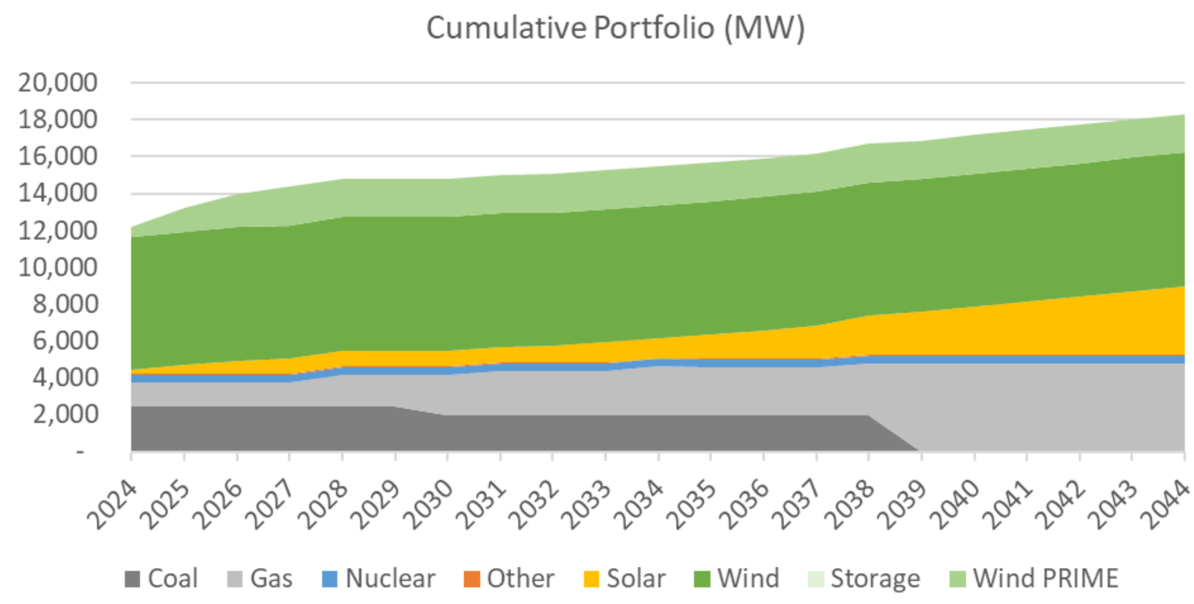
MidAmerican assumed retrofit costs for the gas conversions using Technical Support Documents provided with the EPA rule. New natural gas pipeline connections are based on preliminary discussions with the transport pipelines.

FIGURE 20: EPA SCENARIO CAPACITY FACTORS

	Scenario 1 - Reference Case				Scenario 7 – EPA					
Year	Coal	Existing CCCT	Existing CT	New CT	Coal	Coal/Gas Co-Fire	100% Coal to Gas	Existing CCCT	Existing CT	New CT
2025	61.20%	37.40%	0.02%		61.30%			37.00%	0.03%	
2026	59.80%	37.70%	0.02%		60.30%			37.50%	0.03%	
2027	59.20%	39.10%	0.02%		59.60%			38.70%	0.03%	
2028	61.00%	43.00%	0.01%	1.40%	61.70%			42.60%	0.03%	1.60%
2029	63.40%	46.50%	0.01%	1.50%	64.30%			46.40%	0.02%	1.70%
2030	65.00%	46.50%	0.01%	1.50%		56.00%	26.40%	50.20%	0.02%	2.00%
2031	64.50%	47.20%	0.01%	1.40%		57.00%	27.40%	50.90%	0.03%	1.70%
2032	65.30%	47.60%	0.01%	1.50%		57.20%	24.60%	51.10%	0.03%	1.70%
2033	67.30%	47.40%	0.02%	0.90%		55.50%	20.90%	50.70%	0.02%	1.10%
2034	67.50%	47.20%	0.01%	0.80%		54.20%	18.60%	50.10%	0.02%	0.90%
2035	68.80%	47.30%	0.01%	0.50%		53.20%	19.70%	50.00%	0.01%	0.70%
2036	72.10%	49.30%	0.01%	0.60%		52.30%	19.70%	49.50%	0.01%	0.70%
2037	69.70%	49.50%	0.01%	0.80%		52.10%	21.20%	48.90%	0.02%	0.90%
2038	68.10%	47.40%	0.01%	0.70%		50.30%	18.50%	47.70%	0.03%	0.80%
2039	67.00%	45.20%	0.01%	0.50%			18.70%	46.60%	0.00%	0.60%
2040	64.70%	44.10%	0.00%	0.40%			16.80%	45.50%	0.00%	0.50%
2041	64.20%	43.00%	0.01%	0.50%			15.90%	43.90%	0.00%	0.60%
2042	66.00%	43.10%	0.01%	0.60%			16.00%	43.60%	0.01%	0.70%
2043	64.40%	42.70%	0.01%	0.70%			15.60%	42.50%	0.01%	0.80%
2044	70.80%	43.60%	0.00%	0.70%			15.50%	42.10%	0.01%	0.80%

FIGURE 21: EPA BUILDS





Year	Annual Builds (Nameplate MW)						Cumulative Builds (Nameplate MW)					
	CCCT	CT	Wind	Solar	Storage	SMR	CCCT	CT	Wind	Solar	Storage	SMR
2024	-	-	-	50	-	-	-	-	-	50	-	-
2025	-	-	-	300	-	-	-	-	-	350	-	-
2026	-	-	-	250	-	-	-	-	-	600	-	-
2027	-	-	-	100	-	-	-	-	-	700	-	-
2028	-	466	-	-	-	-	-	466	-	700	-	-
2029	-	-	-	-	-	-	-	466	-	700	-	-
2030	-	-	-	-	-	-	-	466	-	700	-	-
2031	-	233	-	-	-	-	-	699	-	700	-	-
2032	-	-	-	50	-	-	-	699	-	750	-	-
2033	-	-	-	200	-	-	-	699	-	950	-	-
2034	-	233	-	-	-	-	-	932	-	950	-	-
2035	-	233	-	250	-	-	-	1,165	-	1,200	-	-
2036	-	-	-	250	-	-	-	1,165	-	1,450	-	-
2037	-	-	-	300	-	-	-	1,165	-	1,750	-	-
2038	-	233	-	300	-	-	-	1,398	-	2,050	-	-
2039	-	2,097	-	200	-	-	-	3,495	-	2,250	-	-
2040	-	-	-	300	-	-	-	3,495	-	2,550	-	-
2041	-	-	-	300	-	-	-	3,495	-	2,850	-	-
2042	-	-	-	300	-	-	-	3,495	-	3,150	-	-
2043	-	-	-	300	-	-	-	3,495	-	3,450	-	-
2044	-	-	-	300	-	-	-	3,495	-	3,750	-	-

Similar to previous scenarios, the EPA Scenario CT builds coincide with retiring coal resources, namely in 2039. The annual solar build limit of 300 MW is met in eight of the 20 years studied with a total of 3,750 MW of the 6,000 MW allowed over the term. Total builds are consistent with earlier scenarios of just over 7,200 MW.

This is a preliminary look at the EPA Scenario. MidAmerican will continue to monitor the status of ongoing federal litigation and participate in development of the Iowa state implementation plan.

The capacity factors for new natural gas CTs shown in Figure 20 are well within the limits required by the new EPA rule. However, the Aurora model was not capable of constraining capacity factors in other regions of the MISO system. As new releases of the Aurora software that improve constraint mechanisms to better align with EPA GHG rules are tested, the EPA Scenario in this RES can be re-evaluated and additional scenarios may be explored.

SCENARIO OUTPUT COMPARISONS

MARKET PRICES

Market prices shown in the table below are outputs from the model. Prices for each scenario reflect the average annual around-the-clock price for the MidAmerican Iowa/South Dakota load zone. Prices are similar across scenarios with the High Gas and Low Gas prices setting the upper and lower bounds, respectively.

FIGURE 22: MARKET PRICES BY SCENARIO

Year	Reference	Early Ret.	Low Gas	High Gas	DLOL	High Load	EPA
2025	$29.21	$24.36	$23.40	$28.09	$25.11	$27.84	$26.38
2026	$25.09	$25.08	$22.01	$29.20	$24.89	$28.30	$26.09
2027	$24.30	$25.17	$27.83	$28.85	$24.07	$27.58	$24.20
2028	$25.87	$27.82	$23.33	$30.91	$25.22	$28.23	$25.97
2029	$28.66	$28.50	$26.69	$33.97	$28.28	$30.09	$28.54
2030	$30.47	$30.36	$27.22	$36.99	$29.57	$31.95	$32.63
2031	$31.40	$31.36	$25.46	$37.31	$30.35	$32.92	$33.08
2032	$32.69	$32.29	$26.54	$38.29	$31.16	$33.83	$34.10
2033	$33.92	$33.80	$27.69	$39.89	$31.95	$35.08	$34.95
2034	$34.99	$35.20	$27.46	$41.09	$33.22	$35.92	$36.23
2035	$35.70	$35.74	$27.44	$42.17	$33.97	$36.17	$36.17
2036	$36.31	$36.10	$28.00	$42.67	$34.58	$36.68	$36.32
2037	$36.50	$37.06	$28.17	$41.84	$34.74	$36.90	$35.89
2038	$37.90	$36.61	$28.38	$41.81	$34.17	$37.08	$35.95
2039	$37.33	$37.39	$29.43	$42.02	$34.96	$37.87	$35.96
2040	$37.62	$37.39	$28.87	$41.62	$35.04	$38.27	$35.98
2041	$39.07	$38.54	$30.21	$43.09	$36.23	$40.95	$37.57
2042	$38.37	$37.85	$30.10	$43.06	$36.22	$40.95	$37.08
2043	$39.31	$40.06	$30.13	$44.47	$36.27	$42.55	$37.31
2044	$39.64	$39.40	$30.78	$44.08	$37.48	$44.18	$38.55

MARKET PURCHASES

Market Purchases are defined as the amount of energy needed to serve load on an hourly basis above the amount of generation from MidAmerican resources. An increase in market reliance shows through increasing market purchases for the last five to 10 years of the planning horizon. This occurs in all scenarios as the conventional thermal resources retire and are replaced by CTs and solar. Energy market purchases fill in the gaps to supply hourly load and load growth. A reduction in market reliance can be achieved by adding new dispatchable resources such as combined cycle, nuclear, or nuclear with salt storage in lieu of CTs.

For the near-term focus of this RES (years 2025 through 2034), market purchases remain in acceptable levels across all scenarios.

FIGURE 23: MARKET PURCHASE AS PERCENT OF LOAD BY SCENARIO

Year	Scenario 1 – Reference Case	Scenario 2 – Early Retirement	Scenario 3 – Low Gas	Scenario 4 – High Gas	Scenario 5 - DLOL	Scenario 6 – High Load	Scenario 7 – EPA
2025	4.50%	4.80%	5.70%	4.80%	5.50%	6.50%	4.60%
2026	4.60%	5.10%	6.10%	4.80%	5.60%	7.10%	4.70%
2027	4.80%	5.00%	6.80%	5.10%	5.70%	7.40%	4.90%
2028	5.40%	5.40%	6.90%	5.30%	6.00%	8.60%	5.20%
2029	5.60%	5.80%	8.10%	5.70%	6.40%	9.40%	5.50%
2030	6.20%	7.70%	8.20%	6.10%	7.00%	10.50%	7.70%
2031	6.80%	8.30%	8.70%	6.20%	7.40%	11.30%	7.90%
2032	7.20%	11.80%	9.10%	6.10%	7.10%	12.40%	8.60%
2033	7.50%	12.90%	10.00%	6.00%	4.00%	13.80%	9.40%
2034	8.00%	13.70%	10.60%	6.20%	4.80%	15.20%	10.60%
2035	7.80%	13.70%	11.50%	6.40%	5.10%	15.90%	10.70%
2036	9.20%	13.80%	12.90%	7.80%	6.30%	18.30%	10.70%
2037	9.30%	13.80%	13.00%	8.20%	6.30%	19.30%	10.50%
2038	9.80%	14.10%	13.10%	8.50%	6.50%	20.20%	11.00%
2039	9.70%	14.10%	12.90%	9.00%	7.50%	21.20%	23.90%
2040	10.40%	14.50%	13.10%	10.00%	8.40%	22.70%	24.40%
2041	14.40%	15.00%	15.90%	13.80%	12.80%	28.40%	24.70%
2042	17.00%	17.50%	17.70%	16.60%	15.40%	31.40%	25.00%
2043	20.10%	19.90%	20.10%	19.20%	17.50%	34.20%	25.50%
2044	24.50%	24.20%	24.10%	23.60%	21.00%	38.30%	26.00%

CO_2 EMISSIONS

The values in the table below show carbon dioxide (CO2) emissions in tons. The percent totals at the bottom reflect the difference between each scenario and the Reference Case over the study period 2025 through 2044. The Reference Case shows a decrease in CO2 emissions from 14.6 million tons to four million tons over the 20-year study horizon, marking a 73% decrease.

FIGURE 24: CO2 EMISSIONS BY SCENARIO

Year	Scenario 1 – Reference Case	Scenario 2 – Early Retirement	Scenario 3 – Low Gas	Scenario 4 – High Gas	Scenario 5 - DLOL	Scenario 6 – High Load	Scenario 7 – EPA
2025	14,616,826	14,573,737	13,155,993	14,766,313	14,493,763	15,099,809	14,653,334
2026	14,318,545	14,199,008	12,669,706	14,361,520	14,207,608	14,860,043	14,435,692
2027	14,213,889	14,179,404	12,031,574	14,312,379	13,984,871	14,806,989	14,292,667
2028	14,719,544	14,629,860	12,624,227	15,107,989	14,645,923	15,431,526	14,865,036
2029	15,292,713	15,115,368	12,007,478	15,442,598	15,207,893	15,792,256	15,468,316
2030	15,634,274	14,198,263	12,733,903	15,806,635	15,422,684	16,146,398	9,857,661
2031	15,553,789	14,268,989	12,758,103	15,940,841	15,702,925	16,459,861	10,031,008
2032	15,774,754	11,017,046	13,077,053	16,011,368	15,684,323	16,523,702	10,026,066
2033	16,154,262	11,027,716	13,201,621	16,184,476	17,121,496	16,684,043	9,645,607
2034	16,177,232	11,201,953	13,201,109	16,322,402	17,317,128	16,573,441	9,404,981
2035	16,459,003	11,234,776	12,863,804	16,578,941	17,513,361	16,373,906	9,281,674
2036	15,065,542	11,301,144	11,727,169	14,767,618	16,229,245	14,605,912	9,176,434
2037	14,607,233	11,159,106	11,468,123	14,287,202	15,939,314	14,318,281	9,152,894
2038	14,253,608	10,680,576	11,408,896	14,058,020	15,542,220	14,092,576	8,813,548
2039	14,010,971	10,548,644	11,332,403	13,542,082	14,729,301	13,956,781	1,388,366
2040	13,587,726	10,428,706	11,155,698	13,097,556	14,431,970	13,749,129	1,322,901
2041	9,912,880	10,110,456	8,899,564	9,666,707	10,758,239	10,136,787	1,267,736
2042	8,208,016	8,272,520	7,720,152	7,932,972	8,935,937	8,359,418	1,268,264
2043	6,663,039	6,730,437	6,486,142	6,495,729	7,447,360	6,865,228	1,238,361
2044	4,010,548	3,911,900	3,829,056	3,708,314	4,820,508	4,211,998	1,230,862
% Difference to Scenario 1		-15.00%	-16.70%	-0.30%	4.00%	2.20%	-38.00%

NET PRESENT VALUE

Net Present Value (NPV) is calculated as the annual total of three categories: market purchase costs, market sale revenues and resource costs, each defined further below. These annual totals are then brought to a base year with an inflation vector and discount rate assumption.

Market purchase costs – In any given hour in which resource generation is short of demand (i.e., MidAmerican's Iowa/South Dakota load), the shortage is purchased at the marginal energy price or LMP.

Market sales revenues – In any given hour in which resource generation exceeds demand, the surplus is sold at the marginal energy price or LMP.

Resource costs – Includes fuel, start up, emissions, variable O&M, fixed O&M, ongoing capital (for existing thermal resources) and overnight capital (for Aurora built resources).

NPV excludes net book value for existing resources and Wind PRIME but includes going forward costs. Natural gas price and load growth effects are implicit in the respective scenarios. This data represents the Iowa/South Dakota jurisdictional share of resources and load.

FIGURE 25: NET PRESENT VALUE BY SCENARIO

Scenario	NPV (in 2024 $000)	Difference from Scenario 1 (in 2024 $000)	Difference from Scenario 1 (%)
Scenario 1 – Reference Case	8,047,236		
Scenario 2 – Early Retirement	8,558,544	511,308	6.40%
Scenario 3 – Low Gas	8,612,605	565,369	7.00%
Scenario 4 – High Gas	8,212,200	164,964	2.10%
Scenario 5 – DLOL	8,842,088	794,852	9.90%
Scenario 6 – High Load	14,783,605	6,736,369	83.70%
Scenario 7 – EPA	9,349,465	1,302,229	16.18%

CAPACITY EXPANSION SENSITIVITIES

MidAmerican conducted five capacity expansion sensitivities to evaluate the impact of different resource changes on build patterns compared to the Reference Case.

The first four sensitivities each include the addition of a pre-selected resource to the MidAmerican Iowa/South Dakota system. The fifth sensitivity allowed MidAmerican resources to be retired within Aurora.

All five sensitivities were done using the Reference Case as a starting point with the following changes:

Combined Cycle Sensitivity – added a 727 MW combined cycle beginning January 1, 2031.

SMR Sensitivity – added a 345 MW SMR beginning January 1, 2036. The SMR was timed to follow the retirement of Neal 3 on December 31, 2035.

SMR with Salt Storage Sensitivity – added a 345 MW SMR with 155 MW salt storage both beginning January 1, 2036.

Battery Storage Sensitivity – added a 655 MW four-hour battery beginning January 1, 2031. The 655 MW size was selected to be equivalent to the summer capacity rating of the combined cycle for comparability.

Retirements Sensitivity – Aurora was allowed to select units for retirement at any time. Ottumwa and Quad Cities Clean Energy Center were excluded from selection because they are jointly owned by MidAmerican but not operated by MidAmerican. The diesel power modules were excluded from selection because of their size and infrequent use.

Looking at the CT build patterns in the table below, it is apparent that the amount and timing of the CTs is relatively consistent across sensitivities. The solar build pattern is also consistent across sensitivities as shown below. None of the sensitivities built additional combined cycle turbines or wind resources. The SMR and SMR with Salt Storage sensitivities each built one 60 MW four-hour battery in 2025 and 2026, respectively. Note that the table below does not show the added resources noted above but rather the incremental Aurora builds on top of those added resources.

The Retirement Sensitivity did not retire any MidAmerican resources but there are still slight differences in the output due to the nature of linear programming in the long-term capacity expansion.

FIGURE 26: CT BUILD COMPARISON BY SENSITIVITY

	Simple Cycle Combustion Turbine Build Comparison					
Year	**Reference Case Scenario**	**Combined Cycle Sensitivity**	**SMR Sensitivity**	**SMR with Salt Storage Sensitivity**	**Battery Storage Sensitivity**	**Retirement Sensitivity**
2024	-	-	-	-	-	-
2025	-	-	-	-	-	-
2026	-	-	-	-	-	-
2027	-	-	-	-	-	-
2028	233	233	233	233	233	233
2029	233	233	233	233	-	-
2030	-	-	-	-	233	233
2031	233	-	233	233	-	-
2032	-	-	233	-	-	233
2033	233	-	-	-	-	-
2034	-	-	-	-	-	233
2035	233	233	233	233	-	233
2036	233	233	-	-	233	233
2037	-	-	-	-	-	-
2038	-	-	-	-	-	-
2039	-	-	-	-	-	-
2040	-	-	-	-	-	-
2041	699	699	699	699	699	699
2042	466	466	466	466	466	466
2043	466	233	233	233	233	233
2044	699	699	699	699	699	699
Total	3,728	3,029	3,262	3,029	2,796	3,495

FIGURE 27: SOLAR BUILD COMPARISON BY SENSITIVITY

	Solar Builds Comparison					
Year	**Reference Case Scenario**	**Combined Cycle Sensitivity**	**SMR Sensitivity**	**SMR with Salt Storage Sensitivity**	**Battery Storage Sensitivity**	**Retirement Sensitivity**
2024	50	50	-	50	200	50
2025	300	300	300	300	200	300
2026	300	250	200	100	250	250
2027	100	100	50	100	100	100
2028	-	-	-	-	-	-
2029	-	-	-	-	100	250
2030	-	-	-	-	-	-
2031	-	-	-	-	-	50
2032	-	-	-	-	-	-
2033	-	-	-	300	-	50
2034	300	-	250	300	100	-
2035	300	100	300	300	300	300
2036	300	300	150	-	300	300
2037	250	250	250	150	250	300
2038	300	300	300	300	300	300
2039	300	300	300	300	300	300
2040	300	300	300	300	300	300
2041	300	300	300	300	300	300
2042	200	300	300	300	300	300
2043	-	300	250	250	300	300
2044	50	200	150	200	200	150
Total	3,350	3,350	3,400	3,550	3,800	3,900

When comparing market purchases across sensitivities, the Battery Storage and Retirement sensitivities have nearly identical percentages of market purchases to the Reference Case. The largest annual deviation is just over 1% in the last two years of the study. The Combined Cycle Sensitivity shows a reduction in market purchases of nearly 4% in 2031 when the combined cycle resource went into service. That reduction continues over the remaining years but the overall trajectory of market purchases increasing over time persists. The same is true of the SMR and SMR with Salt Storage sensitivities but with only 1.5% reduction and occurring in 2036 when the SMR was placed in service.

FIGURE 28: MARKET PURCHASES AS PERCENT OF LOAD BY SENSITIVITY

Year	Reference Case Scenario	Combined Cycle Sensitivity	SMR Sensitivity	SMR with Salt Storage Sensitivity	Battery Storage Sensitivity	Retirement Sensitivity
2025	4.5%	4.8%	4.9%	4.7%	4.7%	4.8%
2026	4.6%	5.0%	5.2%	5.1%	4.9%	4.9%
2027	4.8%	4.9%	5.3%	5.3%	5.2%	5.0%
2028	5.4%	5.4%	5.7%	5.7%	5.6%	5.4%
2029	5.6%	6.0%	6.3%	6.0%	5.9%	5.4%
2030	6.2%	6.2%	6.6%	6.7%	6.2%	5.7%
2031	6.8%	3.0%	7.0%	7.0%	6.9%	5.9%
2032	7.2%	3.4%	7.7%	7.6%	7.3%	6.5%
2033	7.5%	3.6%	8.1%	7.5%	7.7%	7.1%
2034	8.0%	4.2%	8.1%	7.5%	8.3%	7.7%
2035	7.8%	4.4%	8.2%	7.6%	8.3%	7.7%
2036	9.2%	5.7%	7.8%	7.0%	9.8%	9.1%
2037	9.3%	5.8%	7.7%	7.3%	9.9%	9.3%
2038	9.8%	6.0%	7.8%	7.5%	10.0%	9.6%
2039	9.7%	6.1%	7.9%	7.5%	10.3%	9.8%
2040	10.4%	6.9%	8.4%	8.2%	11.1%	10.2%
2041	14.4%	10.4%	12.1%	11.8%	14.5%	14.2%
2042	17.0%	12.5%	14.5%	14.1%	17.2%	16.7%
2043	20.1%	14.9%	16.7%	16.5%	19.4%	19.0%
2044	24.5%	18.8%	20.7%	20.3%	23.4%	23.2%

Except for the Combined Cycle Sensitivity, CO_2 reductions were within half a percent of the Reference Case reductions. The Combined Cycle Sensitivity still shows a decrease over time but with an increase beginning in 2031 when the combined cycle resource is placed in service.

FIGURE 29: CO_2 EMISSIONS BY SENSITIVITY

Year	Reference Case Scenario	Combined Cycle Sensitivity	SMR Sensitivity	SMR with Salt Storage Sensitivity	Battery Storage Sensitivity	Retirement Sensitivity
2025	14,616,826	14,509,954	14,487,145	14,544,989	14,496,214	14,520,325
2026	14,318,545	14,152,747	14,231,478	14,284,601	14,174,757	14,284,283
2027	14,213,889	14,249,423	14,136,255	14,201,208	13,966,762	14,130,584
2028	14,719,544	14,691,058	14,722,010	14,733,193	14,611,574	14,723,164
2029	15,292,713	15,213,465	15,200,055	15,327,269	15,049,658	15,210,658
2030	15,634,274	15,565,327	15,554,919	15,524,476	15,439,785	15,527,214
2031	15,553,789	17,218,721	15,758,588	15,699,929	15,785,136	15,885,312
2032	15,774,754	17,468,841	15,832,311	15,897,495	15,840,096	15,976,022
2033	16,154,262	17,829,231	16,023,580	16,127,841	16,177,938	16,001,252
2034	16,177,232	18,039,000	16,446,344	16,303,638	16,360,609	16,392,079
2035	16,459,003	18,296,649	16,523,119	16,453,717	16,563,161	16,426,804
2036	15,065,542	16,732,961	14,855,220	14,940,423	15,082,076	15,083,058
2037	14,607,233	16,209,437	14,647,257	14,609,852	14,557,730	14,614,573
2038	14,253,608	15,851,852	14,274,857	14,268,702	14,352,907	14,334,158
2039	14,010,971	15,289,874	13,929,633	13,989,345	13,906,061	14,030,752
2040	13,587,726	14,793,879	13,486,627	13,490,915	13,365,053	13,586,214
2041	9,912,880	11,194,426	9,875,585	9,904,781	9,951,893	10,043,973
2042	8,208,016	9,450,754	8,120,780	8,113,461	8,048,254	8,214,093
2043	6,663,039	7,918,370	6,698,342	6,669,955	6,663,533	6,764,778
2044	4,010,548	5,160,973	3,848,654	3,897,385	3,892,423	3,891,763
% Difference to Scenario 1		7.70%	-0.20%	-0.10%	-0.40%	0.20%

NPV for each sensitivity is shown in the table below with the percent difference from the Reference Case. Each sensitivity that adds a resource reflects the cost of that resource as a higher NPV.

FIGURE 30: NET PRESENT VALUE BY SENSITIVITY

Scenario	Install Date	Capacity (MW)	NPV 20-Year (in 2024 $000)	Difference from Scenario 1 (in 2024 $000)	Difference from Scenario 1 (%)
Reference Case Scenario			8,047,236		
Combined Cycle Sensitivity	1/1/2031	727	8,165,524	118,288	1.50%
SMR Sensitivity	1/1/2036	345	8,766,309	719,073	8.90%
SMR with Salt Storage Sensitivity	1/1/2036	500	8,743,983	696,748	8.70%
Battery Storage Sensitivity	1/1/2031	655	8,633,471	586,235	7.30%
Retirement Sensitivity			8,103,777	56,542	0.70%

In summary, all sensitivities show reasonable build patterns and market purchases. The Combined Cycle Sensitivity has a lower NPV compared to the SMR, SMR with Salt Storage and Battery sensitivities, but as a trade-off for lower costs, the CO2 emission reductions are not as favorable.

MARKET RELIANCE SENSITIVITIES

MidAmerican conducted two separate market reliance sensitivities to study the impact of different weather patterns on the resource portfolio as it changes over time and to study the hours in which generation capability is less than load.

Historical hourly weather shapes from the past 10 years are used in 10 separate zonal runs that span the 20-year planning horizon. MISO provided the historical hourly profiles and uses the same profiles as inputs for its LOLE studies that determine capacity auction requirements such as PRM and capacity accreditation. While MISO provided 20 years of historical hourly data, MidAmerican chose to use years 2013 through 2022. The wind data from 2012 and prior was not based on historical wind production levels and therefore not a good comparison for current MidAmerican and MISO systems. MidAmerican applied the hourly profiles to all MISO LRZs to synchronize the weather patterns across the MISO market. The only exception to this is the separate data center load forecast for MidAmerican, which is not correlated with weather.

Uncovered load is calculated at the hourly level for any hour in which generation available for that hour is less than the load in that hour. Uncovered load is different from market purchases in that uncovered load is based on generation available for dispatch regardless of market price, and market purchases are based on generation dispatched on a simulated market price. Available generation is the seasonal capability derated by the expected forced outage rate for conventional generation, and the expected production from the historical weather year for wind and solar resources. MidAmerican performed this calculation with two separate sets of available generation. The first set includes all available generation types, thermal, nuclear, storage, wind and solar. The set second includes available thermal, nuclear and storage, and excludes wind and solar. The purpose of excluding wind and solar in the second set of generation is to provide bookends to hourly load coverage between conventional resources only and a combination of conventional and intermittent resources.

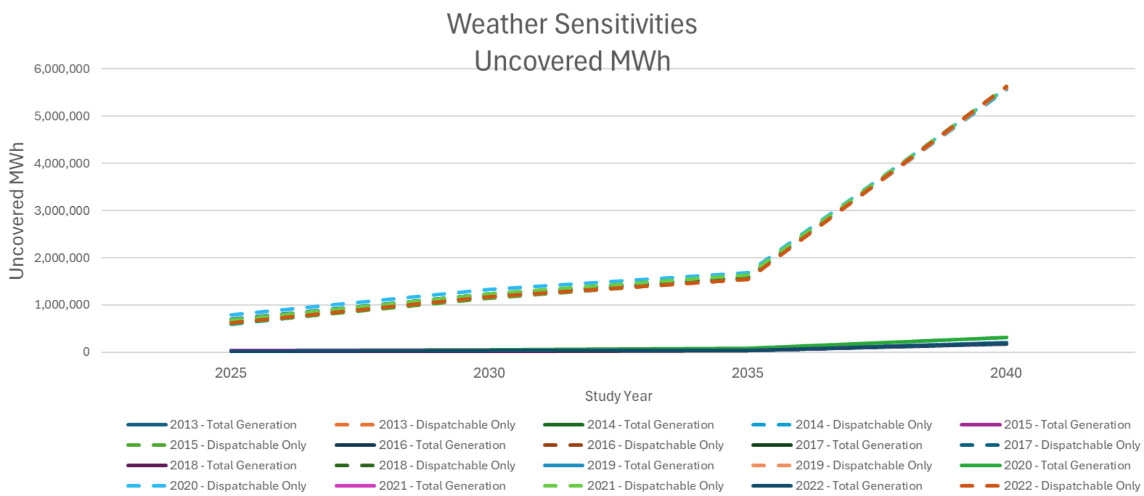
The hypothetical examples below illustrate how the uncovered MWhs are identified and quantified.

FIGURE 31: UNCOVERED MWH SAMPLE CALCULATION

Sample Hour	Hourly Load	Total Generation, Conventional and Intermittent	Total Generation > Load	Uncovered MWh	Conventional Generation Only	Conventional Generation > Load	Uncovered MWh
Hour 1	4,500	6,000	Yes	x	5,000	Yes	x
Hour 2	5,500	6,000	Yes	x	5,000	No	500
Hour 3	6,500	6,000	No	500	5,000	No	1,500

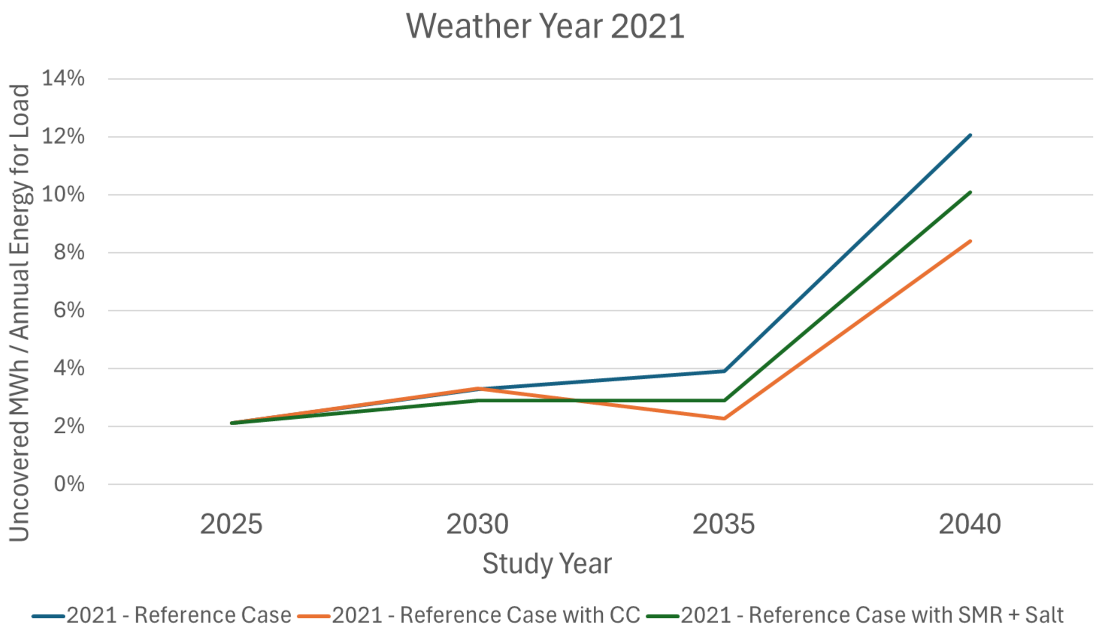
The impact of different weather patterns on the resource portfolio as it changes over time was minimal whether looking at all generation or just conventional generation. There is no meaningful difference in uncovered load based on weather patterns. The chart below shows the similarity across all 10 weather years studied for both generation sets.

FIGURE 32: WEATHER SENSITIVITY UNCOVERED MWH



The amount of uncovered load across different capacity expansion sensitivities is also similar. Because the previous graphs show little difference between weather years, the 2021 weather year was chosen to simplify this view. Market reliance in the Reference Case is low in the early years of the study and increases over time with load growth and increasing levels of solar penetration. The greatest increase in market reliance, or uncovered load, occurs after 2035 and coincides with the modeled retirement dates of the MidAmerican coal plants. Two capacity expansion sensitivities are shown below compared to the Reference Case and while uncovered load does go down as resources are added, the general shape and timing is the same across all three scenarios.

FIGURE 33: CAPACITY EXPANSION SENSITIVITY UNCOVERED MWH



RES PREFERRED PORTFOLIO SELECTION

After considering model assumptions, taking input from stakeholders and interested parties, and utilizing known load growth, MidAmerican modeled several scenarios to identify an expansion portfolio that best serves customers and prioritizes reliability, affordability and sustainability. In total, MidAmerican analyzed seven scenarios and five capacity expansion sensitivities to demonstrate the benefits of resource mix alternatives that address increasing load growth and replacement of retiring resources through the 20-year planning horizon.

All scenarios and sensitivities identified solar and CT as preferred resources. When developing the Preferred Portfolio, MidAmerican focused on resource mix variations from these two primary resource types. In the near-term planning horizon through 2030, the Preferred Portfolio recommends 750 MW of solar and two 233 MW CTs. The Preferred Portfolio includes a SMR with salt storage in the mid-2030s to address increasing market reliance risks. Salt storage adds dispatch flexibility to the nuclear facility and shows a lower NPV cost relative to the nuclear-only scenario.

The Preferred Portfolio contains the same builds as the Reference Case except for CT and solar adjustments made in 2036 to rebalance the accredited capacity position of the portfolio. These adjustments include the removal of one CT and 300 MW of solar coincident with the timing of the SMR with salt storage installation in 2036, shown in the table below with red font.

FIGURE 34: PREFERRED PORTFOLIO BUILDS

	Reference Case		Preferred Portfolio			
Year	CT	Solar	CT	Solar	SMR	Salt Storage
2024	-	50	-	50	-	-
2025	-	300	-	300	-	-
2026	-	300	-	300	-	-
2027	-	100	-	100	-	-
2028	233	-	233	-	-	-
2029	233	-	233	-	-	-
2030	-	-	-	-	-	-
2031	233	-	233	-	-	-
2032	-	-	-	-	-	-
2033	233	-	233	-	-	-
2034	-	300	-	300	-	-
2035	233	300	233	300	-	-
2036	233	300	-	-	345	155
2037	-	250	-	250	-	-
2038	-	300	-	300	-	-
2039	-	300	-	300	-	-
2040	-	300	-	300	-	-
2041	699	300	699	300	-	-
2042	466	200	466	200	-	-
2043	466	-	466	-	-	-
2044	699	50	699	50	-	-
Total	3,728	3,350	3,495	3,050	345	155

The Current Load and Capability (as seen in Figure 2) reflects a capacity shortfall beginning with Planning Year 2025-26 that continues through the first 10 years of the forecast. The Preferred Portfolio builds address that shortfall as shown in the updated Load and Capability that follows. Seasonal 20-year Load and Capability tables are available in Appendix B.

CONFIDENTIAL FIGURE 35: PREFERRED PORTFOLIO LOAD AND CAPABILITY

Preferred Portfolio Summer Load & Capability	2025-26	2026-27	2027-28	2028-29	2029-30	2030-31	2031-32	2032-33	2033-34	2034-35
LOAD (MW)										
Total PRMR	[redacted]									
CAPABILITY (MW)										
Total Net Capability Before Buy/Build										
Total Net Capability After Buy/Build*										
Total Forecasted Surplus(+)/Shortfall(-)										

* Includes Wind PRIME or RES Preferred Portfolio resources not yet on-line

PLANNING CRITERIA

MidAmerican prioritizes affordability, reliability and sustainability in resource planning. While capacity expansion modeling results can inform the decision making for replacement resources, they cannot be used in isolation. Other factors that Aurora cannot appropriately evaluate must also be considered, and it is critical to undertake evaluations of replacement candidates before making any replacement decisions. That is why MidAmerican uses several criteria that focus on affordability, reliability and sustainability to compare various power production technologies. These criteria incorporate qualitative analysis with the quantitative analysis discussed above to fully evaluate a selected portfolio.

AFFORDABILITY CRITERIA

- reasonableness of cost components for each resource type
- future variability in fuel costs and potential future environmental policies that impact fuel costs
- exposure to global market volatility, geo-political instability, regulatory and legislative uncertainty and local public reaction to a particular type of development
- local and global access to a particular resource and its price stability over time

RELIABILITY CRITERIA

- reliability, adequacy and security
- fuel type, type of technology and operational mode
- ability of a particular technology to respond to changing conditions, consideration of fuel switching and the ability to decommission a resource at a reasonable cost

SUSTAINABILITY CRITERIA

- each technology's impact to air and water, as well as each technology's byproducts
- value to the local area and state of a particular type of resource including workforce, property tax revenues and royalties or other benefits within the state

MidAmerican has used these criteria in previous ratemaking principle proceedings. With this RES, MidAmerican is adding metrics where appropriate for certain criteria along with a score for each metric to allow a side-by-side comparison of the Preferred Portfolio to other scenarios and sensitivities. Each metric is scored from 1 (most preferred) to 3 (least preferred) with total scores used to rank the nine portfolios from 1 (most preferred) to 9 (least preferred).

MidAmerican selected nine portfolios for the side-by-side comparison including four of the original scenarios, four of the sensitivities and the Preferred Portfolio. Three of the scenarios and one sensitivity are excluded from the side-by-side comparison because they do not provide additional information. The High Gas and Low Gas scenarios are excluded in favor of running a high/low gas version of the remaining scenarios. The High Load Scenario is excluded because it built the same resources as other scenarios only in larger quantities. The Retirements Sensitivity has been excluded because the model did not select any resources for early retirement and had a similar build pattern to the Reference Case.

AFFORDABILITY

MidAmerican uses three quantitative metrics to evaluate affordability in both the near-term and the long-term. The first is NPV shown below for both 10 years and 20 years.

FIGURE 36: SCORING NPV 10 YEARS AND 20 YEARS

Scenario	10 Year NPV (in 2024 $000)	NPV 10 Difference from Scenario 1 (%)	Scor
Scenario 1 – Reference Case	1,022,663	0.0%	1
Scenario 2 – Early Retirement	1,280,123	25.2%	3
Scenario 5 – DLOL	1,460,291	42.8%	3
Scenario 7 – EPA	1,503,491	47.0%	3
Combined Cycle Sensitivity SMR	1,156,912	13.1%	2
Sensitivity	1,096,241	7.2%	1
SMR with Salt Storage Sensitivity	1,066,900	4.3%	1
Battery Storage Sensitivity	1,355,778	32.6%	3
Preferred Portfolio	1,067,466	4.4%	1

Scenario	20 Year NPV (in 2024 $000)	NPV 20 Difference from Scenario 1 (%)	Score
Scenario 1 – Reference Case	8,047,236	0.0%	1
Scenario 2 – Early Retirement	8,558,544	6.4%	2
Scenario 5 – DLOL	8,842,088	9.9%	2
Scenario 7 – EPA	9,349,465	16.2%	3
Combined Cycle Sensitivity	8,165,524	1.5%	1
SMR Sensitivity	8,766,309	8.9%	2
SMR with Salt Storage	8,743,983	8.7%	2
Sensitivity Battery Storage	8,633,471	7.3%	2
Sensitivity Preferred Portfolio	8,876,796	10.3%	2

The second is a valuation of generation cost in $/MWh using the CAGR over 10 years and 20 years.

FIGURE 37: SCORING CAGR 10 YEARS AND 20 YEARS

Scenario	$/MWh Generation Cost (10-Year CAGR %)*	Score
Scenario 1 – Reference Case	3.7%	2
Scenario 2 – Early Retirement	4.9%	3
Scenario 5 – DLOL	3.3%	2
Scenario 7 – EPA	5.6%	3
Combined Cycle Sensitivity	2.0%	1
SMR Sensitivity	2.7%	1
SMR with Salt Storage Sensitivity	2.8%	1
Battery Storage Sensitivity	3.3%	2
Preferred Portfolio	2.8%	1

Scenario	$/MWh Generation Cost (20-Year CAGR %)*	Score
Scenario 1 – Reference Case	17.8%	2
Scenario 2 – Early Retirement	16.9%	1
Scenario 5 – DLOL	16.3%	1
Scenario 7 – EPA	18.1%	2
Combined Cycle Sensitivity	15.9%	1
SMR Sensitivity	17.7%	2
SMR with Salt Storage Sensitivity	17.6%	2
Battery Storage Sensitivity	16.5%	1
Preferred Portfolio	17.8%	2

*Includes net system costs

Third is a comparison of each scenario with the high gas and low gas costs compared to Reference Gas costs. The metric selected is the difference in the 20-year NPV between the High Gas and Low Gas. Less of a difference indicates that a portfolio performs more consistently across a range of costs. Note that while the EPA Scenario was not run with high and low gas costs because it is still under development, it receives a neutral score of 2 for this metric.

FIGURE 38: SCORING HIGH/LOW GAS

Scenario	Reference Gas	High Gas	Low Gas	High-Low	Score
Scenario 1 – Reference Case	8,047,236	8,153,189	8,040,335	112,853	2
Scenario 2 – Early Retirement	8,558,544	8,764,742	8,403,480	361,262	3
Scenario 5 – DLOL	8,842,088	8,932,578	8,803,692	128,886	2
Scenario 7 – EPA	9,349,465	-	-	-	2
Combined Cycle Sensitivity	8,165,524	8,270,769	8,084,238	186,531	2
SMR Sensitivity	8,766,309	8,790,009	8,778,936	11,072	1
SMR with Salt Storage Sensitivity	8,743,983	8,754,641	8,759,840	-5,199	1
Battery Storage Sensitivity	8,633,471	8,667,999	8,627,871	40,128	1
Preferred Portfolio	8,876,796	8,890,725	8,899,707	-8,981	1

MidAmerican uses two qualitative metrics to evaluate affordability.

First is geo-political uncertainty, which includes exposure to global markets and their associated volatility, instability (including terrorism), regulatory and legislative uncertainty and local public reaction to a particular type of development. Exposure to global markets can occur on at least three levels: (1) the cost of raw materials used in the manufacture of a technology may be subject to world demand and, hence, price instability; (2) components of a facility could be manufactured in a foreign country and the exchange rate with the United States dollar could impact prices; and (3) fuel prices for natural gas, oil and coal could be driven by events in other parts of the world. Natural gas-fired resources have more exposure to world markets as the demand for foreign and domestic natural gas increases. Once installed, solar resources have limited exposure to foreign events. Smaller, dispersed generation resources, such as solar and combustion turbine peaking units, are less likely to have electric delivery impacts from political instability because of the typically smaller size (MW) of each resource and the dispersed nature.

Second is resource availability/stability which evaluates long-term supply availability, access to fuel and price stability of fuel types both locally and globally. Natural gas is abundant within the United States and abroad; however, its price has historically been volatile. At the same time, natural gas resources provide a balanced outcome given MISO's increased attention to around-the-clock reliability. Solar insolation makes solar resources advantageous in the southern tier of the United States, but they are gaining ground in the north.

RELIABILITY

Reliability addresses aspects of resource adequacy, fuel reliance and market reliance.

Regarding resource adequacy, MidAmerican must not only meet current MISO requirements but also plan for the evolving resource adequacy landscape and accreditation uncertainties. The Aurora model includes seasonal resource accreditation methodology that assigns a capacity value to each resource type based upon its reliability contribution during critical operating periods to support the MISO generation reserve sharing pool. The Preferred Portfolio meets MidAmerican's load and capability forecast as shown in the Load and Capability above. The DLOL Scenario incorporates future accreditation uncertainties and shows similar near-term resource selections of solar and CTs as the Preferred Portfolio.

Market reliance has been reviewed in terms of total amount of market purchase over time, weather pattern risk and hourly uncovered load risk.

The table below shows the 20-year average of market purchases as a percentage of load.

FIGURE 39: SCORING MARKET PURCHASES

Scenario	Market Purchase as % of Load - 20 Year Average	Score
Scenario 1 – Reference Case	9.6%	2
Scenario 2 – Early Retirement	12.1%	3
Scenario 5 – DLOL	8.3%	2
Scenario 7 – EPA	13.1%	3
Combined Cycle Sensitivity	6.9%	1
SMR Sensitivity	8.8%	2
SMR with Salt Storage Sensitivity	8.5%	2
Battery Storage Sensitivity	9.8%	2
Preferred Portfolio	8.6%	2

The full table below recaps the market purchases across the sensitivities and includes the Preferred Portfolio for comparison.

FIGURE 40: PREFERRED PORTFOLIO MARKET PURCHASES

Market Purchases

Year	Reference Case		Combined Cycle		SMR		SMR with Salt Storage		Battery Storage		Preferred Portfolio	
	MWh	% of Load	MWh	% of Load	MWh	% of Load	MWh	% of Load	MWh	% of Load	MWh	% of Load
2025	1,460,795	4.50%	1,542,649	4.80%	1,577,681	4.90%	1,518,878	4.70%	1,522,095	4.70%	1,510,311	4.70%
2026	1,541,386	4.60%	1,691,274	5.00%	1,748,626	5.20%	1,719,969	5.10%	1,641,285	4.90%	1,592,362	4.70%
2027	1,655,494	4.80%	1,691,677	4.90%	1,850,367	5.30%	1,841,838	5.30%	1,808,257	5.20%	1,652,857	4.80%
2028	1,941,379	5.40%	1,940,963	5.40%	2,072,404	5.70%	2,055,480	5.70%	2,014,956	5.60%	1,887,251	5.20%
2029	2,070,725	5.60%	2,223,595	6.00%	2,325,573	6.30%	2,221,572	6.00%	2,190,986	5.90%	2,122,454	5.70%
2030	2,325,591	6.20%	2,330,786	6.20%	2,482,864	6.60%	2,511,965	6.70%	2,349,286	6.20%	2,354,245	6.20%
2031	2,607,046	6.80%	1,150,946	3.00%	2,706,478	7.00%	2,708,491	7.00%	2,642,178	6.90%	2,508,521	6.50%
2032	2,817,232	7.20%	1,323,948	3.40%	3,043,533	7.70%	2,998,991	7.60%	2,873,186	7.30%	2,893,626	7.40%
2033	3,014,665	7.50%	1,454,341	3.60%	3,246,125	8.10%	3,003,978	7.50%	3,095,827	7.70%	2,993,948	7.50%
2034	3,291,453	8.00%	1,738,313	4.20%	3,320,726	8.10%	3,086,191	7.50%	3,398,253	8.30%	3,199,750	7.80%
2035	3,279,311	7.80%	1,845,933	4.40%	3,418,367	8.20%	3,191,387	7.60%	3,487,914	8.30%	3,293,450	7.90%
2036	3,922,773	9.20%	2,459,481	5.70%	3,323,118	7.80%	2,993,865	7.00%	4,199,702	9.80%	3,126,718	7.30%
2037	4,069,916	9.30%	2,538,738	5.80%	3,358,692	7.70%	3,195,158	7.30%	4,334,667	9.90%	3,193,303	7.30%
2038	4,381,178	9.80%	2,680,177	6.00%	3,489,642	7.80%	3,366,270	7.50%	4,482,935	10.00%	3,407,181	7.60%
2039	4,451,974	9.70%	2,806,135	6.10%	3,612,918	7.90%	3,436,137	7.50%	4,716,887	10.30%	3,506,979	7.70%
2040	4,872,958	10.40%	3,240,125	6.90%	3,933,123	8.40%	3,809,883	8.20%	5,182,504	11.10%	3,864,419	8.30%
2041	6,877,276	14.40%	4,985,584	10.40%	5,804,875	12.10%	5,644,702	11.80%	6,937,632	14.50%	5,693,014	11.90%
2042	8,312,124	17.00%	6,124,837	12.50%	7,065,206	14.50%	6,867,700	14.10%	8,419,624	17.20%	7,031,541	14.40%
2043	10,053,240	20.10%	7,473,467	14.90%	8,357,053	16.70%	8,225,551	16.50%	9,693,612	19.40%	8,667,810	17.30%
2044	12,551,080	24.50%	9,629,677	18.80%	10,609,000	20.70%	10,362,090	20.30%	11,959,050	23.40%	11,097,250	21.70%

Increasing market purchases that occur in the latter years of the study period result from a modeling assumption of considerable levels of conventional natural gas and coal-fired resources retiring. The SMR with salt storage in the Preferred Portfolio reduces the market purchase risk relative to the Reference Case. Subsequent resource evaluation studies can re-examine levels of market purchases in the out-years of the model.

Market sale information was requested during the third meeting and is provided here, although sales are not a key part of reliability considerations when considering only MidAmerican's load-serving obligations.

FIGURE 41: PREFERRED PORTFOLIO MARKET SALES

Market Sales

Year	Reference Case		Combined Cycle		SMR		SMR with Salt Storage		Battery Storage		Preferred Portfolio	
	MWh	% of Load	MWh	% of Load	MWh	% of Load	MWh	% of Load	MWh	% of Load	MWh	% of Load
2025	14,539,590	45.2%	14,539,710	45.2%	14,436,640	44.9%	14,544,190	45.3%	14,551,950	45.3%	14,612,700	45.5%
2026	15,074,730	44.7%	14,959,780	44.4%	14,891,960	44.2%	14,804,000	43.9%	15,000,000	44.5%	15,158,250	45.0%
2027	15,657,780	45.1%	15,609,110	44.9%	15,393,770	44.3%	15,411,950	44.4%	15,570,130	44.8%	15,656,440	45.1%
2028	15,846,310	43.8%	15,722,310	43.4%	15,592,280	43.1%	15,596,720	43.1%	15,813,200	43.7%	15,796,320	43.6%
2029	15,703,630	42.5%	15,665,800	42.4%	15,491,530	41.9%	15,475,230	41.9%	15,758,360	42.6%	15,640,470	42.3%
2030	15,790,770	41.9%	15,622,590	41.4%	15,478,050	41.0%	15,490,330	41.1%	15,809,270	41.9%	15,766,470	41.8%
2031	15,434,490	40.1%	18,218,530	47.3%	15,329,600	39.8%	15,305,030	39.7%	15,782,400	41.0%	15,610,420	40.5%
2032	15,191,630	38.6%	18,001,870	45.8%	15,098,800	38.4%	15,125,450	38.5%	15,406,540	39.2%	15,157,100	38.6%
2033	14,973,530	37.3%	17,658,370	44.0%	14,671,110	36.5%	15,120,240	37.7%	15,098,170	37.6%	14,986,410	37.3%
2034	15,246,830	37.2%	17,548,970	42.8%	15,012,250	36.6%	15,348,630	37.4%	15,145,980	36.9%	15,331,270	37.4%
2035	15,389,130	36.7%	17,440,420	41.6%	15,120,980	36.1%	15,502,210	37.0%	15,305,360	36.5%	15,345,710	36.6%
2036	14,689,800	34.3%	16,548,860	38.7%	15,915,140	37.2%	16,038,970	37.5%	14,547,530	34.0%	15,946,850	37.3%
2037	13,652,910	31.2%	15,325,690	35.0%	14,981,890	34.2%	14,932,550	34.1%	13,421,950	30.7%	14,846,450	33.9%
2038	12,689,610	28.4%	14,101,410	31.5%	13,847,590	31.0%	13,837,530	30.9%	12,514,760	28.0%	13,791,320	30.8%
2039	11,307,840	24.7%	12,252,140	26.8%	12,403,040	27.1%	12,392,360	27.1%	11,148,700	24.4%	12,252,950	26.8%
2040	9,921,072	21.2%	10,615,860	22.7%	10,911,550	23.3%	10,865,630	23.3%	9,662,075	20.7%	10,765,660	23.0%
2041	7,068,766	14.8%	7,509,447	15.7%	7,888,905	16.5%	7,874,356	16.5%	6,901,635	14.4%	7,822,507	16.4%
2042	5,175,881	10.6%	5,558,710	11.4%	5,991,675	12.3%	5,946,555	12.2%	5,131,872	10.5%	5,759,464	11.8%
2043	3,556,293	7.1%	4,093,781	8.2%	4,413,603	8.8%	4,434,201	8.9%	3,793,998	7.6%	4,032,247	8.1%
2044	2,404,723	4.7%	2,826,378	5.5%	3,027,179	5.9%	3,061,436	6.0%	2,641,986	5.2%	2,766,188	5.4%

Another measure of market reliance, uncovered load is summarized below using a ratio of thermal generation plus storage available for dispatch to the total load in 2044. As explained above, uncovered load is calculated at the hourly level for any hour in which generation available for that hour is less than the load in that hour.

FIGURE 42: SCORING UNCOVERED LOAD

Scenario	Uncovered MWh Thermal +Storage Only (2044)	Score
Scenario 1 – Reference Case	10.15%	2
Scenario 2 – Early Retirement	10.24%	2
Scenario 5 – DLOL	1.91%	1
Scenario 7 – EPA	14.18%	2
Combined Cycle Sensitivity	9.45%	1
SMR Sensitivity	11.29%	2
SMR with Salt Storage Sensitivity	11.47%	2
Battery Storage Sensitivity	21.56%	3
Preferred Portfolio	6.72%	1

Flexibility/optionality addresses the ability of a particular technology to respond to changing conditions. The criteria for comparing flexibility/optionality focuses on items such as fuel switching (e.g., coal to gas), conversion to other technologies (e.g., conversion of a coal resource to a combined cycle resource) and the ability to decommission a resource at a reasonable cost.

The table below measures flexibility of a portfolio using the ratio of conventional resources plus storage to total resources using Seasonal Accredited Capacity (SAC) as the metric. A higher percentage of conventional resources would score as being more flexible in that they can be operated on multiple fuels, converted to other technologies or even relocated.

FIGURE 43: SCORING CONVENTIONAL CAPACITY

	Summer - 2036			
Scenario	SAC - Conventional + Storage	SAC - Conventional + Wind + Solar	% of Total SAC - Conventional + Wind + Solar	Score
Scenario 1 – Reference Case	4,523	6,998	64.6%	2
Scenario 2 – Early Retirement	4,693	6,993	67.1%	2
Scenario 5 – DLOL	5,125	6,531	78.5%	1
Scenario 7 – EPA	4,332	6,716	64.5%	2
Combined Cycle Sensitivity	4,764	6,988	68.2%	2
SMR Sensitivity	4,717	7,013	67.3%	2
SMR with Salt Storage Sensitivity	4,673	7,059	66.2%	2
Battery Storage Sensitivity	4,573	7,001	65.3%	2
Preferred Portfolio	4,807	7,143	67.3%	2

Generation resource diversity is a key element in reducing risk and increasing reliability. For purposes of this RES, diversity has the following aspects: fuel type, type of technology and operational mode (i.e., baseload, intermediate, peaking, intermittent and storage). The diversity criteria apply to both MidAmerican and the surrounding region.

Consideration of a resource mix using both installed capacity and accredited capacity provides two different perspectives of diversity. Installed capacity reflects diversity during periods when solar and wind availability are high. Accredited capacity reflects diversity during periods where operating margins are tight, reflecting lower wind and solar capability, and forced and planned outage rate performance for conventional generation.

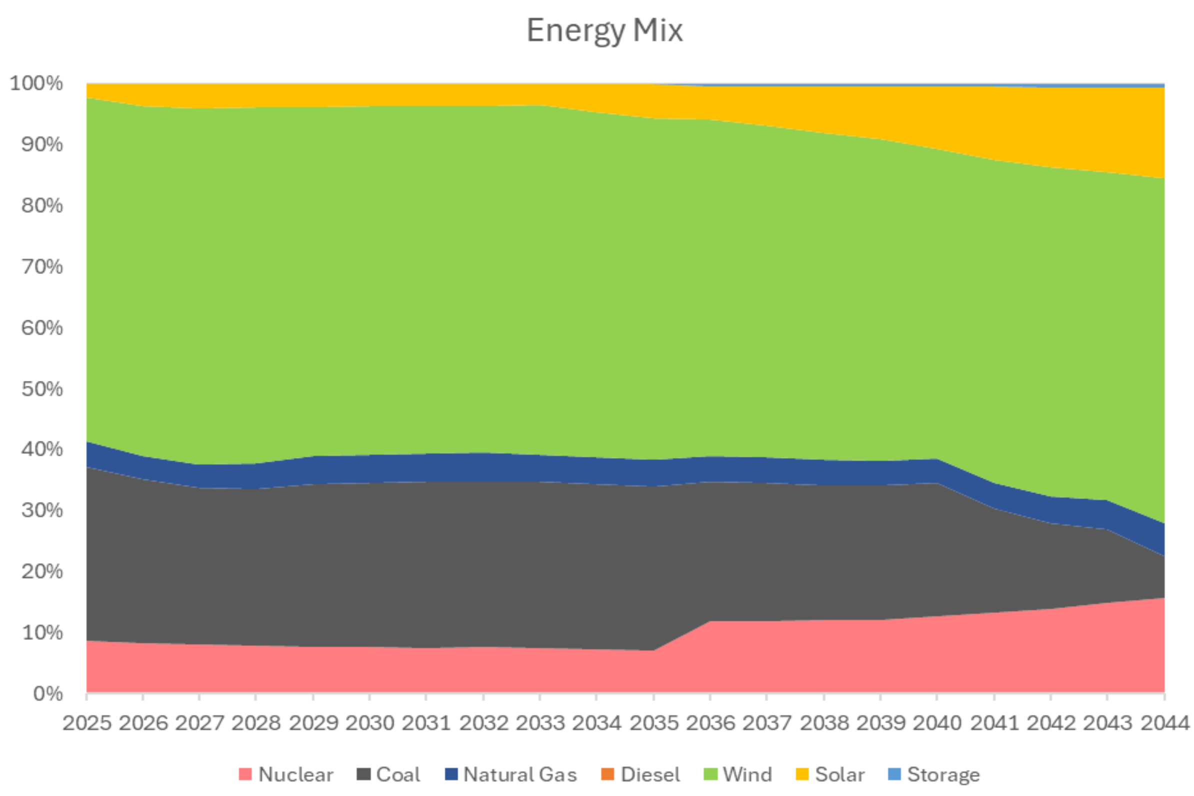
The solar and SMR with salt storage in the Preferred Portfolio add diversity to the resource mix throughout the planning horizon. The table below shows resource diversity of the Preferred Portfolio for three sample years in both installed capacity and accredited capacity. The summer season is shown here, but all seasons can be found in Appendix B.

CONFIDENTIAL FIGURE 44: PREFERRED PORTFOLIO DIVERSITY

Summer												
Fuel Type	2025				2035				2043			
	Installed Capacity		Accreditable Capacity		Installed Capacity		Accreditable Capacity		Installed Capacity		Accreditable Capacity	
	MW	%	MW	%	MW	%	MW	%	MW	%	MW	%
Coal	[redacted]											
Gas												
Oil												
Nuclear												
Biogas												
Hydro												
Salt Storage												
Storage												
LMR-retail-Load												
LMR-retail-BTMG												
Solar												
Wind												
Total Conventional + Storage + LMR												
Total Wind + Solar												
Total												

Consideration of resource diversity from energy mix provides yet another view. Energy mix is based on a production cost run of all hours of the system, including economic unit commitment and dispatch of each resource type. The graph below shows energy mix for the Preferred Portfolio.

FIGURE 45: PREFERRED PORTFOLIO ENERGY MIX



SUSTAINABILITY

Sustainability includes environmental emissions and economic development. The RES scenarios and sensitivities all show declines in carbon emissions as existing resources retire and are replaced by zero-emissions solar and low-capacity factor CTs. New solar and nuclear displace other resources that have higher fuel costs and emissions in both the MidAmerican system and the entire MISO energy market. The table below compares near-term and long-term emission reductions by portfolio.

FIGURE 46: SCORING EMISSIONS

Scenario	Avg Emissions Years 1-10 (CO_2 tons)	Emissions (Yrs 1-10) Difference from Scenario 1 (%)	Score (10-Year)	Avg Emissions Years 1-20 (CO_2 tons)	Emissions (Yrs 1-20) Difference from Scenario 1 (%)	Score (20-Year)
Scenario 1 – Reference Case	15,245,583	0.0%	2	13,461,720	0.0%	2
Scenario 2 – Early Retirement	13,441,134	-11.8%	1	11,439,480	-15.0%	1
Scenario 5 – DLOL	15,378,861	0.9%	2	14,006,803	4.0%	3
Scenario 7 – EPA	12,268,037	-19.5%	1	8,341,070	-38.0%	1
Combined Cycle Sensitivity	15,893,777	4.3%	3	14,491,847	7.7%	3
SMR Sensitivity	15,190,253	-0.4%	2	13,414,281	-0.4%	2
SMR with Salt Storage Sensitivity	15,239,269	0.0%	2	13,432,638	-0.2%	2
Battery Storage Sensitivity	15,264,464	0.1%	2	13,449,159	-0.1%	2
Preferred Portfolio	15,264,113	0.1%	2	13,423,448	-0.3%	2

The economic development criterion is a measure of the value afforded to the local area and the state of having a particular type of resource located there. The criteria used to measure economic development benefits include construction workforce, ongoing operations and maintenance staff, creation of manufacturing facilities in the state, property tax revenues and royalties or other benefits to parties within the state.

Large generator installations, such as nuclear, require many skilled workers to construct and staff throughout the resource life. Solar resources can provide a purchase of property or payments for easements where facilities are situated.

The RES Preferred Portfolio includes environmental and economic benefits from PTC considerations. Moreover, carbon-free generation provides the ability to attract sustainability-focused businesses that locate and/or expand in the state of Iowa.

PREFERRED PORTFOLIO

The scorecard below summarizes how the criteria are evaluated across all portfolios.

FIGURE 47: SCORECARD

Scores 1 (most preferred) to 3 (least preferred)

Criteria	Metric	Preferred Portfolio	Scenario 1 – Reference Case	Scenario 2 – Early Retirement	Scenario 5 – DLOL	Scenario 7 – EPA	Combined Cycle Sensitivity	SMR Sensitivity	SMR with Salt Storage Sensitivity	Battery Storage Sensitivity
Affordability	NPV 10-Year	1	1	3	3	3	2	1	1	3
	CAGR Cost 10-Year	1	2	3	2	3	1	1	1	2
	NPV 20-Year	2	1	2	2	3	1	2	2	2
	CAGR Cost 20-Year	2	2	1	1	2	1	2	2	1
	High/Low Gas	1	2	3	2	2	2	1	1	1
	Foreign market	1	2	2	1	2	2	2	1	1
	Fuel Abundance	1	2	2	3	2	3	1	1	1
Reliability	Market Purchases	2	2	3	2	3	1	2	2	2
	Uncovered load	1	2	2	1	2	1	2	2	3
	Fuel Diversity	1	3	3	2	3	2	2	1	2
	Conventional + Storage	2	2	2	1	2	2	2	2	2
Sustainability	CO_2 (10 year)	2	2	1	2	1	3	2	2	2
	CO_2 (20 year)	2	2	1	3	1	3	2	2	2
	Jobs	1	2	3	1	2	1	1	1	2
Total Score		20	27	31	26	31	25	23	21	26

By summing the total scores, the portfolios are ranked in order of 1 (most preferred) to 9 (least preferred). The Preferred Portfolio while not scoring "most preferred" in every category does have the best score overall and provides a reasonable balance between the affordability, reliability and sustainability of MidAmerican's resource mix.

FIGURE 48: PORTFOLIO RANKING

Rank	Portfolio	Total Score	Tie-Break (count of 1s)
1	Preferred Portfolio	20	8
2	SMR with Salt Storage Sensitivity	21	7
3	SMR Sensitivity	23	5
4	Combined Cycle Sensitivity	25	6
5	Scenario 5 – DLOL	26	5
6	Battery Storage Sensitivity	26	4
7	Scenario 1 – Reference Case	27	2
8	Scenario 2 – Early Retirement	31	3
9	Scenario 7 – EPA	31	2

The Preferred Portfolio also meets a reasonable balance between existing and evolving federal policy. The solar and CT fuel types align with EPA goals in the GHG rule and SMR with Salt Storage is a carbon-free resource that aligns with EPA goals while adding new firm dispatchable resources to the resource mix. The Preferred Portfolio aligns with existing and evolving MISO resource adequacy policy. Solar and CT builds are a part of the resource mix under the DLOL Scenario and SMR with salt storage is a reasonable resource under MISO's DLOL proposal. The Preferred Portfolio reduces carbon emissions by selecting zero and low-emitting resources to address new load growth while considering the need for dispatchable resources to address reliability needs. The timing for the SMR with salt storage option also aligns with the end of book life for MidAmerican's Neal Unit 3 coal plant.

RES ACTION PLAN

MidAmerican's RES process has demonstrated the need for near-term capacity additions. That need stems primarily from a period of above average load growth but also from changes to MISO accreditation methodologies that increase the volatility of PRMs and resource accreditation for all resource types. MidAmerican's analysis shows primarily solar and CT resource selections from the Aurora capacity expansion scenarios, which was consistent across all scenarios and sensitivities. MidAmerican's Action Plan is based on the Preferred Portfolio and includes 750 MW of solar and 466 MW of CTs by 2030.

In addition to these near-term goals, MidAmerican proposes SMR with salt storage to address a growing reliance on market purchases in the outer years and to add diversity. Review of the SMR with salt storage resource option is needed in the future, and other resource needs starting in 2030 will be evaluated in future resource planning efforts.

MidAmerican has focused on modeled results throughout the RES process, but feasible implementation dates for new resources are driven by many challenges, including regulatory approval, permitting, equipment procurement and interconnection study timelines. Challenges specific to each resource type in the Action Plan are discussed below followed by a comparison of the model timeline to a feasible timeline.

SOLAR IMPLEMENTATION CHALLENGES:

- **Permitting**
  - Advance ratemaking principles approval process is approximately 9-10 month from start to finish
  - Generator siting certificate required through Iowa Utilities Commission; general site layout needed in application
  - Local county permits required for each project; general project design needed in application
- **Substation Equipment Procurement**
  - Two years to procure main power transformers requiring commitments in early Q1 2025
  - 12-18 months to procure other substation equipment including control houses, 69 kV breakers, and structural steel
  - Equipment orders needed in Q1 2025 – Q3 2025 for long lead time equipment

- **Solar Equipment Procurement**
  - 12-18 months to procure solar modules requiring orders to be placed in Q1 2026
- **Development and Engineering**
  - Project development and equipment selection must be complete prior to starting engineering and design, and the design is needed for permitting which takes approximately six months from application to decision
- **MISO Interconnection Studies**
  - Some MidAmerican solar projects scheduled for year-end 2027 have executed interconnection agreements with MISO
  - Other solar projects require an interconnection process that can take up to three years to complete

COMBUSTION TURBINE IMPLEMENTATION CHALLENGES:

- **Permitting**
  - Generator siting certificate required through the Iowa Utilities Commission; general site layout needed in application
  - Air quality construction permit required from the IDNR and required prior to start of construction
- **Major Equipment Procurement**
  - 2-3 years to procure major equipment such as CTs, 345 kV breakers, generator step up transformers, unit auxiliary transformers, power distribution centers, motor control centers
  - Equipment orders needed in Q4 2024 – Q1 2025 for long lead time equipment to meet a 2028 in-service schedule
  - Major equipment lead-times continue to extend due to market demand and growing lead times for raw materials
- **Engineering, Procurement and Construction (EPC) Contractor availability and labor shortages**
  - EPC vendors are experiencing unprecedented requests for proposals and commitments to build various projects
  - Early engagement and contracting with EPC contractors is needed to secure contractors and meet schedule

- **MISO Interconnection Studies**
  - The latest interconnection study cycle took about three years to complete from application to final study results
  - Study cycles continue to be delayed as MISO works through large amounts of generator applications

Taking these challenges into account, the Action Plan with a feasible timeline and ability to meet capacity need is shown below.

CONFIDENTIAL FIGURE 49: ACTION PLAN

	Model Builds		Feasible Timeline		Capacity Need (long + / short -)	
Summer Season Accreditation	Simple Cycle Combustion Turbine	Solar	Simple Cycle Combustion Turbine	Solar	Before Action Plan Resources Summer Season	After Action Plan Summer Season
2024	0	50	0	0	[redacted]	[redacted]
2025	0	300	0	0	[redacted]	[redacted]
2026	0	300	0	0	[redacted]	[redacted]
2027	0	100	0	0	[redacted]	[redacted]
2028	233	0	233	250	[redacted]	[redacted]
2029	233	0	233	500	[redacted]	[redacted]
2030	0	0	0	0	[redacted]	[redacted]

MidAmerican did not develop an action plan for the latter years of the study period because MidAmerican recognizes that conditions change, and further studies will be necessary.

There are several areas that require further study, including the EPA GHG gas rule. MidAmerican continues to develop the capital and ongoing expenses for natural gas conversion options, review status of ongoing federal litigation, participate in Iowa state implementation plan development and review Aurora capabilities as the software is improved to constrain capacity factors for new natural gas resources.

MidAmerican will continue to study storage options in subsequent RES studies where MidAmerican expects clarity from MISO and where cost declines may occur as a result of technology or manufacturing improvements. MISO can provide clarity by providing a range of forecasted accreditation values where storage accreditation values may be impacted by varying levels of MISO-wide solar resource penetration, and variations in the discharge duration capabilities of various storage resources. MidAmerican encourages RES participants to support requests for more information from MISO in the MISO stakeholder processes.

MidAmerican will continue to evaluate its resource mix in future resource planning work and is committed to providing affordable, reliable and sustainable energy as customer needs evolve and regulatory and compliance requirements change.