SOUTHWESTERN ELECTRIC POWER COMPANY

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SWEPCO IRP Stakeholder Conference

September 15, 2021

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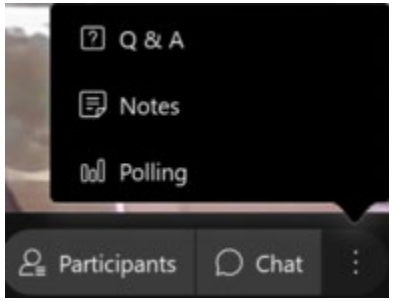
Guidelines

1. Participants joining today's meeting will be in a "listen-only" mode by default.
2. Technical questions related to the Webex platform and its use will be addressed by the support staff directly via the chat feature.
3. During the presentation, please enter questions at any time into the Webex Q&A feature.
4. Time will be taken to answer questions related to the materials presented after each section although time may not allow all questions to be addressed. Unanswered questions will be addressed after the presentation as time permits and/or provided after the Stakeholder meeting.
5. At the end of the presentation, we will open-up the floor for additional questions, thoughts, ideas, and suggestions.



Open the Q&A feature on the bottom right hand corner of the WebEx screen

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Agenda

Time	Agenda Topic	Presenter
8:30-8:45	Welcome and Introductions • Company Overview • IRP Rules • Stakeholder Process	 Lynn Ferry-Nelson David Matthews Elizabeth Stephens
8:45-9:00	Executive Summary	Patrick Augustine
9:00-10:00	IRP Development • Scenarios • Key Inputs	Jonathan Painley Jonathan Painley, Chad Burnett
10:00-10:15	*Break*	
10:15-11:30	IRP Development - Continued • Portfolio Development & Results • Stochastics Process • Scorecard Review	Robert Kaineg
11:30-12:30	Stakeholder Breakout Session	
12:30 – 1:00	Stakeholder Breakout Session Review and Q&A	Stakeholder Facilitator
1:00-1:30pm	Closing Remarks	Lynn Ferry-Nelson

Meeting Facilitator: Greg Soller

Welcome & Introductions

SWEPCO Leadership Team

Tom Brice | Vice President, Regulatory and Finance
Lynn Ferry-Nelson | Director, Regulatory Services
Elizabeth Stephens | Regulatory Consultant Staff
David Mathews | Sr. Counsel

SWEPCO IRP Planning Team

Kelly Pearce | Managing Director, Resource Planning & Strategy
Mark Becker | Managing Director, Resource Planning & Grid Solutions
Scott Fisher | Manager, Resource Planning
Greg Soller | Resource Planning Analyst Staff
Chad Burnett | Director, Economic Forecasting
Connie Trecazzi | Economic Forecasting Staff

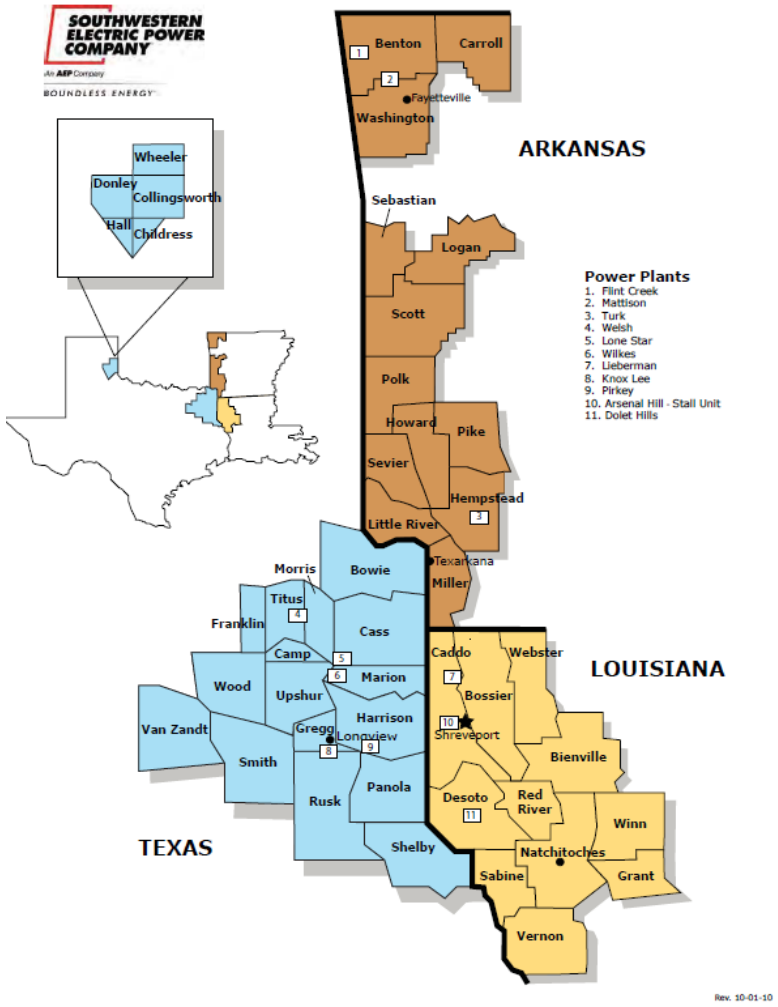
Charles River Associates (CRA) Team

James McMahon | Vice President
Patrick Augustine | Vice President
Robert Kaineg | Principal
Jonathan Painley | Senior Associate
Abigail Sah | Consulting Associate

About Southwestern Electric Power (SWEPCO)

- Southwestern Electric Power Company (SWEPCO) is headquartered in Shreveport, LA
- More than 543,000 customers in Louisiana, Arkansas and Texas.
  - 233,000 customers - LA
  - 187,000 customers - TX
  - 123,000 customers - AR
- SWEPCO also serves wholesale customers which represent about 12% of its load; additionally SWEPCO provides scheduling service for ~500MW
- SWEPCO participates in the Southwest Power Pool Regional Transmission Organization which establishes system reliability criteria

SWEPCO is a unit of American Electric Power (NYSE: AEP), which is one of the largest electric utilities in the United States, delivering electricity to more than 5 million customers in 11 states.



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SWEPCO's Five Year Action Plan from the 2018 IRP

- Continue the planning and regulatory actions necessary to implement economic DSM programs in Arkansas, Louisiana and Texas.
  Status: Filed time-of-use/electric vehicle tariffs in Texas and Arkansas as part of base rate cases. Also filed a demand response tariff in Louisiana in August 2021.
- Continue with the recently released Request for Proposal (RFP) to explore opportunities to add cost-effective wind generation in the near future to take advantage of the Federal Production Tax Credit.
  Status: SWEPCO issued a RFP in 2019, which led to the development and purchase of the North Central Wind Facilities. Sundance and Maverick are operational and SWEPCO expects the final facility, Traverse, to reach commercial operation in early 2022. Additionally, SWEPCO issued a new RFP in June 2021. SWEPCO is evaluating bids now and intends to issue the bidder shortlist in October 2021.
- Consider conducting an RFP to explore adding cost effective utility-scale solar resources.
  Status: The June 2021 RFP included a request for utility-scale solar resources.
- Be ready to adjust this Action Plan and future IRPs to reflect changing circumstances.

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IRP Rules

Section 4.1 - Objectives

The utility shall clearly state and support its objectives. The objectives of the Resource Plan include, but are not limited to, low cost, adequate and reliable energy services, economic efficiency; financial integrity of the utility; comparable consideration of demand supply resources; mitigation of risks; consideration of environmental impacts; and consistency with governmental regulations and policies. In meeting the objectives, the utility should put itself in a position to respond to anticipated economic conditions and technological advancements and changes, including environmental requirements.

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IRP Rules

Section 4.8 – Stakeholder Process

- **Each utility will organize and facilitate meetings of the Stakeholder Committee**
- **Stakeholder Committee to be broadly representative of:**
  - **Retail and wholesale customers**
  - **Independent power suppliers**
  - **Marketers**
  - **Other interested entities in the service area**
- **Stakeholders shall develop their own rules and procedures.**
- **Stakeholders should review utility objectives, assumptions, and estimated needs early in the planning cycle.**
- **Utility shall make a good faith effort to properly inform and respond to Stakeholder Committee.**
- **A Report of the Stakeholder Committee should be included with the Resource Plan submittal.**
- **Stakeholders and General Staff may also submit comments to the Commission on Resource Plan after it has been submitted.**
- **Such comments should be taken into consideration by the utility in its preparation efforts and decisions concerning subsequent approval applications, as well as in its next planning cycle.**
- **If comments concerning the process and results warrant, the Commission may require the utility to re-evaluate and resubmit its Resource Plan for the current planning cycle to address concerns raised in the comments.**

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IRP Stakeholder Process Objectives

Stakeholder input is an important part of the IRP process. SWEPCO identified three main objectives for stakeholder engagement:

- **Inform:** Increase stakeholders' understanding of the IRP process, key assumptions used in the IRP, and challenges that SWEPCO faces.
- **Listen:** Understand our stakeholders' resource planning concerns and objectives.
- **Consider:** Provide a forum for productive stakeholder feedback on specific topics at key points in the IRP process to inform SWEPCO's decision-making.

The tentative timeline is shown below.

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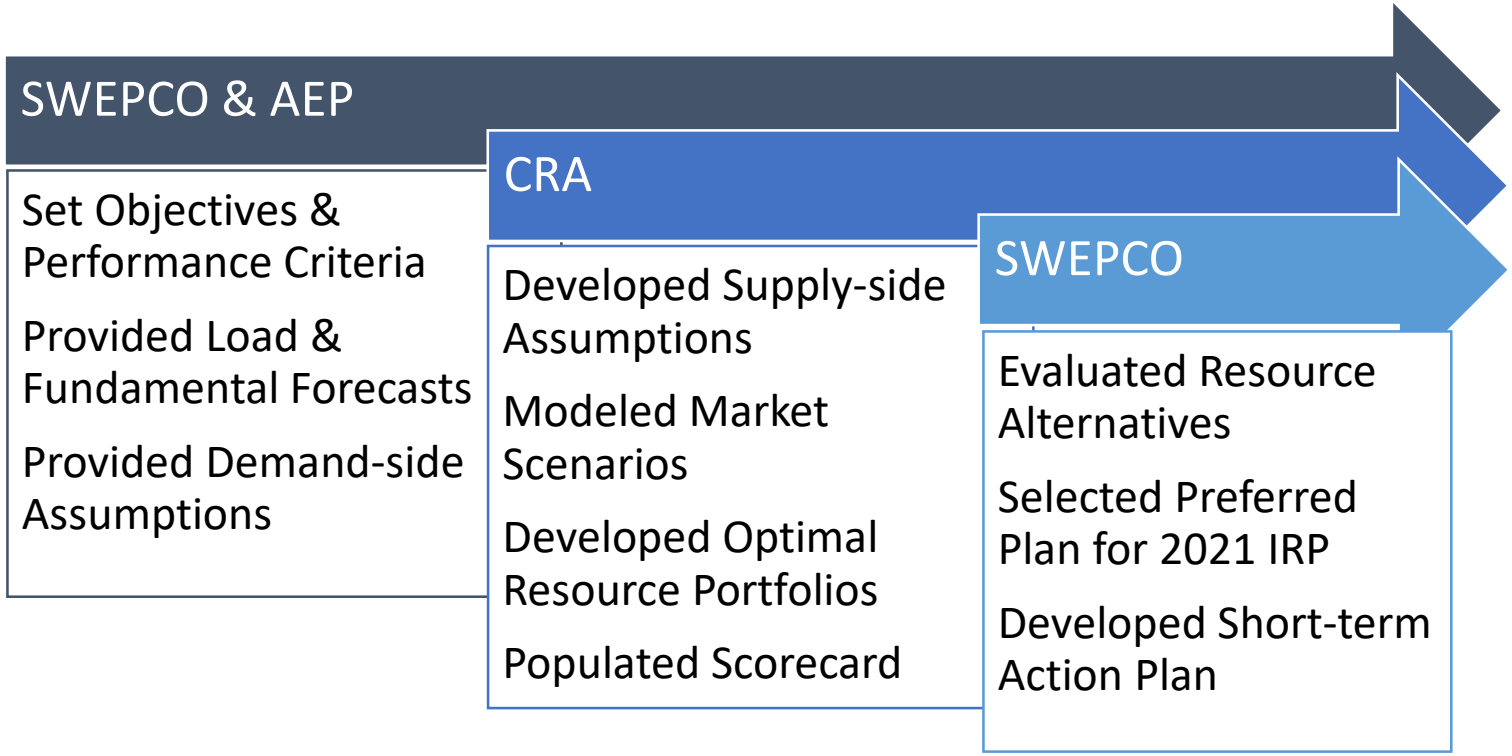
Stakeholder Feedback process

- ❑ Draft 2021 SWEPCO IRP issued to stakeholders on September 13, 2021.
- ❑ Stakeholder meeting on September 15, 2021 to discuss draft IRP report and assumptions.
- ❑ Stakeholder Comments October 8, 2021.
- ❑ Stakeholder Committee has until November 1, 2021, to prepare their report.
- ❑ Report comments are welcome on any aspect of the IRP process:
  - ➢ Fundamental Pricing Assumptions
  - ➢ Load Forecast
  - ➢ Cost of technology options
  - ➢ DSM/Energy Efficiency assumptions
  - ➢ Sensitivity cases
  - ➢ Portfolio selection
  - ➢ Other
- ❑ SWEPCO will consider the stakeholders' report in preparing the Final IRP and will include the report in the Final IRP which will be submitted to the Commission in December 2021.

2021 IRP Process

Overview of 2021 IRP Responsibilities



2021 IRP Analysis Steps

1. Define IRP Objectives Aligned to Customer Needs
2. Model 5 SPP Market Scenarios to Test Future Risks
3. Optimize DSM & New Supply, Define 6 Candidate Portfolios
4. Test 6 Portfolios across Scenarios & Stochastic Risks
5. Compare Results on the Scorecard & Select the Preferred Plan

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2021 IRP Objectives

SWEPCO set four objectives for the Preferred 2021 IRP Portfolio to achieve its mission of providing safe, reliable, affordable energy for customers and having a positive local impact on the communities it serves.

2021 IRP Objectives

Customer Affordability	Rate Stability
Maintaining Reliability	Local Impacts & Sustainability

These objectives informed each step of the 2021 IRP analysis, including the development of SPP market scenarios, the evaluation of resource alternatives, and the kinds of risks evaluated in the stochastic analysis.

These objectives also manifest themselves in the IRP scorecard, used by SWEPCO to measure the performance of different resource plans and compare trade-offs between alternatives when selecting the Preferred Plan for the 2021 IRP.

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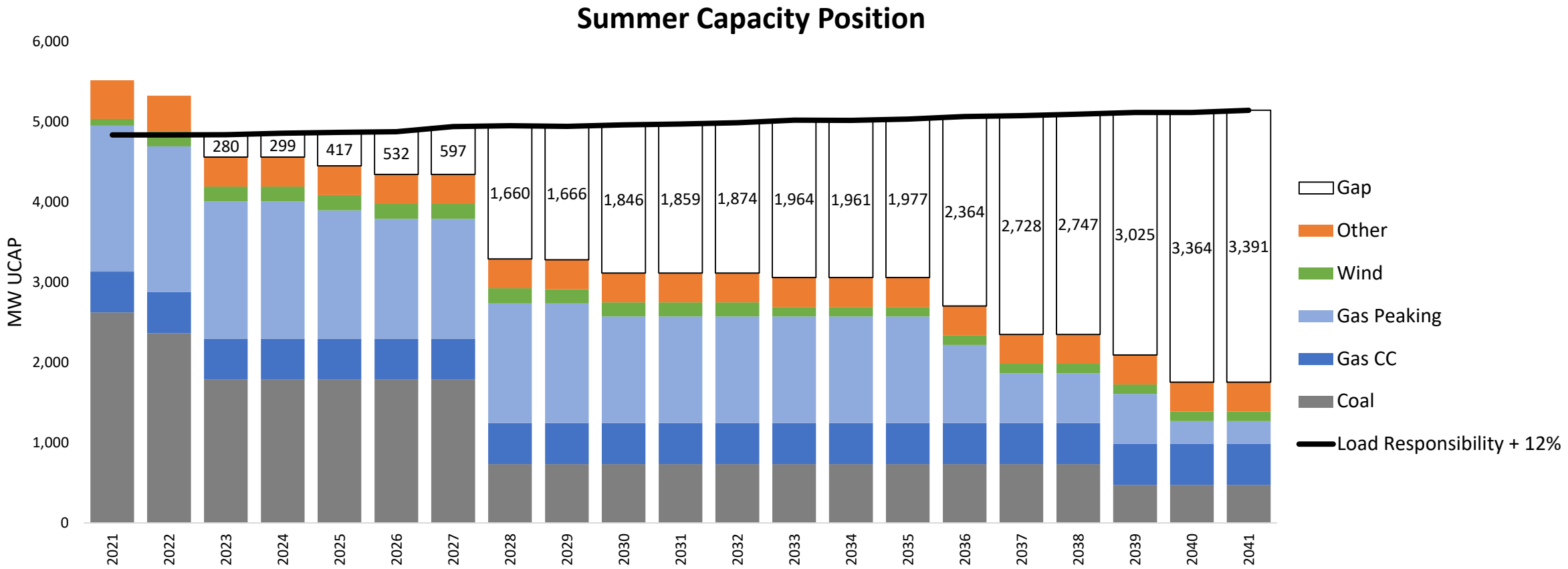
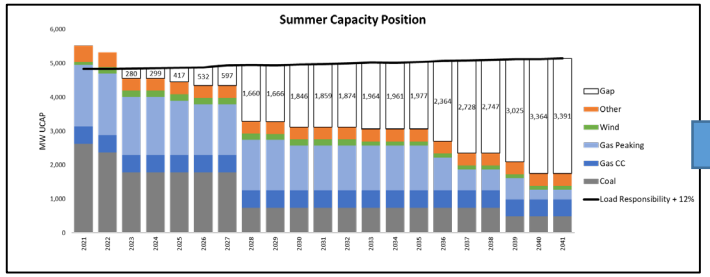
Going in Position



Load growth forecast in the service territory combines with near-term coal retirements to create a need for new capacity in the mid-2020s in order to meet SPP reserve margin requirements.

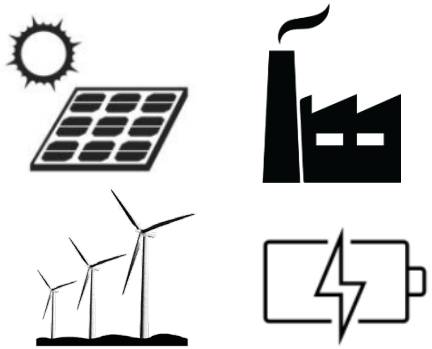
Selection of the Preferred Plan

Going in View



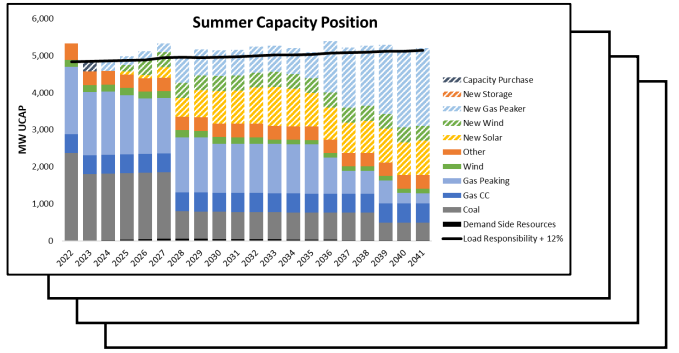
The going in positions shows a need for new capacity to meet SWEPCO customer requirements

Resource Options



SWEPCO used AURORA to evaluate resource options under different market conditions and test specific strategies

Candidate Portfolios



The resulting set of portfolios is evaluated against the IRP Scorecard metrics to help identify a preferred plan that balances reliability, affordability, stable rates while also achieving emissions reduction targets

SWEPCO evaluated six candidate portfolios against the IRP Objectives but has not yet selected a Preferred Plan.

Following this Stakeholder Conference and additional Stakeholder feedback, SWEPCO will select the best combination of supply- and demand-side resources that meet customer needs and satisfy the IRP Objectives.

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Modeling Scenarios

SWEPCO evaluated an integrated set of scenarios to study plausible ranges of key market uncertainties.

Reference Scenario

- The SPP market continues to evolve based on the current outlook for load growth, commodity prices, technology development, and regulatory pressure.

Clean Energy Technology Advancement

- Extension of federal renewable tax credits (and expansion to storage) and continued technology improvements result in low technology costs for new wind, solar, and storage. Widespread adoption of EVs and electrification results in high load growth.

Enhanced Carbon Regulation

- Carbon emissions are regulated through a federal carbon cap and trade program that results in a significant CO_2 price and a long-term power sector net zero trajectory. Higher natural gas prices due to production restrictions.

Focus on Resiliency

- Reference case conditions but with summer and winter reserve margin enforcement. Low peak credit for solar and storage resources in winter result in more fully-dispatchable capacity across SPP.

No Carbon Regulation

- Natural gas prices remain low and no federal carbon regulation provide more favorable market conditions for gas and coal resources vs. renewables relative to the Reference Case.

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Scenario Inputs

Each IRP Scenario combines a different view of fundamental market drivers. SWEPCO used AURORA's long-term capacity expansion function to develop 20-year (2022-2041) forecasts of SPP market outcomes.

	Scenario Concept	Load	Natural Gas	Carbon	Reserve Margin	Technology Costs	Renewable Peak Credit
1	Reference Scenario (REF)	Base	Base	Moderate	Base	Base	Base
2	Clean Energy Technology Advancement (CETA)	High	Base	Moderate	Base	Faster Decline w/ 10-yr PTC/ITC ext.	Base
3	Enhanced Carbon Regulation (ECR)	Low	High	High	Base	Faster Decline w/ higher congestion	Base
4	Focus on Resiliency (FOR)	Base	Base	Moderate	Summer & Winter Requirements	Base	Low
5	No Carbon Regulation (NCR)	Base	Low	No Price	Base	Base	Base

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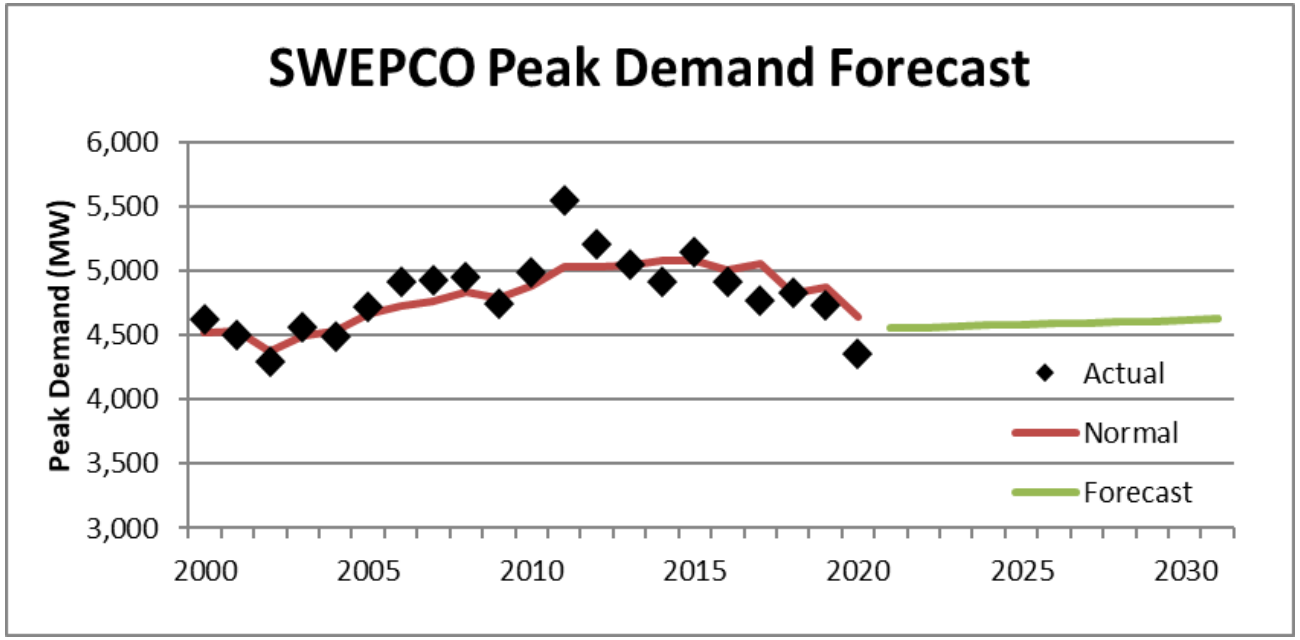
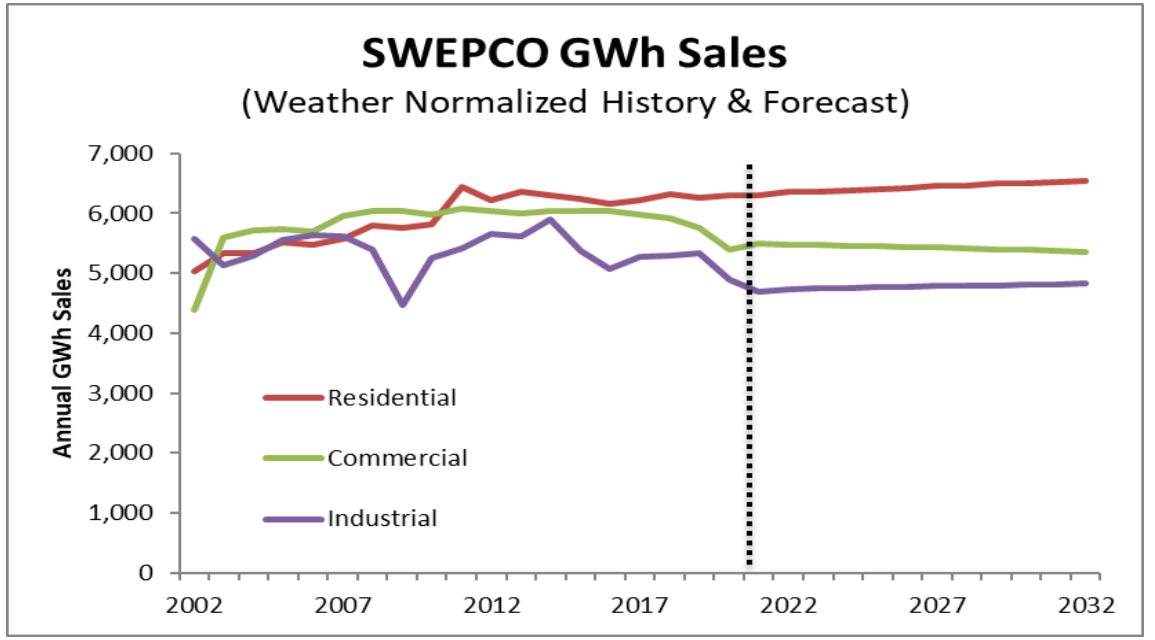
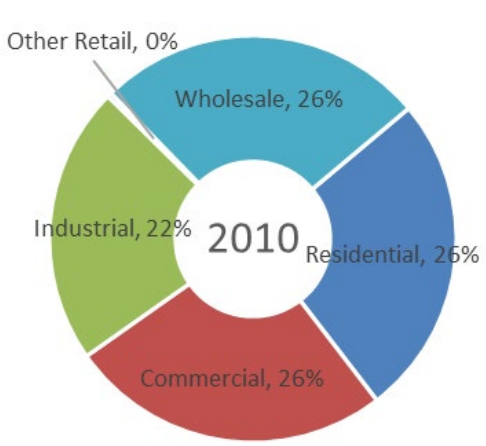
Load Forecast

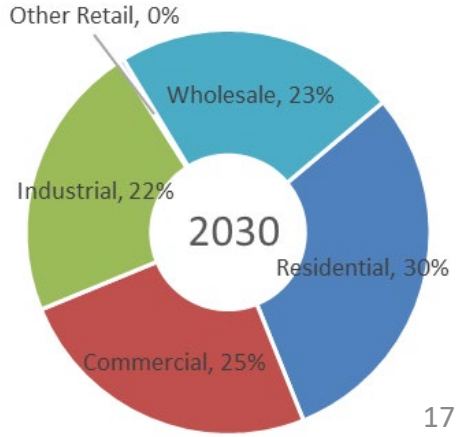




SWEPCO's peak demand forecast is relatively flat over the next decade. (CAGR +0.2% from 2021-2031.)

The growth in Industrial sales (+0.3%) is being offset by projected declines in the Commercial (-0.2%) class sales over the next decade. Residential sales are projected to be essentially flat (+0.1%).





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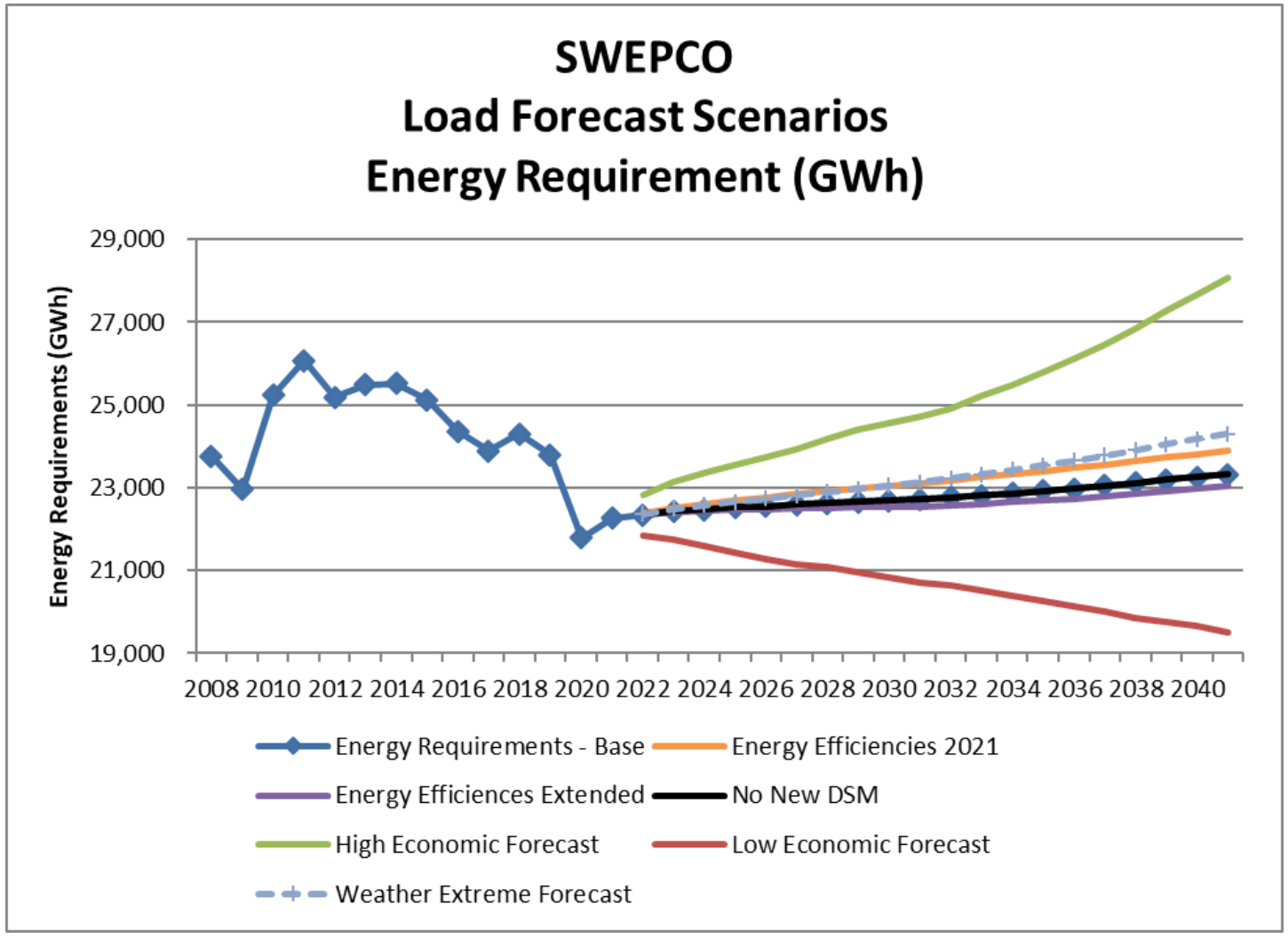
Load Scenarios

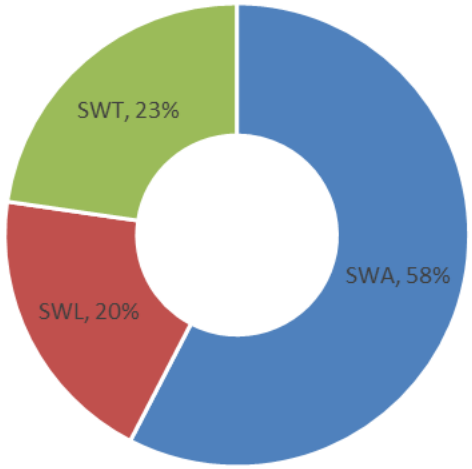


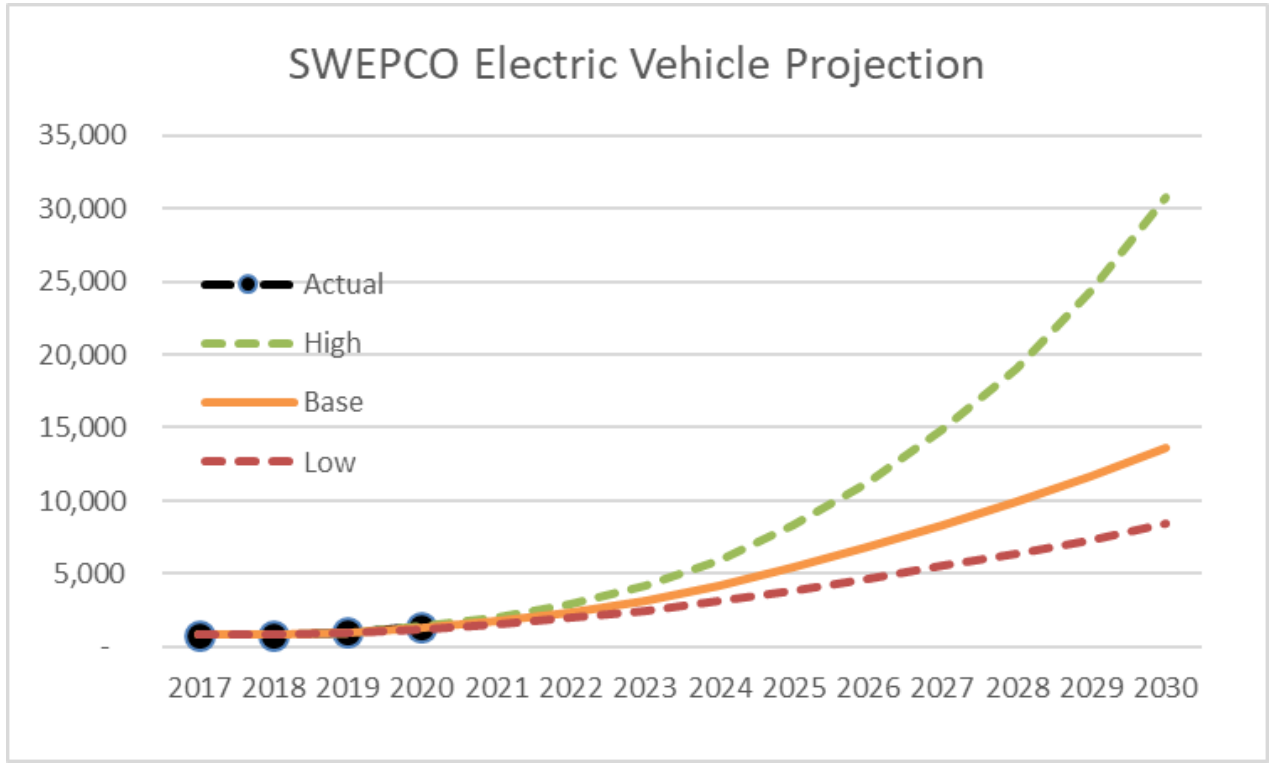
Scenario	CAGR 2021-2031
High Economic	**1.1%**
Frozen Efficiencies 2020	0.4%
Extreme Weather	0.4%
No New DSM	0.2%
Base Forecast	**0.2%**
Extended Efficiencies	0.1%
Low Economic	**-0.7%**

EV Projections

As of Q1-21, there are just over 1,500 electric vehicles (EVs) registered in SWEPCO's service territory, which is 0.1% of all vehicles registered.

SWEPCO's base projection for EVs assumes an average of 30% per year growth in EVs through 2030.

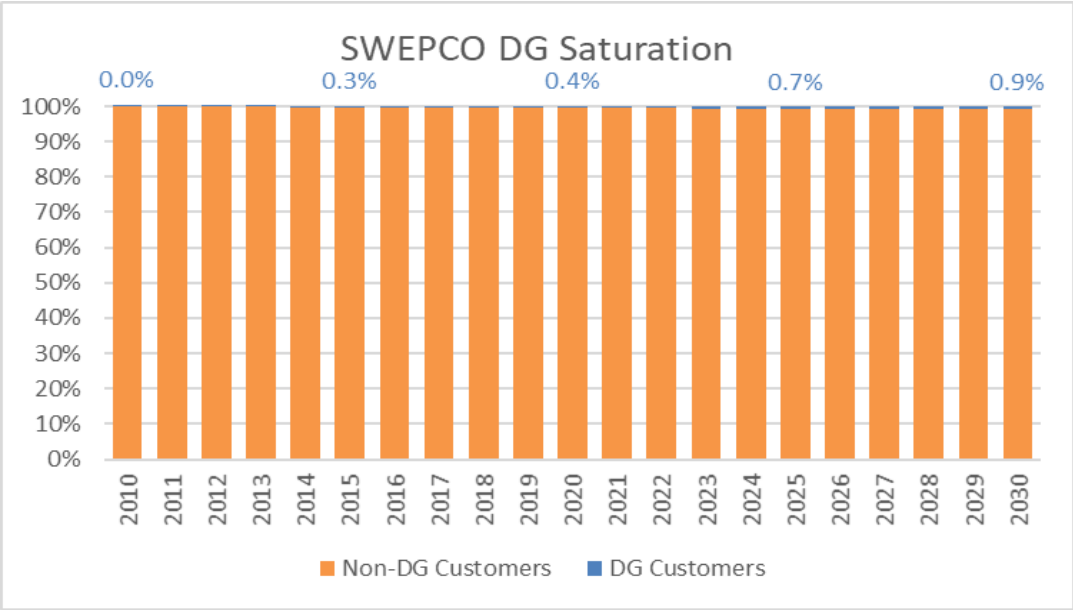


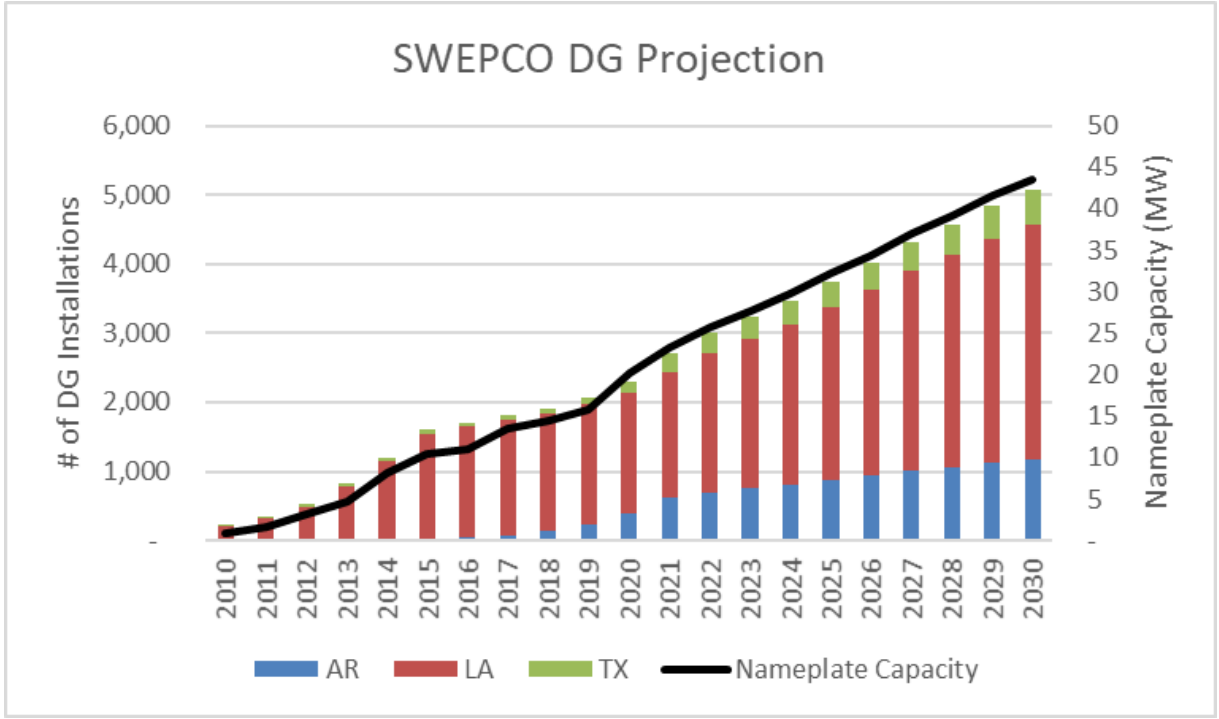


DG Projections

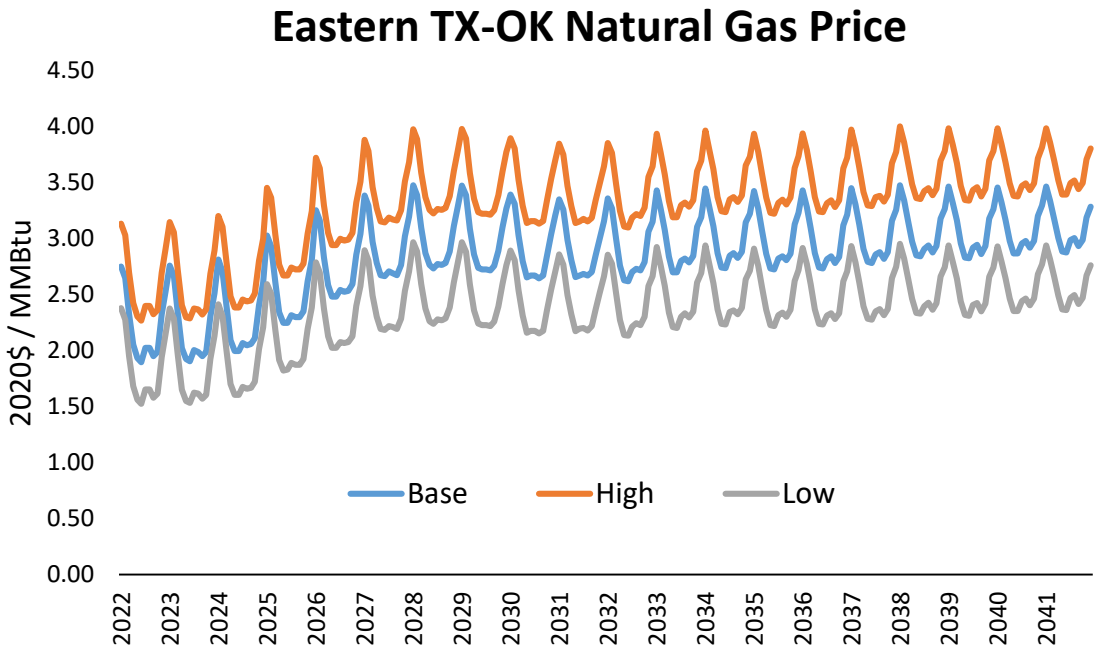
At the end of 2020, there were just under 2,300 customers with DG installations (0.4% of all customers).

By 2030, SWEPCO projects 0.9% of customers will have installed DG at their premise.

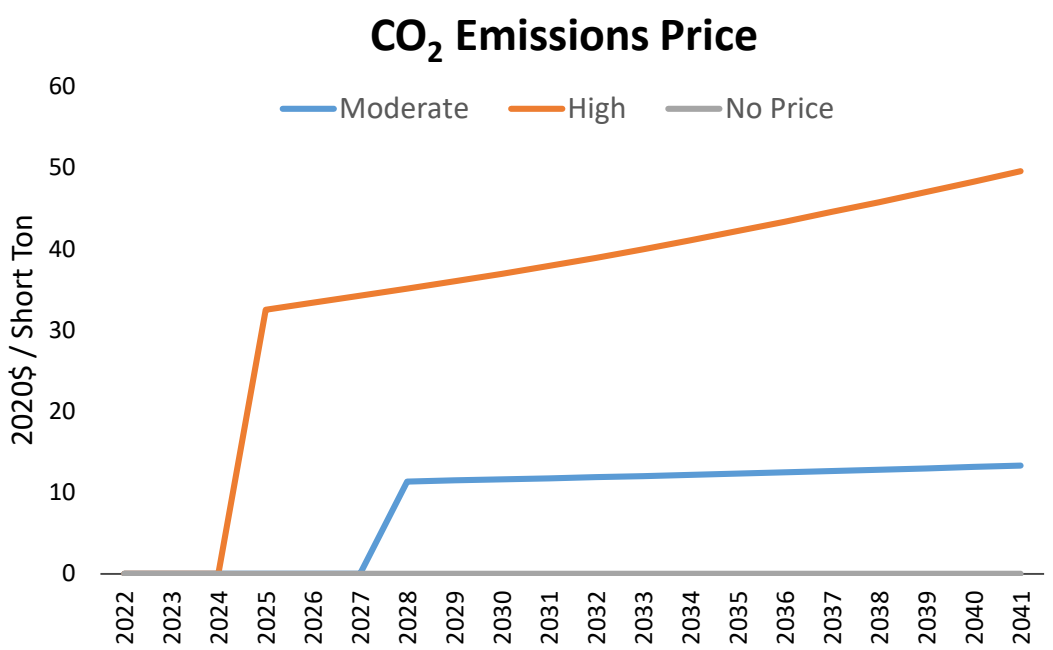




Natural Gas & Carbon Inputs



- Under the REF, FOR, and CETA scenarios, SWEPCO relies on the base trajectory from AEP's fundamental forecast, which is aligned to the AEO 2020 Reference Case
- Under the ECR scenario, a high trajectory is used to reflect additional regulatory pressure and limits on new drilling
- Under the NCR scenario, a low trajectory is used as regulators continue to support exploration and production of new resources



- Under the REF, FOR, and CETA scenarios, SWEPCO relies on the Moderate trajectory from AEP's fundamental forecast
- Under the ECR scenario, a high trajectory is used to reflect additional regulatory pressure to accelerate GHG reductions
- Under the NCR scenario, a low trajectory is used as regulators take no further actions to reduce GHG emissions

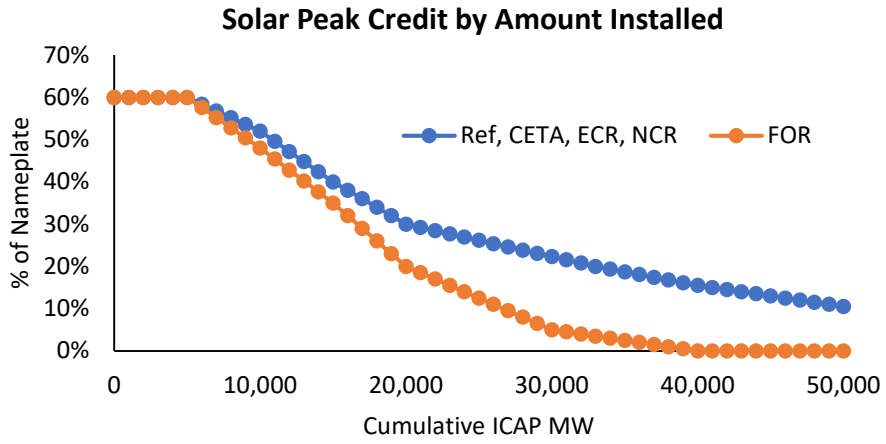
Reserve & Peak Credit Inputs

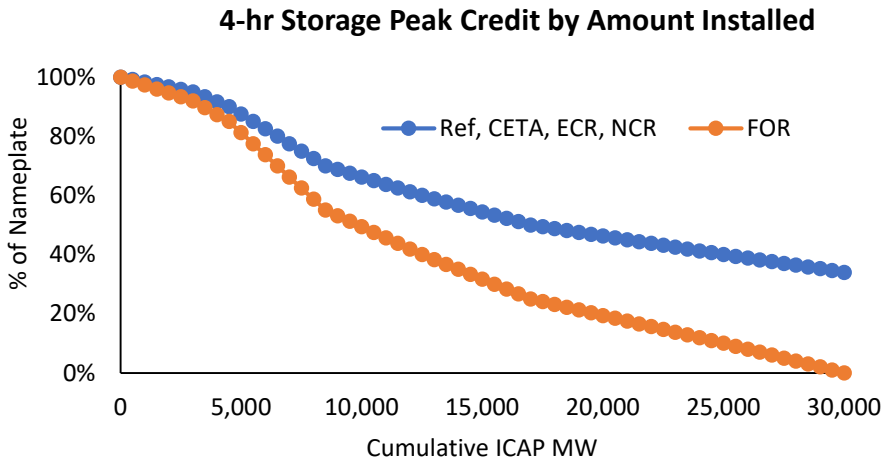
Summer Peak Credit

- Summer peak credit of incremental solar and storage additions in the SPP market is based on the total amount installed [1]
- Under the FOR Scenario, SWEPCO tests a case where the summer peak credit of incremental solar and 4-hr battery storage is lower

Winter Capacity Requirements

- Under the FOR Scenario, SWEPCO assumed that SPP implements a winter planning reserve margin of 12%
- Generators are also rated differently in Winter. Solar PV, for example, provides less contribution towards meeting winter peaks



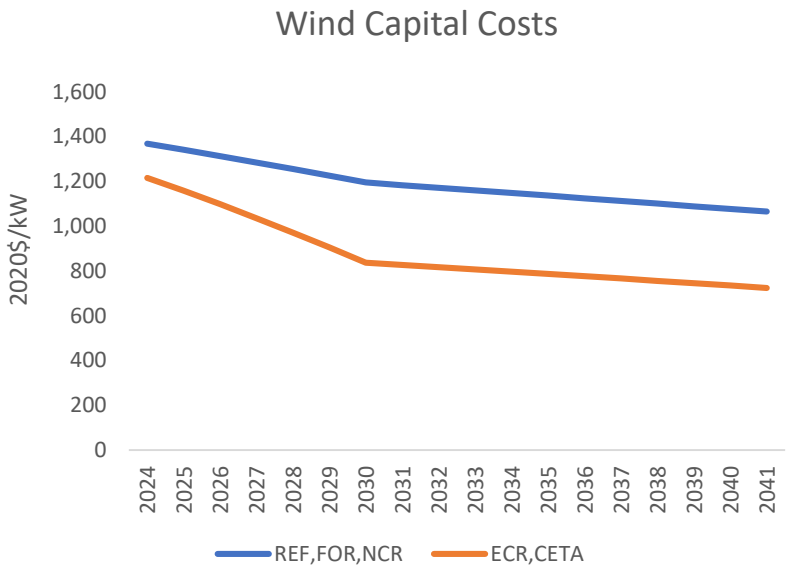


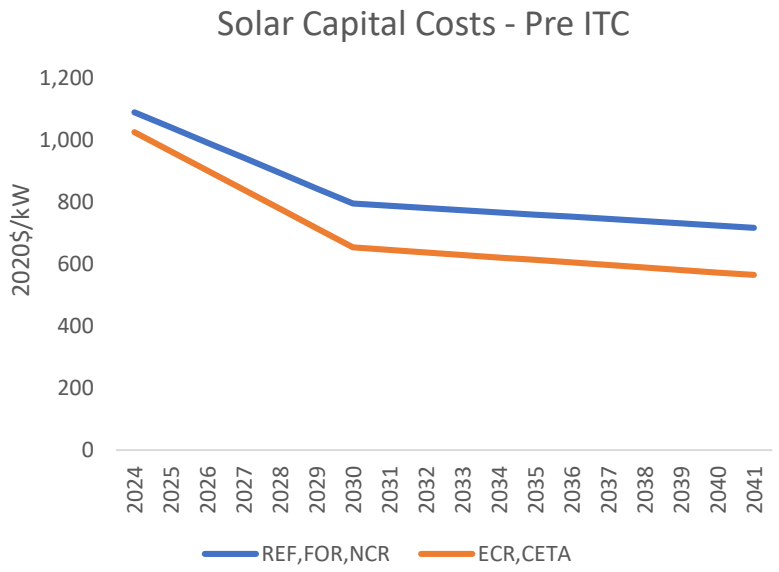
[1] 2019 SPP Solar & Wind ELCC Accreditation, SPP - August 2019.

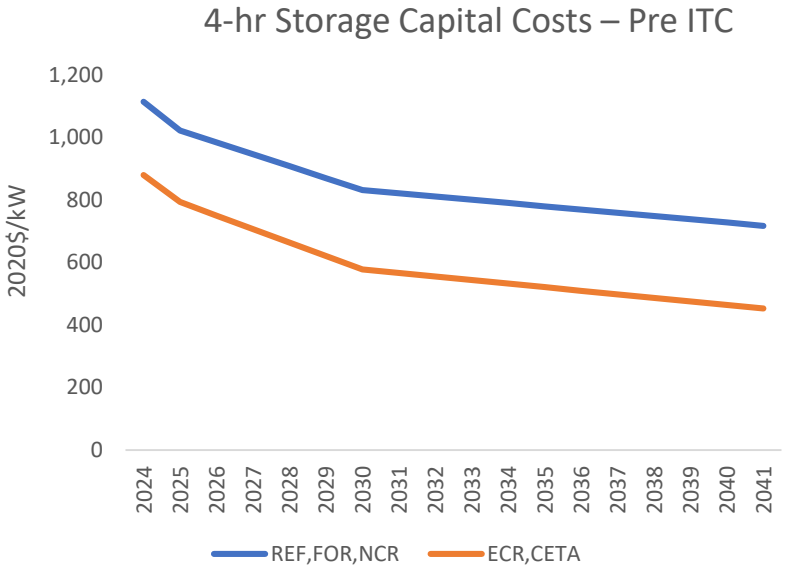
Technology Cost Ranges

Technology Cost Assumptions

- The Reference, FOR, and NCR scenarios assume new technology costs based on EIA AEO 2021 and NREL ATB 2020 moderate cost scenario
- Under the ECR and CETA scenarios, SWEPCO assumes that capital costs for renewable and storage technologies improve more quickly over time (NREL ATB 2020 advanced cost scenario)
- Under the CETA scenario, SWEPCO also assumes that federal tax credits for new renewables are extended for 10 years







Additional technology cost detail provided in Appendix

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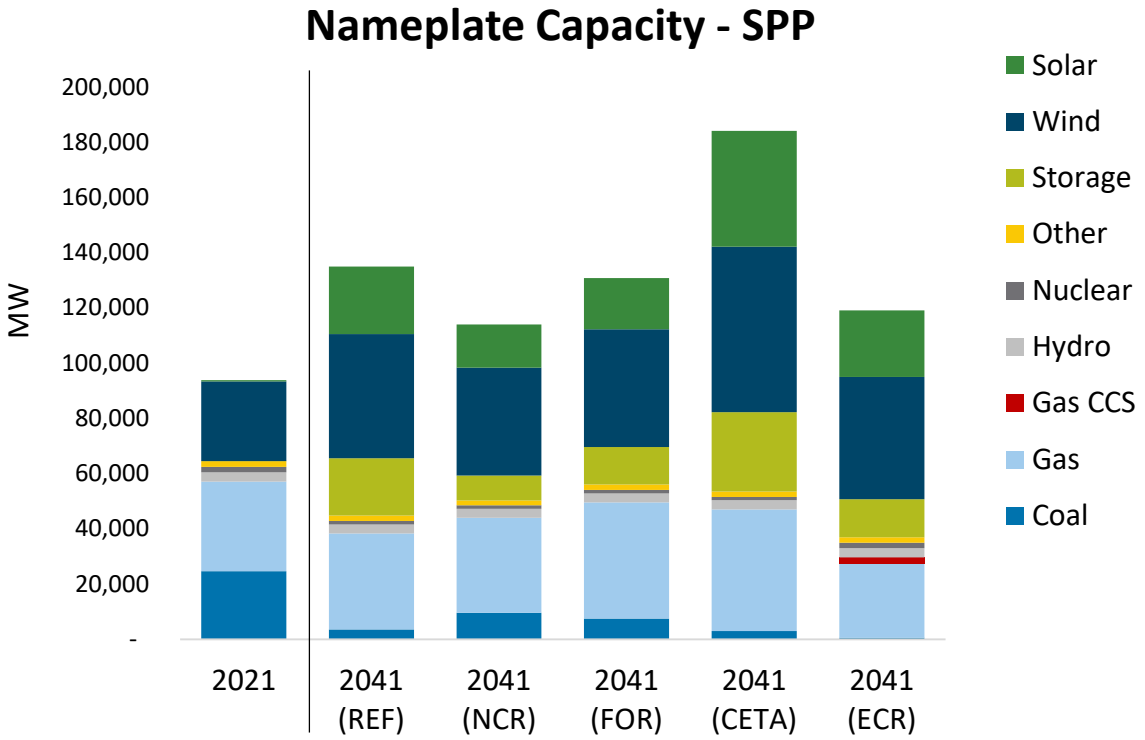
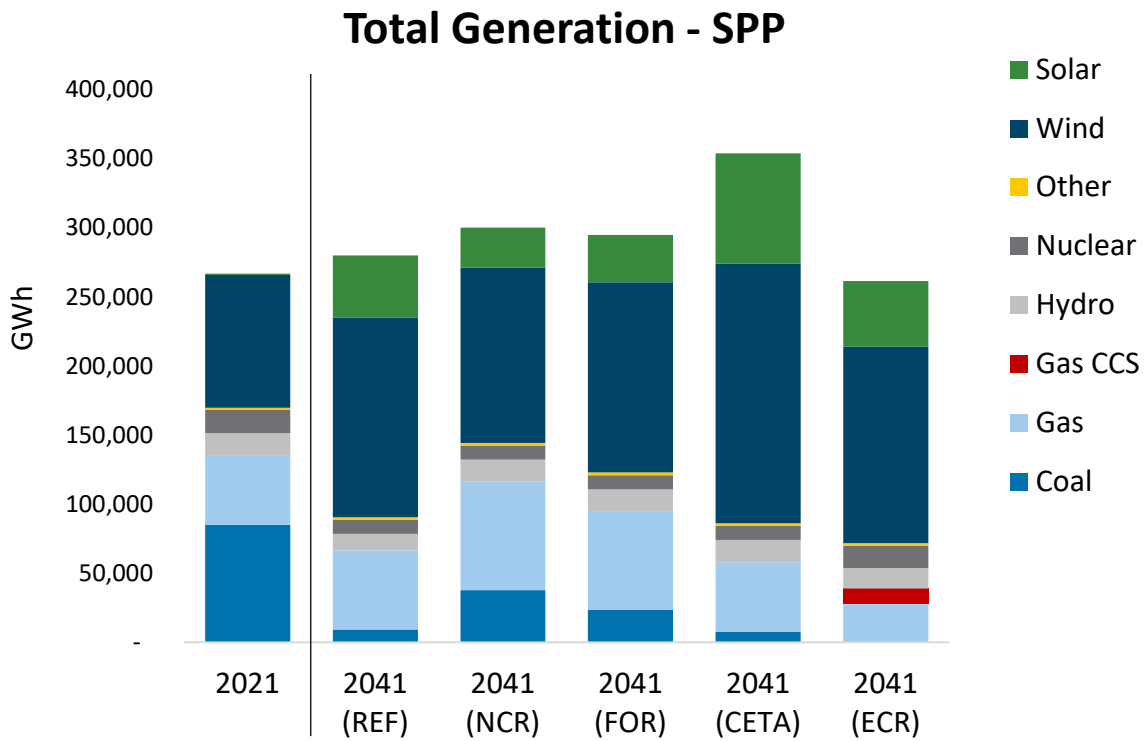
Scenario Outputs

Each market scenario results in a fundamentally different view of SPP-wide resource additions and retirements.

Scenario outputs are important for comprehending possible future states of the world. Some of the scenario outputs (electricity prices, peak credit of solar and storage) are also key inputs for SWEPCO portfolio modeling.

SPP Supply Mix Changes





- Under all scenarios, coal capacity declines between 2022-2041 while the share of gas capacity remains steady in all but the highest CO_2 price view
- New additions are focused on wind, solar PV, and 4-hr battery storage, with small amounts of gas CCS retrofits selected under the ECR Scenario

- By 2041, renewable resources provide roughly 70% of total SPP generation in the REF scenario
- Solar PV and wind provide at least 50% of total SPP generation by 2041 across all scenarios, even those with low gas prices and no new CO_2 pressure

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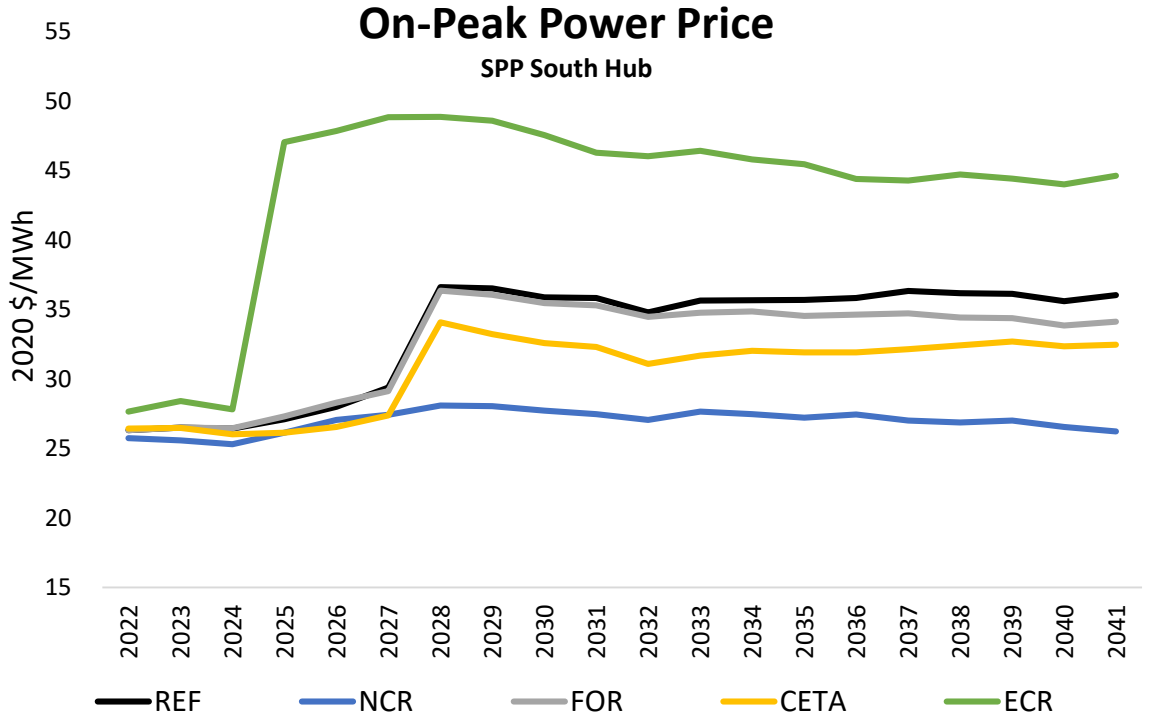
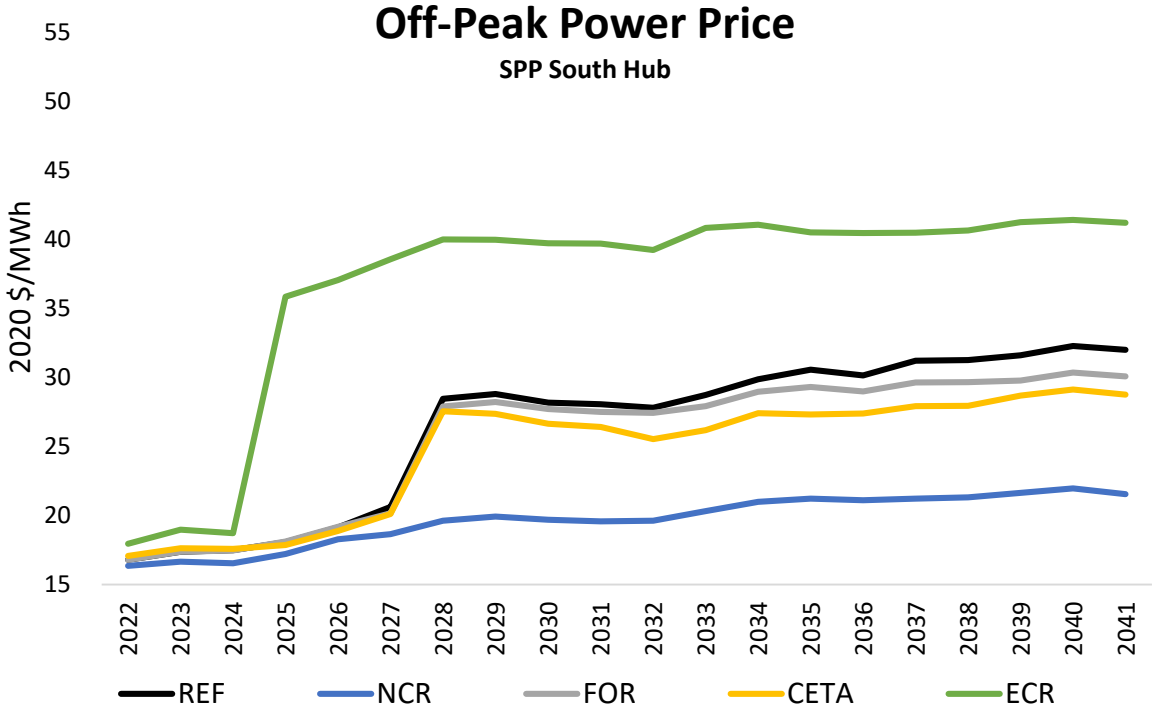
SPP Market Prices

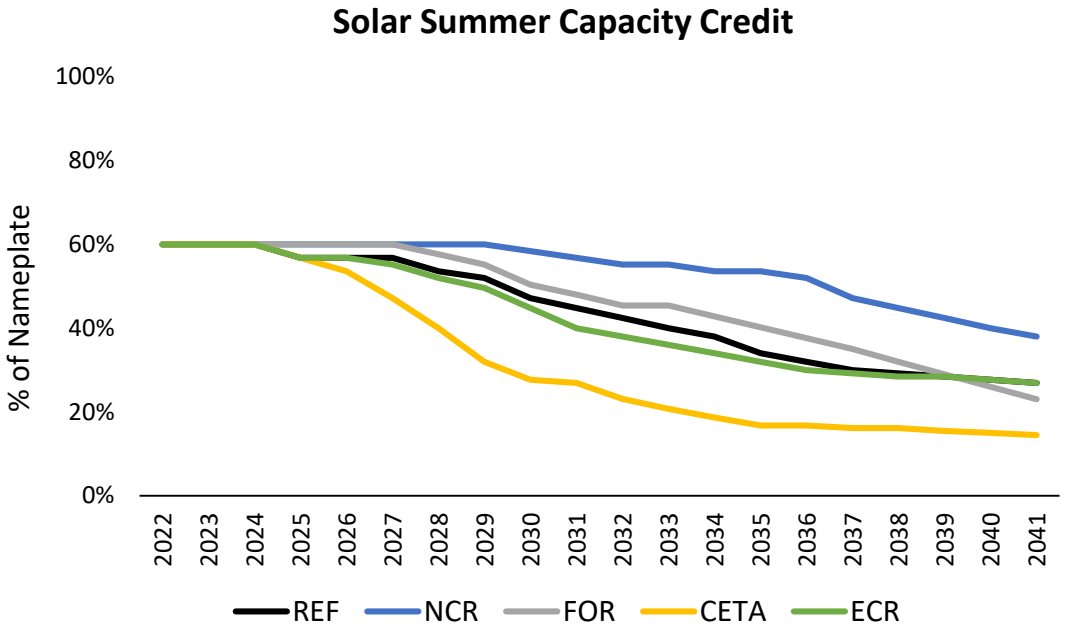


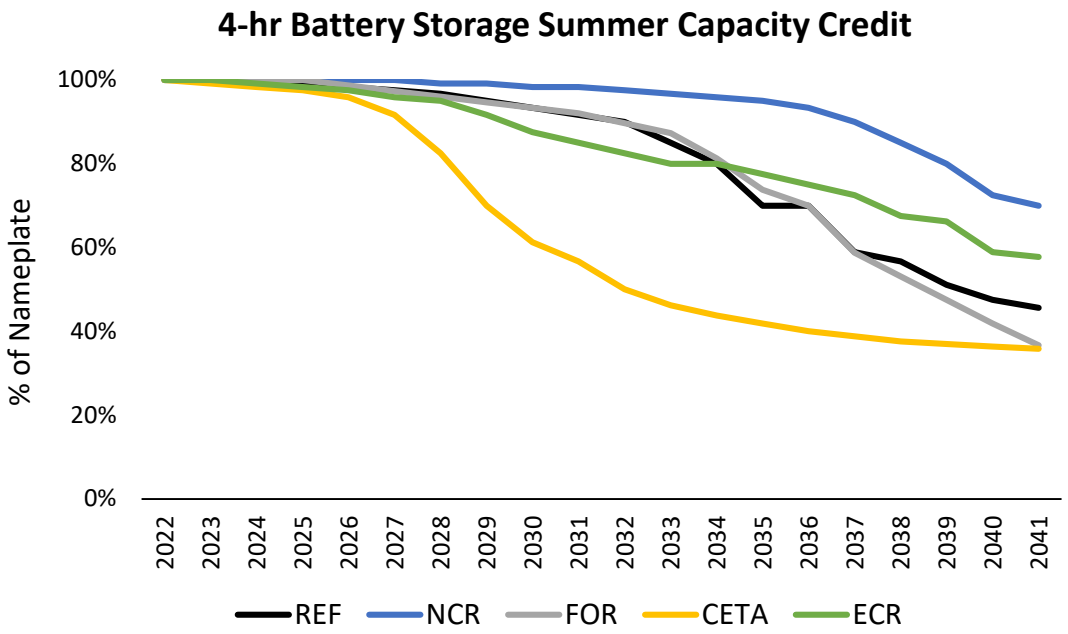


- Under the REF scenario, On-Peak prices grow modestly from current levels until the CO_2 price is introduced in 2028, leading to a step-up in prices that hold steady around $37/MWh
- On-Peak prices are lowest in the NCR scenario due to the combination of low gas prices and zero CO_2 price
- On-Peak prices are highest in ECR scenario, reflecting higher gas commodity prices and the higher CO_2 price view

- The spread between On- and Off-Peak prices in the REF scenario starts around $9/MWh in 2022, but tightens to around $4/MWh by 2041
- Similar results are observed in the remaining scenarios, with the addition of new renewable resource and storage tending to drive the convergence between On- and Off-Peak prices

Solar & Storage Capacity Credit





- Under the REF, ECR, and FOR cases, solar peak credit declines from 60% to around 25% over the 2022-2041 period
- Under the CETA Scenario, rapid deployment of new renewables results lower solar peak credit values starting in the 2020s
- Under the NCR Scenario, lower gas prices and lack of CO2 pressure reduce SPP-wide installations, resulting in higher solar peak credit values in this scenario

- In the REF scenario, the peak credit of 4-hr Battery Storage falls from full credit to about 50% from 2022-2041
- Under the CETA scenario, rapid deployment of 4-hr battery storage units results in a faster peak credit decline
- In the NCR & ECR scenarios, less 4-hr battery storage is deployed across SPP resulting in higher peak credit than the REF scenario

Note: Wind peak credit is assumed to stay constant at 14.7%

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Break

Portfolio Development

IRP Scenarios Determine Market Prices, Tech Costs, Load & ELCC Inputs


Reference Scenario


Clean Energy Technology Advancement


Enhanced Carbon Regulation


Focus on Resiliency


No Carbon Regulation

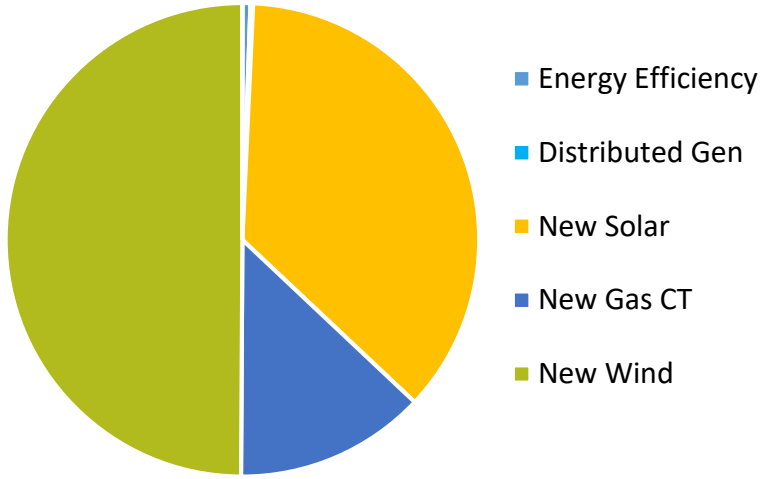
AURORA Evaluates Expected Resource Performance Under Scenario Conditions

Demand-Side Options:
- Energy Efficiency
- Distributed Generation

Supply-Side Options:
- Wind and Solar PV
- Gas-fired CTs and CCs
- 4hr-Battery Storage
- Carbon Capture Retrofits
- Hydrogen-fired CTs
- Advanced Nuclear & Storage

AURORA Selects the Least-Cost Combination of New Resources

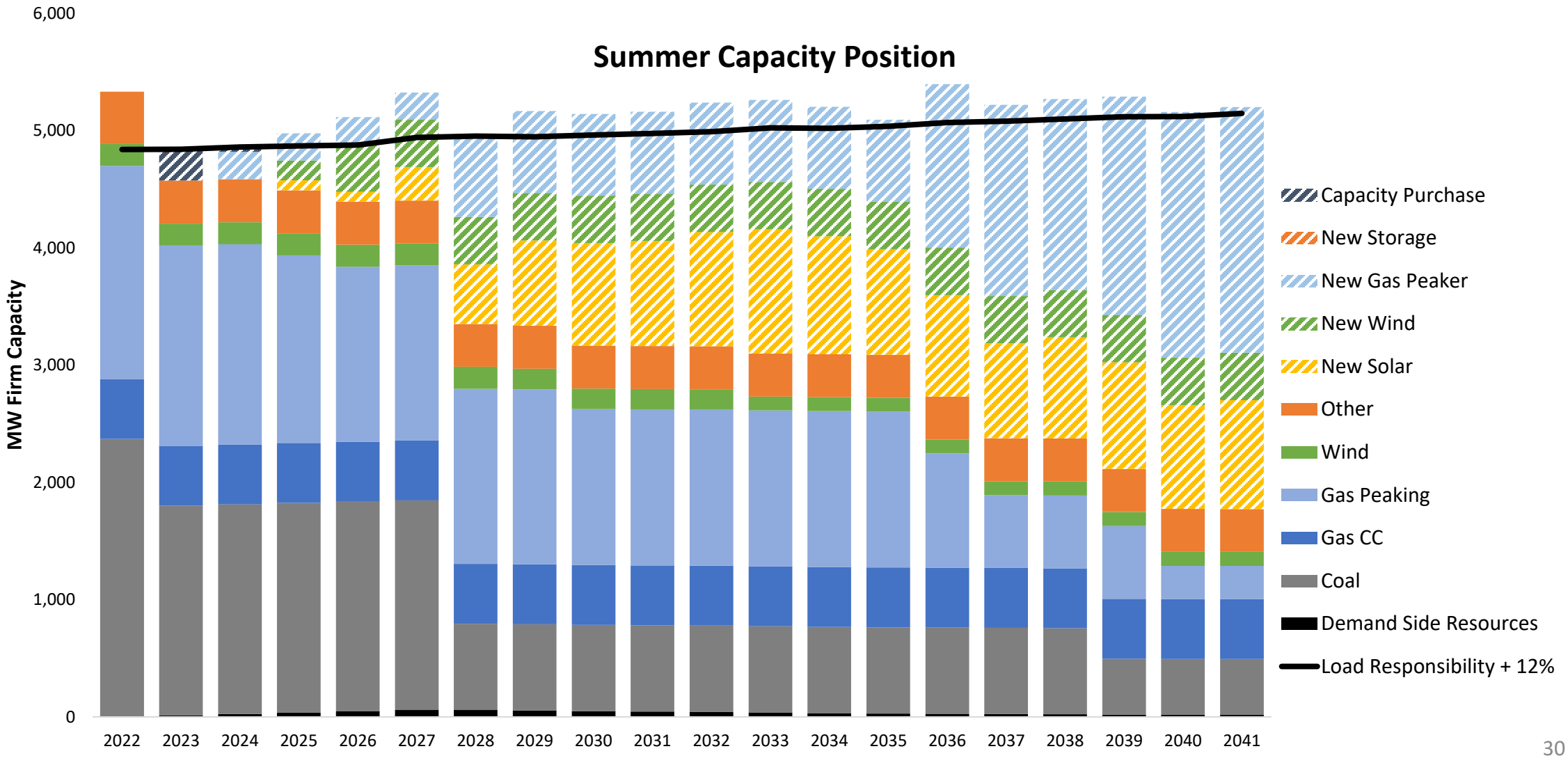
2031 Cumulative Additions - Reference Scenario



… Repeated for other scenarios

SWEPCO used AURORA to determine the least-cost combination of demand- and supply-side resources needed to meet future customer energy and capacity needs under each SPP Market Scenario.

Reference Portfolio Balance



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Reference Portfolio Detail

Utility-Scale New Build Additions by Year (Nameplate MW)

Year	New Solar	New Wind	New Gas CT	New Storage	Capacity Purchases
2022					
2023					271
2024	150*	1150*	240		46
2025		1600*			
2026					
2027	350				
2028	450		480		
2029	450				
2030	450				
2031	150				
2032	300				
2033	350				
2034					
2035					
2036	50		720		
2037			240		
2038	250				
2039	250		240		
2040			240		
2041	250				
Total	**3,450.0**	**2,750.0**	**2,160.0**	**0.0**	

Demand Side Additions by Year (Peak Credit MW)

Year	Energy Efficiency	Distributed Generation	Total + 12%
2022		1.8	2.02
2023	7.9	3.0	12.19
2024	17.9	3.6	24.14
2025	27.7	5.1	36.74
2026	36.1	6.2	47.41
2027	44.3	8.0	58.47
2028	44.2	8.6	59.08
2029	39.7	9.4	55.00
2030	35.1	9.4	49.89
2031	30.2	10.3	45.34
2032	28.5	10.6	43.78
2033	23.7	10.8	38.67
2034	18.6	11.0	33.19
2035	14.8	10.9	28.71
2036	12.6	11.2	26.66
2037	11.0	11.1	24.74
2038	7.9	11.7	22.00
2039	5.4	12.0	19.46
2040	3.3	12.5	17.63
2041	2.3	12.9	17.01

**Resources are added 12/31 of given year due to tax incentive deadlines*

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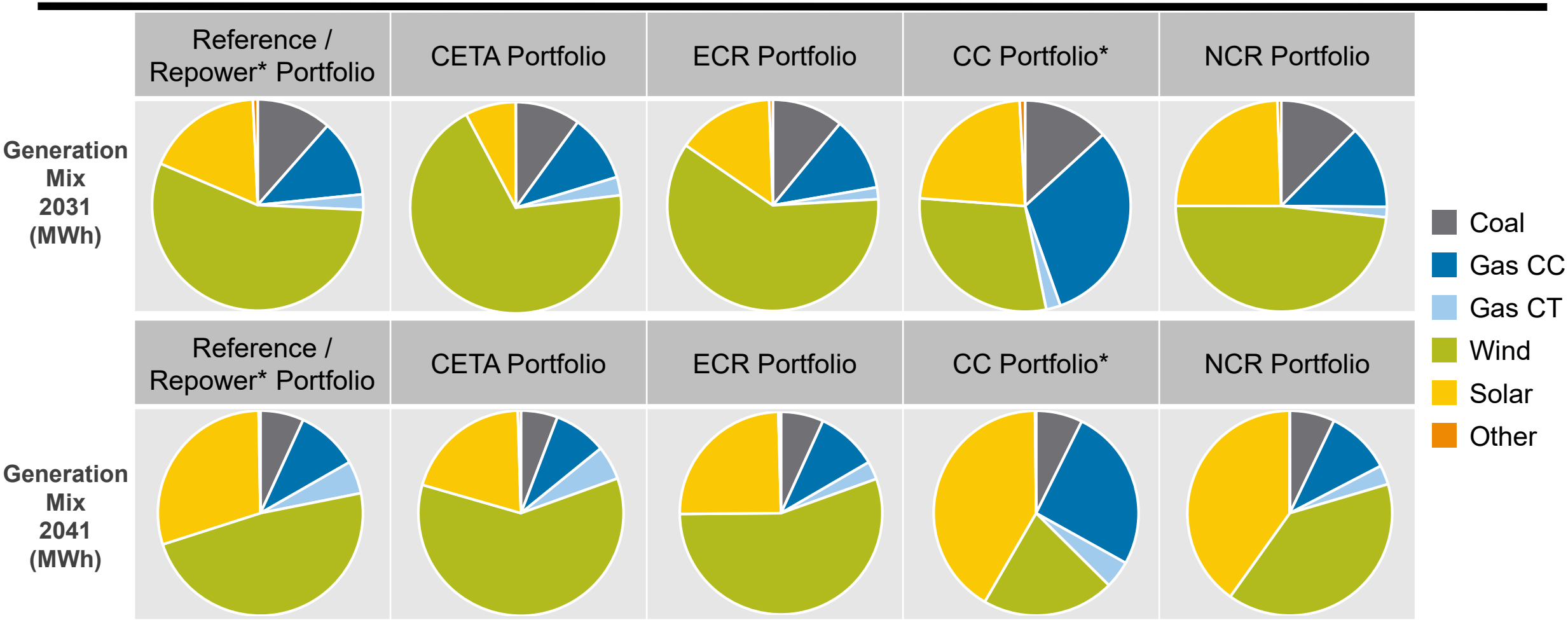
Candidate Portfolios

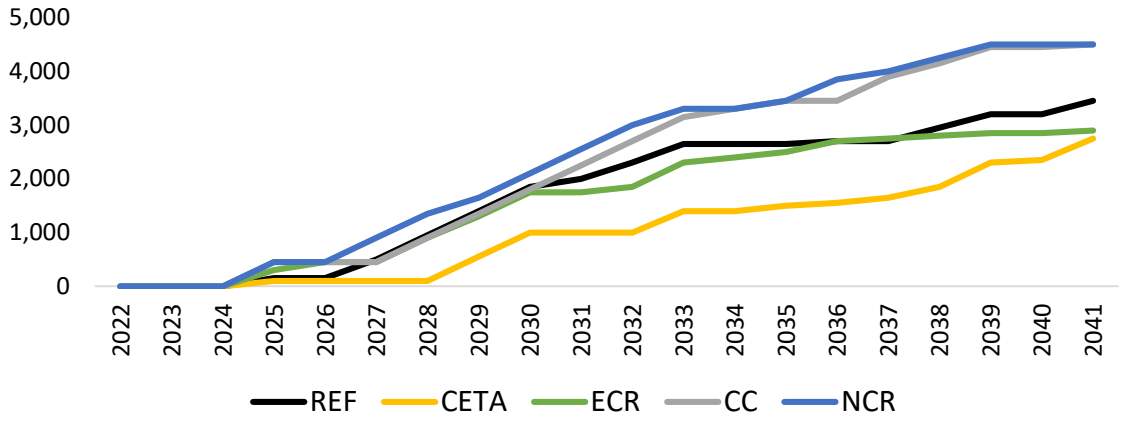


* SWEPCO used four of the five least-cost plans as candidate portfolios in the 2021 IRP, one duplicative plan was removed, and the CC Portfolio* and Welsh 1 Repower* were added to test additional gas options.

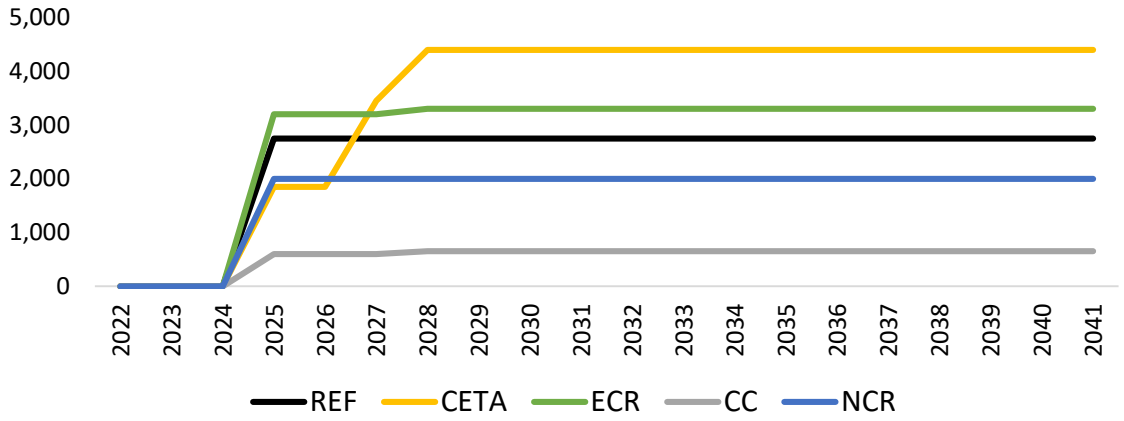
Comparison of New Resource Additions

Capacity additions across each candidate portfolio reflects the cost and market conditions of each scenario.

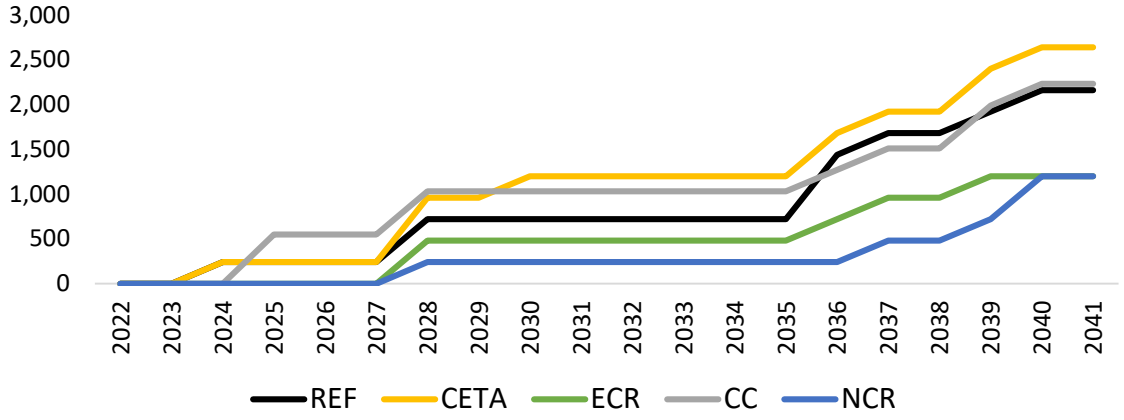
Solar – Cumulative MW



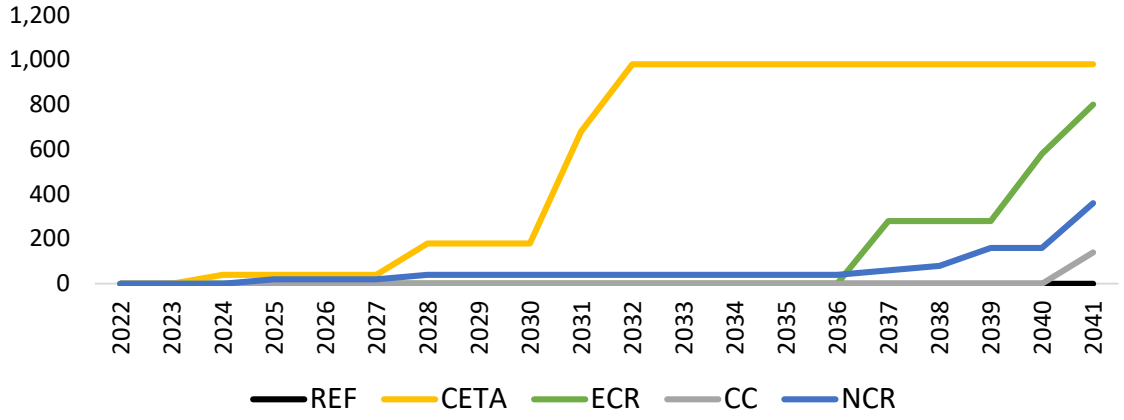
Wind – Cumulative MW



Gas – Cumulative MW



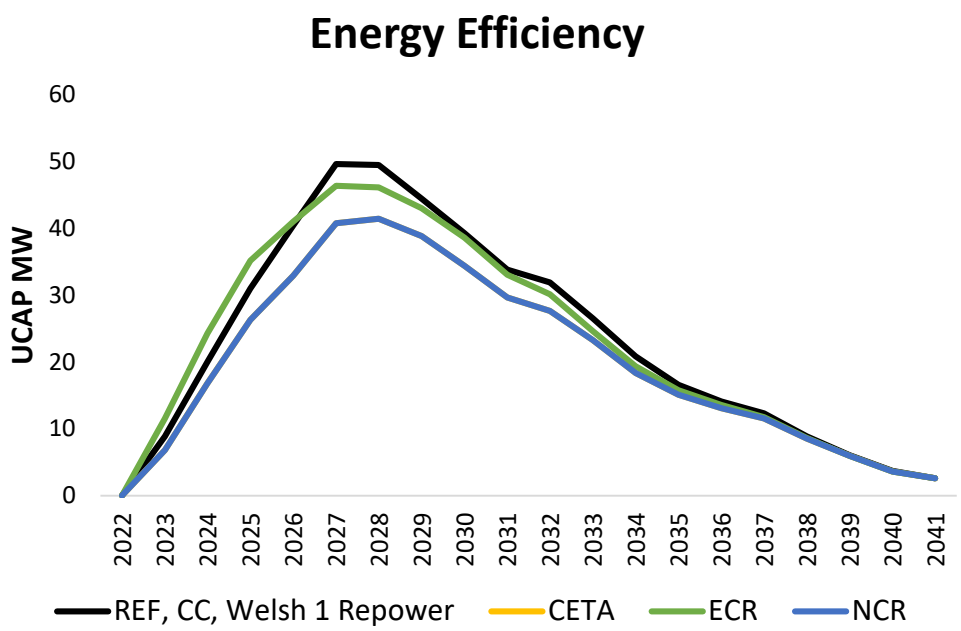
4-hour Storage – Cumulative MW

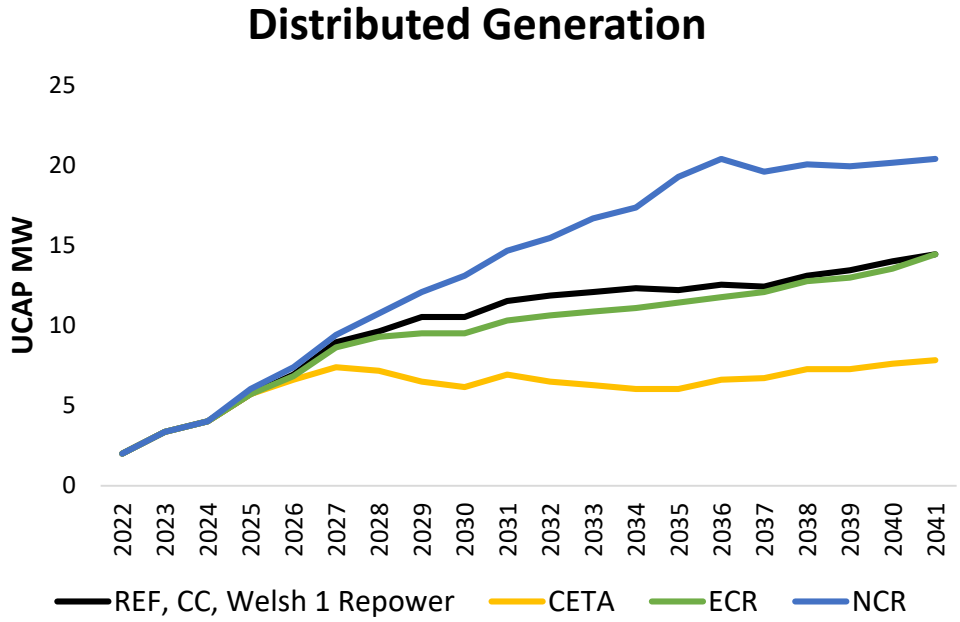


* Candidate Portfolio Resource additions by year are shown in the Appendix

Comparison of Efficiency & DSM

Demand-side additions also vary across portfolios to reflect resource competitiveness under different conditions.





- The peak contribution of energy efficiency measures tend to decline over time as technologies included in the efficiency bundles become more widely adopted and included in the load forecast
- DG resource impact varies over the analysis period depending on the scenario considered. Overall, regional solar penetration impacts the capacity planning value of rooftop solar

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Portfolio Key Takeaways

New natural gas combined cycles are not selected as an optimal solution under any of the market scenarios, even those featuring low natural gas prices and zero CO_2 price.

New gas combustion turbines are preferred to 4-hr Battery Storage under all market conditions, including a combination of high natural gas and high CO_2 prices.

The level of new solar additions in the SWEPCO portfolio is highly dependent on the capacity value provided by these units in the broader SPP market.

Despite the assumed improvement in resource costs, advanced technologies including CCS, hydrogen-fired CTs, SMR nuclear, and long-duration storage technologies are not selected under any market conditions.

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Portfolio Analysis

The resulting set of five candidate portfolios was stress-tested to evaluate performance under adverse or unexpected conditions and to populate elements of the Scorecard. This process had two steps:

Scenario Analysis
Tests Performance Under Integrated Set of Assumptions

- Each candidate portfolio is dispatched in every IRP Market Scenario to evaluate the level of customer exposure to higher costs under unexpected conditions
- This approach answers "what if…" questions and tests outcomes where major events change fundamental outlooks for key drivers after investments are made, altering portfolio performance

Stochastic Analysis
Tests Performance Under a Distribution of Inputs

- The stochastic analysis incorporates hourly volatility into energy prices, natural gas prices, and hourly renewable generation to test the impacts of extreme weather and high-cost market events
- Stochastics evaluate volatility and "tail risk" impacts
  - Market price volatility and resource output uncertainty are more complex than what can be assessed under "expected" or "weather normal" conditions
  - Commodity price exposure risk is broader than any single scenario range (i.e., February 2021 winter storm)

Stochastic Analysis

SWEPCO performed a stochastic analysis as part of the 2021 IRP to test each candidate resource plan under 250 random combinations of market conditions and compared customer exposure to higher costs during periods of volatility.

2021 IRP Stochastic Variables

Power Prices

- Hourly power prices may vary significantly during periods of extreme weather, peak conditions, or system outages
- Evaluating random draws of power prices – in combination with other variables – allows SWEPCO to test the robustness of candidate portfolios under volatile market conditions

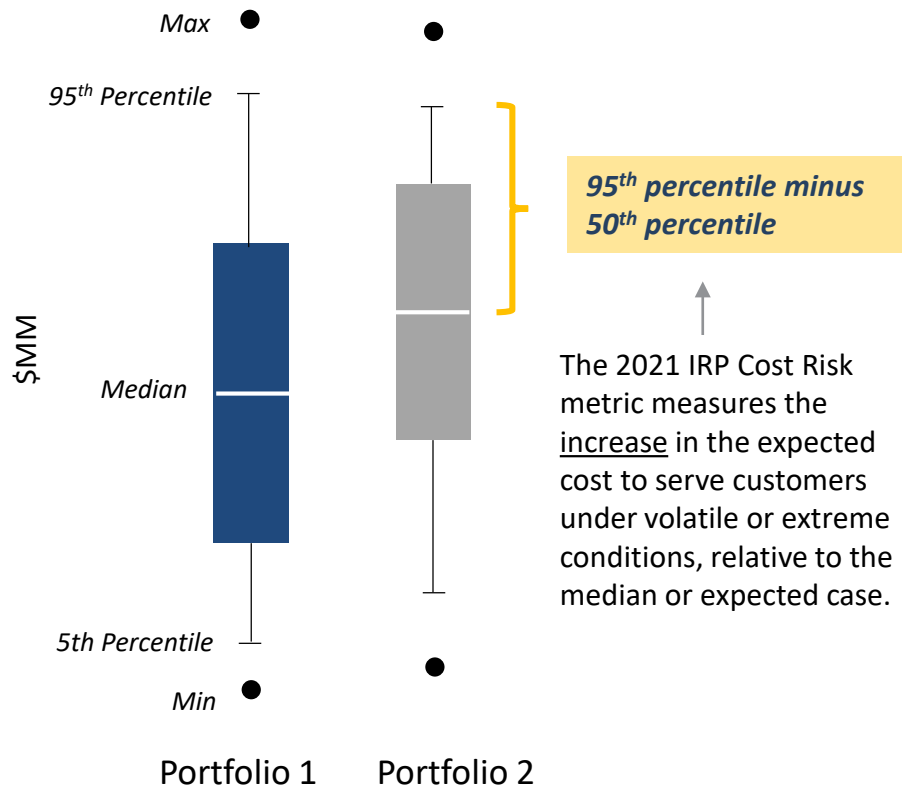
Natural Gas Prices

- Daily natural gas prices are highly variable depending on weather and broader system conditions that tighten in peak periods
- Natural gas fuel costs are expected to be an important component of total system costs under certain candidate resource strategies

Wind & Solar Output

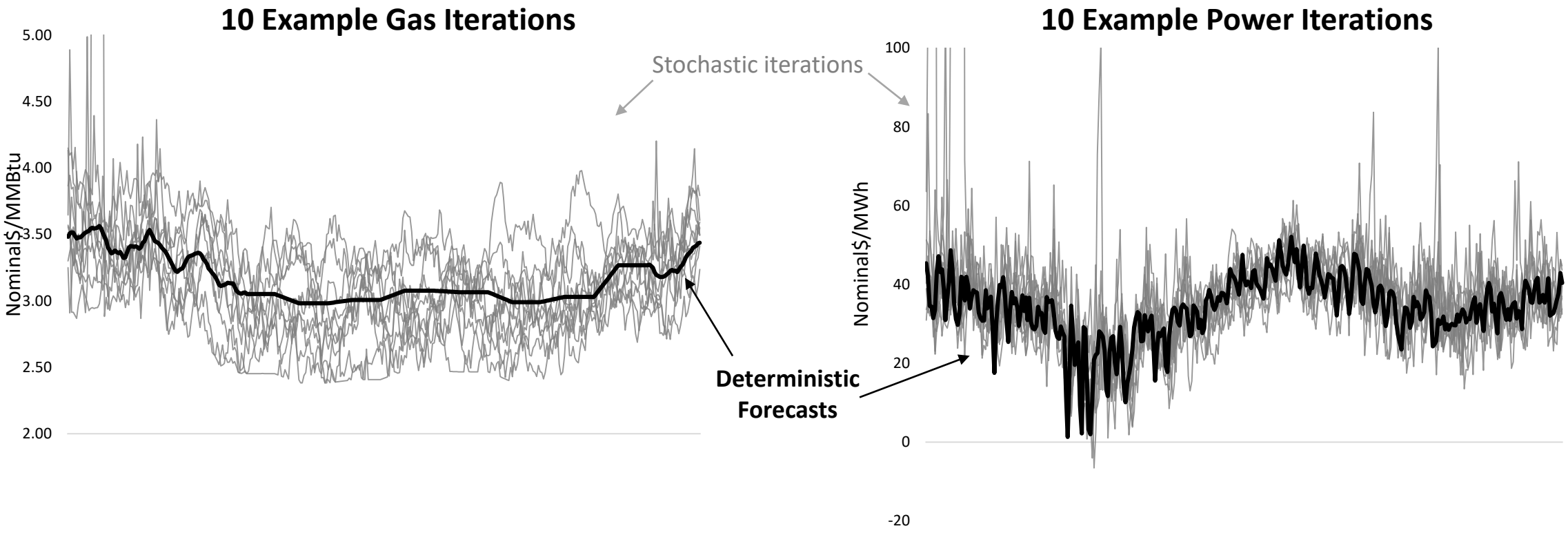
- Hourly output from renewable generators can be highly variable and may fail to generate when customer demands are high or deliver too much energy when customer demands are low
- Certain candidate resource strategies select new renewable generation and evaluating variability in unit outputs allows SWEPCO to ensure rate stability and affordability are maintained for customers as corporate sustainability targets are met

Measuring Cost Risk on the IRP Scorecard



Commodity Price Volatility

The stochastic commodity price iterations test a wider range of commodity price conditions than are considered in the deterministic scenarios, explicitly testing high-impact short-duration events that expose customers to costs.

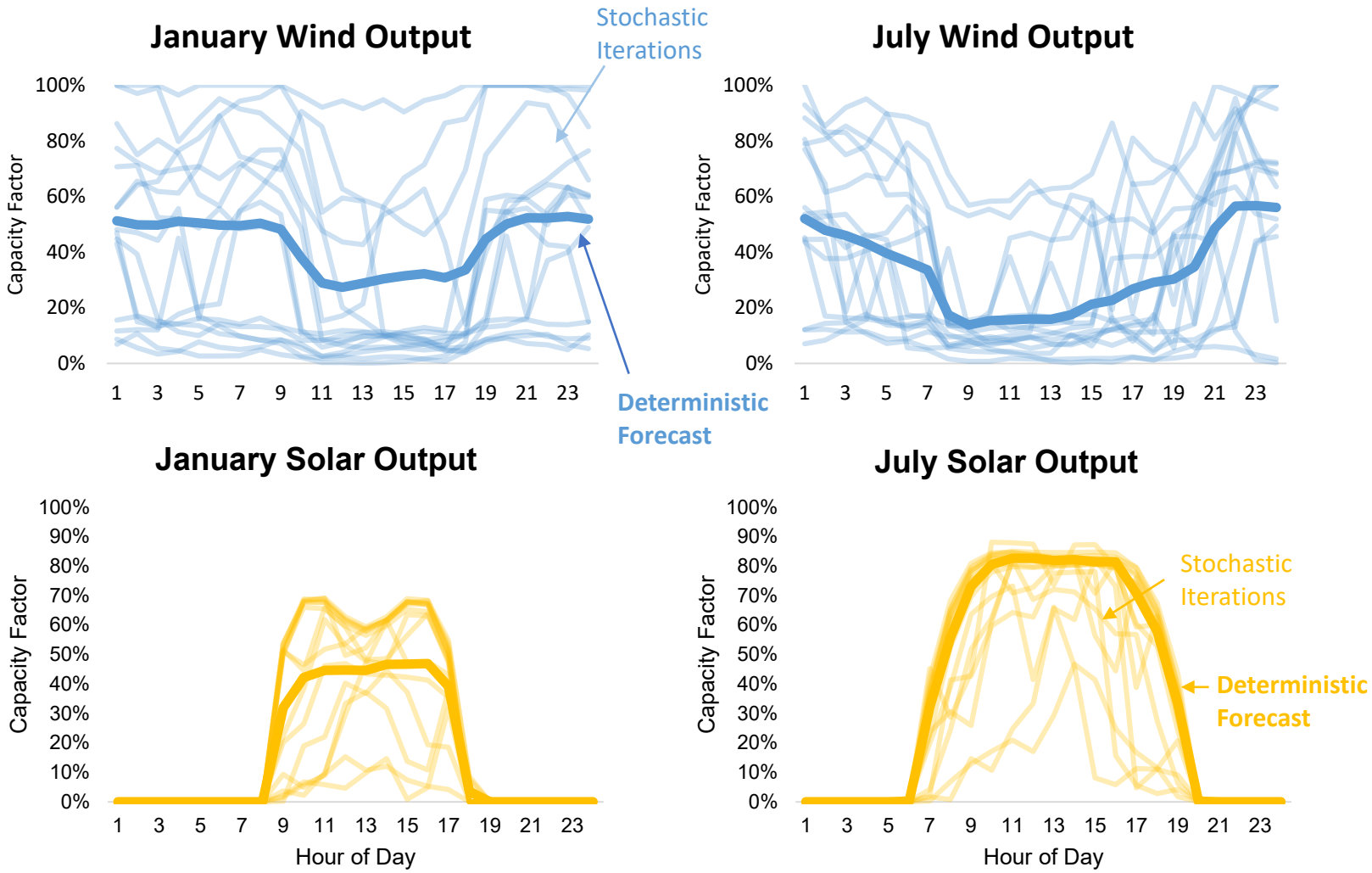


Renewable Output Volatility

SWEPCO evaluated uncertainty in the output of wind and solar units as part of the 2021 IRP analysis.

Representative hourly capacity factor shapes for wind and solar resources were developed using NREL's NSRDB and Wind Toolkit Databases.

The results is a wider sample of production profiles that allow SWEPCO to test periods of low output that coincide with high market prices (or vice versa).



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2021 IRP Scorecard

The IRP Scorecard compares the performance of candidate portfolios under each of the four IRP Objectives. The Scorecard does not select the 2021 Preferred Plan by itself, rather it illustrates the trade-offs between alternative resource strategies across performance indicators and metrics defined under each objective.

	Customer Affordability		Rate Stability			Maintaining Reliability			Local Impacts & Sustainability	
Portfolio	***Short Term:*** *5-yr Rate CAGR, Reference Case*	***Long Term:*** *30-yr NPVRR, Reference Case*	***Scenario Range:*** *High Minus Low Scenario Range, 30-yr NPVRR*	***Cost Risk:*** *RR Increase in Reference Case (95th minus 50th Percentile)*	***Market Exposure:*** *Net Sales as % of Portfolio Load, Scenario Average*	***Planning Reserves:*** *% Reserve Margin, Scenario Average*	***Operational Flexibility:*** *Dispatchable Capacity*	***Resource Diversity:*** *Generation Mix (MWh) by Technology Type - Reference Case*	***Local Impacts:*** *New Nameplate MW & Total CAPEX Installed Inside SWEPCO Territory*	***CO2 Emissions:*** *Percent Reduction from 2000 Baseline - Reference Case*
Year Ref.	2022-2027	2022-2051	2022-2051	2031 | 2041	2031	2022-2041	2031 | 2041	2041	2022-2031	2031 | 2041
Units	%	$MM Levelized Rate	$MM Levelized Rate	$MM Levelized Rate	Summer | Winter	Summer | Winter	MW	%	MW | $MM	% Reduction
Portfolio 1										
Portfolio 2										
…										

Performance Indicators on the Scorecard are aligned to the IRP objectives and used to compare the candidate resource plans

Metrics on the Scorecard are developed from the IRP modeling results and used to quantify performance an populate the Scorecard

Customer Affordability

The Customer Affordability indicators compare the cost to customers under Reference Scenario conditions over the short- and long-term. These metrics illustrate differences in performance under the expected case.

Performance Indicator	Metric	Description
Short-term	5-year Rate CAGR under the Reference Scenario (2022-2027)	• SWEPCO measures and considers the expected Compound Annual Growth Rate ("CAGR") of expected system costs for the years 2022-2027 as the metrics for the short-term performance indicator. • **A lower number is better**, indicating slower growth in customer rates.
Long-term	30-yr NPVRR under the Reference Scenario (2022-2051)	• SWEPCO measures and considers the growth in Net Present Value Revenue Requirement ("NPVRR") over 30 years as the long-term metric. • NPVRR represents total long-term cost paid by SWEPCO related to power supply. This includes plant O&M costs, fuel costs, environmental costs, net purchases and sales of energy and capacity, property and income taxes, and the return on capital. • SWEPCO also evaluates the levelized rate for this indicator, which is the fixed charge needed on a per MWh basis to recover the 30-yr NPVRR. • **A lower number is better**, indicating lower costs to supply customers with power.

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Customer Affordability

	Customer Affordability	
Portfolio	***Short Term:*** *5-yr Rate CAGR, Reference Case*	***Long Term:*** *30-yr NPVRR, Reference Case*
Year Ref.	2022-2027	2022-2051
Units	%	$MM Levelized Rate
Reference Portfolio	2.57	15,435 $56.1
CC Portfolio	2.84	16,309 $59.3
Welsh 1 Repower	2.57	15,287 $55.6
NCR Portfolio	2.35	15,500 $56.4
CETA Portfolio	4.22	16,475 $59.9
ECR Portfolio	2.55	15,270 $55.5

In the **Short Term**, customer rates rise the least under the NCR portfolio because the resource additions in this portfolio tend to occur later in the forecast. The Reference, Welsh 1 Repower, and ECR portfolio are next best and score similarly when costs are compared over the next five years. The CC and CETA portfolios score worst by this metric, with CETA being a clear outlier to the high side.

In the **Long Term**, the Welsh 1 Repower and ECR portfolio have the lowest expected cost to customers, owing the lower level of new capacity additions in these portfolios relative to the other candidate resource plans. The Reference and NCR portfolios are next best and only slightly higher cost when viewed over 30 years. The CC and CETA portfolios are the most expensive for customers over the longer term due to the higher amount of new builds in the CETA portfolio needed to meet customer loads and the additional gas and carbon exposure of the CC portfolio.

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Rate Stability

The Rate Stability indicators compare the risk that cost to customers will be higher than expected, either due to a change in fundamental market conditions or due to short-duration high-impact events, like extreme weather.

Performance Indicator	Metric	Description
Scenario Range	High Minus Low Scenario Range 30-yr NPVRR (2022-2051)	• SWEPCO measures and considers the range of 30-yr NPVRR reported by each portfolio across all SPP market Scenarios. This metric reports the difference between the highest and lowest cost scenarios reported by the candidate portfolio on an NPVRR and levelized rate basis. • **A lower number is better**, indicating a tighter grouping of expected customer costs across a wide range of long-term market conditions.
Cost Risk	NPVRR Increase in Reference Scenario – 2031 and 2041 (95th minus 50th Percentile)	• SWEPCO measures and considers the potential for customer costs to increase beyond expected levels due to market volatility or extreme weather in 2031 and 2041. • This metric compares the difference between annual portfolio costs under expected market conditions and annual portfolio costs under stochastically generated market conditions that reflect high-cost market events. (see slide 36 for more detail on this metric) • **A lower number is better**, indicating that the costs of the candidate portfolio rise less when short-term market conditions are erratic or unfavorable.
Market Exposure	2031 Purchases / Sales as % of Total Portfolio Demand in Summer and Winter	• SWEPCO measures and considers the reliance of each candidate portfolio on market sales or purchases to balance seasonal generation with customer load. • The metric reports net purchases or sales in 2031, distinguishing between market activity in the summer (June-Aug) and winter (Dec-Feb) seasons. • **Closer to zero** indicates less reliance on the market to meet customer needs.

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Rate Stability

	Rate Stability		
Portfolio	***Scenario Range:*** *High Minus Low Scenario Range, 30-yr NPVRR*	***Cost Risk:*** *RR Increase in Reference Case (95th minus 50th Percentile)*	***Market Exposure:*** *Net Sales as % of Portfolio Load, Scenario Average*
Year Ref.	2022-2051	2031 | 2041	2031
Units	$MM Levelized Rate	$MM Levelized Rate	Summer | Winter
Reference Portfolio	652 $3.7		11% | 21%
CC Portfolio	1,960 $11.1		1% | 0%
Welsh 1 Repower	649 $3.7		9% | 21%
NCR Portfolio	837 $5.4		4% | 15%
CETA Portfolio	1,870 $7.6		24% | 43%
ECR Portfolio	1,044 $2.2		14% | 29%

The **Scenario Resilience** indicator shows that expected costs under the Reference and Welsh 1 Repower portfolios varied little across the fundamental market scenarios. The NCR and ECR portfolios are next best, while the CC and CETA portfolios show the greatest variability in customer costs across the different market conditions.

The **Cost Risk** measure has not yet been evaluated for the draft IRP.

The CC portfolio shows the lowest level of **Market Exposure** across the candidate portfolios, relying the least on net purchases or sales to meet customer requirements. NCR shows the next least reliance on market, while the Reference and Welsh 1 Report portfolios are middle-of-the-pack by this metric. The CETA portfolio exhibits the greatest exposure due to the increased deployment of new renewable resources in this portfolio that require significant net sales to balance with customer loads.

Maintaining Reliability

The Maintaining Reliability indicators compare the amount of excess reserves, the amount of dispatchable capacity in the fleet, and the technology diversity of the SWEPCO generating mix across candidate plans.

Performance Indicator	Metric	Description
Planning Reserves	Avg. Seasonal Reserve Margin % 2022-2041	• SWEPCO measures and considers the amount of average amount of firm capacity in each candidate portfolio over the next 20 years on a seasonal basis. • This metric is a composite calculated by averaging the winter and summer capacity position of each portfolio across all five market scenarios for years 2022-2041. • **A higher number is better**, indicating more reserves are available to meet SPP requirements.
Operational Flexibility	Nameplate MW of dispatchable units in 2031 and 2041	• SWEPCO measures and considers the total amount of dispatchable units added to the portfolio by years 2031 and 2041 to compare candidate resource plans. • The metric for this indicator is the total Nameplate MW of fast-ramping technologies included in the candidate resource plan. • **A higher number is better,** indicating greater ability to ramp generation up or down to react to market conditions and follow load.
Resource Diversity	Generation by technology type, % of total portfolio in 2041	• SWEPCO measures and considers the diversity of new technologies added to its portfolio when comparing candidate portfolios. • This metric is a pie-chart showing total generation by each technology type in year 2041. • **A less concentrated portfolio is better**, overreliance on a single technology exposes customers to performance risk when conditions for that technology are unfavorable.

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Maintaining Reliability

	Maintaining Reliability		
Portfolio	***Planning Reserves:*** *% Reserve Margin, Scenario Average*	***Operational Flexibility:*** *Dispatchable Capacity*	***Resource Diversity:*** *Generation Mix (MWh) by Technology Type - Reference Case*
Year Ref.	2022-2041	2031 | 2041	2041
Units	Summer | Winter	MW	%
Reference Portfolio	16% | 30%	3,295 | 3,431	
CC Portfolio	17% | 27%	3,605 | 3,641	
Welsh 1 Repower	16% | 31%	3,340 | 3,431	
NCR Portfolio	8% | 13%	2,855 | 2,831	
CETA Portfolio	26% | 50%	4,455 | 4,891	
ECR Portfolio	10% | 23%	3,055 | 3,271	

The CETA portfolio has the greatest amount of **Planning Reserves** due the more aggressive resource build-out needed to meet faster load growth. The Reference, Welsh 1 Repower, and CC portfolios are next best, with the CC portfolio having slightly higher summer and lower winter values. The NCR and ECR portfolios score worst by this metric and may expose SWEPCO's customers to capacity shortfalls in summer.

The CETA and CC plans score best on the **Operational Flexibility** metric, owing to the greater number of total units deployed under the CETA portfolio and the decision to force in a new gas combined cycle in the CC portfolio. The Reference and Welsh 1 Repower portfolios are next best, while the NCR and ECR portfolios score worst on this indicator.

The CC portfolio scores highest on the **Resource Diversity** metric. The NCR portfolio is the next most diverse, with approximately equal proportions of energy provided by new solar and wind units. The Reference and Welsh 1 Repower portfolios score similarly on this metric, but are more wind-heavy than the NCR or CC portfolios. Finally, the ECR and CETA portfolios are the least diverse, with wind dominating total portfolio generation in 2041.

Local Impacts & Sustainability

SWEPCO also considered a Sustainability indicator to compare portfolio performance towards meeting corporate sustainability targets.

Performance Indicator	Metric	Description
Local Impacts	Nameplate MW & Total CAPEX Installed Inside SWEPCO Territory by 2031	• SWEPCO measures and considers the amount of new capacity that can be located inside customer communities when evaluating candidate portfolios. • This metric compares the nameplate MW installed and the total capital investment expected inside SWEPCO's service territory under each plan from 2022-2031. • **A higher number is better**, indicating more opportunities for customer-sited resources and additional investment in local communities.
CO_2 Emissions	2031 & 2041 % Reduction from 2000 Baseline - Reference Case	• SWEPCO measures and considers the total amount of expected CO2 emissions of each candidate portfolio on the Scorecard. • This metric compares the forecast emissions of candidate portfolios in 2031 and 2041 under Reference Case market conditions with SWEPCO's actual historical emissions from the year 2000. • **A higher number is better**, indicating greater levels of emissions reductions have been achieved and customers are less exposed to potential future CO_2 costs.

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Local Impacts & Sustainability

	Local Impacts & Sustainability	
Portfolio	***Local Impacts:*** *New Nameplate MW & Total CAPEX Installed Inside SWEPCO Territory*	***CO2 Emissions:*** *Percent Reduction from 2000 Baseline - Reference Case*
Year Ref.	2022-2031	2031 | 2041
Units	MW | $MM	% Reduction
Reference Portfolio	2,720 | $5,921	79% | 84%
CC Portfolio	3,030 | $3,427	73% | 78%
Welsh 1 Repower	2,240 | $5,626	80% | 84%
NCR Portfolio	2,280 | $4,738	80% | 85%
CETA Portfolio	2,880 | $7,563	78% | 83%
ECR Portfolio	2,230 | $5,891	79% | 85%

The CC portfolio scores best by the **Local Impacts** metric on a MW basis, but worst on a dollar basis because the 550 MW NGCC unit added in 2025 delays and displaces the need for new renewable resource that tend to be more capital intense than gas-fired units. The CETA portfolio is next best by MW, and best on a dollar basis, due to the greater deployment of new resources under this case. The Reference portfolio is next-best with more than 2,700 MW installed in the territory and a total expected investment of approximately $5.9 billion over the 10 years. The Welsh 1 Repower, ECR, and NCR portfolios score lower by this measure.

All of the resource plans considered in the 2021 IRP, except the CC portfolio, put SWEPCO on a pathway to meet or nearly meet the 2030 **CO_2 Emissions** reduction targets announced by AEP. This result is consistent over the long term as well, with the CC portfolio showing the highest level of emissions across the candidate resource plans.

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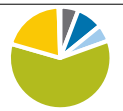
Scorecard Results

	Customer Affordability		Rate Stability			Maintaining Reliability			Local Impacts & Sustainability	
Portfolio	***Short Term:*** *5-yr Rate CAGR, Reference Case*	***Long Term:*** *30-yr NPVRR, Reference Case*	***Scenario Range:*** *High Minus Low Scenario Range, 30-yr NPVRR*	***Cost Risk:*** *RR Increase in Reference Case (95th minus 50th Percentile)*	***Market Exposure:*** *Net Sales as % of Portfolio Load, Scenario Average*	***Planning Reserves:*** *% Reserve Margin, Scenario Average*	***Operational Flexibility:*** *Dispatchable Capacity*	***Resource Diversity:*** *Generation Mix (MWh) by Technology Type - Reference Case*	***Local Impacts:*** *New Nameplate MW & Total CAPEX Installed Inside SWEPCO Territory*	***CO2 Emissions:*** *Percent Reduction from 2000 Baseline - Reference Case*
Year Ref.	2022-2027	2022-2051	2022-2051	2031 | 2041	2031	2022-2041	2031 | 2041	2041	2022-2031	2031 | 2041
Units	%	$MM Levelized Rate	$MM Levelized Rate	$MM Levelized Rate	Summer | Winter	Summer | Winter	MW	%	MW | $MM	% Reduction
Reference Portfolio	2.57	15,435 $56.1	652 $3.7		11% | 21%	16% | 30%	3,295 | 3,431		2,720 | $5,921	79% | 84%
CC Portfolio	2.84	16,309 $59.3	1,960 $11.1		1% | 0%	17% | 27%	3,605 | 3,641		3,030 | $3,427	73% | 78%
Welsh 1 Repower	2.57	15,287 $55.6	649 $3.7		9% | 21%	16% | 31%	3,340 | 3,431		2,240 | $5,626	80% | 84%
NCR Portfolio	2.35	15,500 $56.4	837 $5.4		4% | 15%	8% | 13%	2,855 | 2,831		2,280 | $4,738	80% | 85%
CETA Portfolio	4.22	16,475 $59.9	1,870 $7.6		24% | 43%	26% | 50%	4,455 | 4,891		2,880 | $7,563	78% | 83%
ECR Portfolio	2.55	15,270 $55.5	1,044 $2.2		14% | 29%	10% | 23%	3,055 | 3,271		2,230 | $5,891	79% | 85%

*Levelized Rates and NPVRR metrics are for generation component only. Metrics are for comparison only and do not represent the final costs which will apply to ratepayers.

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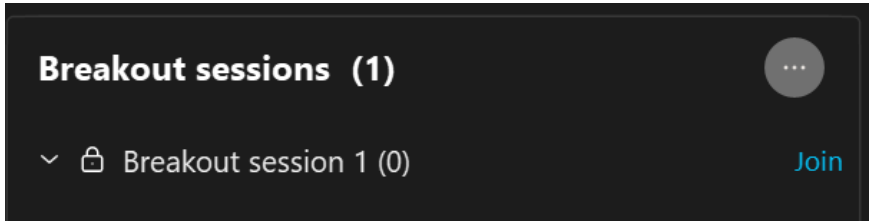
Draft Preferred Plan

SWEPCO has not yet selected a Preferred Plan for the 2021 IRP.

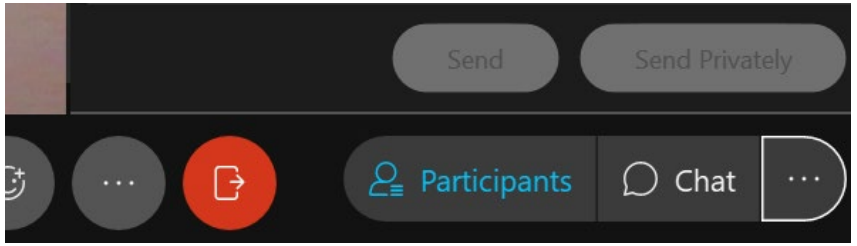
Following this Stakeholder Conference and additional Stakeholder Feedback, SWEPCO will select a Preferred Plan to move forward with.

Stakeholder Breakout Session

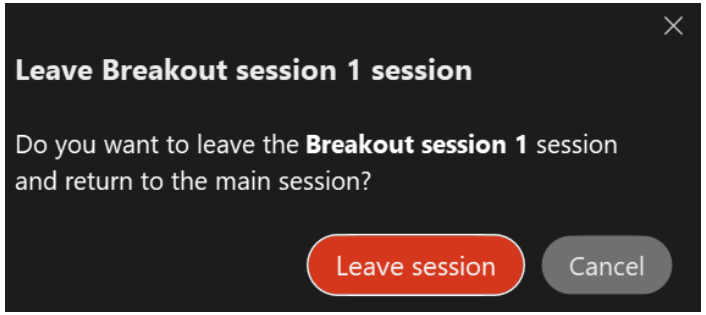
- When available, select ‘Join’ to enter the Breakout Session



- When ready to leave the Breakout Session, select the red exit button



- Select ‘Leave session’ on the popup window to return to the main Webex meeting



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Section Break

Stakeholder Breakout Session

11:30-12:30 (1 hour)

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Breakout session summary comments and Q&A

Closing Remarks

Thank you for participation

Responses submitted in the Q&A that were unable to be addressed during the call will be provided within 2 weeks.

Further questions and feedback should be provided to Elizabeth Stephens, edstephens@aep.com

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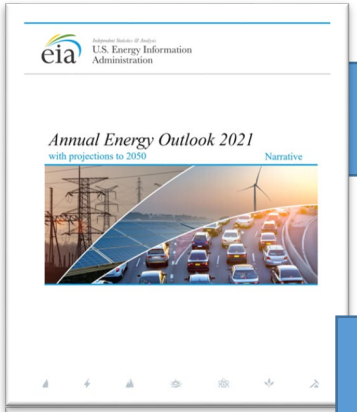
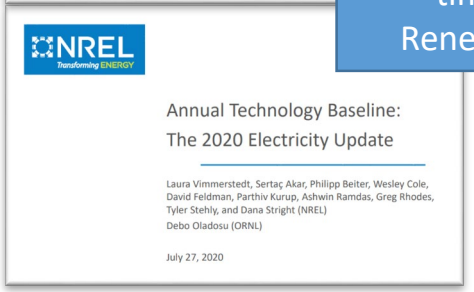
Appendix

Assumption Development

Supply-side resources assumptions were developed based on authoritative third-party sources.

Intermediate & Peaking Options





Step 1: Sourcing baseline technology costs and performance assumptions from EIA Annual Energy Outlook 2021

Step 2: Applying changes to technology cost and performance over time based on the Moderate Case projection by the National Renewable Energy Laboratory's Annual Technology Baseline 2020

Renewable Options

Step 3: Applying investment tax credit for wind project entering service before the end of 2025, and 30% production tax credit for solar project entering service before the end of 2023, 26% before the end of 2025 and 10% thereafter

Advanced Generation Options

Step 1: Collate projections of technology costs and performance from various third-party sources

Step 2: Analyze projections, identify outliers and form central estimates of technology costs and performance over time

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Supply Side Resources

SWEPCO evaluated three categories of supply side resources to identify the optimal resource mix that is resilient to future uncertainties.

Intermediate & Peaking Options

- H-Class 430 MW single-shaft natural gas combined cycle (NGCC)*
- H-Class 1,100 MW multi-shaft NGCC*
- F-Class 240 MW natural gas combustion turbine (NGCT*)
- 650 MW ultra-supercritical coal (USC) unit with 90% carbon capture
- 430 MW H-class single shaft NGCC with 90% carbon capture
- 100 MW aeroderivative unit
- 20 MW reciprocating engine
- 4-hour duration lithium-ion battery

Renewable Options

- Utility-scale onshore Wind
- Utility-scale solar photovoltaic

Advanced Generation Options

- Small modular nuclear reactors
- 90% carbon capture retrofits to existing coal or NGCC units
- Hydrogen electrolyzer + hydrogen gas combustion turbine
- Hydrogen gas combustion turbine
- 20-hour duration pumped thermal energy storage
- 20-hour vanadium flow battery storage
- 20-hour compressed air energy storage

Note: *New NGCC/CT units are assumed to be retrofittable to burn 100% hydrogen

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Baseline Assumptions

SWEPCO developed baseline technology cost and performance assumptions before applying learning rates that improve costs over time.

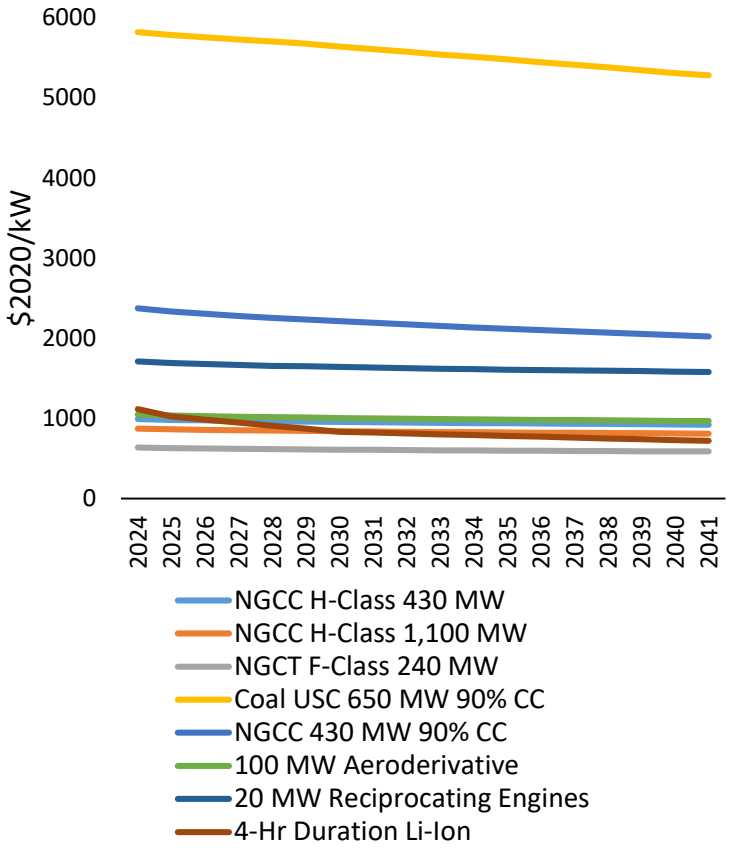
Technology	Fuel	Overnight CAPEX ($2020/kW)	VOM ($2020/MWh)	FOM ($2020/kW-Year)	Heat Rate (Btu/kWh)
NGCC H-Class Single-Shaft 430 MW	Natural Gas	1,004	2.6	14.2	6,431
NGCC H-Class Multi-Shaft 1,100 MW	Natural Gas	882	1.9	12.3	6,370
NGCT F-Class 240 MW	Natural Gas	654	0.6	7.0	9,905
Coal USC 650 MW with 90% Carbon Capture	Coal	5,821	11.0*	59.9	12,507
NGCC H-Class Single-shaft 430 MW with 90% Carbon Capture	Natural Gas	2,428	5.9*	27.8	7,124
100 MW Aeroderivative	Natural Gas	1,079	4.7	16.4	9,124
20 MW Reciprocating Engines	Natural Gas	1,763	5.7	35.3	8,295
4-Hour Duration Lithium-Ion Battery	N/A	1,389	0.0	25.4	N/A
Utility-scale Onshore Wind	N/A	1,395	0.0	26.5	N/A
Utility-scale Solar Photovoltaic	N/A	1,190	0.0	14.7	N/A
Small Modular Reactor	Uranium	6,485	3.0	95.5	10,455
Hydrogen Electrolyzer + Hydrogen Gas Combusting Turbine	Electricity	3,291	1.1	53.4	9,655
Hydrogen Gas Combusting Turbine	Hydrogen	1,576	0.6	7.0	9,655
20-Hour Duration Pumped Thermal Energy Storage	N/A	3,295	0.0	51.2	N/A
20-Hour Duration Vanadium Flow Battery Storage	N/A	3,798	0.0	11.3	N/A
20-Hour Duration Compressed Air Energy Storage	N/A	1,771	0.0	17.2	N/A

Note: *The passage of Section 45Q legislation provides a tax credit of $50/t$CO_2$ sequestered. This is implemented as a negative VOM adder.

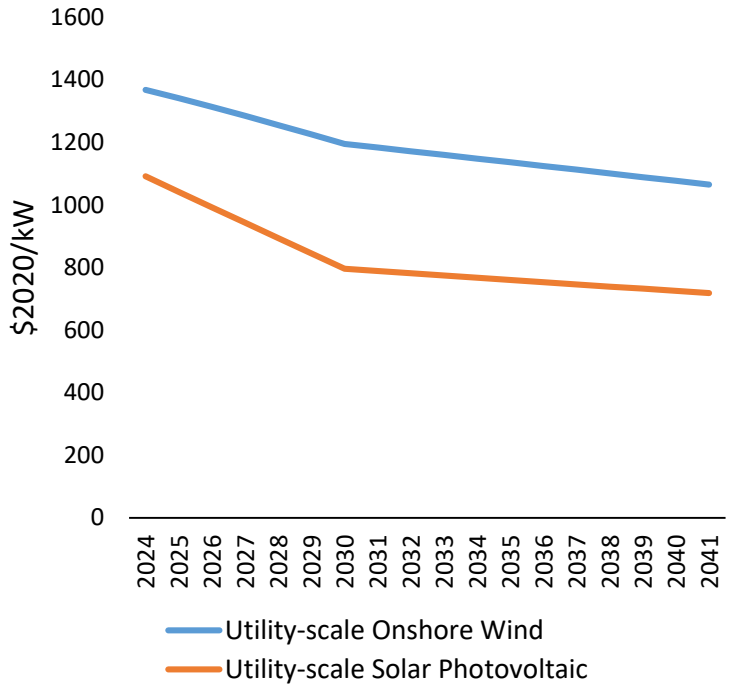
Cost Improvements

The result is an evolution of overnight capital costs over time for the supply side resources.

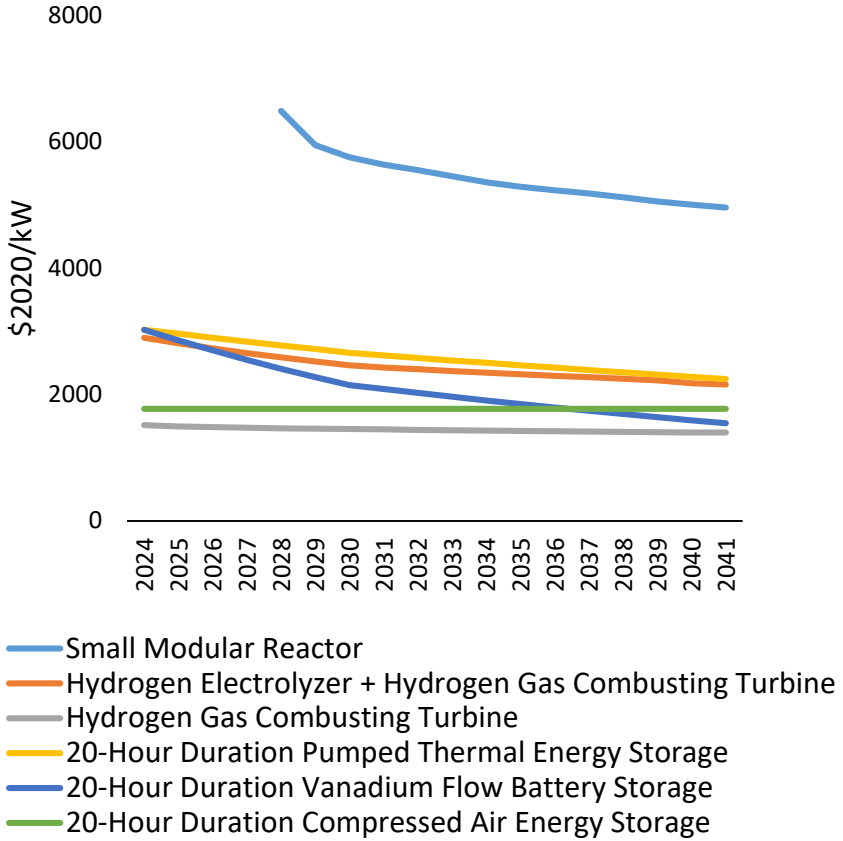
Intermediate & Peaking Options



Renewable Options



Advanced Generation Options



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Demand Side Resources

Energy Efficiency Bundles

Residential Bundles		Time Periods		
Bundle		2023-2027	2028-2032	2033-2037
Low (10 yrs)	Energy Savings (MWh)	37,668	4,748	5,993
	LCOE ($/MWh)	13.94	19.53	19.46
Medium (15 yrs)	Energy Savings (MWh)	52,114	12,472	6,826
	LCOE ($/MWh)	49.88	53.35	48.66
High (17 yrs)	Energy Savings (MWh)	52,938	11,359	6,333
	LCOE ($/MWh)	81.32	77.65	77.61

Commercial Bundles		Time Periods		
Bundle		2023-2027	2028-2032	2033-2037
Low (13 yrs)	Energy Savings (MWh)	33,880	2,622	0
	LCOE ($/MWh)	8.79	10.09	NA
Medium (15 yrs)	Energy Savings (MWh)	11,115	0	0
	LCOE ($/MWh)	22.52	NA	NA

Bundle Method

- EE Measures * are bundled by Levelized Costs
- EE Bundles are made available as resource options

* 2014 U.S. Energy Efficiency Potential Through 2035" report with updates from the 2019 Technical Update

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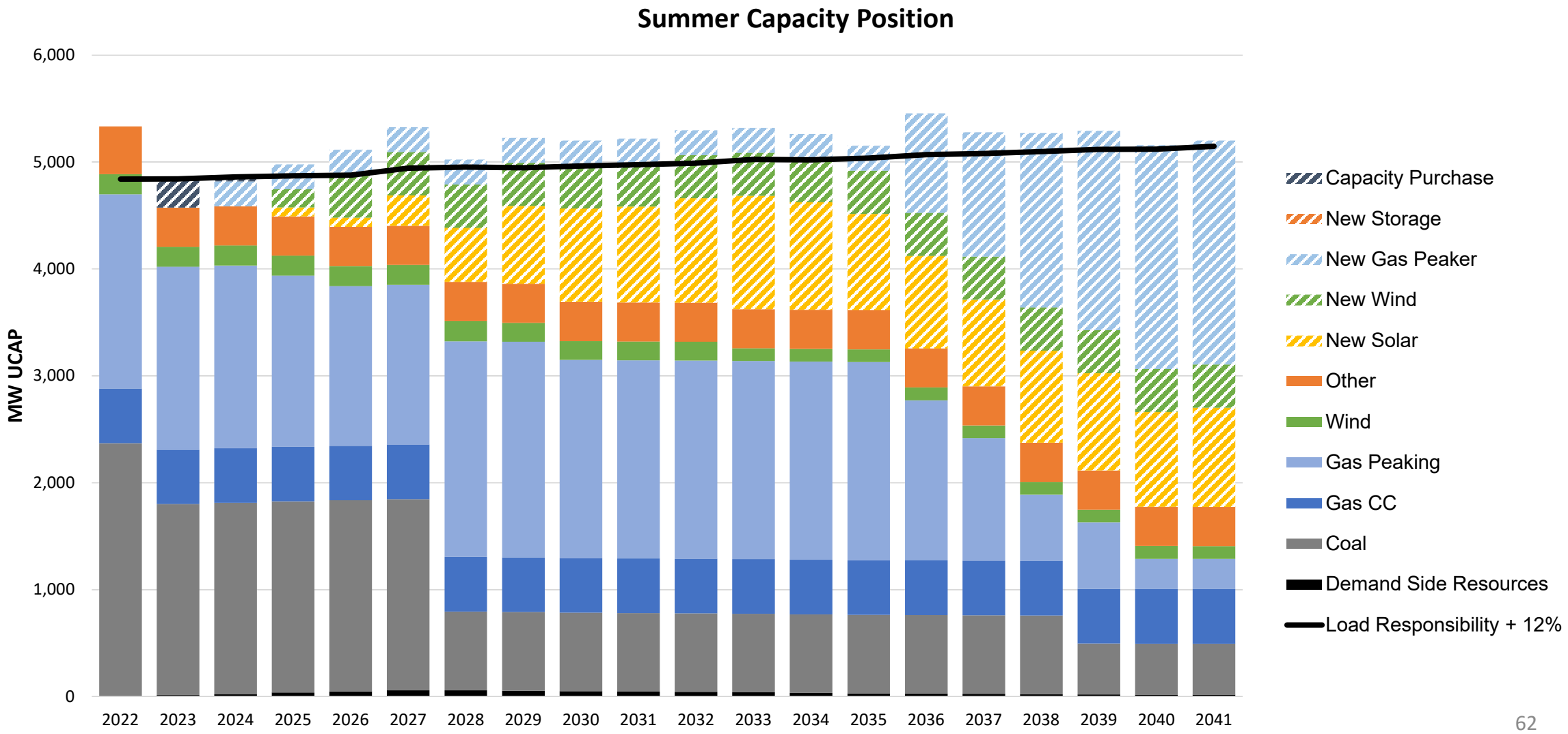
Welsh 1 Repower Detail

Utility-Scale New Build Additions by Year (Nameplate MW)					
Year	New Solar	New Wind	New Gas CT	New Storage	Capacity Purchases
2022					
2023					271
2024	150*	1150*	240		46
2025		1600*			
2026					
2027	350				
2028	450				
2029	450				
2030	450				
2031	150				
2032	300				
2033	350				
2034					
2035					
2036	50		720		
2037			240		
2038	250		480		
2039	250		240		
2040			240		
2041	250				
Total	**3,450.0**	**2,750.0**	**2,160.0**	**0.0**	

Demand Side Additions by Year (Peak Credit MW)			
Year	Energy Efficiency	Distributed Generation	Total + 12%
2022		1.8	2.02
2023	7.9	3.0	12.19
2024	17.9	3.6	24.14
2025	27.7	5.1	36.74
2026	36.1	6.2	47.41
2027	44.3	8.0	58.47
2028	44.2	8.6	59.08
2029	39.7	9.4	55.00
2030	35.1	9.4	49.89
2031	30.2	10.3	45.34
2032	28.5	10.6	43.78
2033	23.7	10.8	38.67
2034	18.6	11.0	33.19
2035	14.8	10.9	28.71
2036	12.6	11.2	26.66
2037	11.0	11.1	24.74
2038	7.9	11.7	22.00
2039	5.4	12.0	19.46
2040	3.3	12.5	17.63
2041	2.3	12.9	17.01

**Resources are added 12/31 of given year due to tax incentive deadlines*

Welsh 1 Repower Balance



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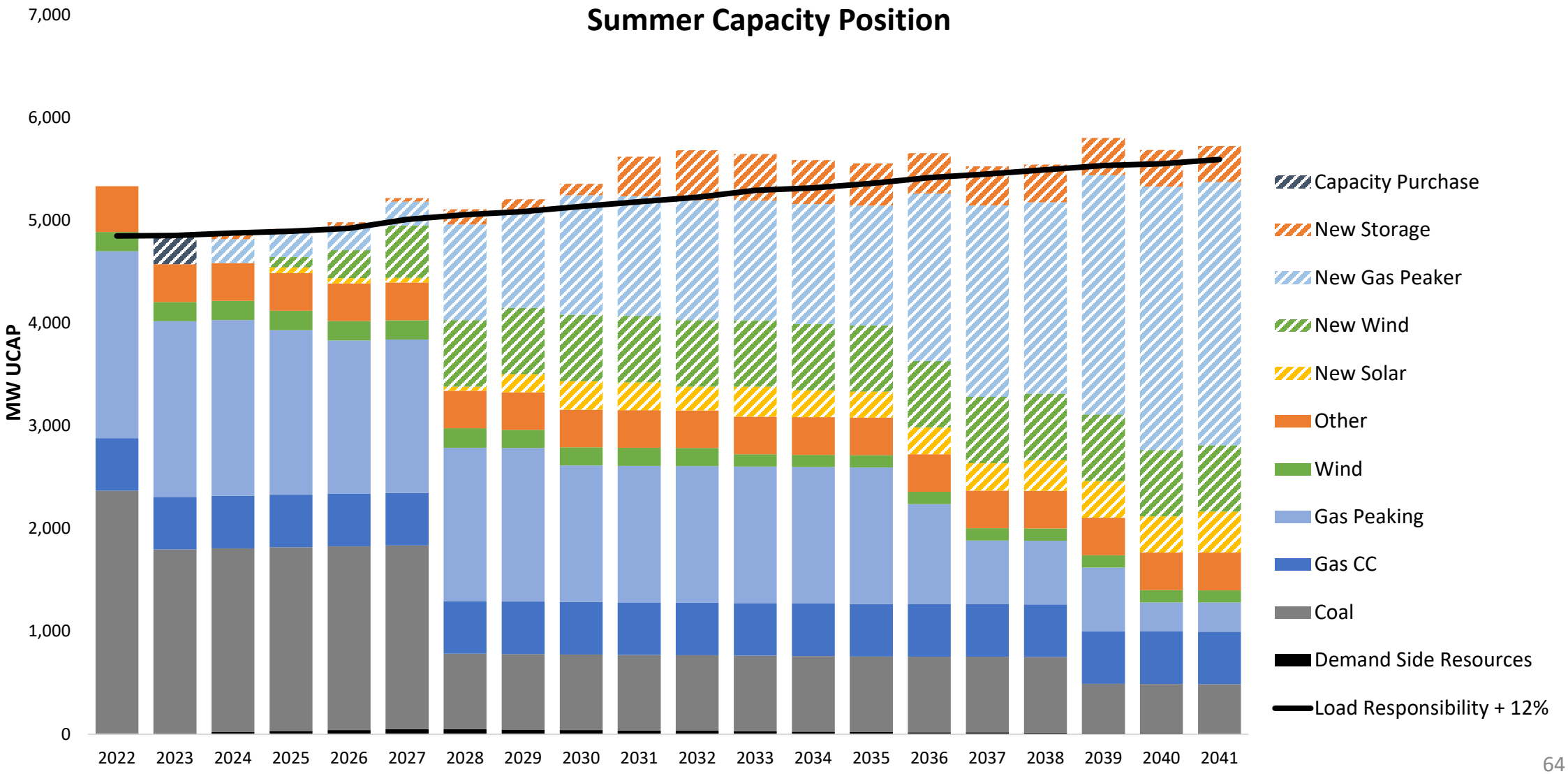
CETA Portfolio Detail

Utility-Scale New Build Additions by Year (Nameplate MW)					
Year	New Solar	New Wind	New Gas CT	New Storage	Capacity Purchases
2022					285
2023					25
2024	100*	700*	240	40	
2025		1150*			
2026					
2027		1600			
2028		950	720	140	
2029	450				
2030	450		240		
2031				500	
2032				300	
2033	400				
2034					
2035	100				
2036	50		480		
2037	100		240		
2038	200				
2039	450		480		
2040	50		240		
2041	400				
Total	**2,750.0**	**4,400.0**	**2,640.0**	**980.0**	

Demand Side Additions by Year (Peak Credit MW)			
Year	Energy Efficiency	Distributed Generation	Total + 12%
2022		1.8	2.02
2023	6.1	3.0	10.16
2024	15.0	3.6	20.88
2025	23.5	5.1	32.06
2026	29.4	5.9	39.58
2027	36.4	6.6	48.12
2028	37.0	6.4	48.65
2029	34.7	5.8	45.30
2030	30.7	5.5	40.62
2031	26.5	6.2	36.59
2032	24.7	5.8	34.15
2033	20.8	5.6	29.52
2034	16.4	5.4	24.48
2035	13.5	5.4	21.09
2036	11.7	5.9	19.73
2037	10.3	6.0	18.27
2038	7.6	6.5	15.74
2039	5.3	6.5	13.19
2040	3.2	6.8	11.18
2041	2.3	7.0	10.33

**Resources are added 12/31 of given year due to tax incentive deadlines*

CETA Portfolio Balance



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ECR Portfolio Detail

Utility-Scale New Build Additions by Year (Nameplate MW)

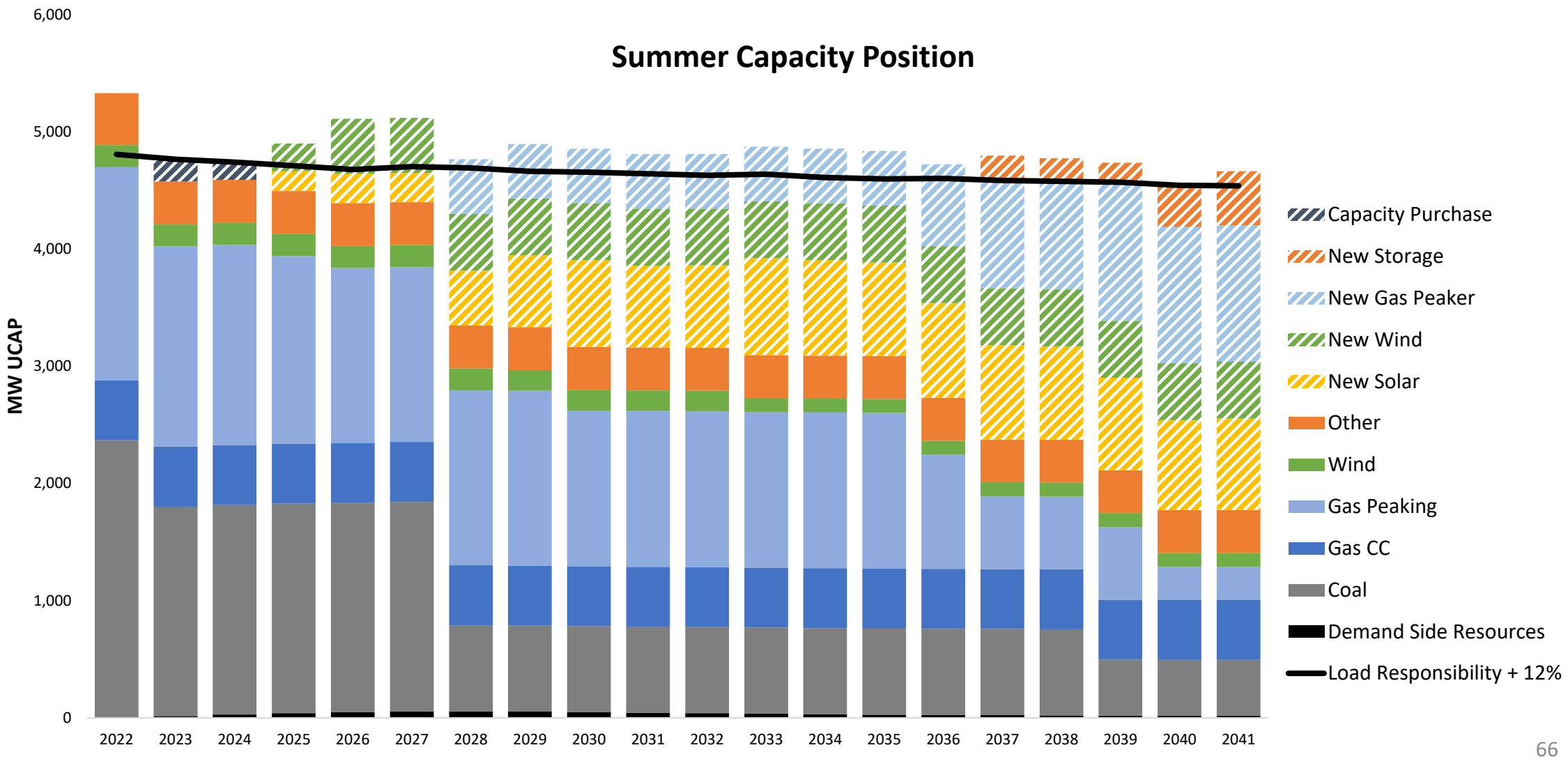
Year	New Solar	New Wind	New Gas CT	New Storage	Capacity Purchases
2022					
2023					194
2024	300*	1600*			156
2025		1600*			
2026	150				
2027					
2028	450	100	480		
2029	400				
2030	450				
2031					
2032	100				
2033	450				
2034	100				
2035	100				
2036	200		240		
2037	50		240	280	
2038	50				
2039	50		240		
2040				300	26
2041	50			220	
Total	**2,900.0**	**3,300.0**	**1,200.0**	**800.0**	

Demand Side Additions by Year (Peak Credit MW)

Year	Energy Efficiency	Distributed Generation	Total + 12%
2022		1.8	2.02
2023	10.3	3.0	14.84
2024	21.7	3.6	28.31
2025	31.4	5.1	40.90
2026	36.6	6.1	47.77
2027	41.4	7.7	55.03
2028	41.2	8.3	55.46
2029	38.4	8.5	52.50
2030	34.5	8.5	48.14
2031	29.5	9.2	43.30
2032	26.9	9.5	40.77
2033	22.0	9.7	35.57
2034	17.3	9.9	30.41
2035	14.1	10.2	27.27
2036	12.1	10.5	25.30
2037	10.5	10.8	23.87
2038	7.7	11.4	21.32
2039	5.3	11.6	18.94
2040	3.2	12.1	17.19
2041	2.3	12.9	17.02

**Resources are added 12/31 of given year due to tax incentive deadlines*

ECR Portfolio Balance



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CC Portfolio Detail

Utility-Scale New Build Additions by Year (Nameplate MW)						
Year	New Solar	New Wind	New Gas CC	New Gas CT	New Storage	Capacity Purchases
2022						
2023						271
2024	450*					279
2025		600*	550.0			
2026						
2027						
2028	450	50		480		34
2029	450					
2030	450					
2031	450					
2032	450					
2033	450					
2034	150					
2035	150					
2036				240		
2037	450			240		
2038	250					
2039	300			480		
2040				240		
2041	50				140	
Total	**4,500.0**	**650.0**	**550.0**	**1,680.0**	**140.0**	

Demand Side Additions by Year (Peak Credit MW)			
Year	Energy Efficiency	Distributed Generation	Total + 12%
2022		1.8	2.02
2023	7.9	3.0	12.19
2024	17.9	3.6	24.14
2025	27.7	5.1	36.74
2026	36.1	6.2	47.41
2027	44.3	8.0	58.47
2028	44.2	8.6	59.08
2029	39.7	9.4	55.00
2030	35.1	9.4	49.89
2031	30.2	10.3	45.34
2032	28.5	10.6	43.78
2033	23.7	10.8	38.67
2034	18.6	11.0	33.19
2035	14.8	10.9	28.71
2036	12.6	11.2	26.66
2037	11.0	11.1	24.74
2038	7.9	11.7	22.00
2039	5.4	12.0	19.46
2040	3.3	12.5	17.63
2041	2.3	12.9	17.01

**Resources are added 12/31 of given year due to tax incentive deadlines*

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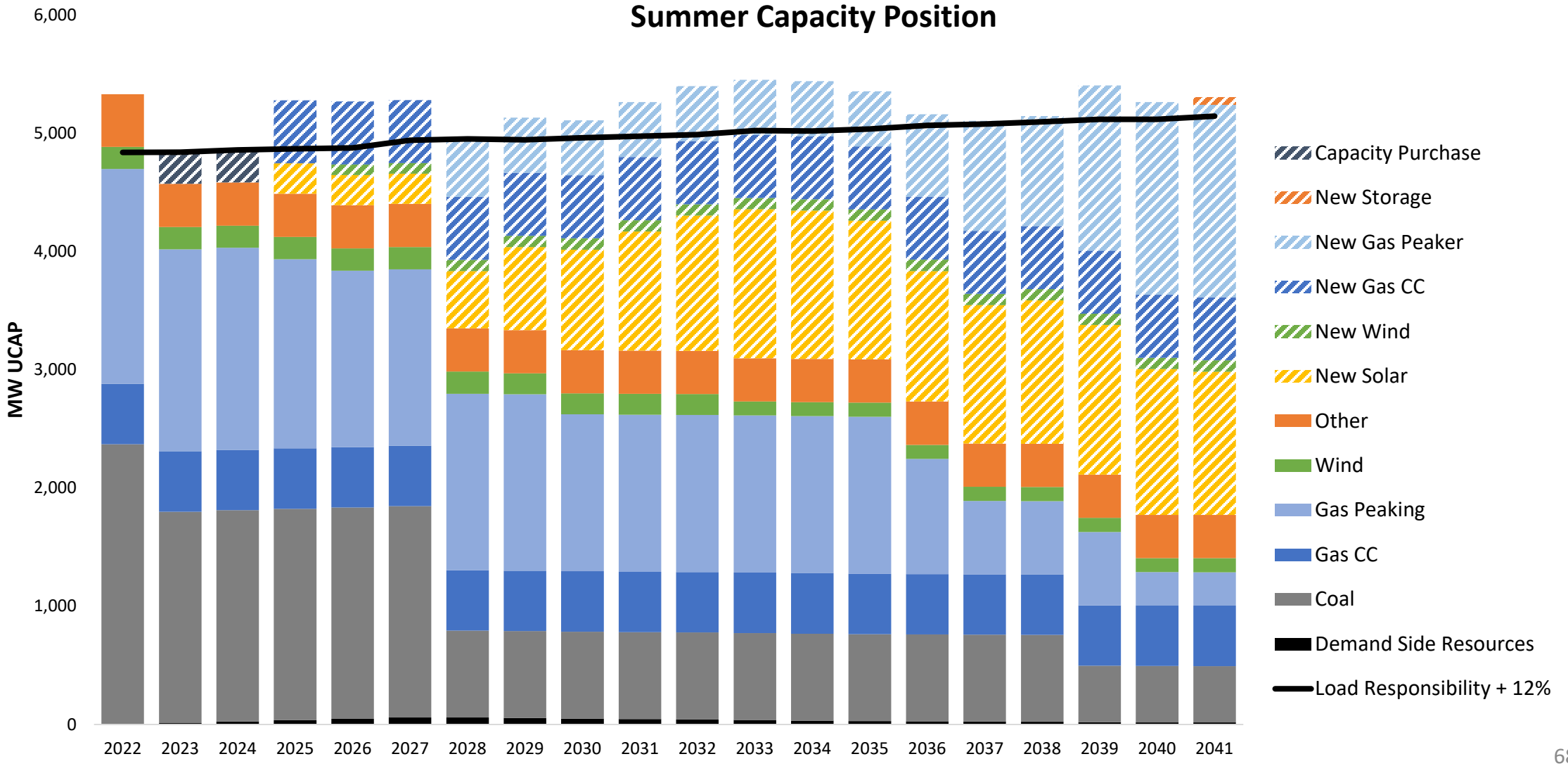
CC Portfolio Balance



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NCR Portfolio Detail

Utility-Scale New Build Additions by Year (Nameplate MW)					
Year	New Solar	New Wind	New Gas CT	New Storage	Capacity Purchases
2022					
2023					273
2024	450*	650*			282
2025		1350*		20	5
2026					
2027	450				
2028	450		240	20	242
2029	300				70
2030	450				19
2031	450				
2032	450				
2033	300				
2034					
2035	150				
2036	400				
2037	150		240	20	15
2038	250			20	7
2039	250		240	80	
2040			480		
2041				200	
Total	**4,500.0**	**2,800.0**	**1,200.0**	**360.0**	

Demand Side Additions by Year (Peak Credit MW)			
Year	Energy Efficiency	Distributed Generation	Total + 12%
2022		1.8	2.0
2023	6.1	3.0	10.2
2024	15.0	3.6	20.9
2025	23.5	5.4	32.4
2026	29.4	6.6	40.4
2027	36.4	8.4	50.1
2028	37.0	9.6	52.2
2029	34.7	10.8	50.9
2030	30.7	11.7	47.5
2031	26.5	13.1	44.3
2032	24.7	13.8	43.1
2033	20.8	14.9	39.9
2034	16.4	15.5	35.8
2035	13.5	17.2	34.3
2036	11.7	18.2	33.5
2037	10.3	17.5	31.1
2038	7.6	17.9	28.6
2039	5.3	17.8	25.8
2040	3.2	18.0	23.8
2041	2.3	18.2	23.0

**Resources are added 12/31 of given year due to tax incentive deadlines*

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NCR Portfolio Balance