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VECTREN PUBLIC STAKEHOLDER MEETING

JUNE 15, 2020

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WELCOME AND SAFETY SHARE

LYNNAE WILSON

INDIANA ELECTRIC CHIEF BUSINESS OFFICER

SAFETY SHARE – FIREWORK SAFETY

In 2017, eight people died (half children and young adults under age 20) and over 12,000 were injured badly enough to require medical treatment after fireworks-related incidents

- According to the National Fire Protection Association, sparklers alone account for more than 25% of emergency room visits for fireworks injuries

If consumer fireworks are legal to buy where you live and you choose to use them, be sure to follow the following safety tips:

- Never allow young children to handle fireworks
- Older children should use them only under close adult supervision
- Never use fireworks while impaired by drugs or alcohol
- Anyone using fireworks or standing nearby should wear protective eyewear
- Never hold lighted fireworks in your hands
- Only use them away from people, houses and flammable material
- Only light one device at a time and maintain a safe distance after lighting
- Do not try to re-light or handle malfunctioning fireworks
- Soak both spent and unused fireworks in water for a few hours before discarding
- Keep a bucket of water nearby to fully extinguish fireworks that don't go off or in case of fire

Source: https://www.nsc.org/home-safety/tools-resources/seasonal-safety/summer/fireworks

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MEETING GUIDELINES, AGENDA, AND FOLLOW-UP INFORMATION

MATT RICE

VECTREN MANAGER OF RESOURCE PLANNING

AGENDA

Time		
1:00 p.m.	Welcome, Safety Message	Lynnae Wilson, Indiana Electric Chief Business Officer
1:10 p.m.	Meeting Guidelines and Stakeholder Process Review	Matt Rice, Manager of Resource Planning
1:20 p.m.	Presentation of the Preferred Portfolio	Lynnae Wilson, Indiana Electric Chief Business Officer & Matt Rice, Manager of Resource Planning
1:50 p.m.	Portfolio Analysis and Balanced Scorecard	Peter Hubbard, Pace Global, Siemens Energy Business Advisory
2:20 p.m.	Next Steps	Justin Joiner, Director of Power Supply Services
2:30 p.m.	Stakeholder Questions/Comments	
3:30 p.m.	Adjourn	

MEETING GUIDELINES

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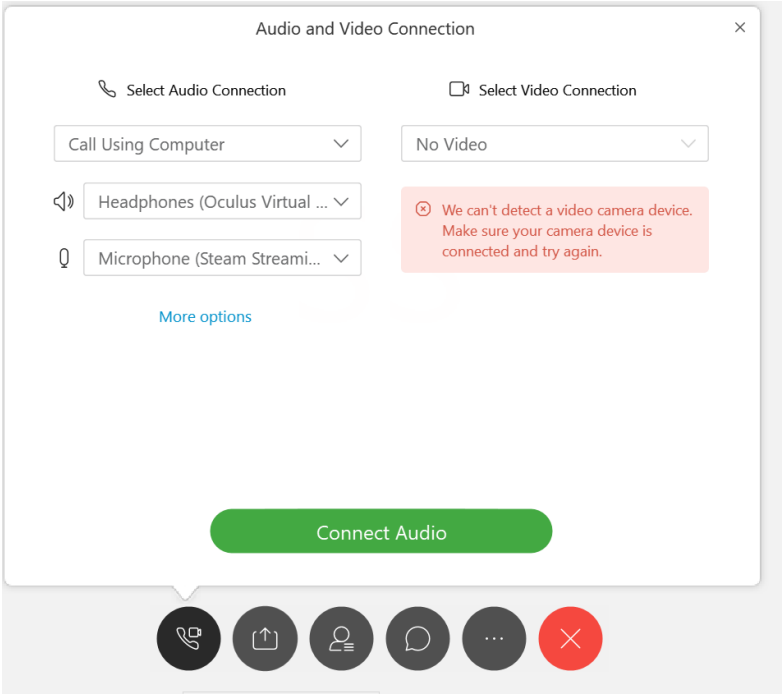
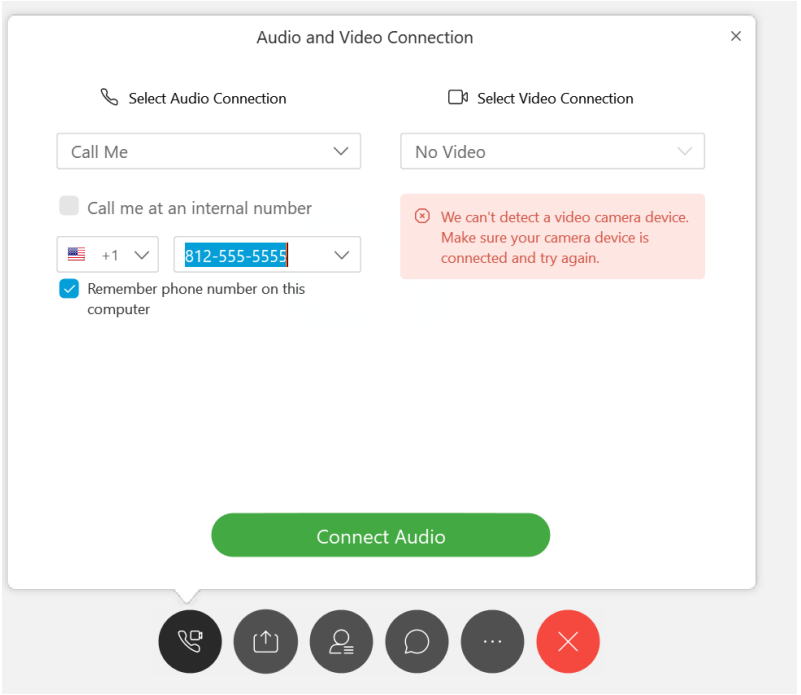
- Meeting participants must enter their name when logging into WebEx to facilitate question responses and improve communication
- Please type all questions into the chat function
  - If you would like to follow-up on your question, please use the raise hand function (to the right of your name on the participant list). Your phone line will be opened
  - One follow up question at a time will be allowed to give everyone an opportunity to have their questions answered
  - Any unanswered questions will be addressed after the meeting
  - Additional questions can be sent to: IRP@CenterPointEnergy.com
- Stakeholders may request 2 minutes at the end of the meeting to offer any additional comments. Those that have signed up ahead of the meeting will go first.

HOW TO CONNECT AUDIO



Call Using Computer if you would like to use your computer's microphone and speakers

or



Call Me if you would like to use a phone to connect. Enter in phone number and WebEx automatically call

HAVE A QUESTION?

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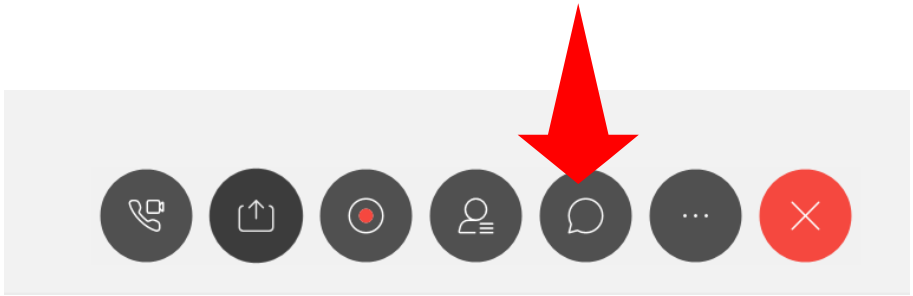
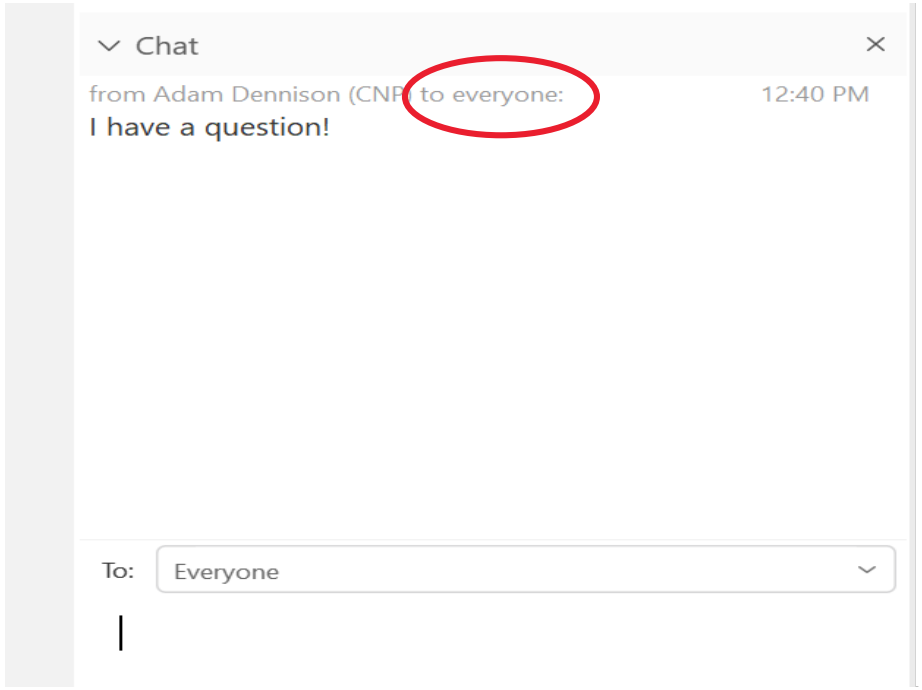
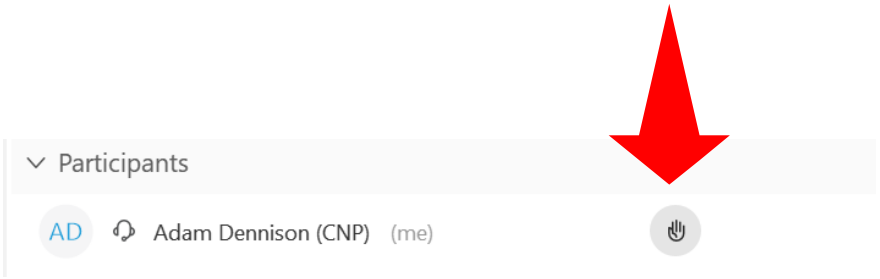
Ask “everyone” in chat.

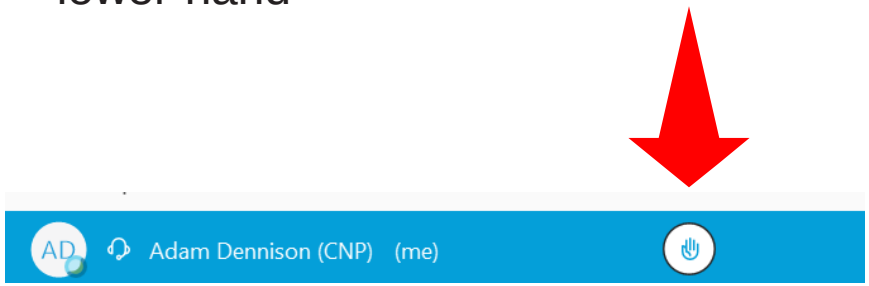




Raise Hand for a Follow-up



After question has been answered, lower hand



2019/2020 STAKEHOLDER PROCESS

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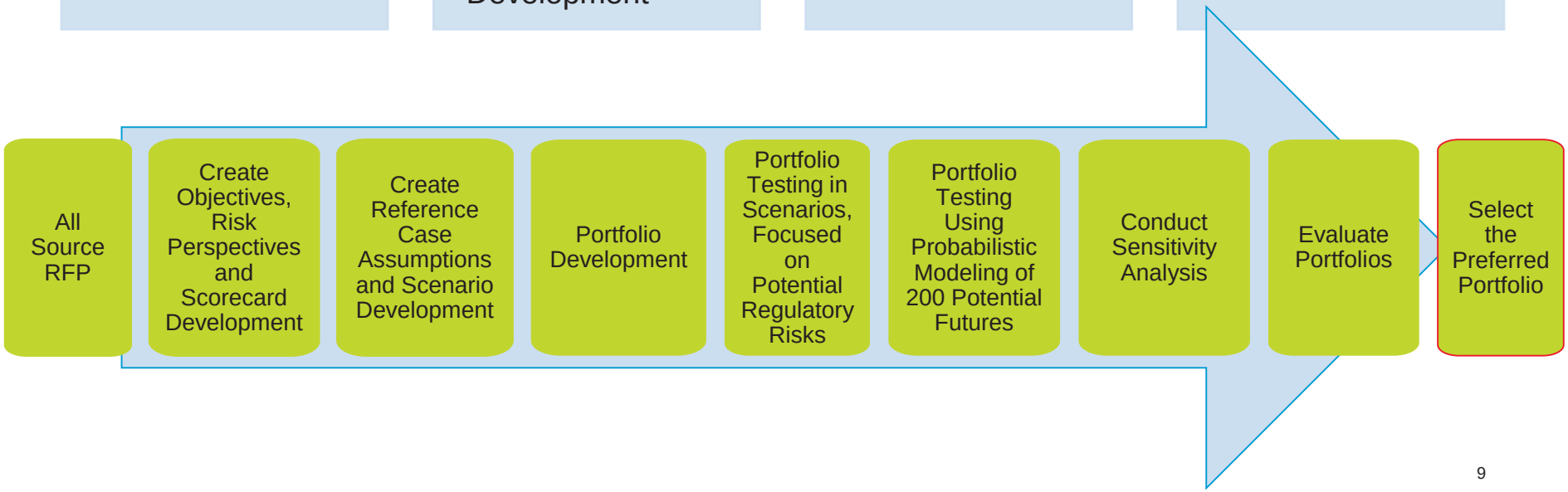
August 15, 2019	October 10, 2019	December 13, 2019	June 15, 2020
• 2019/2020 IRP Process • Objectives and Measures • All-Source RFP • Environmental Update • Draft Reference Case Market Inputs & Scenarios	• RFP Update • Draft Resource Costs • Sales and Demand Forecast • DSM MPS/ Modeling Inputs • Scenario Modeling Inputs • Portfolio Development	• Draft Portfolios • Draft Reference Case Modeling Results • All-Source RFP Results and Final Modeling Inputs • Scenario Testing and Probabilistic Modeling Approach and Assumptions	• Final Reference Case and Scenario Modeling Results • Probabilistic Modeling Results • Risk Analysis Results • Preview the Preferred Portfolio



VECTREN COMMITMENTS FOR 2019/2020 IRP

- ✓ Utilized an All-Source RFP to gather market pricing & availability data
- ✓ Included a balanced, less qualitative risk score card; draft was shared at the first public stakeholder meeting
- ✓ Performed an exhaustive look at existing resource options
- ✓ Used one model for consistency in optimization, simulated dispatch, and probabilistic functions
- ✓ Worked with stakeholders on portfolio development
- ✓ Modeled more resources simultaneously
- ✓ Tested a wide range of portfolios in scenario modeling and ultimately in the risk analysis
- ✓ Conducted a sensitivity analysis
- ✓ Provided a data release schedule and provide modeling data ahead of filing for evaluation
- ✓ Ensured the IRP process informs the selection of the preferred portfolio
- ✓ Included information presented for multiple audiences (technical and non-technical)
- ✓ Strived to make every encounter meaningful for stakeholders and for us

BACKGROUND

Vectren continually monitors major developments in the energy industry. While the IRP is developed at a point in time, Vectren works to evaluate current and expected future environments. Recently, several developments have helped to shape our view on what to expect in the near, mid, and long-term.

– The generation mix continues to transition towards renewables and gas resources due to economics

– Evolving MISO market rules to ensure reliability, signaling future incentives for resources that are dispatchable, flexible, and visible

– Energy storage is an emerging flexible resource with great potential. Price continues to come down, but there are still no cost-effective long duration storage options

– The need for flexibility to mitigate risk in an uncertain future

– Customer desire for local renewable resources while maintaining reliability

– Guidance from recent Commission orders and the Director's Report that called for diversity, local resources, risk mitigation, and flexibility

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PREFERRED PORTFOLIO

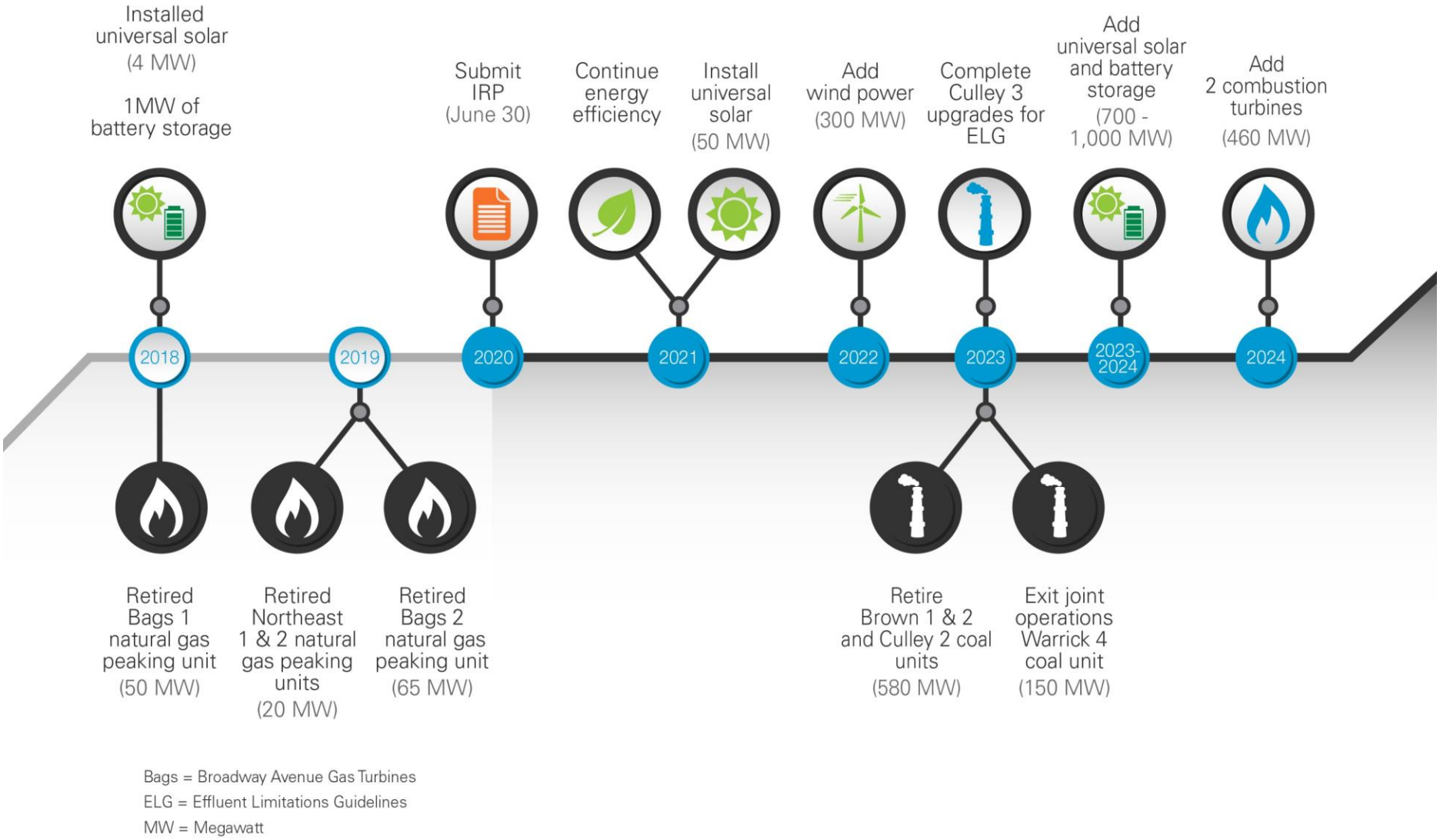
LYNNAE WILSON

INDIANA ELECTRIC CHIEF BUSINESS OFFICER

MATT RICE

VECTREN MANAGER OF RESOURCE PLANNING

VECTREN PREFERRED IRP PORTFOLIO[1]



Bags = Broadway Avenue Gas Turbines
ELG = Effluent Limitations Guidelines
MW = Megawatt

[1]Subject to change based on availability and approval

WHY WAS THIS PORTFOLIO CHOSEN?

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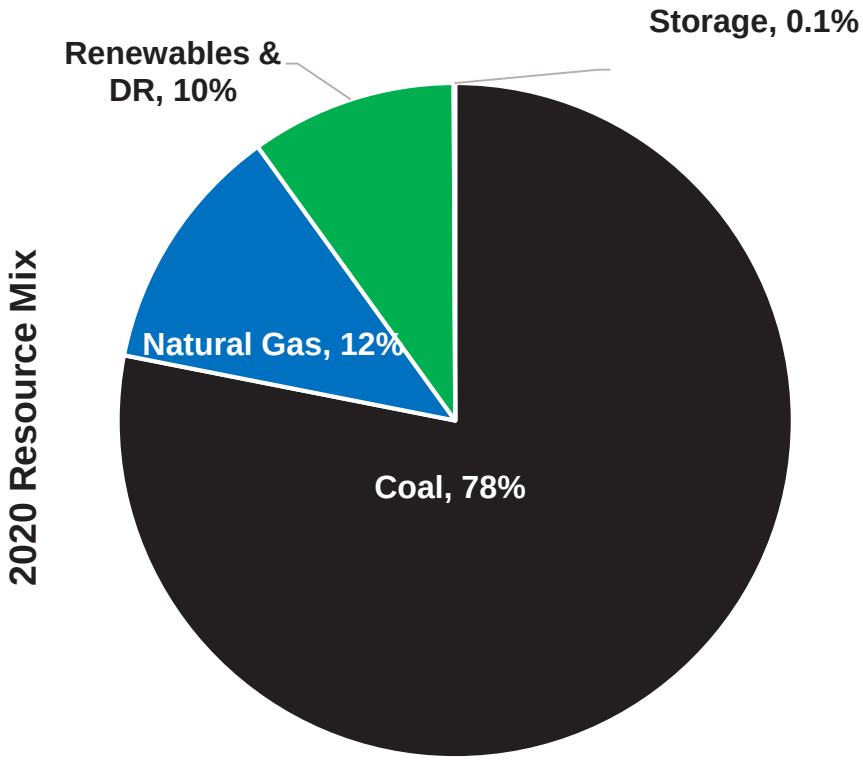
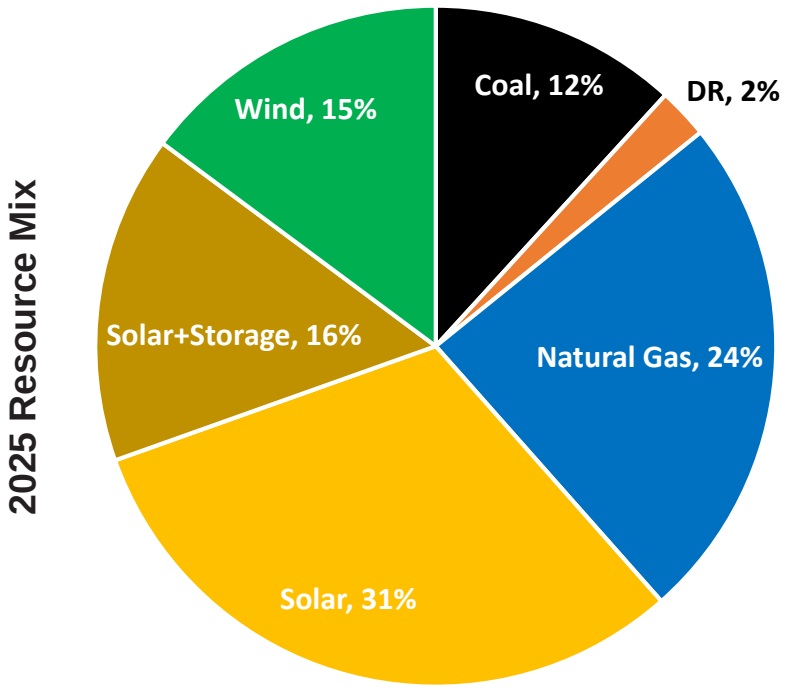
- Preferred portfolio[1] replaces 730 MWs of coal with approximately 700-1,000 MWs of Solar & Solar + Storage, 300 MWs of Wind, 460 MWs of gas Combustion Turbines (CT) and 30 MWs of Demand Response (DR) (aka High Technology Portfolio[2])
- Preferred portfolio provides the following characteristics:
  - Reliability: dispatchable capacity and energy that is available on demand
  - Cost effective: net present value (NPV) that is among the lowest portfolios in the near, mid, and long-term; saving up to $320 million over the next 20 years
  - Flexibility: ability to meet future load needs via additional resources, including renewables
  - Diversity: capacity and energy from a blend of renewables, coal and natural gas
  - Regulatory risk mitigation and sustainability: a lower NPV and reduces CO_2 nearly 75% by 2035 over 2005 levels
  - Timely: CTs can come online in 2024, thereby reducing market reliance and in-service lag, to replace coal generation that retires in 2023

[1]Large build out of renewable generation helps to replace energy from coal generation., while combustion turbines help to replace a portion of dispatchable capacity from the coal units.
[2] The preferred portfolio was created utilizing the High Technology future scenario. The preferred portfolio is also referenced as the High Technology Portfolio throughout this presentation.

PREFERRED PORTFOLIO RESOURCE MIX

Shift in total installed capacity from 90% fossil to 36%, while renewables and DR increase from 10% to 64%. Near term transition to a diverse set of resources better positions Vectren for the future by 2025, while maintaining the reliability that our customers expect





PREFERRED PORTFOLIO SAVINGS VS. BAU TO 2039 PORTFOLIO

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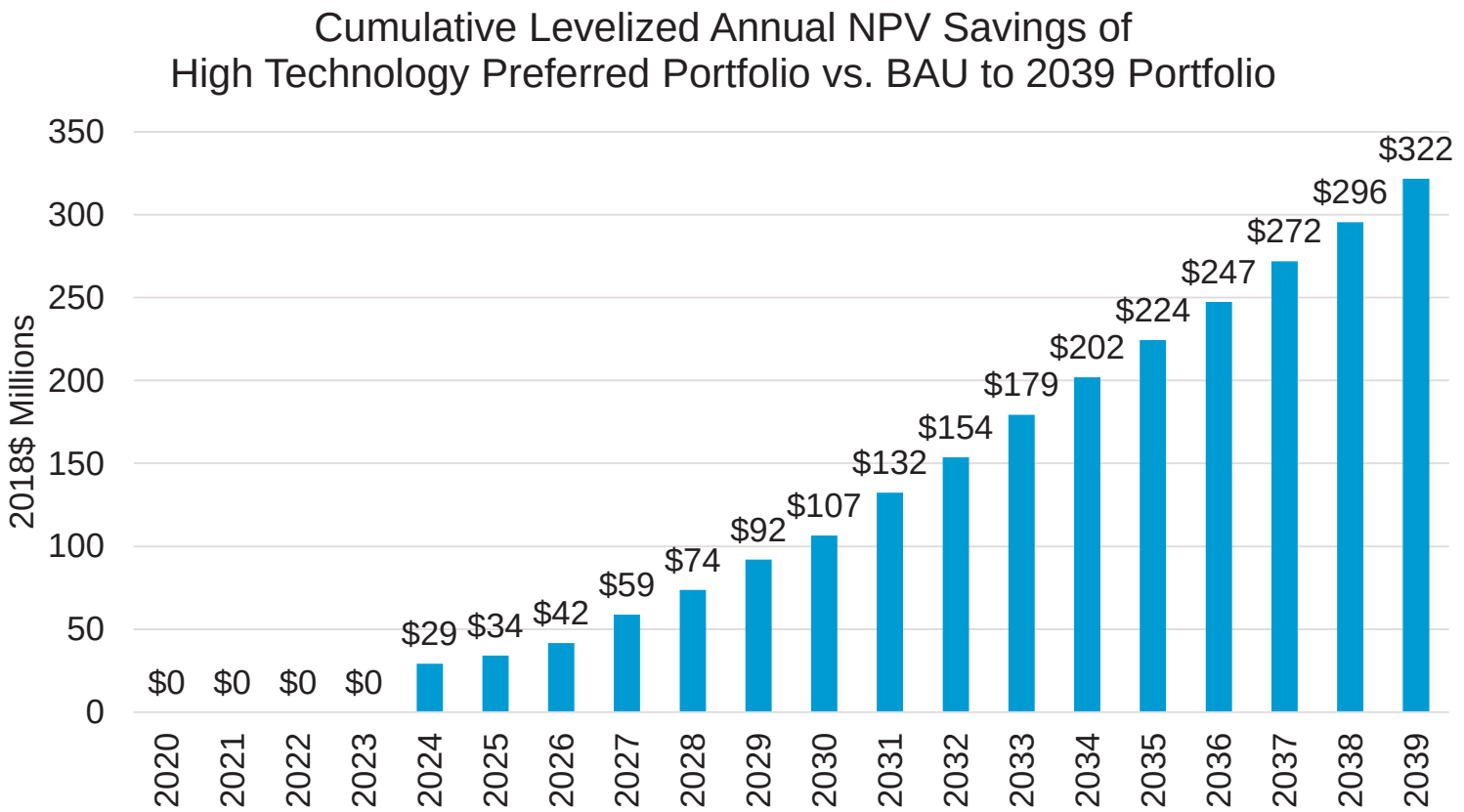
The High Technology (preferred) portfolio provides an annual average savings of $20 million (2024-2039) compared to the Business as Usual to 2039 portfolio and a cumulative savings of more than $320 million in constant NPVRR 2018$.



DIFFERENT DIRECTION FROM 2016 IRP

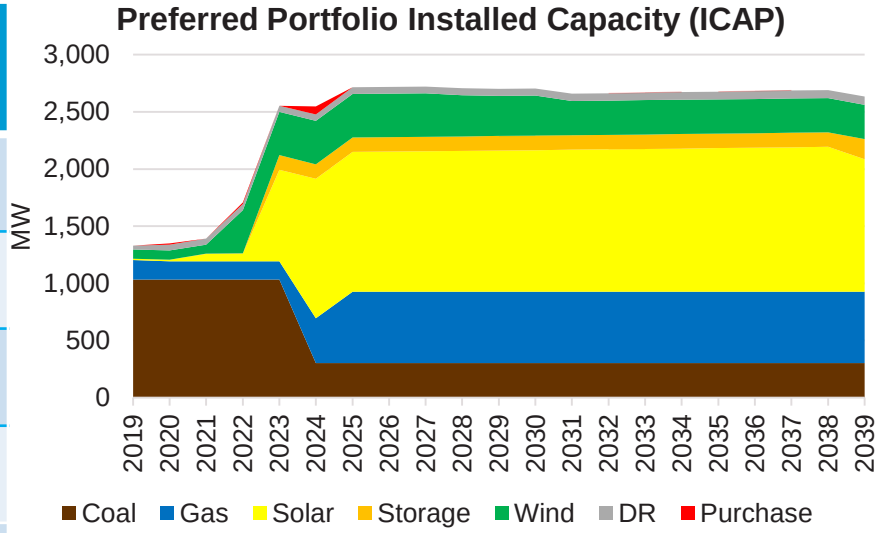
In 2016, Vectren selected a Large 2x1 CCGT (700-850 MWs). In 2020, the preferred portfolio includes a large build out of renewable resources, providing low cost energy, backed up by 2 highly flexible combustion turbines that provide low cost capacity.

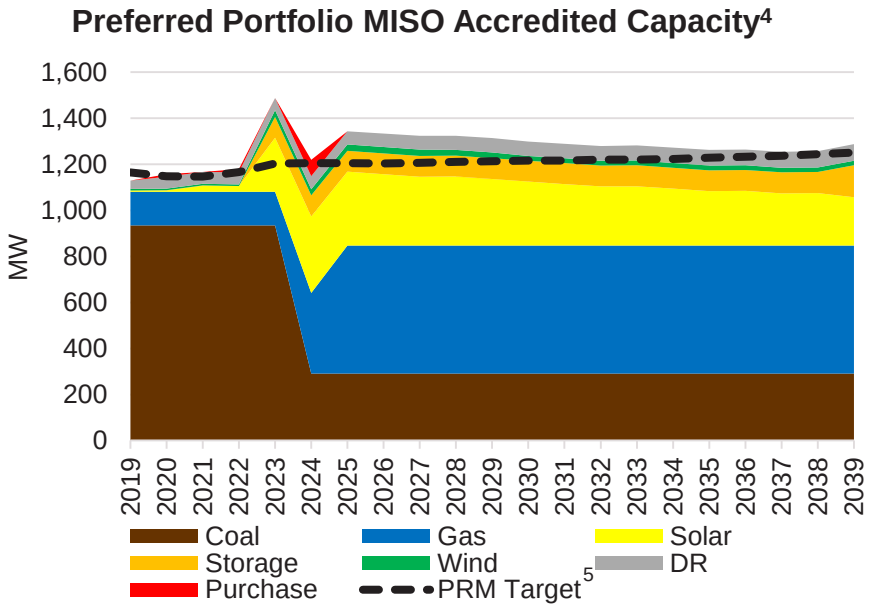
- Lower relative customer impact than many of the portfolio options
- More diverse set of resources, including wind, solar, battery energy storage, EE, DR, gas, and coal
- Faster construction than a CCGT, offsetting market risk more quickly
- Less greenhouse gas emissions and water usage
- Lower dependence on expected market sales to lower cost to customer
- Better support in a high intermittent solar penetration environment (faster ramp)
- Modern CTs have a better heat rate than existing Vectren CTs and coal units

PREFERRED PORTFOLIO ADDITIONS AND RETIREMENTS

2025-2026 Planning Year	ICAP (MW)	% ICAP	Accred-itation[1]	2025-2026 UCAP (MW)	% UCAP
Coal	302	12%	96%	290	22%
DR[1]	62	2%	100%	62	5%
Natural Gas	622	24%	89%	553	41%
Solar[2]	796	31%	26%	207	16%
Solar+ Storage[3]	400	16%	48%	194	15%
Wind	380	15%	7%	28	2%
Total Resources	2,562	100%		1,333	100%

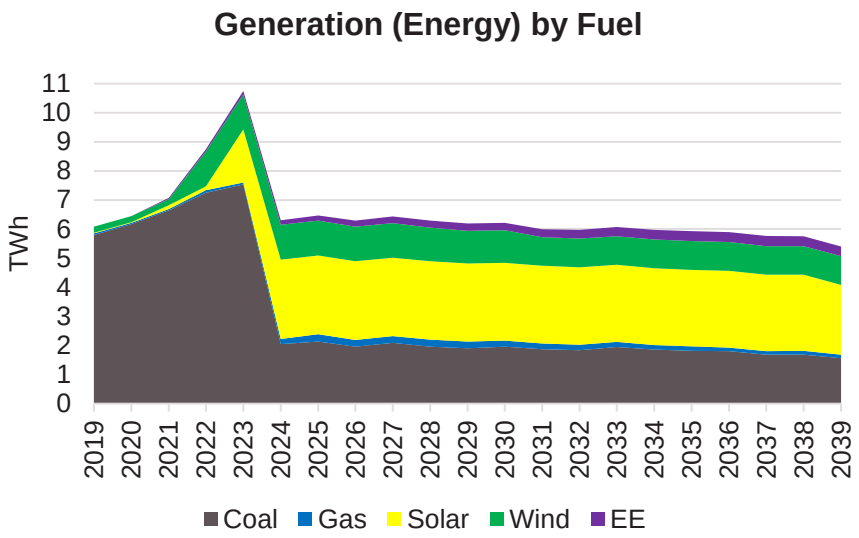
[1] ≈35 MWs at risk due to MISO operational changes
[2] Solar accreditation may vary depending on penetration
[3] UCAP credit includes 90 MW 4-hour battery. Modeled as 126 MW 3-hour battery, consistent with bids
[4] Unforced Capacity (UCAP)
[5] Assumes coincident peak factor of 95.99%, PRM% 8.9%, and Transmission losses of 1.7%

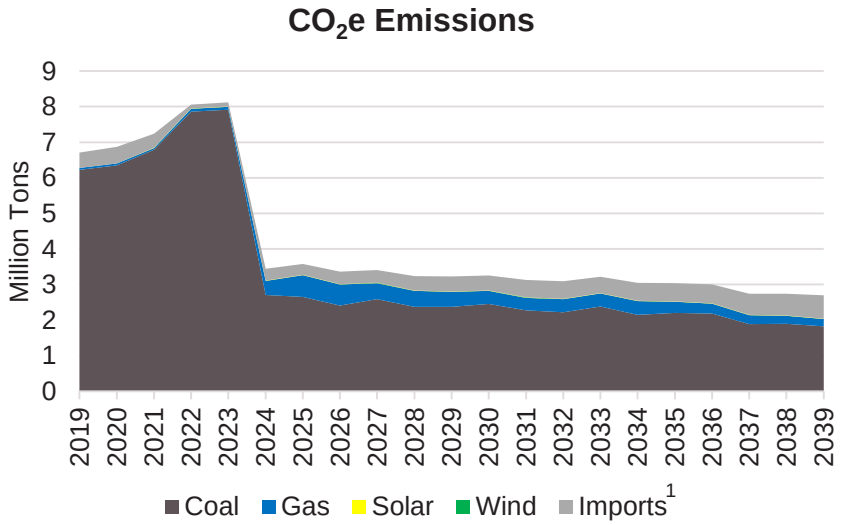




PREFERRED PORTFOLIO ANNUAL GENERATION AND EMISSIONS

- Generation will shift significantly from coal to renewable resources in the near term, reducing variable fuel costs. Nearly two thirds of total energy produced by 2025 will come from renewable resources.
- The coal retirements and exit by December 31, 2023 result in a significant decline in lifecycle CO_2e emissions. Market imports are estimated to comprise a quarter of portfolio CO_2e emissions by the end of the forecast period

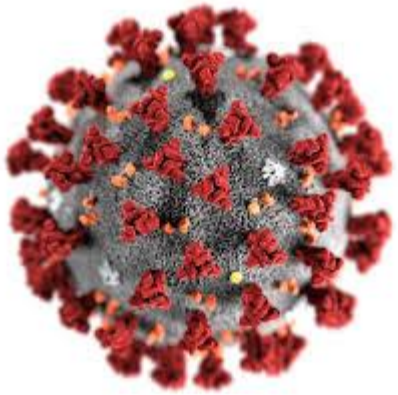




[1] Not produced by Vectren generating resources. Estimate based on projected market reliance, MISO buildout, and NREL lifecycle GHG study

COVID AND THE PLAN

- Vectren will continue to monitor the COVID-19 situation
- Too soon to understand all of the long term impacts; however, the plan is well positioned to meet customer needs in the near, mid, and long-term
  - Flexible
    - Mix of owned resources and term-based PPAs
  - Performed well across multiple future states
  - Numerous resources in spread over several locations and most resources can be operated remotely
  - Less costly to customers than the status quo



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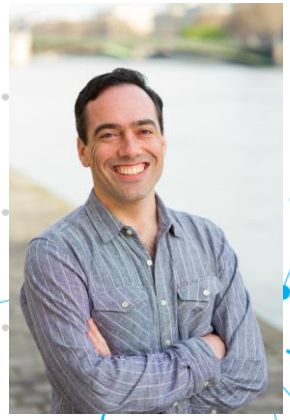
RISK ANALYSIS

PETER HUBBARD

PACE GLOBAL, MANAGER SIEMENS ENERGY BUSINESS ADVISORY



IRP PORTFOLIO EVALUATION AND SELECTION PROCESS

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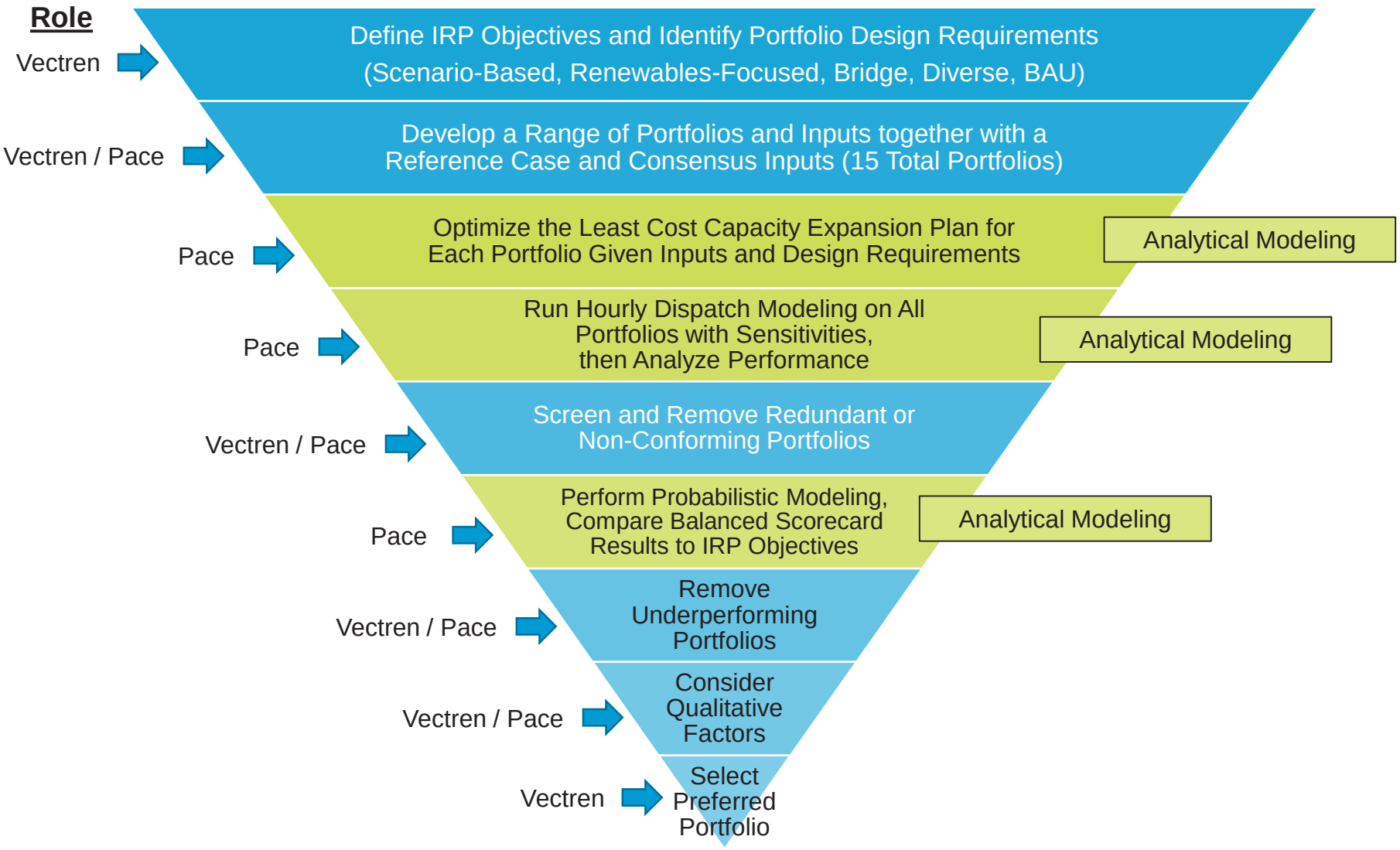

STRUCTURED SCREENING PROCESS TO ADDRESS ISSUES EFFICIENTLY

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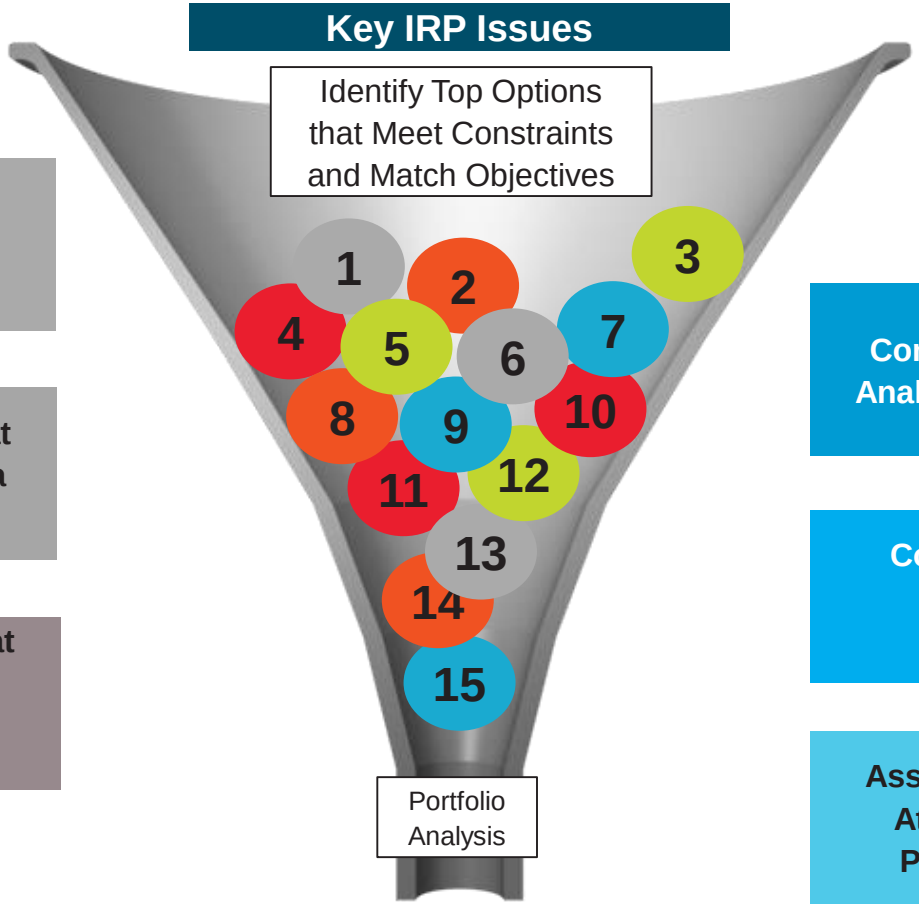
Task

Identify Portfolios (15)

Eliminate Portfolios that do not meet key criteria (10 remain)

Eliminate Portfolios that Exhibit Poorer Performance (4 remain)



Select Preferred Portfolio ---------->

Approach

Conduct Deterministic Analysis of 15 portfolios

Conduct Stochastic Analysis (200 iterations)

Assess Most Important Attributes to Select Preferred Portfolio

15 OPTIMIZED PORTFOLIOS DEVELOPED

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Portfolio	Group	Portfolio
1	Reference	Optimized Portfolio in Reference Case conditions
2	BAU	Business as Usual to 2039
3		Business as Usual to 2029
4	Bridge	ABB1 Conversion to Gas
5		ABB1 + ABB2 Conversions to Gas
6		ABB1 Conversion to Gas + Small CCGT
7	Diverse	Diverse with Renewables, Coal, Small CCGT
8		Diverse with Renewables, Coal, Medium CCGT
9	Renewables	Renewables + Flexible Gas
10		All Renewable by 2030 (No Fossil)
11		HB 763 (High CO_2 Price)[1]
12	Scenario-Based	Optimized Portfolio in Low Regulatory conditions, Dispatched with Ref Case
13		Optimized Portfolio in High Technology conditions, Dispatched with Ref Case
14		Optimized Portfolio in 80% Reduction conditions, Dispatched with Ref Case
15		Optimized Portfolio in High Regulatory conditions, Dispatched with Ref Case

1 Created based upon stakeholder request. Utilized reference case assumptions with updated CO_2 price based on House Bill 763

STRATEGIES CONSISTENT ACROSS MAJORITY OF PORTFOLIOS

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The full analytical process informed the development of several strategies that are consistent across portfolios:

- Optimized results
  - Pursue universal solar capacity of up to ~1,000 MW through 2024
  - Pursue universal wind capacity of up to 300 MW by 2023
  - Retire A B Brown 1 and 2 and F B Culley 2 units by the end of 2023
- Pursue Energy Efficiency at 1.25% of eligible sales (+ Low Income measures) for the first three years and Demand Response resources (Summer Cycler switch out to Wi-Fi thermostats). Applied to all portfolios.
  - Did not want to rely solely on reference case conditions to decide the appropriate level of EE. The reference case selected 0.75% EE, while other scenarios selected 1.25%
  - 1.25% More consistent with historic levels
  - 1.25% vs 0.75% increases NPVRR by only 0.15%

SUMMARY RESULTS FROM ALL PORTFOLIO DETERMINISTIC RUNS

Renew
Gas
Coal
EE,DG
Purchase

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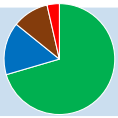
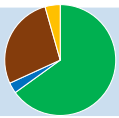
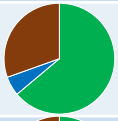
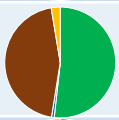
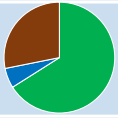
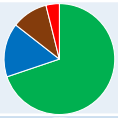
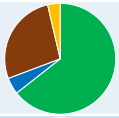
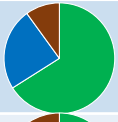
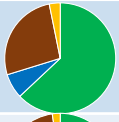
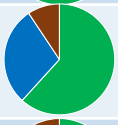
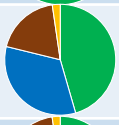
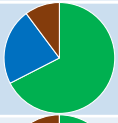
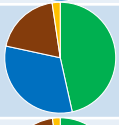
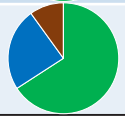
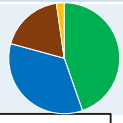
	Portfolio	Portfolio Capacity Mix in 2026	Generation in 2026	NPV $Billion * (% vs. Ref Case)	Net Sales as % of Generation	Average Capacity Mkt Purchases (2024-39)
Ref.	Reference Case			$2.625	7%	138 MW
BAU	Business as Usual to 2039			$3.140 (+19.6%)	23%	0 MW
	Business as Usual to 2029			$2.835 (+8.0%)	19%	102 MW
Bridge	Gas Conversion ABB1			$2.727 (+3.9%)	9%	133 MW
	Gas Conversion ABB1 + ABB2			$2.887 (+10.0%)	11%	56 MW
	Gas Conversion ABB1 + CCGT			$2.954 (+12.6%)	37%	16 MW
Diverse	Diverse Small CCGT			$2.763 (+5.2%)	38%	23 MW
	Diverse Medium CCGT			$2.785 (+6.1%)	41%	18 MW

Increasing CCGT size added cost and market exposure without an increase in portfolio reliability or other value

* Deterministic NPV not used for final Affordability metric

SUMMARY RESULTS FROM ALL PORTFOLIO DETERMINISTIC RUNS

Renew
Gas
Coal
EE,DG
Purchase

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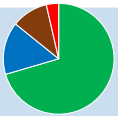
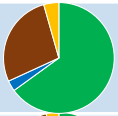
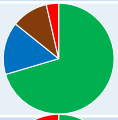
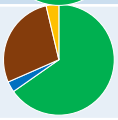
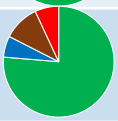
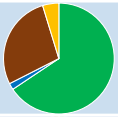
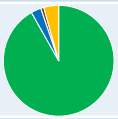
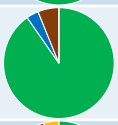
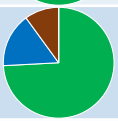
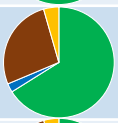
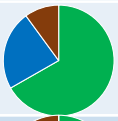
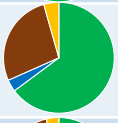
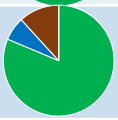
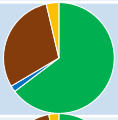
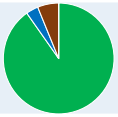
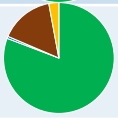
	Portfolio	Portfolio Capacity Mix in 2026	Generation in 2026	NPV $Billion * (% vs. Ref Case)	Net Sales as % of Generation	Average Capacity Mkt Purchases (2024-39)
Ref.	Reference Case			$2.625	7%	138 MW
Renewables	Renewables + Flexible Gas			$2.600 (-1.0%)	6%	135 MW
	Renewable 2030			$2.679 (+2.1%)	10%	170 MW
	HB 763			$1.425 (-45.7%)	105%	10 MW
Scenario	Low Regulatory			$2.762 (+5.2%)	46%	12 MW
	High Technology (Preferred Portfolio)			$2.686 (+2.3%)	6%	4 MW
	80% Reduction			$2.642 (+0.7%)	36%	203 MW
	High Regulatory			$4.196 (+59.9%)	117%	10 MW

Unrealistic Net Sales Revenue

High Net Sales

Market Exposure

High Cost and High Net Sales

* Deterministic NPV not used for final Affordability metric

STRUCTURED SCREENING PROCESS TO ADDRESS ISSUES EFFICIENTLY

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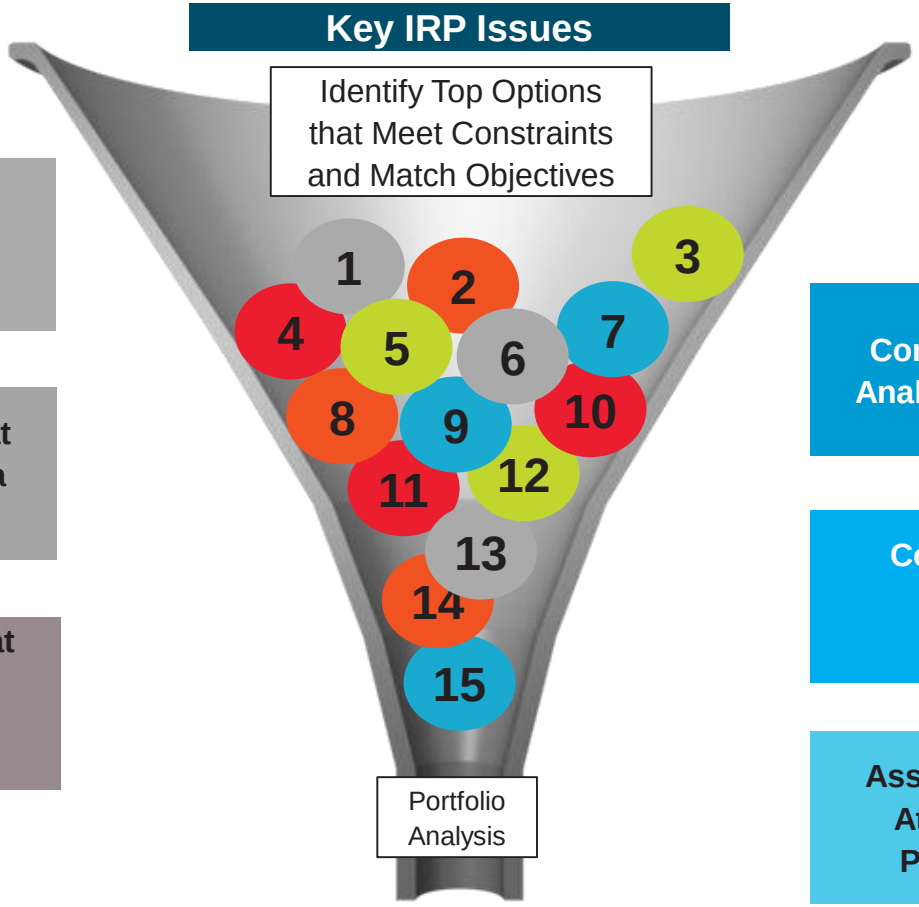
Task

Identify Portfolios (15)

Eliminate Portfolios that do not meet key criteria (10 remain)

Eliminate Portfolios that Exhibit Poorer Performance (4 remain)



Select Preferred Portfolio ----------→

Approach

Conduct Deterministic Analysis of 15 portfolios

Conduct Stochastic Analysis (200 iterations)

Assess Most Important Attributes to Select Preferred Portfolio

SENSITIVITIES WERE CONDUCTED TO FURTHER UNDERSTAND AND REFINE THE PORTFOLIOS

- Each portfolio was optimized on a seasonal peak demand construct to ensure resource adequacy as peak capacity credit declines for renewables. All portfolios had sufficient seasonal resources
- Solar costs were increased 30% to determine continued economic selection and were found to be economic
- Sensitivities on the Reference Case by replacing the only CT capacity with battery storage:
  - Replacing the CT with battery storage increased portfolio costs by $51 million
  - CT provided long-duration capacity vs. 4 hour limit with battery storage

SENSITIVITY: NPV COST OF PORTFOLIOS DISPATCHED IN ALTERNATIVE SCENARIOS

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20-Year Net Present Value - Percentage of Reference Case

	Reference Case	Low Regulation	High Technology	80% Reduction of CO2 by 2050	High Regulation
Reference Case	100.0%	100.0%	100.0%	100.0%	100.0%
Business as Usual to 2039	119.7%	101.2%	120.7%	117.1%	112.5%
Business as Usual to 2029	108.0%	100.9%	108.5%	106.4%	104.8%
ABB1 Conversion + Small CCGT	112.6%	112.6%	111.5%	111.2%	107.4%
ABB1 Conversion	103.9%	104.5%	104.5%	103.9%	102.0%
ABB1 + ABB2 Conversions	110.0%	110.0%	110.1%	109.9%	105.5%
Diverse Small CCGT	105.3%	105.3%	104.2%	103.5%	102.7%
Renewables + Flexible Gas	98.4%	101.4%	98.2%	98.1%	97.7%
All Renewables by 2030	101.4%	108.2%	105.0%	100.5%	94.3%
Preferred Portfolio	102.3%	102.6%	101.3%	102.1%	102.2%

Alternative Scenario Changes vs. Ref Case

Scenario	Load	CO2 Prices	Gas Prices	Coal Prices	RE Cost
Low Reg	Higher	N/A	Higher	Ref	Ref
High Tech	Higher	Lower	Lower	Lower	Lower
80%	Lower	Ref	Ref	Lower	Lower
High Reg	Ref	Higher	Very High	Lower	Lower

STRUCTURED SCREENING PROCESS TO ADDRESS ISSUES EFFICIENTLY

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Task

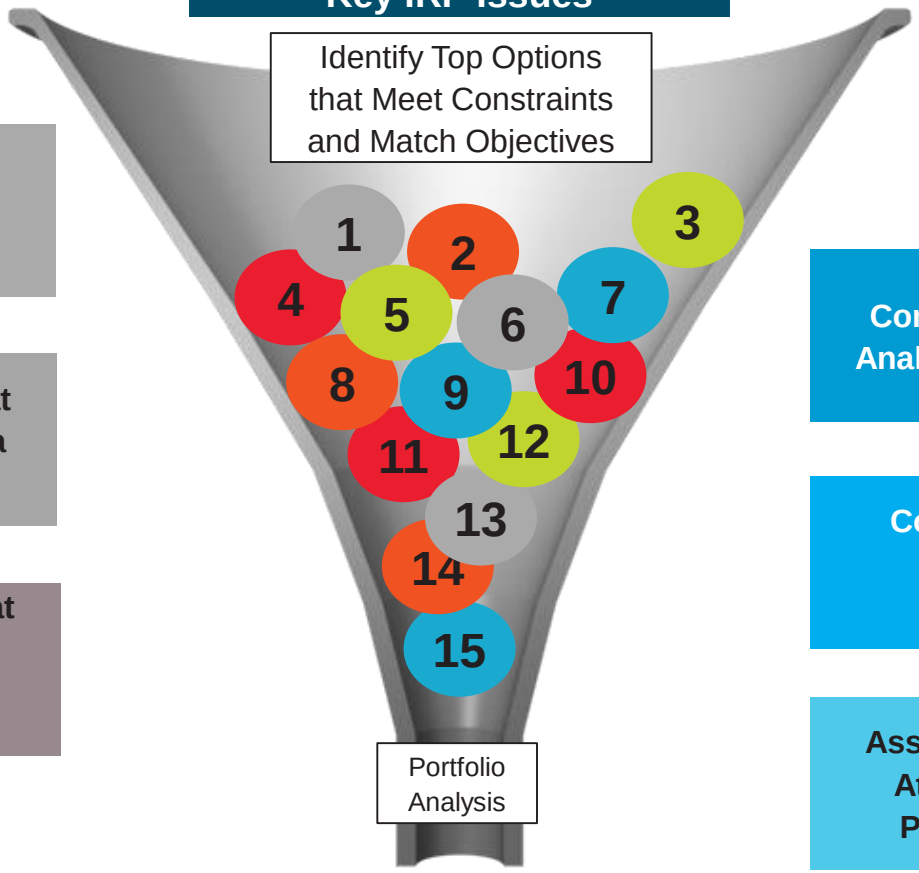
Identify Portfolios (15)

Eliminate Portfolios that do not meet key criteria (10 remain)

Eliminate Portfolios that Exhibit Poorer Performance (4 remain)

Key IRP Issues

Identify Top Options that Meet Constraints and Match Objectives



Select Preferred Portfolio

Approach

Conduct Deterministic Analysis of 15 portfolios

Conduct Stochastic Analysis (200 iterations)

Assess Most Important Attributes to Select Preferred Portfolio

BALANCED SCORECARD RESULTS OF PROBABILISTIC ANALYSIS

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- Each portfolio was then dispatched 200 times under varying market conditions, with results populating a Balanced Scorecard (green=better scoring).

Balanced Scorecard	Stochastic Mean 20-Year NPVRR	95th Percentile Value of NPVRR	% Reduction of CO2e (2019-2039)	Energy Purchases as a % of Generation	Energy Sales as a % of Generation	Capacity Purchases as a % of Peak Demand	Capacity Sales as a % of Peak Demand
Reference Case	$2,536	$2,919	58.1%	16.8%	26.8%	9.7%	1.2%
Business as Usual to 2039	$2,912	$3,307	35.2%	12.0%	36.5%	0.1%	11.1%
Business as Usual to 2029	$2,689	$3,090	61.9%	15.2%	31.4%	7.1%	4.3%
ABB1 Conversion + Small CCGT	$2,872	$3,268	47.9%	6.6%	31.8%	1.3%	10.1%
ABB1 Conversion	$2,675	$3,045	61.5%	19.2%	26.4%	9.3%	1.2%
ABB1 + ABB2 Conversions	$2,834	$3,212	61.5%	18.5%	27.5%	4.0%	5.6%
Diverse Small CCGT	$2,680	$3,071	47.9%	6.4%	31.1%	1.7%	3.7%
Renewables + Flexible Gas	$2,526	$2,926	77.4%	21.5%	27.7%	9.4%	1.2%
All Renewables by 2030	$2,613	$3,002	79.3%	26.1%	31.9%	11.9%	1.7%
High Technology (Preferred Portfolio)	$2,590	$2,978	59.8%	16.7%	26.9%	0.4%	4.6%

- Several portfolios (marked in red) were not considered further due to high cost, high price risk, over-reliance on the market for sales and associated revenues, or over-exposure to market purchases and associated costs.

REMAINING OPTIONS A BETTER OPTION FOR CUSTOMERS THAN CONTINUING COAL OR CONVERSION

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Continuing use of the Brown units with Coal or Bridge options (Conversion) did not perform well in our analysis.

- Less Affordable – BAU and Conversion options cost customers more over the twenty year period than 4 remaining portfolios in all scenarios.
  - Higher O&M –requires more people to operate
  - Higher on-going capital expenditures to keep the units running
  - Less flexibility to capture benefits of the market
- Continuing to utilize coal has a higher initial capital investment than remaining options. Conversion has slightly less upfront capital investment. Due to On-going capital expenditures to keep these options running, the remaining book life of these assets do not fully depreciate
- Less Flexible – slow start time (8-24 hrs.) and slow ramp rate (2-3 MW/Min) do not position us well to support our customers in a future with high solar penetration
- Less Reliable – converted units continue to utilize old equipment that is prone to break down more than new equipment
- Less efficient – conversion is of units designed to burn coal has a worse heat rate (11,200) than modern combustion turbines. New CTs (9,900) have a better heat rate than existing Brown coal units (10,500) and existing peaking units (12,200)

OPTIMIZED PORTFOLIO BUILDOUTS & RETIREMENTS

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Year	Reference Case	Renewables + Flexible Gas	Renewables 2030	High Technology
2021-23	1.25% Energy Efficiency	1.25% Energy Efficiency	1.25% Energy Efficiency	1.25% Energy Efficiency
2022	New Wind (300 MW)	New Wind (300 MW)	New Wind (300 MW)	New Wind (300 MW)
2023	New Solar (731 MW), New Storage (126 MW)	New Solar (731 MW) New Storage (126 MW)	New Solar (731 MW) New Storage (278 MW)	New Solar (731 MW) New Storage (126 MW)
2023	Retire ABB1, ABB2, FBC2, Exit Warrick (730 MW)	Retire ABB1, ABB2, FBC2, Exit Warrick (730 MW)	Retire ABB1, ABB2, FBC2, Exit Warrick (730 MW)	Retire ABB1, ABB2, FBC2, Exit Warrick (730 MW)
2024	New Combustion Turbine (236 MW)	New Combustion Turbine (236 MW)	-	New Combustion Turbine (236 MW)
2024	New Solar (415 MW) and Demand Response	New Solar (415 MW) and Demand Response	New Solar (415 MW) and Demand Response	New Solar (415 MW) and Demand Response
2024-26	0.75% Energy Efficiency	0.75% Energy Efficiency	1.00% Energy Efficiency	0.75% Energy Efficiency
2025		-	-	New Combustion Turbine (236 MW)
2027-39	0.75% Energy Efficiency	0.75% Energy Efficiency	1.00% Energy Efficiency	0.75% Energy Efficiency
2029-32	-	-	Retire FBC3, ABB3, ABB4 (427 MW), New Storage (360 MW), Solar (700 MW)	-
2033-39	New Solar (250 MW)	Retire FBC3 (270 MW), New Combustion Turbine (236 MW)	New Solar (450 MW)	New Storage (50 MW)
2024-39	Average Annual Capacity Market Purchases (137 MW)	Average Annual Capacity Market Purchases (135 MW)	Average Annual Capacity Market Purchases (170 MW)	Average Annual Capacity Market Purchases (4 MW)

BALANCED SCORECARD RESULTS OF PROBABILISTIC ANALYSIS

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The four remaining portfolios were evaluated under a range of factors including metrics and other factors.

Balanced Scorecard	Stochastic Mean 20-Year NPVRR	95th Percentile Value of NPVRR	% Reduction of CO2e (2019-2039)	Energy Purchases as a % of Generation	Energy Sales as a % of Generation	Capacity Purchases as a % of Peak Demand	Capacity Sales as a % of Peak Demand
Reference Case	$2,536	$2,919	58.1%	16.8%	26.8%	9.7%	1.2%
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All Renewables by 2030	$2,613	$3,002	79.3%	26.1%	31.9%	11.9%	1.7%
High Technology (Preferred Portfolio)	$2,590	$2,978	59.8%	16.7%	26.9%	0.4%	4.6%

The High Technology portfolio performed well across all factors in the balanced scorecard and was selected as the preferred portfolio. It hedges risk well against the energy and capacity markets relative to the remaining portfolios and maintains the flexibility.

- The reference case has a long term reliance on the capacity market, is less reliable (1 CT vs 2), less able to ramp in high renewables penetration environment, and provides less flexibility in the future
- The principal difference between the renewables + flexible gas portfolio and the preferred portfolio was a heavy reliance on market capacity purchases and the retirement date of Culley 3. Would lose $50M in construction efficiencies on building the 2nd CT (not reflected in NPVRR)
- The all renewables portfolio by 2030 would require an additional $20-30M in reliability upgrades (not reflected in NPVRR), relies heavily on emerging technology, and is very exposed to the capacity and energy markets

QUALITATIVE CONSIDERATIONS: THE PREFERRED PORTFOLIO IS A GOOD OPTION FOR CUSTOMERS

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The preferred portfolio offers a transition pathway away from coal while providing the optionality to adapt to future technology and market changes. This diverse set of resources offers customers the benefit of clean renewable energy, with the reliability required by our customers.

- Two highly dispatchable combustion turbines (460 MW) allow for a high penetration of renewables, ensuring reliability and hedges against the energy and capacity markets
  - Assurance of reliable service. Thermal resources are still needed to maintain reliable service in multiday periods of cloud cover and no wind
  - Two CTs provide better support than one. Better coverage should a unit go down to provide a hedge against high energy prices and provide system support when issues arise
  - Two CTs keeps existing interconnection rights, which shields customers from potential transmission upgrade costs in the future should Vectren have to re-enter the MISO Queue (a three year process)
  - Two CTs provide fast start (10 min) & more fast ramping capability (80 MW/minute vs 40 MW/minute) to support for intermittent solar and allows for a smooth transition into a renewables future locally and regionally as the MISO system adapts to higher levels of renewables across the system
  - Two CTs replace required capacity and shields customers from potential future high capacity prices in the MISO market
  - Two CTs built at the same time provide $50M in construction cost savings vs. a 10 year delay of the 2nd CT (Renewables + Flexible Gas Portfolio – not reflected in NPVRR)
  - Two CTs provide a high degree of flexibility in the future

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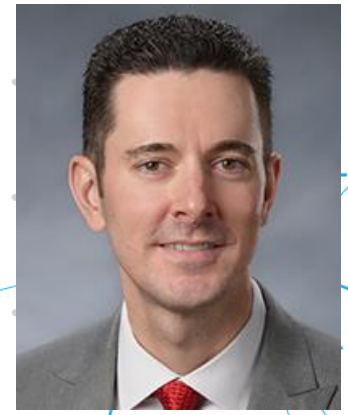
NEXT STEPS

JUSTIN JOINER

VECTREN DIRECTOR OF
POWER SUPPLY SERVICES



CONTINUE MONITORING EXTERNAL DEVELOPMENTS AND FACTORS

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Will continue to evaluate the paradigm shift underway in the industry towards renewables, while the Preferred Portfolio provides needed flexibility, reliability, diversity and affordability that is needed to accommodate

- **Customer**
  - Demand for clean energy and emerging technology
  - ESG goals and requirements
- **State of Indiana**
  - Announced and recently completed generation retirements
  - Legislative taskforce
  - Economic development
- **MISO**
  - Resource adequacy now and in the future
  - Wholesale energy market construct now and in the future
  - Transmission system configuration ability to meet needs now and in the future

2020 OMS-MISO SURVEY RESULTS

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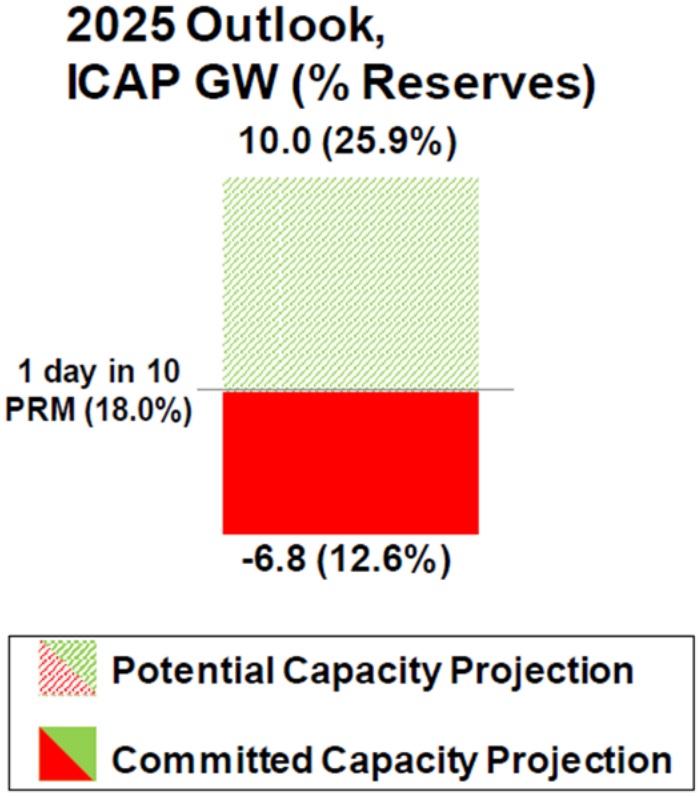
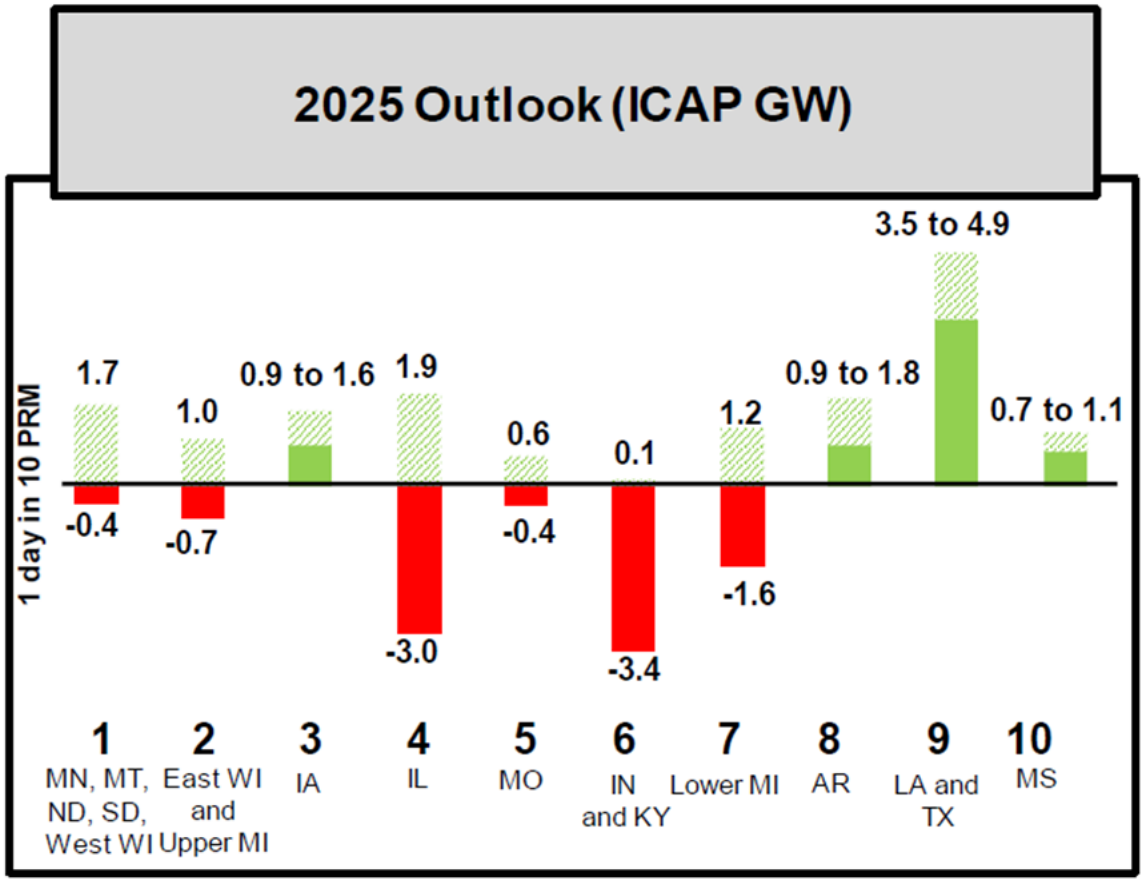
Latest Resource Adequacy results demonstrate the generation shift underway MISO-wide and that is carried out through unit retirements and new generation builds, thus producing less certainty in future years around available capacity





*Per June MISO presentation of 2020 OMS-MISO Survey results

- Regional surpluses and potential resources will be critical for all zones to serve their deficits while meeting local requirements
- Positions include reported inter-zonal transfers, but do not reflect other possible transfers between zones
- Exports from Zones 8, 9, and 10 were limited by the Sub-regional Power Balance Constraint

NEXT STEPS

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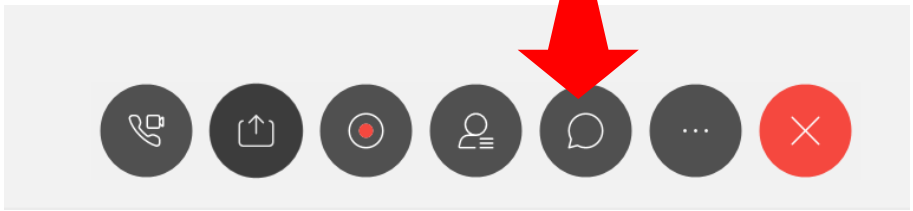
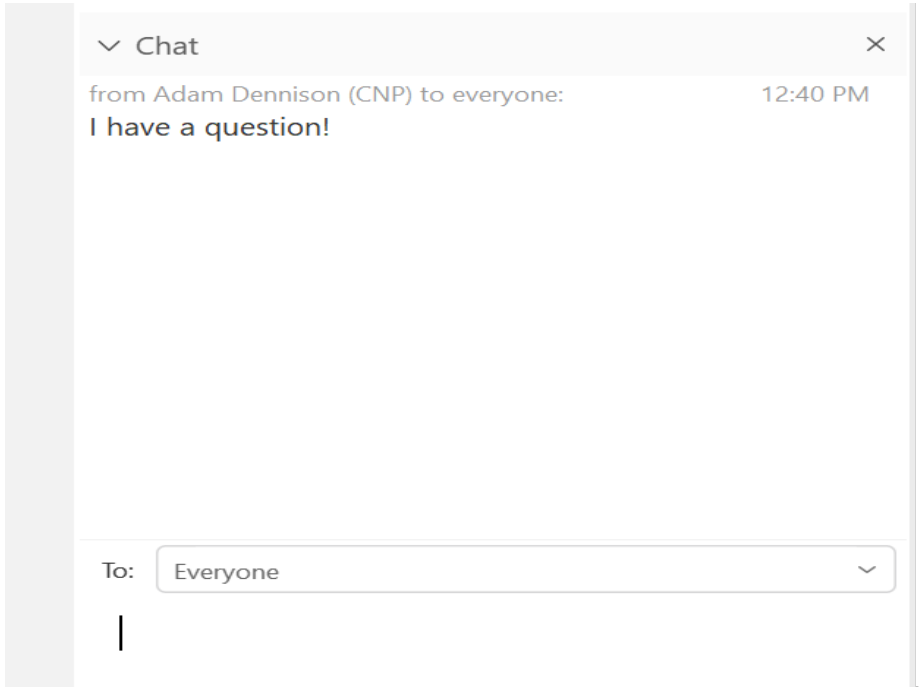
To maximize the $320M in customer savings that the Preferred Portfolio presents, an action plan is in place that is focused on two phases

- **Near-term: next 6 months**
  - Enter into agreements with the most attractive projects received from 2019 All-Source RFP
    - To maximize tax credits for our customers, projects must be under-construction/in-service soon
  - Conduct a second RFP in the Fall to address remaining renewable needs identified in IRP
  - Continue monitoring state developments; Statewide Resource Plan, Legislative Taskforce, COVID-19
- **Mid-term: next 12 months**
  - File Certificate of Public Convenience and Necessity (CPCN) in 2021
  - Begin permitting, civil engineering and preliminary site work for Combustion Turbines
    - Multi-year process
  - Continue advancement and refinement of renewable energy expertise
    - Work with developers to understand project attributes and ensure quality control and price certainty
    - Evaluate pricing of battery and determine appropriate timing install
    - Apply insights gained to future projects

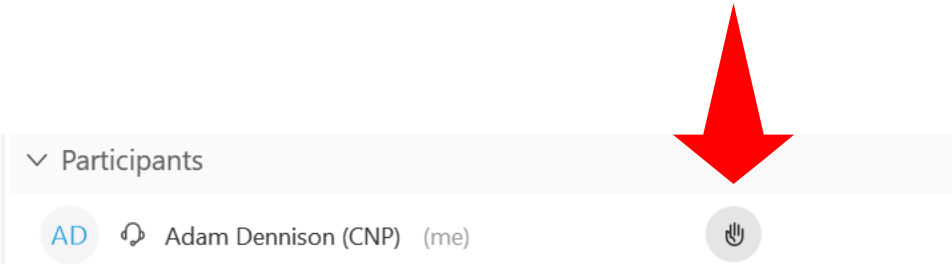
Q&A

Ask “everyone” in chat.

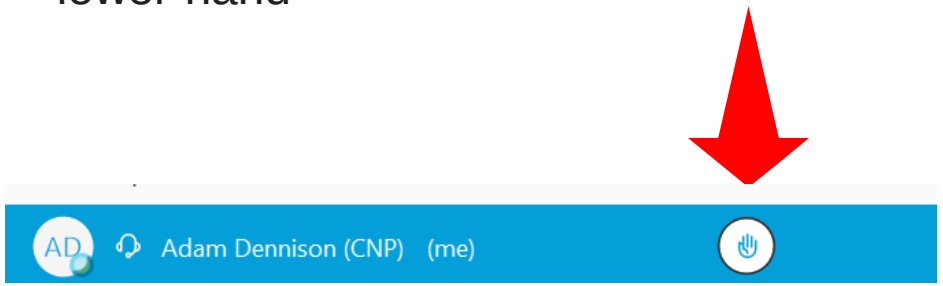




Raise Hand for a Follow-up



After question has been answered, lower hand



STAKEHOLDER COMMENT PERIOD

Speakers who have signed up ahead of the meeting will be allotted time to verbally provide comments (consider designating a speaker for each organization). Please type, I would like to make a comment in chat if you did not sign up early. We will accommodate as many requests as possible. Please pay attention to the on-screen prompts in order to allow for as many comments as possible.

One Minute

Two Minutes

Next Speaker

APPENDIX

VECTREN
A CenterPoint Energy Company

OPTIMIZED PORTFOLIO BUILDOUTS & RETIREMENTS

VECTREN
A CenterPoint Energy Company

Year	Reference Case	Business as Usual to 2039	Business as Usual to 2029	Gas Conversion ABB1	Gas Conversion ABB1 + ABB2
2021-23	1.25% Energy Efficiency	1.25% Energy Efficiency	1.25% Energy Efficiency	1.25% Energy Efficiency	1.25% Energy Efficiency
2022	New Wind (300 MW)	New Wind (300 MW)	New Wind (300 MW)	New Wind (300 MW)	New Wind (300 MW)
2023	New Solar (731 MW), New Storage (126 MW)	New Solar (731 MW), New Storage (126 MW)	New Solar (731 MW), New Storage (126 MW)	New Solar (731 MW), New Storage (126 MW)	New Solar (731 MW), New Storage (126 MW)
2023	Retire ABB1, ABB2, FBC2, Exit Warrick (730 MW)	Scrubber control on ABB1 and ABB2, Exit Warrick (150 MW)	Exit Warrick (150 MW)	Retire ABB2, FBC2, Exit Warrick (485 MW)	Retire FBC2, Exit Warrick (240 MW)
2024	New Combustion Turbine (236 MW)	-	-	ABB1 Conversion (245 MW)	ABB1+ABB2 Conversions (490 MW)
2024	New Solar (415 MW) and Demand Response	New Solar (415 MW) and Demand Response	New Solar (415 MW) and Demand Response	New Solar (415 MW) and Demand Response	New Solar (415 MW) and Demand Response
2024-26	0.75% Energy Efficiency	0.75% Energy Efficiency	0.75% Energy Efficiency	0.75% Energy Efficiency	0.75% Energy Efficiency
2027-39	0.75% Energy Efficiency	0.25% Energy Efficiency	0.50% Energy Efficiency	0.75% Energy Efficiency	0.50% Energy Efficiency
2029-30	-	-	Retire ABB1, ABB2, FBC2 (580 MW), New Combustion Turbine (236 MW)	-	-
2033-34	-	-	-	Retire ABB1, New Combustion Turbine (279 MW)	Retire ABB1+ABB2, New Combustion Turbine (279 MW)
2037-39	New Solar (250 MW)	-	-	-	-
2024-39	Avg Annual Capacity Mkt Purchases (137 MW)	No Capacity Market Purchases	Avg Annual Capacity Mkt Purchases (101 MW)	Avg Annual Capacity Mkt Purchases (133 MW)	Avg Annual Capacity Mkt Purchases (56 MW)

OPTIMIZED PORTFOLIO BUILDOUTS & RETIREMENTS

VECTREN
A CenterPoint Energy Company

Year	Gas Conversion ABB1 + CCGT	Diverse Small CCGT	Diverse Medium CCGT	Renewables + Flexible Gas	Renewables 2030
2021-23	1.25% Energy Efficiency	1.25% Energy Efficiency	1.25% Energy Efficiency	1.25% Energy Efficiency	1.25% Energy Efficiency
2022	New Wind (300 MW)	New Wind (300 MW)	New Wind (300 MW)	New Wind (300 MW)	New Wind (300 MW)
2023	New Solar (731 MW) New Storage (126 MW)	New Solar (731 MW) New Storage (126 MW)	New Solar (731 MW) New Storage (126 MW)	New Solar (731 MW) New Storage (126 MW)	New Solar (731 MW) New Storage (278 MW)
2023	Retire ABB2, FBC2, Exit Warrick (485 MW)	Retire ABB1, ABB2, FBC2, Exit Warrick (730 MW)	Retire ABB1, ABB2, FBC2, Exit Warrick (730 MW)	Retire ABB1, ABB2, FBC2, Exit Warrick (730 MW)	Retire ABB1, ABB2, FBC2, Exit Warrick (730 MW)
2024	ABB1 Conversion (245 MW)	-	-	New Combustion Turbine (236 MW)	-
2024	New Solar (415 MW) and Demand Response	New Solar (415 MW) and Demand Response	New Solar (415 MW) and Demand Response	New Solar (415 MW) and Demand Response	New Solar (415 MW) and Demand Response
2024-26	0.75% Energy Efficiency	0.75% Energy Efficiency	0.75% Energy Efficiency	1.00% Energy Efficiency	0.75% Energy Efficiency
2025	-	New Small CCGT (433 MW)	New Medium CCGT (497 MW)	-	-
2026	New Small CCGT (433 MW)	-	-	-	-
2024-26	0.50% Energy Efficiency	0.50% Energy Efficiency	0.25% Energy Efficiency	1.00% Energy Efficiency	0.75% Energy Efficiency
2029-32	-	-	-	-	Retire FBC3, ABB3, ABB4 (427 MW), New Storage (360 MW), Solar (700 MW)
2033-34	-	-	-	Retire FBC3 (270 MW), New Combustion Turbine (236 MW)	New Solar (450 MW)
2024-39	Avg Annual Capacity Mkt Purchases (16 MW)	Avg Annual Capacity Mkt Purchases (23 MW)	Avg Annual Capacity Mkt Purchases (18 MW)	Avg Annual Capacity Mkt Purchases (135 MW)	Avg Annual Capacity Mkt Purchases (170 MW)

OPTIMIZED PORTFOLIO BUILDOUTS & RETIREMENTS

VECTREN
A CenterPoint Energy Company

Year	HB 763	Low Regulatory	High Technology	80% Reduction of CO2 by 2050	High Regulatory
2021-23	1.25% Energy Efficiency	1.25% Energy Efficiency	1.25% Energy Efficiency	1.25% Energy Efficiency	1.25% Energy Efficiency
2022	New Wind (300 MW)	New Wind (300 MW)	New Wind (300 MW)	New Wind (300 MW)	New Wind (300 MW)
2023	New Solar (731 MW) New Storage (278 MW)	New Solar (731 MW) New Storage (278 MW)	New Solar (731 MW) New Storage (126 MW)	New Solar (731 MW) New Storage (202 MW)	New Solar (731 MW) New Storage (278 MW)
2023	Retire ABB1, ABB2, FBC2, Exit Warrick (730 MW)	Retire ABB1, ABB2, FBC2, Exit Warrick (730 MW)	Retire ABB1, ABB2, FBC2, Exit Warrick (730 MW)	Retire ABB1, ABB2, FBC2, Exit Warrick (730 MW)	Retire ABB1, ABB2, FBC2, Exit Warrick (730 MW)
2024	New Landfill Gas (27 MW)	New Combustion Turbine (279 MW)	New Combustion Turbine (236 MW)	-	-
2024	New Solar (415 MW) and Demand Response	New Solar (415 MW) and Demand Response	New Solar (415 MW) and Demand Response	New Solar (415 MW) and Demand Response	New Solar (415 MW) and Demand Response
2024-26	1.50% Energy Efficiency	1.25% Energy Efficiency	0.75% Energy Efficiency	0.75% Energy Efficiency	1.25% Energy Efficiency
2025	New Solar (550 MW) New Wind (650 MW) New Storage (50 MW)	-	New Combustion Turbine (236 MW)	-	New Solar (550 MW) New Wind (650 MW) New Storage (50 MW)
2026-39	New Solar (1,100 MW) New Wind (2,500 MW) New Storage (220 MW)	New Solar (1,000 MW) New Wind (2,400 MW)	-	-	New Solar (1,260 MW) New Wind (2,650 MW) New Storage (290 MW)
2027-39	1.25% Energy Efficiency	1.00% Energy Efficiency	0.75% Energy Efficiency	0.5% Energy Efficiency	0.50% Energy Efficiency
2033-39	-	-	New Storage (50 MW)	New Solar (800 MW) New Wind (2,750 MW) New Storage (190 MW)	-
2024-39	Avg Annual Capacity Mkt Purchases (10 MW)	Avg Annual Capacity Mkt Purchases (12 MW)	Avg Annual Capacity Mkt Purchases (4 MW)	Avg Annual Capacity Mkt Purchases (203 MW)	Avg Annual Capacity Mkt Purchases (11 MW)

STAKEHOLDER FEEDBACK

VECTREN
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Request	Response
Will you please provide documents that lead you to believe that MISO is moving to a seasonal (sub-annual) construct?	Below are two examples: one from 2019 and the most recent https://cdn.misoenergy.org/20191106%20RASC%20Item%204b%20RAN%20Capacity%20Accreditation397077.pdf https://cdn.misoenergy.org/20200601%20RAN%20Workshop%20Item%2002%20PDP%20and%20RAN%20Overview449826.pdf
Will you consider modeling a larger hydro resource?	We plan to model the option for 2 - 50 MW projects, consistent with the tech assessment and reasonable assumptions for nearby dams.
Will you please provide the user manual for Aurora?	It is included in the read only copy of the model. Provided a work-around pdfs for help function material and put interested parties in touch with Aurora for access to on-line help function.
RFP provides price certainty for projects. I'm concerned that you are varying capital costs within stochastic modeling	We did not vary capital costs in the near term for stochastic modeling. It should be noted the on-going discussions with several bidders indicate higher prices than initially provided within bids.

CANDIDATE PORTFOLIOS FOR PROBABILISTIC ANALYSIS

Selected as Candidate
Not Selected

VECTREN
A CenterPoint Energy Company

Portfolio	Group	Portfolio	Reason
1	Reference	Reference Case	Serves as a baseline for other portfolios
2	BAU	BAU to 2039	Evaluate continued coal operation, capacity value
3		BAU to 2029	Evaluate limited coal operations, capacity value
4	Bridge	ABB1	Evaluate limited bridge option (1 conversion)
5		ABB1+ABB2	Evaluate performance of 2 conversions
6		ABB1+CCGT	Evaluate interaction with market, capacity value
7	Diverse	Diverse Small CCGT	Evaluate diverse mix, capacity value
8		Diverse Medium CCGT	Higher cost than small CCGT; no additional value
9	Renewables	Renewables+ Flexible Gas	Evaluate a mix of options, heavy with renewables
10		Renewable 2030	Evaluate a storage- and renewables-heavy portfolio
11		HB 763	Overbuilt with 6.2 GW renewables, high LMPs
12	Scenario-Based	Low Regulatory	Overbuilt with 4.8 GW renewables
13		High Technology (Preferred Portfolio	Evaluate performance of portfolio with 2 CTs
14		80% Reduction	Overbuilt with 5 GW renewables
15		High Regulatory	Overbuilt with 6.6 GW renewables, high LMPs

UNECONOMIC ASSET MEASURE CONSIDERED, BUT REMOVED FROM SCORECARD

Following the recent order on the 2x1 CCGT, Vectren worked with Pace Global and the stakeholders, to develop the following approach to address the concern over recovering large capital investments:

- Determine in any iteration (scenario) when for three years in succession, revenues (capacity + energy) did not cover costs (fixed and variable).
- Then calculate remaining undepreciated costs plus future losses. This is the uneconomic cost for that iteration, which is multiplied by 1/200 to calculate the Expected Value of the uneconomic cost for the portfolio.

The results were not anticipated - Portfolios with plants with large energy revenues (coal and combined cycle) performed better than combustion turbines, even though they require a larger capital spend than CTs.

CTs were immediately considered potentially uneconomic assets. This occurred for 3 reasons:

1. CTs were a hedge against an illiquid capacity market – but capacity prices were not a stochastic variable
2. Capacity prices averaged about 50% of CONE. This is less than the cost to recover CT investment.
3. CTs have low CFs, which result in low energy revenues