Indiana Michigan Power Company

INDIANA IRP
STAKEHOLDER MEETING #3A

December 18th, 2024

INDIANA MICHIGAN POWER

An AEP Company

Welcome & Introductions

I&M Leadership Team

David Lucas | Vice President, Regulatory and Finance

Andrew Williamson | Director, Regulatory Services

Ed Locigno | Regulatory Analysis & Case Manager

Regiana Sistevaris | Manager, Regulatory Services

Austin DeNeff | Regulatory Consultant Senior

1898 & Co.

Brian Despard | Senior Project Manager

I&M Resource Planning

Josh Burkholder | Managing Director, Resource Planning

Kayla Zellers | Director, Resource Planning

Mohamed Abukaram | Director, Resource Planning

Mark Sklar-Chik | Staff Analyst, Resource Planning

I&M Infrastructure Development

Tim Gaul | Director, Regulated Infrastructure Development

Justin Dehan | Manager, Regulated Infrastructure Development

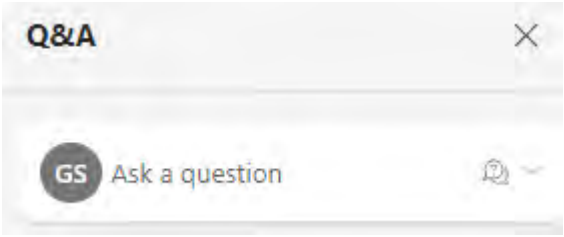
Agenda

Time (EST)	Agenda Topic	Lead
2:00-2:10	**Welcome & Introductions**	**Andrew Williamson Josh Burkholder Brian Despard**
2:10-2:15	**Going-In Capacity Position Review**	**Kayla Zellers**
2:15-2:20	**Resource Modeling Parameters Update**	**Kayla Zellers**
2:20-2:30	**Key Modeling Inputs & Modeling Status Update**	**Kayla Zellers**
2:30-3:00	**Expansion Plan Modeling Results** • Scenarios: Base Reference, Enhanced Environmental Regulations (EER) • Sensitivity: Base Under EPA 111(b)(d) Requirements	**Mohamed Abukaram**
3:00-3:10	**Short Break**	
3:10-4:00	**Expansion Plan Modeling Results** • Scenarios: High, Low • Sensitivities: Low Carbon: Transition to Objective, Low Carbon: Expanded Build limits	**Mohamed Abukaram**
4:00-4:10	**Short Break**	
4:10-4:30	**Results Comparison and Draft Portfolio Performance Indicators**	**Kayla Zellers**
4:30-4:35	**Remaining Modeling and Next Steps**	**Kayla Zellers**
4:35-5:00	**Open Discussion** • Feedback From Stakeholders	**Andrew Williamson Josh Burkholder**

Participation

- Participants joining today's meeting will be in a "listen-only" mode. Please use the "Raise" function to be recognized and unmuted.
- During the presentation, please enter questions at any time into the Teams Q&A feature. Questions will be addressed after each section. At the end of the presentation, we will open up the floor for additional questions, thoughts, ideas, and suggestions.
- All questions and answers will be logged and provided on the IRP website. Any questions not answered during the meeting will be answered after the meeting and provided in the Q&A log posted to the IRP website.
- Questions, thoughts, ideas, and suggestion related to Stakeholder Meeting 3A can be provided to I&MIRP@aep.com following this meeting.

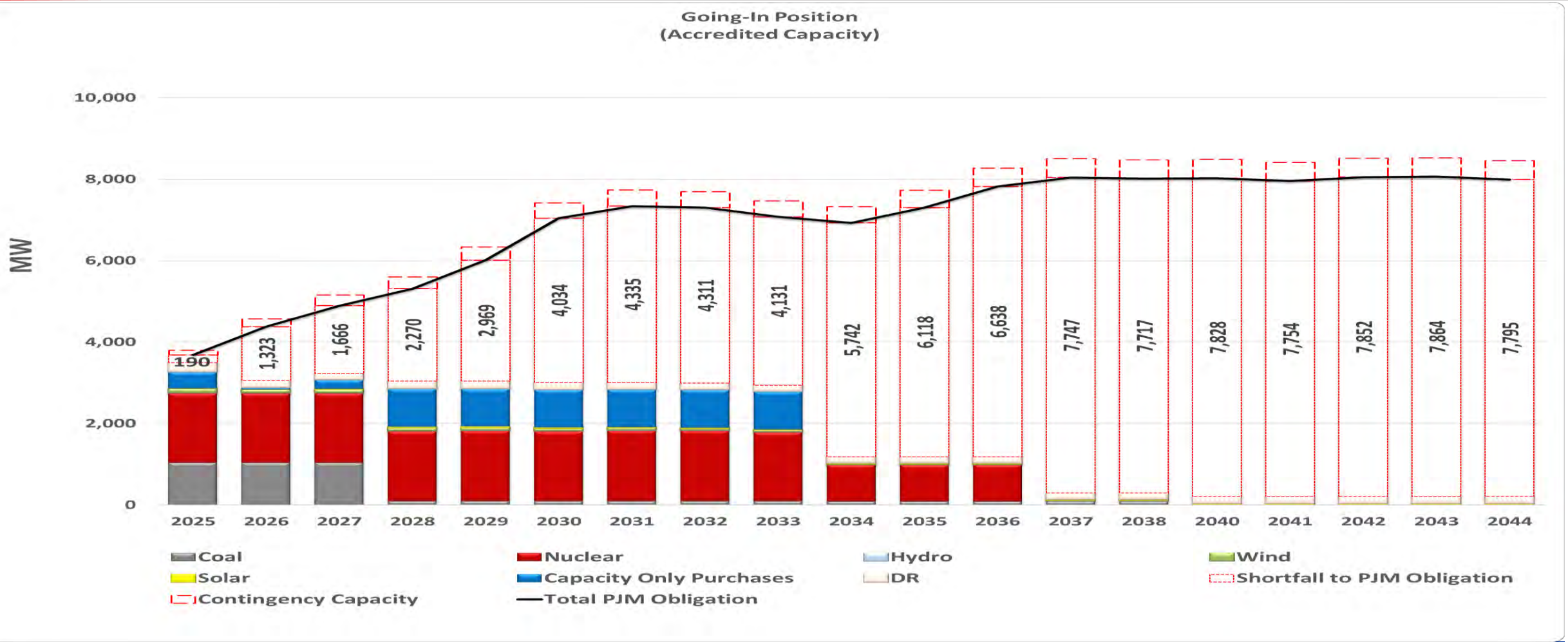
Click the Q&A feature at the top of the Teams screen



Guidelines

- Please focus questions, thoughts, ideas, and suggestions to the IRP process and the content being discussed in this meeting. Time will be taken during this meeting to respond to questions.
- Please respect other participants and their views by not addressing other participants directly and not commenting on the views expressed by others.
- This meeting will not be recorded or transcribed.
- Any further questions or comments can be provided to I&MIRP@aep.com.

Capacity Needs Assessment



- To reasonably capture contingency risk around future uncertainties such as changes to load obligations and available capacity, a probabilistic risk analysis was performed to evaluate a reasonable amount of 'Contingency Capacity' needed for planning purposes
- The analysis resulted in planning for Contingency Capacity at a level of 5% above the PJM load obligation by 27/28
  - PJM Load Obligation is ~93% of peak load in 27/28 and, in turn, Contingency Capacity level is at ~98% of peak load (~93% + 5%)
  - Additional 5% for Contingency Capacity results in planning for up to an additional ~450 MW above the PJM Load Obligation

Resource Modeling Parameters

Resource Type	First Year Available	Last Year Available	Annual Build Limit (MW)	Cumulative Build Limit through 2030 (MW)	Total Cumulative Build Limit Through Planning Horizon (MW)	Installed Cost[1] $/kW	Installed Cost[1] $/MW-D
EXISTING NG COMBUSTION TURBINE (5 YEAR)	2028	2031	1,000	3,000	4,000	N/A	~~$320~~ $493
EXISTING NG COMBUSTION TURBINE (10 YEAR)	2028	2031					
EXISTING NG COMBUSTION TURBINE (20 YEAR)	2028	2031				~~$540~~ $644	N/A
EXISTING NG COMBINED CYCLE (5 YEAR)	2028	2031	1,800	3,600	5,400	N/A	~~$485~~ $680
EXISTING NG COMBINED CYCLE (10 YEAR)	2028	2031					
EXISTING NG COMBINED CYCLE (20 YEAR)	2028	2031				$1,100	N/A
WIND (15 YEAR)	~~2029~~ 2028	N/A	~~600~~ 200	~~800~~ 400	~~3200~~ 4000	N/A	$86
WIND (30 YEAR)	2031	N/A	400	N/A		$3,000	N/A

Note 1: Costs represent nominal dollars in the first year that the resource is available

Key Modeling Points and Constraints

Energy Import/Export Limit

- Market import and export and limits were set. The EPA Section 111(b)(d) cases had slightly higher limits due to the CF% limits imposed on thermal resources

Short Term Capacity

- Short Term Capacity Prices: Based on gross CONE values that PJM has published to date
  - 25/26: $451.61/MW-day
  - 26/27+: $695.83/MW-day
- The model will exhaust all other available long-term resources before selecting short term capacity

EPA Compliant Gas Unit Capacity Factor

- These constraints are modeled in the EPA Section 111(b)(d) cases – Enhanced Environmental Regulations and Base under EPA Section 111(b)(d)

Energy Import/Export Limit		
Years	**Reference, High, Low, Low Carbon Scenarios**	**EER, Base under EPA Section 111(b)(d) Scenarios**
2025-28	60%	60%
2029-30	50%	50%
2031-33	30%	35%
2034+	20%	25%

EPA Compliant Gas Unit Capacity Factors			
Resource Type	**Capacity Factor Limit**	**Starting Year Enforced**	**EPA Section 111 Rule (b)(d)**
Existing CC	50%	2030	Proposed
Existing CT	50%	2030	Proposed
New CC	40%	Immediate	Final
New CT	20%	Immediate	Final

Public Stakeholder Meetings 3A & 3B

Modeling Results to be Presented at Stakeholder Meetings 3A and 3B

- I&M is modeling 4 market scenarios & 9 market sensitivities and will present modeling results in stakeholder meetings (i.e., 3A and 3B)

Scenario	Stakeholder Meeting 3A or 3B
Base Reference	3A
High Economic Growth	3A
Low Economic Growth	3A
Enhanced Environmental Regulations (EER)	3A

Sensitivities	Stakeholder Meeting 3A or 3B
Base under EPA Section 111(b)(d) Requirements	3A
Low Carbon: Transition to Objective	3A
Low Carbon: Expanded Build Limits	3A
Base with High IN Load	3B
Base with Low IN Load	3B
Rockport Unit 1 Retires 2025	3B
Rockport Unit 1 Retires 2026	3B
Exit OVEC ICPA in 2030	3B
High Technology Cost	3B

Base Reference Case Portfolio

Year	Nameplate MW								Accredited MW	
	Wind	Solar	Storage	New CC	Existing CC	New CT	Existing CT	Nuclear*	DR, EE, DER, CVR	Short Term Capacity
2025	0	0	0	0	0	0	0	0	1	325
2026	0	0	0	0	0	0	0	0	28	1,500
2027	0	0	0	0	0	0	0	0	59	1,875
2028	200	599	450	0	1,800	0	1,000	0	94	0
2029	200	596	450	0	2,700	0	1,000	0	100	0
2030	200	593	450	0	3,600	0	1,500	0	97	0
2031	200	590	450	0	3,600	0	2,000	0	96	0
2032	200	587	450	0	3,600	0	2,000	0	115	0
2033	200	584	450	0	3,600	0	2,000	0	131	0
2034	200	581	450	1,030	3,600	0	2,000	0	144	0
2035	200	578	450	1,030	3,600	0	2,000	888	156	0
2036	200	575	450	2,060	3,600	0	2,000	888	169	0
2037	200	572	450	2,060	3,600	0	2,000	888	177	0
2038	200	569	450	2,060	3,600	0	2,000	1,880	185	0
2039	200	566	450	2,060	3,600	0	2,000	1,880	193	0
2040	200	563	450	2,060	3,600	0	2,000	1,880	201	0
2041	200	560	450	2,060	3,600	0	2,000	1,880	206	0
2042	200	557	450	2,060	3,600	0	2,000	1,880	211	0
2043	0	554	450	2,060	3,600	0	2,000	1,880	213	0
2044	0	551	450	2,060	3,600	0	2,000	1,880	220	0

Purpose of Scenario:

- Evaluating the most economical solution to meet capacity and energy needs considering all base modeling parameters and assumptions; establishes the point of reference for other scenarios and sensitivities

Observations through 2030:

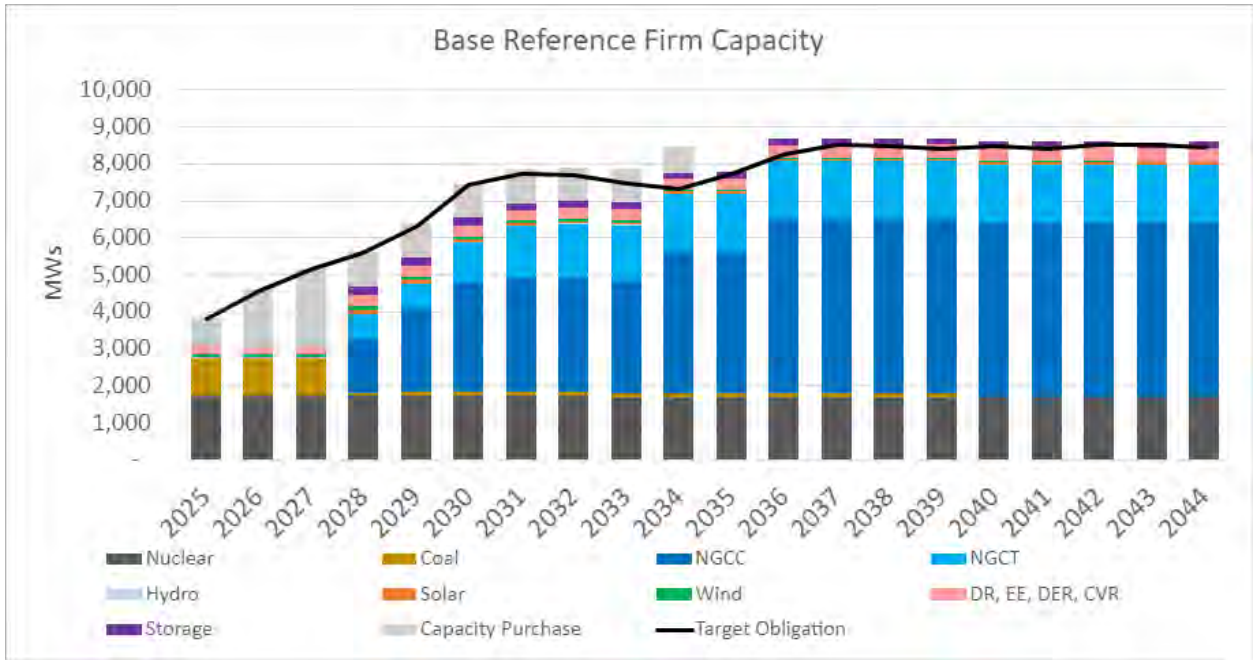
- Short Term Capacity purchases until new resources become available in 2028
- Solar, wind, storage, and gas resources selected in 2028 in response to load growth by 2030
- Selected all available existing CC's by 2030 and existing CT's were selected to meet capacity obligation
- DR, EE, DER, CVR increase as the load and energy increase with the HSL

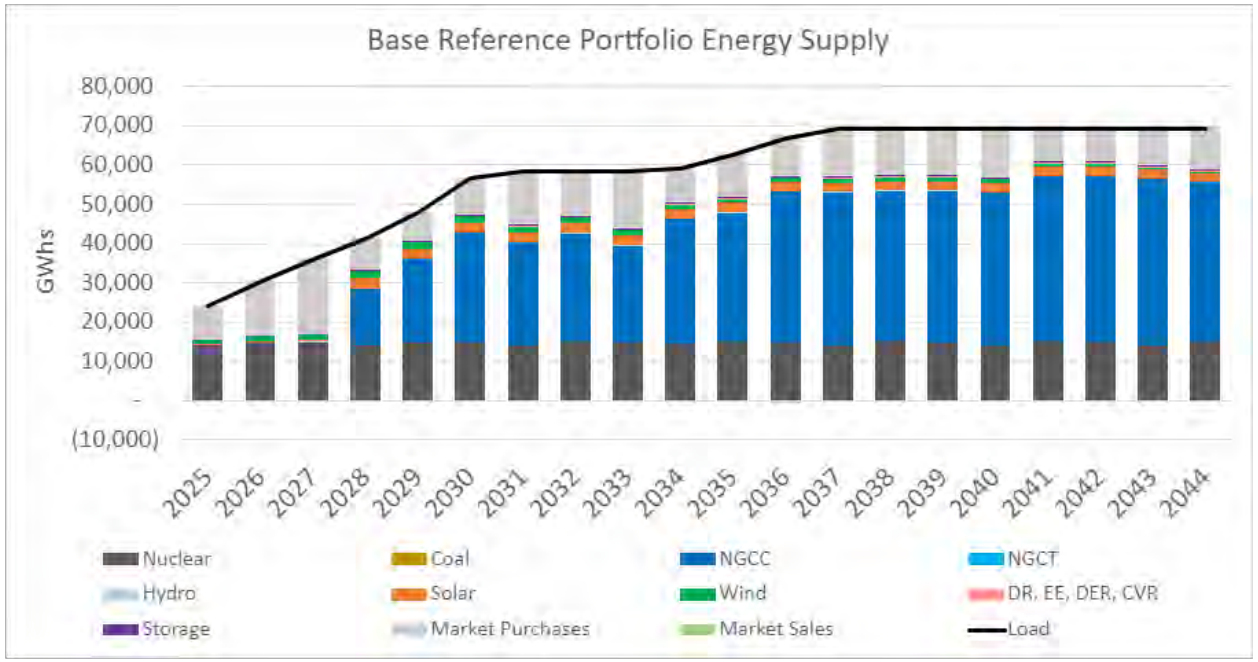
Observations for 2031+:

- New CC built in 2034 and 2036 to meet the load growth in the same period and the expiration of existing capacity purchase agreements
- Cook SLR selected in 2035 and 2038

*Nuclear includes Cook SLR

Base Reference Case Portfolio





Observations:

- Nuclear resources provide consistent Carbon-free capacity and energy
- Natural gas resources are generally the most economic options to meet the growing capacity obligations and needed energy supply
- Capacity additions in 2033 and 2034 built in preparation of load increases that occur from 2034-2037

*Nuclear includes Cook SLR

Enhanced Environmental Regulations Case Portfolio

Year	Nameplate MW								Accredited MW	
	Wind	Solar	Storage	New CC	Existing CC	New CT	Existing CT	Nuclear*	DR, EE, DER, CVR	Short Term Capacity
2025	0	0	0	0	0	0	0	0	1	325
2026	0	0	0	0	0	0	0	0	26	1,500
2027	0	0	0	0	0	0	0	0	56	1,875
2028	200	1,496	350	0	1,800	0	1,000	0	88	0
2029	200	1,489	350	0	2,700	0	1,000	0	112	0
2030	200	1,481	350	0	3,600	0	1,500	0	127	0
2031	600	1,474	350	0	5,400	0	1,500	0	142	0
2032	1,000	2,065	350	0	5,400	0	1,500	0	158	0
2033	1,400	2,653	350	0	5,400	0	1,500	0	169	0
2034	1,800	3,238	350	0	5,400	0	1,500	0	178	0
2035	2,200	3,371	350	0	5,400	0	1,500	888	190	0
2036	2,600	3,952	350	0	5,400	0	1,500	888	201	0
2037	3,000	4,530	350	0	5,400	0	1,500	888	208	0
2038	3,200	4,507	350	0	5,400	0	1,500	1,880	215	0
2039	3,200	4,484	350	0	5,400	0	1,500	1,880	220	0
2040	3,200	4,461	350	0	5,400	0	1,500	1,880	224	0
2041	3,200	4,437	350	0	5,400	0	1,500	1,880	227	0
2042	3,200	4,414	350	0	5,400	230	1,500	1,880	230	0
2043	3,000	4,114	350	0	5,400	230	1,500	1,880	232	0
2044	3,000	4,092	350	0	5,400	230	1,500	1,880	233	0

Purpose of Scenario:

- Evaluating the most economical solution to meet capacity and energy needs considering implementation of EPA Section 111(b)(d) greenhouse gas rules and associated market commodity price impacts

Observations through 2030:

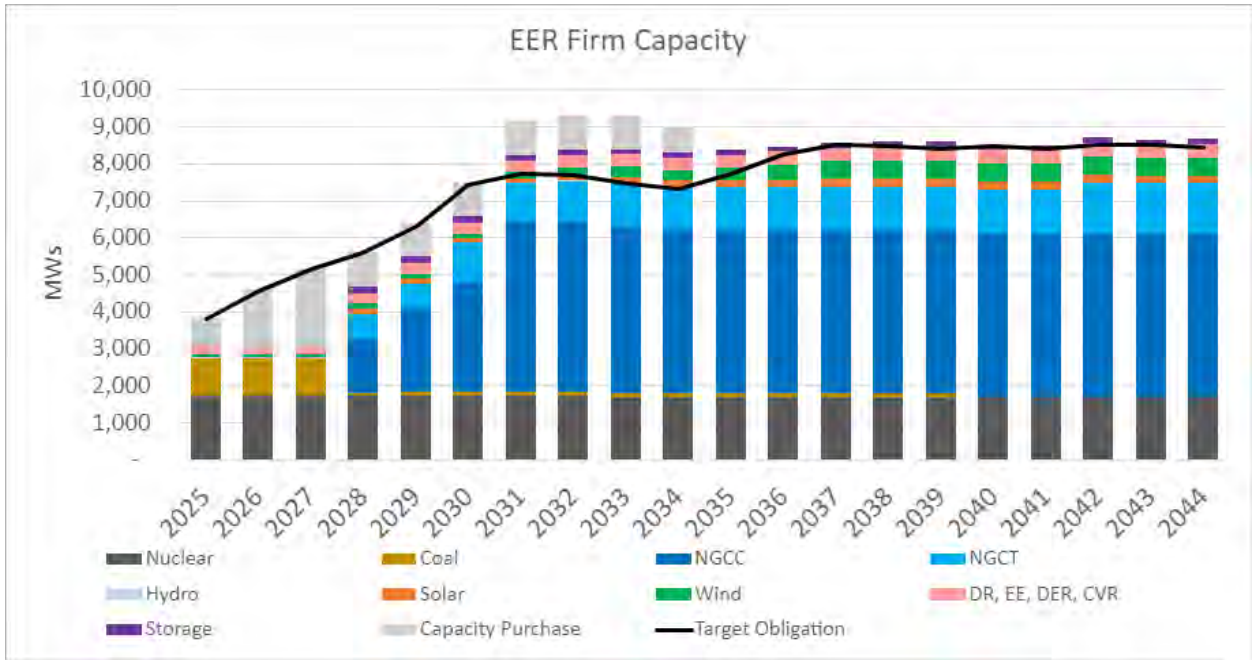
- Solar, wind, storage, and gas resources selected in 2028 in response to load growth by 2030
- Selected all available existing CC's by 2030 and existing CT's were selected to meet capacity obligation
- Additional solar resources selected due to limited capacity factors on thermal resources
- DR, EE, DER, CVR increase as the load and energy increase with the HSL

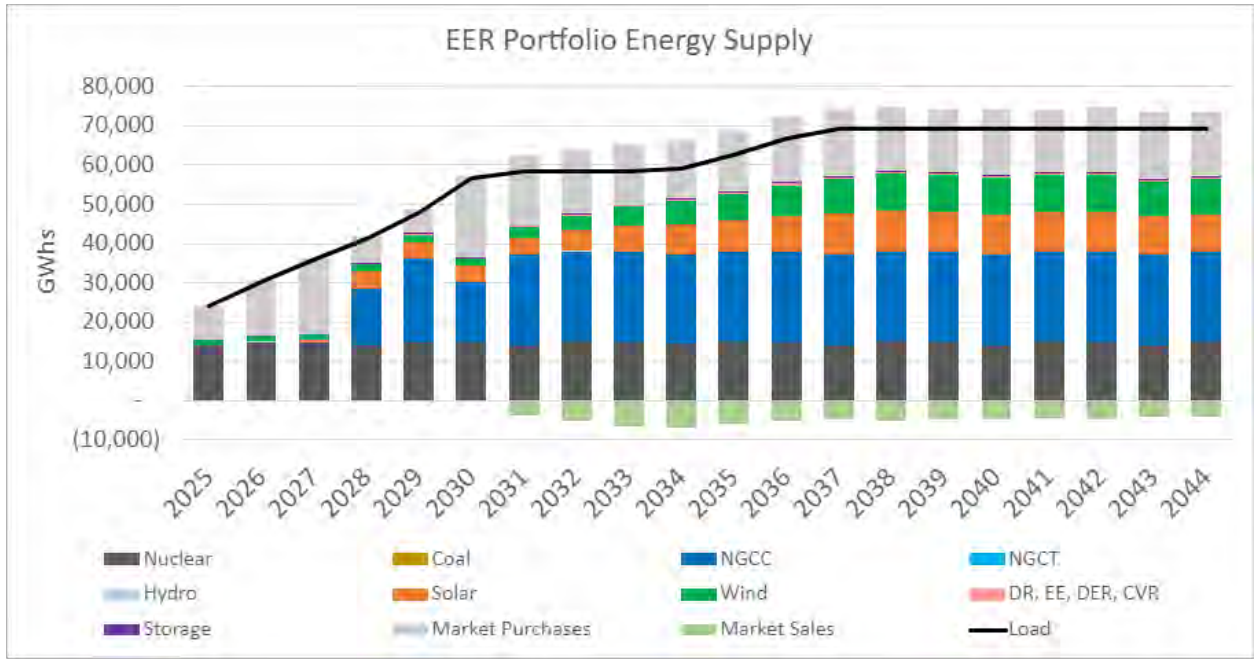
Observations for 2031+:

- Substantially more wind and solar selected than reference scenario
- Additional existing CC's selected to meet the load growth in the same period and the expiration of existing capacity purchase agreements
- Cook SLR selected in 2035 and 2038
- Additional EE selected compared to reference scenario

*Nuclear includes Cook SLR

Enhanced Environmental Regulations Case Portfolio





Observations:

- Capacity factor limitations associated with EPA Section 111(b)(d) compliance result in significantly more energy contributions from other resources
- Nuclear and natural gas resources that have higher accreditation values are selected to cover most of the capacity obligation
- Capacity additions in 2031-2034 built in preparation of load increases that occur from 2034-2037 and to provide necessary energy supply to meet import limits
- Added renewable resources result in additional energy market sales starting in 2031

*Nuclear includes Cook SLR

Base Under EPA Section 111(b)(d) Sensitivity

Year	Nameplate MW								Accredited MW	
	Wind	Solar	Storage	New CC	Existing CC	New CT	Existing CT	Nuclear*	DR, EE, DER, CVR	Short Term Capacity
2025	0	0	0	0	0	0	0	0	1	325
2026	0	0	0	0	0	0	0	0	27	1,500
2027	0	0	0	0	0	0	0	0	57	1,875
2028	200	1,047	400	0	1,800	0	1,000	0	90	0
2029	200	1,042	400	0	2,700	0	1,000	0	114	0
2030	200	1,037	400	0	3,600	0	1,500	0	130	0
2031	600	1,481	400	0	5,400	0	1,500	0	146	0
2032	1,000	2,072	400	0	5,400	0	1,500	0	162	0
2033	1,400	2,660	400	0	5,400	0	1,500	0	173	0
2034	1,800	3,245	400	0	5,400	0	1,500	0	182	0
2035	2,200	3,527	400	0	5,400	0	1,500	888	194	0
2036	2,600	4,108	400	0	5,400	0	1,500	888	204	0
2037	3,000	4,685	400	0	5,400	0	1,500	888	212	0
2038	3,000	4,661	400	0	5,400	0	1,500	1,880	218	0
2039	3,000	4,637	400	0	5,400	0	1,500	1,880	223	0
2040	3,000	4,613	400	0	5,400	0	1,500	1,880	228	0
2041	3,000	4,589	400	0	5,400	0	1,500	1,880	231	0
2042	3,000	4,565	400	0	5,400	230	1,500	1,880	233	0
2043	2,800	4,541	400	0	5,400	230	1,500	1,880	235	0
2044	2,800	4,517	400	0	5,400	230	1,500	1,880	236	0

Purpose of Scenario:

- Evaluating the most economical solution to meet capacity and energy needs considering implementation of EPA Section 111(b)(d) greenhouse gas rules and base modeling parameters and assumptions

Observations through 2030:

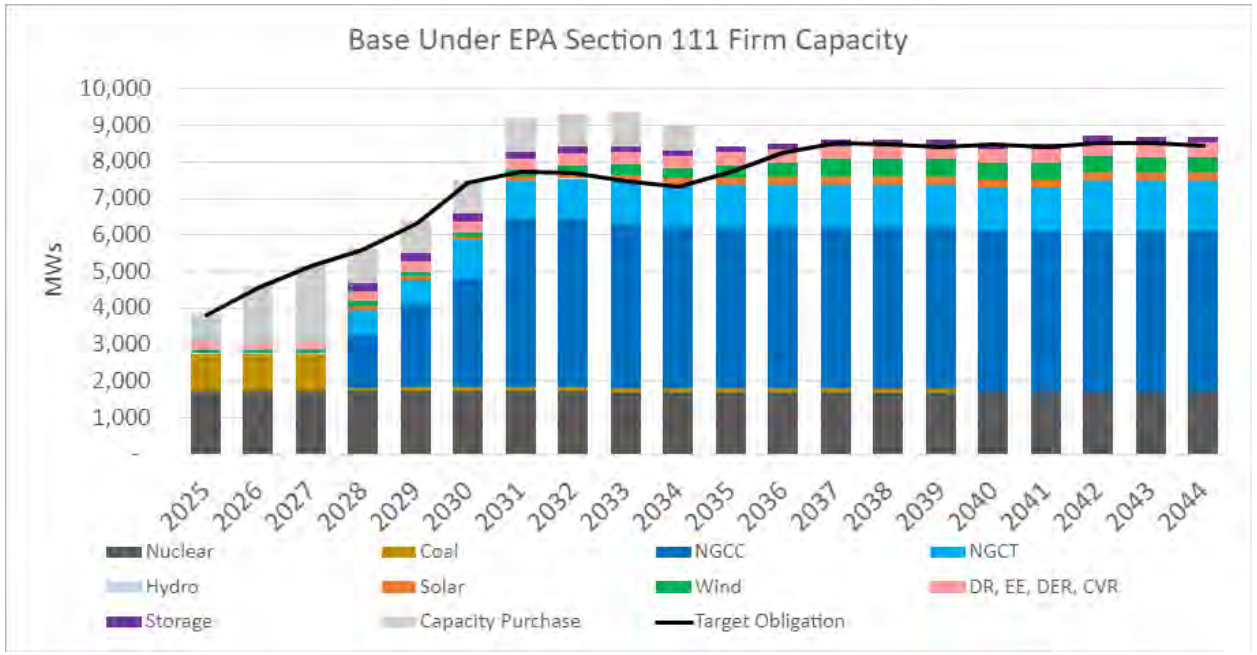
- Solar, wind, storage, and gas resources selected in 2028 in response to load growth by 2030
- Selected all available existing CC's by 2030 and existing CT's were selected to meet capacity obligation
- Additional solar resources selected due to limited capacity factors on thermal resources
- DR, EE, DER, CVR increase as the load and energy increase with the HSL

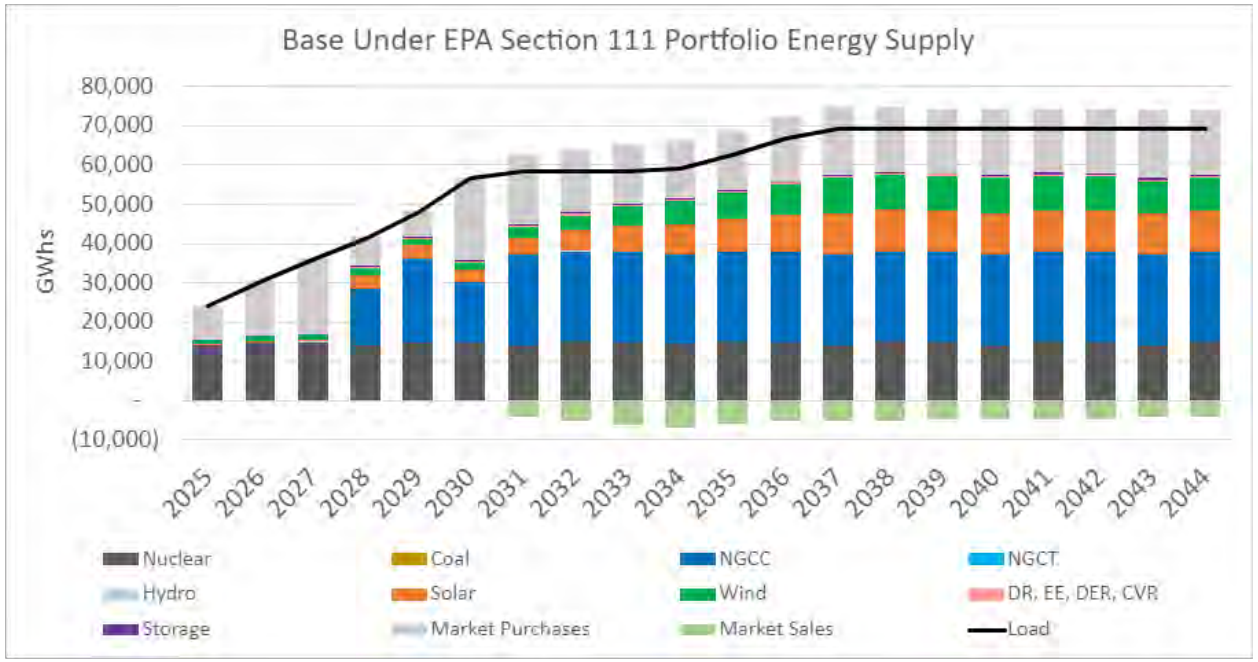
Observations for 2031+:

- Substantially more wind and solar selected than reference scenario
- Additional existing CC's selected to meet the load growth in the same period and the expiration of existing capacity purchase agreements
- Cook SLR selected in 2035 and 2038
- Additional EE selected compared to reference scenario

*Nuclear includes Cook SLR

Base Under EPA Section 111(b)(d) Sensitivity





Observations:

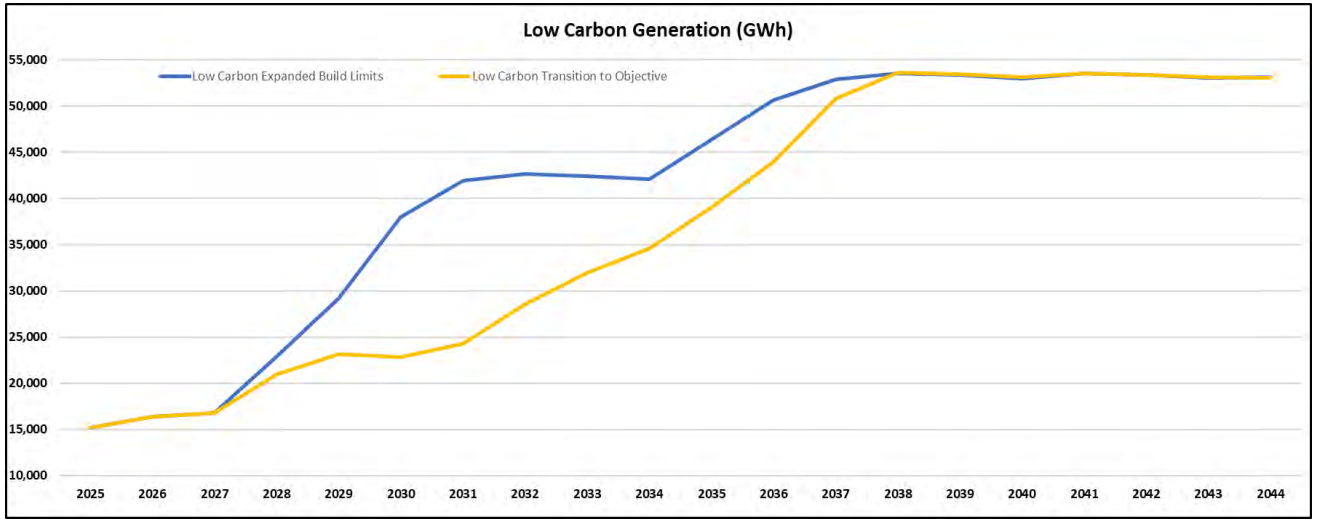
- Results are very similar to Enhanced Environmental Regulations scenario
- Capacity factor limitations associated with EPA Section 111(b)(d) compliance result in significantly more energy contributions from other resources
- Nuclear and natural gas resources that have higher accreditation values are selected to cover most of the capacity obligation
- Capacity additions in 2031-2034 built in preparation of load increases that occur from 2034-2037 and to provide necessary energy supply to meet import limits
- Added renewable resources result in additional energy market sales starting in 2031

*Nuclear includes Cook SLR

10 Minute Break

Low Carbon Sensitivities: Objective Comparison

- The Low Carbon Objective is to annually generate carbon-free energy that meets or exceeds our largest industrial customer energy requirements, including hyperscale customers
- In the Low Carbon: Transition to Objective sensitivity, the wind and solar resource build limit assumptions result in a transition period from 2028-2037 fully achieving the Low Carbon Objective starting in 2038
- In the Low Carbon: Expanded Build Limits sensitivity, the wind and solar build limits are increased to achieve the Low Carbon Objective throughout the planning horizon



Resource Type	Current Build Limits			Expanded Build Limits		
	Annual Build Limit (MW)	Cumulative Build Limit through 2030 (MW)	Total Cumulative Build Limit Through Planning Horizon (MW)	Annual Build Limit (MW)	Cumulative Build Limit through 2030 (MW)	Total Cumulative Build Limit Through Planning Horizon (MW)
WIND (15 YEAR)	200	400	4,000	1,600	3,400	6,800
WIND (30 Year)	400	N/A		3,200	N/A	
SOLAR (15 Year)	600	1,200	4,800	1,050	2,100	4,800
SOLAR (35 Year)	600	1,200	4,800	1,050	2,550	5,400
SOLAR w/STORAGE (4-HOUR)	600	750	1350	1,050	1,650	1,650

Low Carbon Sensitivity: Transition to Objective

Year	Nameplate MW								Accredited MW		Objective Achievement (%)
	Wind	Solar	Storage	New CC	Existing CC	New CT	Existing CT	Nuclear*	DR, EE, DER, CVR	Short Term Capacity	
2025	0	0	0	0	0	0	0	0	1	325	100%
2026	0	0	0	0	0	0	0	0	27	1,500	100%
2027	0	0	0	0	0	0	0	0	58	1,875	95%
2028	200	1,796	300	0	1,800	0	1,000	0	92	0	92%
2029	400	2,235	300	0	1,800	0	2,000	0	111	0	79%
2030	400	2,224	300	0	2,700	0	2,500	0	121	0	60%
2031	800	2,662	300	0	2,700	0	3,500	0	131	0	62%
2032	1,200	3,845	300	0	2,700	0	3,500	0	149	0	72%
2033	1,600	5,023	300	0	2,700	0	3,500	0	162	0	81%
2034	2,000	6,194	300	0	2,700	0	3,500	0	173	0	82%
2035	2,600	7,360	300	0	2,700	0	3,500	888	185	0	85%
2036	3,200	8,968	450	0	2,700	230	3,500	888	197	0	87%
2037	3,400	10,269	500	0	2,700	230	3,500	1,488	205	0	96%
2038	3,400	10,217	500	0	2,700	230	3,500	2,780	211	0	100%
2039	3,400	10,164	500	0	2,700	230	3,500	2,780	217	0	100%
2040	3,400	10,261	500	0	2,700	230	3,500	2,780	223	0	100%
2041	3,400	10,208	500	0	2,700	230	3,500	2,780	227	0	100%
2042	3,400	10,155	500	0	2,700	230	3,500	2,780	230	0	100%
2043	3,200	9,548	500	0	2,700	230	3,500	3,080	233	0	100%
2044	3,000	9,359	500	0	2,700	230	3,500	3,080	235	0	100%

Purpose of Scenario:

- Evaluating the most economical solution to achieve the Low Carbon Objective as quickly as possible given the base assumptions for wind and solar build limits

Observations through 2030:

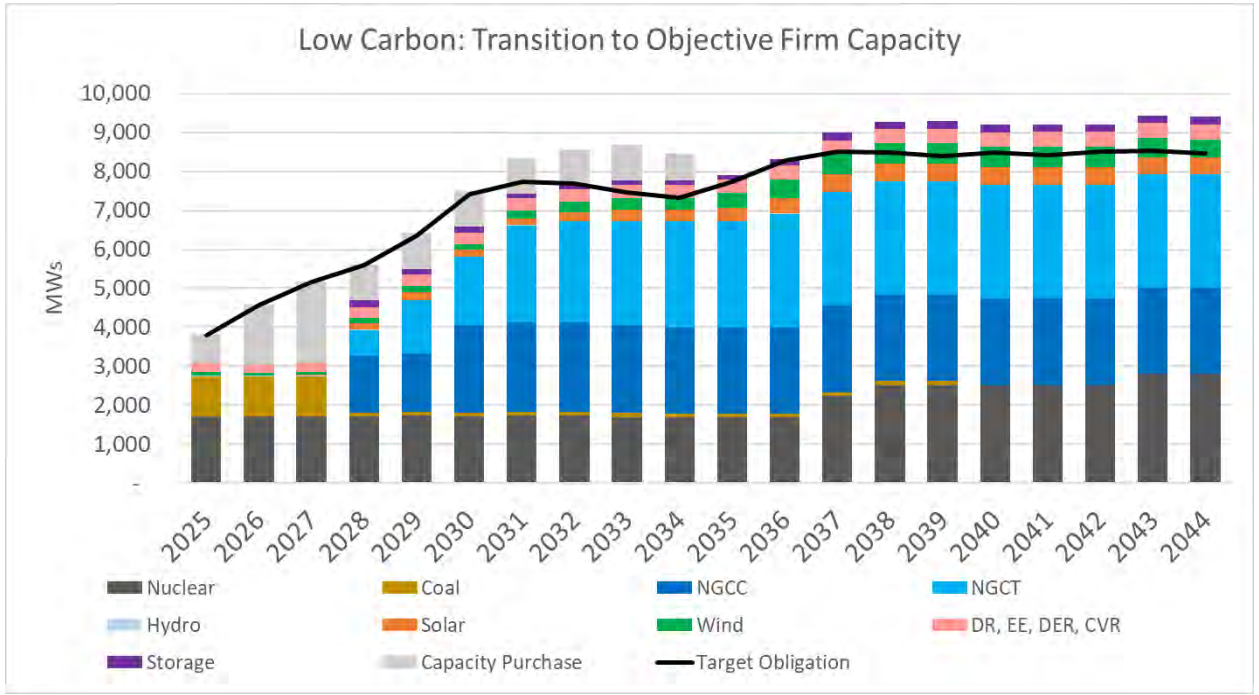
- Wind and solar selected near build limits
- Selecting CT's and CC's to meet remaining capacity and energy needs
- DR, EE, DER, CVR increase as the load and energy increase with the HSL

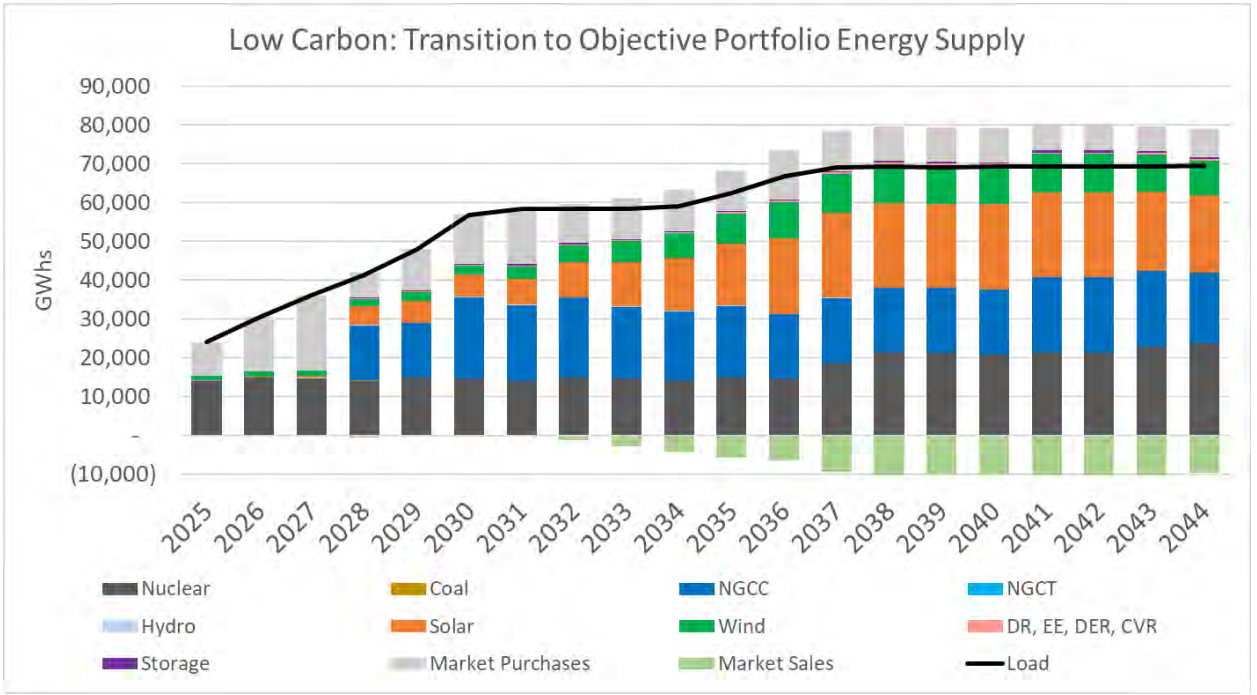
Observations for 2031+:

- SMR selected in 2037, increasing to 1,200MW by 2043
- Substantially more solar and wind selected to meet the carbon-free objective
- Additional CT's selected to meet capacity obligation
- Cook SLR selected in 2035 and 2038

*Nuclear includes Cook SLR and SMR

Low Carbon Sensitivity: Transition to Objective





Observations:

- Carbon-free resources provide significant portion of energy supply starting in 2028 and achieves the Low Carbon Objective by 2038
- Nuclear and natural gas resources that have higher accreditation values provide much of the capacity obligation
- Capacity additions in 2031-2034 built in preparation of load increases that occur from 2034-2037
- Higher levels of renewable resources drive higher energy market sales starting in 2033

*Nuclear includes Cook SLR and SMR

Low Carbon Sensitivity: Expanded Build Limits

Year	Nameplate MW								Accredited MW	
	Wind	Solar	Storage	New CC	Existing CC	New CT	Existing CT	Nuclear*	DR, EE, DER, CVR	Short Term Capacity
2025	0	0	0	0	0	0	0	0	1	325
2026	0	0	0	0	0	0	0	0	19	1,500
2027	0	0	0	0	0	0	0	0	38	1,900
2028	1,200	1,347	0	0	1,800	0	1,000	0	56	0
2029	1,800	3,285	0	0	1,800	0	2,000	0	69	0
2030	3,400	5,513	300	0	1,800	0	3,000	0	80	0
2031	5,000	5,485	300	0	1,800	0	4,000	0	90	0
2032	5,000	5,457	300	0	1,800	0	4,000	0	108	0
2033	5,000	5,430	300	0	1,800	0	4,000	0	122	0
2034	5,000	5,701	300	0	1,800	0	4,000	0	134	0
2035	5,400	7,019	300	0	1,800	0	4,000	888	147	0
2036	6,200	8,030	300	0	1,800	230	4,000	888	158	0
2037	6,200	8,438	300	0	1,800	230	4,000	1,188	167	0
2038	6,200	8,394	300	0	1,800	230	4,000	2,180	175	0
2039	6,200	8,351	300	0	1,800	230	4,000	2,180	182	0
2040	6,200	8,457	350	0	1,800	230	4,000	2,180	187	0
2041	6,200	8,412	350	0	1,800	230	4,000	2,180	192	0
2042	6,200	8,368	350	0	1,800	230	4,000	2,180	195	0
2043	5,000	8,047	350	0	1,800	230	4,000	2,780	198	0
2044	4,600	8,222	350	0	1,800	230	4,000	2,780	200	0

Purpose of Scenario:

- Evaluating the most economical solution to achieve the Low Carbon Objective starting 2028 with increased wind and solar build limits

Observations through 2030:

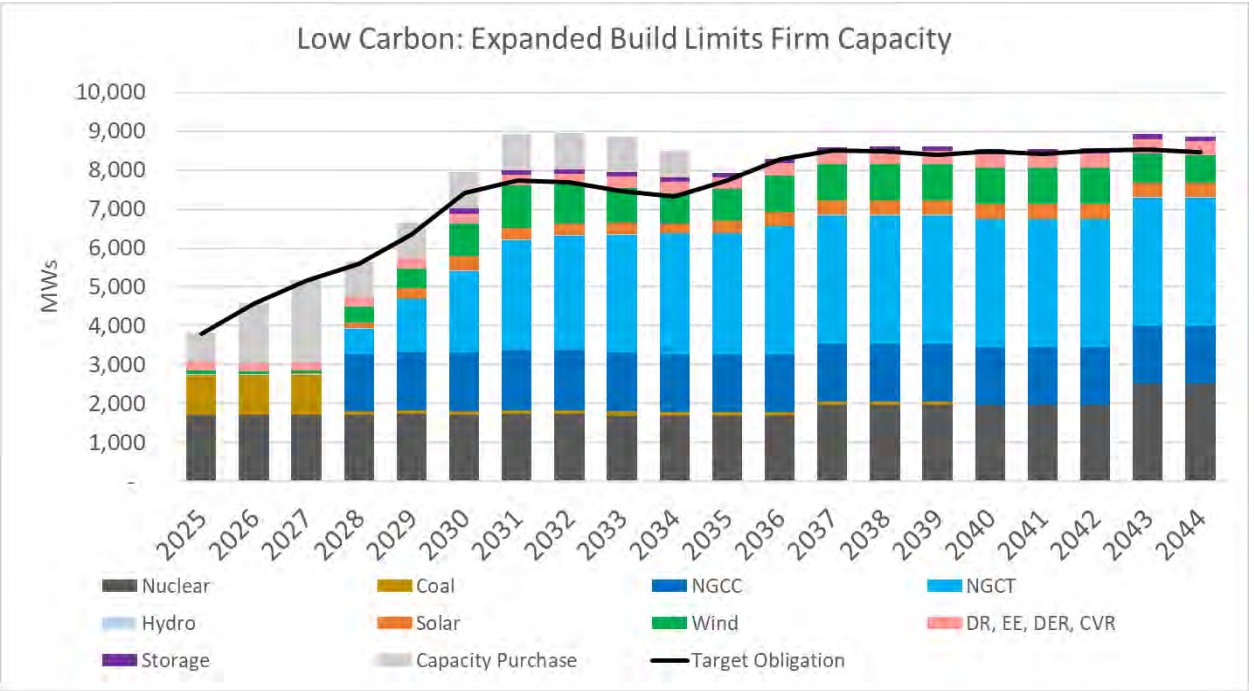
- Substantial expansion in build limits for wind and solar required to meet the carbon-free objective
- Selecting all available existing CT's by 2030 to meet capacity obligation
- Substantially fewer existing CC's selected compared to reference scenario
- EE, DER, CVR increase as the load and energy increase with the HSL

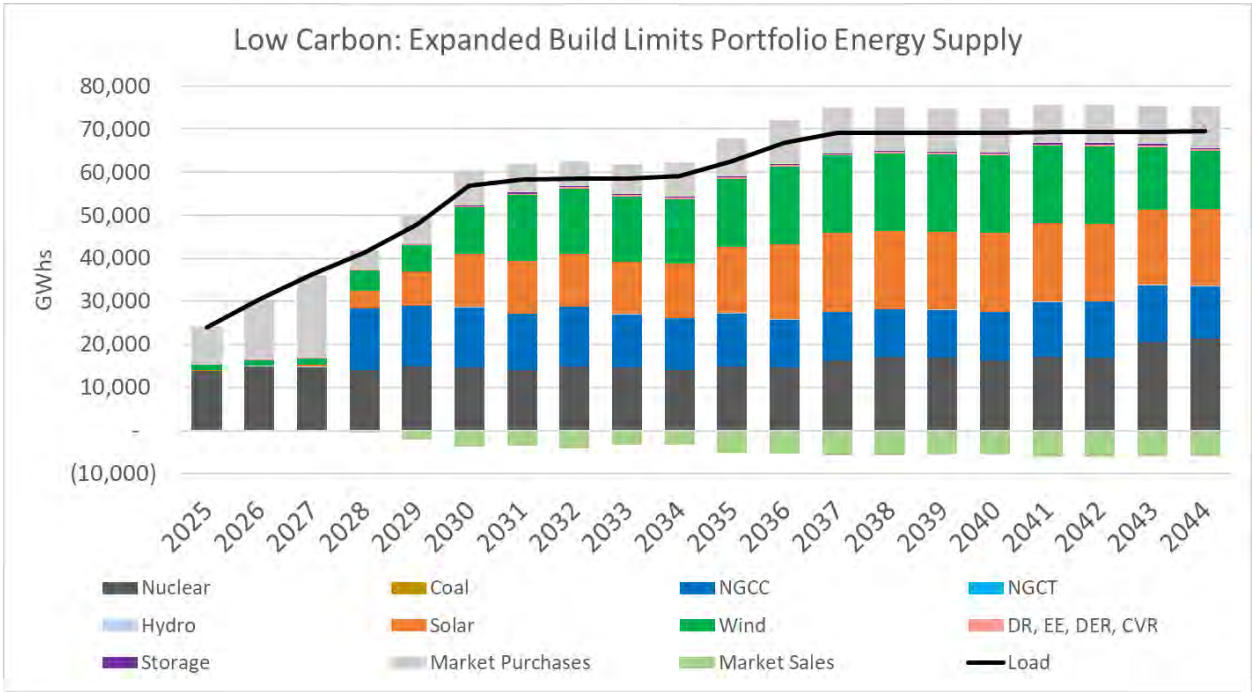
Observations for 2031+:

- SMR selected in 2037 when first made available and again in 2043
- Substantially more solar and wind selected to meet the carbon-free objective
- Additional CT's selected to meet capacity obligation
- Cook SLR selected in 2035 and 2038

*Nuclear includes Cook SLR and SMR

Low Carbon Sensitivity: Expanded Build Limits



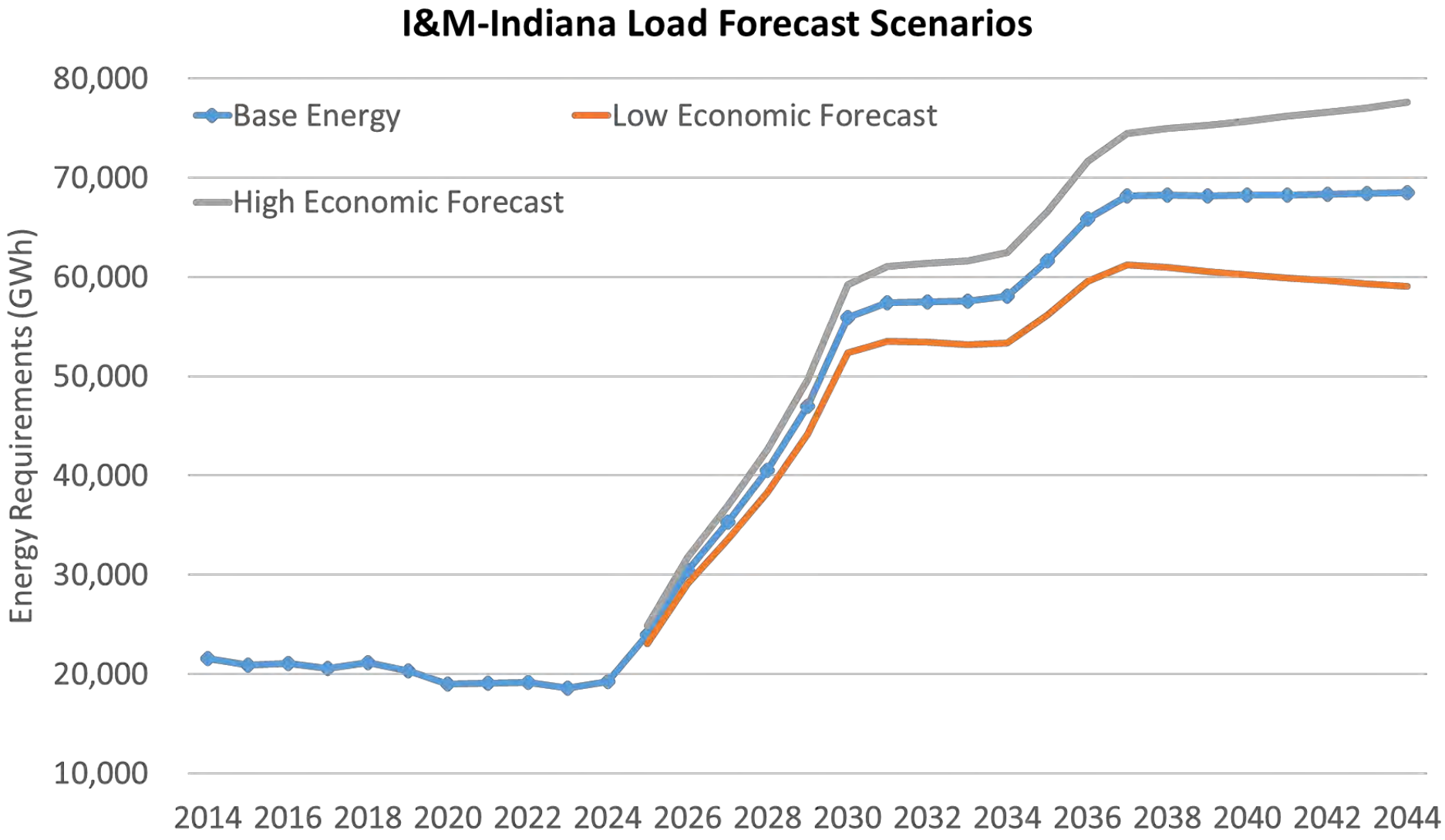


Observations:

- Achieves the Low Carbon Objective starting in 2028 and Carbon-free resources provide much of the energy supply throughout the planning horizon
- Nuclear and natural gas resources continue to provide much of the capacity obligation
- Capacity additions in 2030-2034 built in preparation of load increases that occur from 2034-2037
- Higher levels of renewable resources drive higher energy market sales starting in 2029
- More balanced mix of wind and solar selected due to the higher wind build limits available and the complimentary nature of the resources

*Nuclear includes Cook SLR and SMR

High and Low Cases: Load Forecast Scenarios



High Case Portfolio

Year	Nameplate MW								Accredited MW	
	Wind	Solar	Storage**	New CC	Existing CC	New CT	Existing CT	Nuclear*	DR, EE, DER, CVR	Short Term Capacity
2025	0	0	0	0	0	0	0	0	1	350
2026	0	0	0	0	0	0	0	0	28	1,650
2027	0	0	0	0	0	0	0	0	59	2,000
2028	200	1,796	451	0	1,800	0	1,000	0	94	200
2029	200	1,787	451	0	2,700	0	2,000	0	119	0
2030	200	1,778	454	0	2,700	0	3,000	0	135	0
2031	600	1,769	454	0	3,600	0	3,500	0	151	0
2032	1,000	1,760	454	0	3,600	0	3,500	0	167	0
2033	1,400	1,751	454	0	3,600	0	3,500	0	179	0
2034	1,800	1,891	454	1,030	3,600	0	3,500	0	188	0
2035	2,000	2,480	454	1,030	3,600	0	3,500	888	201	0
2036	2,400	3,066	454	1,030	3,600	0	3,500	888	212	0
2037	2,800	3,648	454	1,030	3,600	0	3,500	888	220	0
2038	3,200	3,630	454	1,030	3,600	0	3,500	1,880	226	0
2039	3,200	3,611	454	1,030	3,600	0	3,500	1,880	231	0
2040	3,200	3,592	454	1,030	3,600	0	3,500	1,880	236	0
2041	3,200	3,573	454	1,030	3,600	0	3,500	1,880	239	0
2042	3,200	3,555	454	1,030	3,600	230	3,500	1,880	242	0
2043	3,000	2,982	454	1,030	3,600	230	3,500	1,880	245	0
2044	3,000	3,266	454	1,030	3,600	230	3,500	1,880	246	0

Purpose of Scenario:

- Evaluating the most economical solution to meet capacity and energy needs considering all high economic forecast modeling parameters and assumptions

Observations through 2030:

- Solar, wind, storage, and gas resources selected in 2028; significantly more solar than reference scenario
- Selected all available existing CT's by 2030 and existing CC's were selected to meet energy needs
- DR, EE, DER, CVR increase as the load and energy increase with the HSL

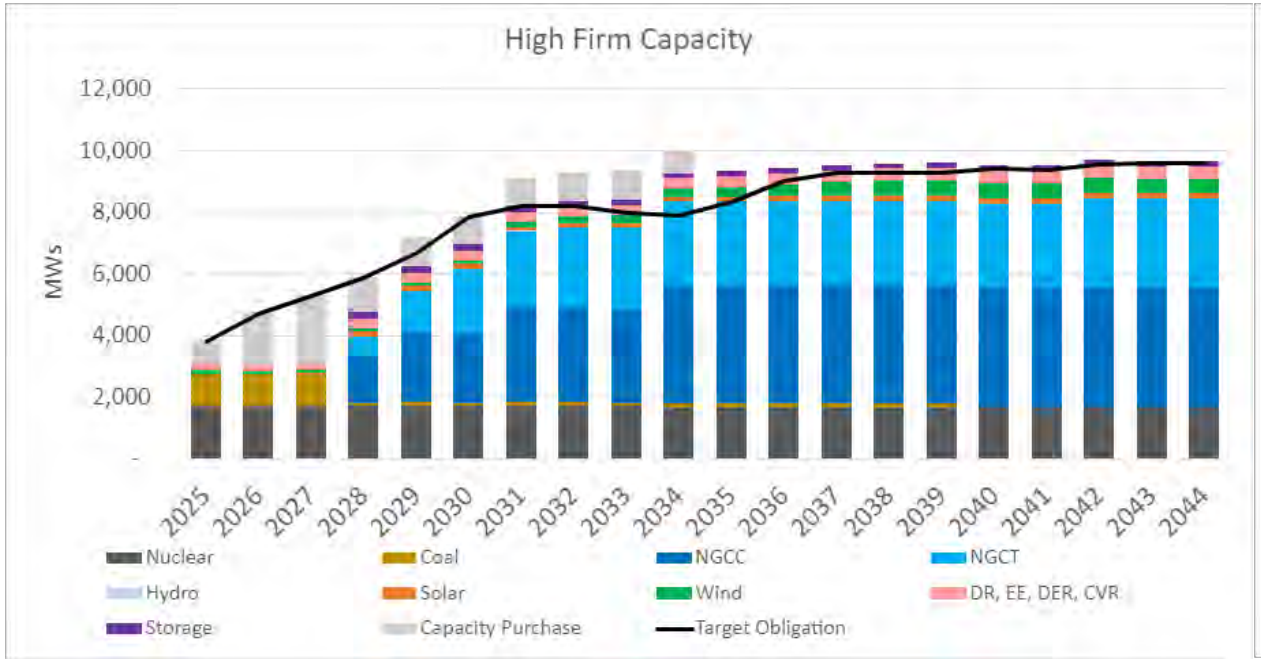
Observations for 2031+:

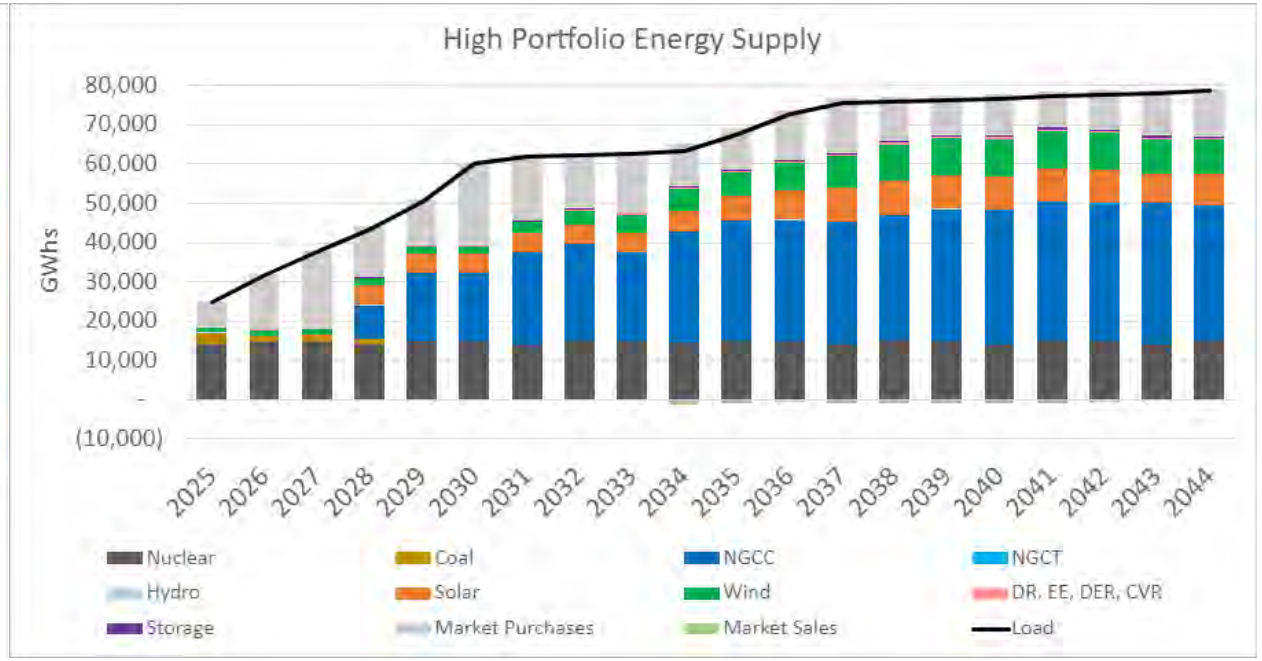
- Significantly more wind is selected compared to the reference scenario
- Fewer new CC's selected compared to the reference scenario due to the additional wind and solar selected
- Additional existing CT's selected compared to the reference scenario to meet capacity obligation
- Cook SLR selected in 2035 and 2038
- Additional EE selected compared to reference scenario

*Nuclear includes Cook SLR

** Storage includes Distribution-Sited Storage resources

High Case Portfolio





Observations:

- Nuclear resources provide consistent Carbon-free capacity and energy
- Higher load growth and high economic forecast result in additional renewable resources compared to the Base Reference Case that provide significant energy supply
- Natural gas resources continue to provide much of the capacity obligation and significant energy supply
- Capacity additions in 2031-2035 built in preparation of load increases that occur from 2034-2037

*Nuclear includes Cook SLR

Low Case Portfolio

Year	Nameplate MW								Accredited MW	
	Wind	Solar	Storage	New CC	Existing CC	New CT	Existing CT	Nuclear*	DR, EE, DER, CVR	Short Term Capacity
2025	0	0	0	0	0	0	0	0	1	75
2026	0	0	0	0	0	0	0	0	23	1,275
2027	0	0	0	0	0	0	0	0	49	1,525
2028	200	0	0	0	1,800	0	1,000	0	79	0
2029	200	0	0	0	2,700	0	1,000	0	90	0
2030	200	0	0	0	3,600	0	1,500	0	94	0
2031	200	0	0	0	3,600	0	1,500	0	98	0
2032	200	0	0	0	3,600	0	1,500	0	97	0
2033	200	0	0	0	3,600	0	1,500	0	94	0
2034	200	0	0	1,030	3,600	0	1,500	0	92	0
2035	200	0	0	1,030	3,600	0	1,500	888	91	0
2036	200	0	0	2,060	3,600	0	1,500	888	88	0
2037	200	0	0	2,060	3,600	0	1,500	888	85	0
2038	200	0	0	2,060	3,600	0	1,500	1,880	82	0
2039	200	0	0	2,060	3,600	0	1,500	1,880	79	0
2040	200	0	0	2,060	3,600	0	1,500	1,880	78	0
2041	200	0	0	2,060	3,600	0	1,500	1,880	70	0
2042	200	0	0	2,060	3,600	0	1,500	1,880	64	0
2043	0	0	0	2,060	3,600	0	1,500	1,880	57	0
2044	200	0	0	2,060	3,600	0	1,500	1,880	56	0

Purpose of Scenario:

- Evaluating the most economical solution to meet capacity and energy needs considering all low economic forecast modeling parameters and assumptions

Observations through 2030:

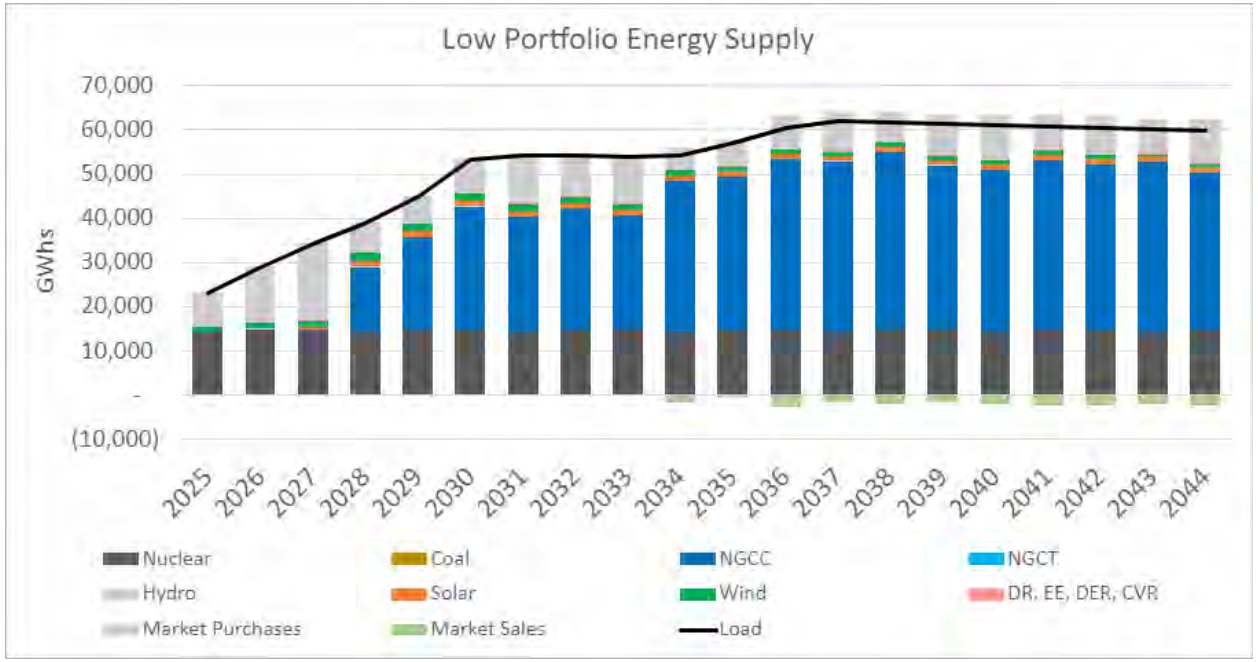
- Wind and gas resources selected in 2028 in response to load growth by 2030
- Selected all available existing CC's by 2030 and existing CT's were selected to meet capacity obligation
- Fewer DR, EE, DER, CVR are selected compared to reference scenario

Observations for 2031+:

- New CC built in 2034 and 2036 to meet the load growth in the same period and the expiration of existing capacity purchase agreements
- Fewer existing CT's selected compared to reference scenario due to lower capacity obligation
- Cook SLR selected in 2035 and 2038

*Nuclear includes Cook SLR

Low Case Portfolio



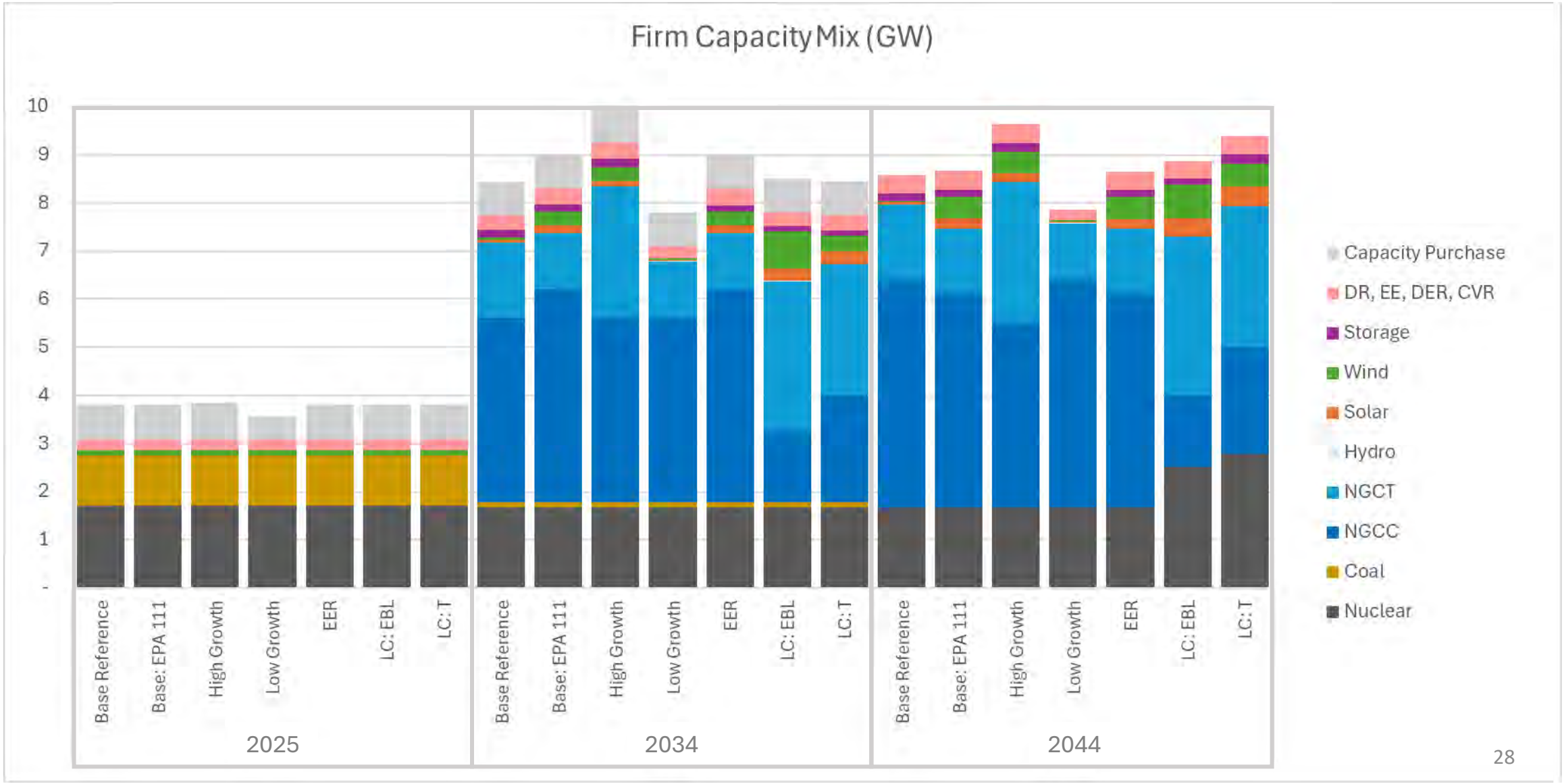
Observations:

- Nuclear resources provide consistent Carbon-free capacity and energy
- Lower load growth and low economic forecast result in fewer renewable resources compared to the Base Reference Case
- Natural gas resources provide much of the capacity obligation and energy supply
- Capacity additions in 2033-2034 built in preparation of load increases that occur from 2034-2037

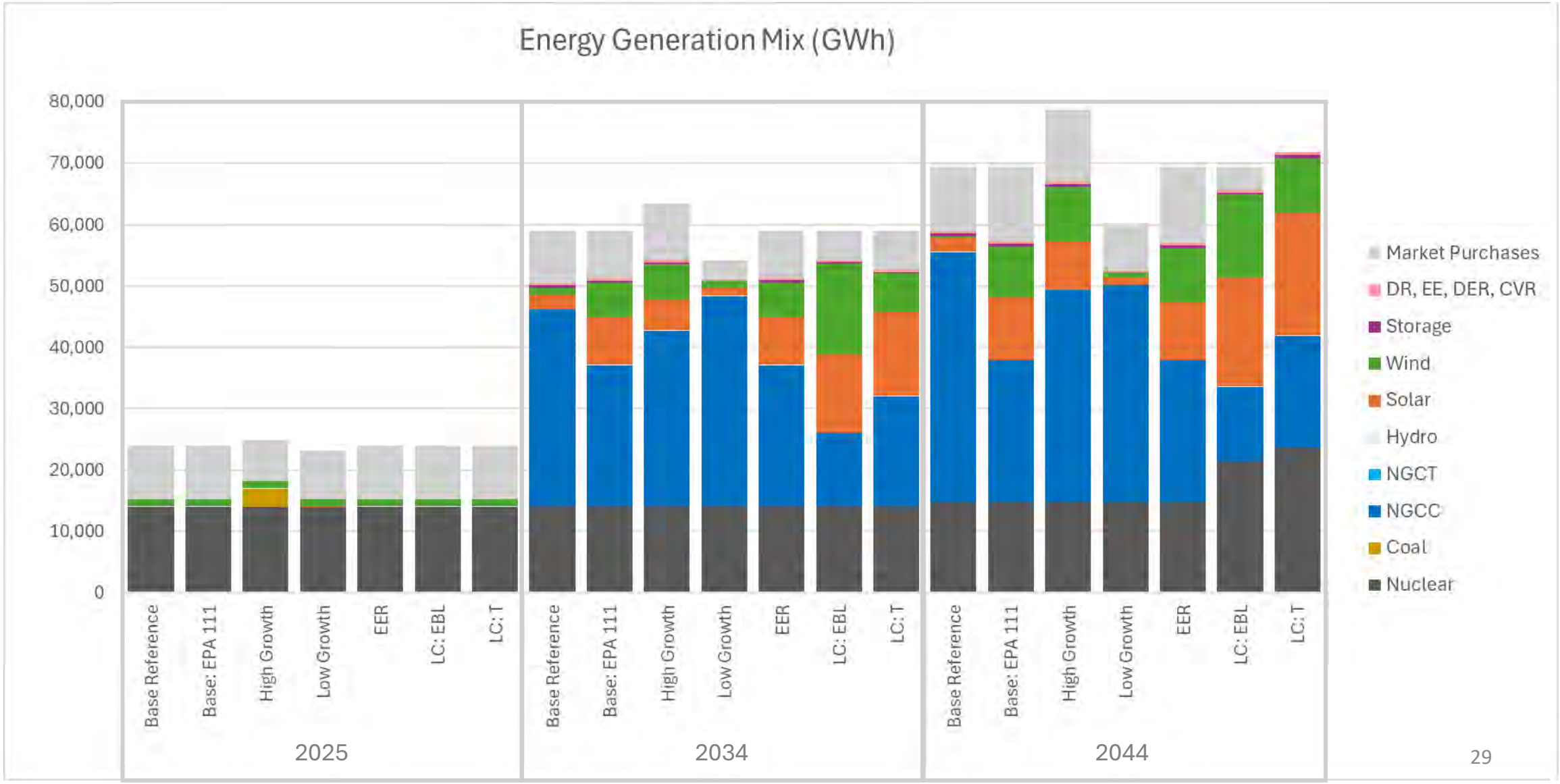
*Nuclear includes Cook SLR

10 Minute Break

Results Summary Comparison



Results Summary Comparison



Results Summary Comparison

Portfolio	2034 Nameplate Capacity Additions (MW)								2044 Nameplate Capacity Additions (MW)							
	Wind	Solar	Storage	NGCT	NGCC	Nuclear*	DR, EE, DER, CVR*	**Total Additions**	Wind	Solar	Storage	NGCT	NGCC	Nuclear*	DR, EE, DER, CVR*	**Total Additions**
Base Reference	200	581	450	2,000	4,630	0	144	**8,005**	0	551	450	2,000	5,660	1,880	220	**10,761**
Enhanced Environmental Regulations	1,800	3,238	350	1,500	5,400	0	178	**12,466**	3,000	4,092	350	1,730	5,400	1,880	233	**16,685**
Base Under EPA Section 111(b)(d)	1,800	3,245	400	1,500	5,400	0	182	**12,527**	2,800	4,517	400	1,730	5,400	1,880	236	**16,963**
Low Carbon: Transition	2,000	6,194	300	3,500	2,700	0	173	**14,867**	3,000	9,359	500	3,730	2,700	3,080	235	**22,604**
Low Carbon: Expanded Build Limits	5,000	5,701	300	4,000	1,800	0	134	**16,935**	4,600	8,222	350	4,230	1,800	2780	200	**22,182**
High Growth	1,800	1,891	454	3,500	4,630	0	188	**12,463**	3,000	3,266	450	3,730	4,630	1,880	246	**17,202**
Low Growth	200	0	0	1,500	4,630	0	92	**6,422**	200	0	0	1,500	5,660	1,880	56	**9,296**

*DR, EE, DER, CVR values are accredited

** Cook SLR is not included in this table as all cases select the relicensing

Portfolio Performance Indicators

IURC Pillar	IRP Objective	Performance Indicator	Metric Description
Reliability	Maintain capacity reserve margin and the consideration of reliance on the market for the benefit of customers.	Energy Market Exposure – Purchases	NPV of market purchases and average volume exposure of market purchases (Costs and MWhs % of Internal Load) over 10 and 20 years. Lower values are better.
		Energy Market Exposure – Sales	NPV of market sales and average volume exposure of market sales (Revenues and MWhs % of Internal Load) over 10 and 20 years. Lower values are better.
		Planning Reserves	Average Target Reserve Margin over 10 and 20 years. Closest value to the % Target.
Affordability	Maintain focus on power supply cost and risks to customers	Net Present Value Revenue Requirement (NPVRR)	Portfolio 30yr NPVRR (power supply costs). Lower values are better.
		Near-Term Power Supply Cost Impacts (CAGR)	7-year CAGR of Annual Power Supply Cost. Lower values are better.
		Portfolio Resilience	Range of Portfolio NPVRR (power supply costs) dispatched across all Scenarios. Lower values are better.
Resiliency	Maintain diversity of resources and fleet dispatchability	Resource Diversity	Percent change in Diversity Index inclusive of Capacity and Energy Diversity in years 2034 and 2044. Higher values are better.
(Grid) Stability	Maintain fleet of flexible and dispatchable resources	Fleet Resiliency	Average % dispatchable capacity of company peak load over 10 and 20 years. Higher values are better.
Environmental Sustainability	Maintain focus on portfolio environmental sustainability benefits and compliance costs	Emissions Change	CO_2, NOx, SO_2 emissions change compared to 2005 levels in years 2034 and 2044. Higher values are better.
		Net Present Value Revenue Requirement (NPVRR)	Considered under Affordability Pillar above

Draft Portfolio Performance Comparison

Pillar	Affordability			Environmental Sustainability		
Performance Indicators and Metrics	***Short Term*** *7-yr Rate CAGR* Power Supply $/MWh	***Long Term*** *Supply Portfolio NPVRR*	***Portfolio Resilience:*** *High Minus Low Scenario Range, Portfolio NPVRR*	***Emissions Analysis:*** *% Change from 2005 Baseline*		
Year Ref.	2024-2031	2025-2044	2025-2044	2034 | 2044		
Units	%	$B	$B	% Change CO_2	% Change NOx	% Change SO_2
Base Reference	-0.5%	$31.9	[to be developed]	2034: -39% 2044: -24%	2034: -94% 2044: -93%	2034: -100% 2044: -100%
Base Under EPA Section 111(b)(d)	0.7%	$33.2	[to be developed]	2034: -56% 2044: -55%	2034: -95% 2044: -95%	2034: -100% 2044: -100%
Low Carbon: Expanded Build Limits	4.4%	$41.3	[to be developed]	2034: -77% 2044: -77%	2034: -97% 2044: -97%	2034: -100% 2044: -100%
Low Carbon: Transition	1.3%	$39.8	[to be developed]	2034: -65% 2044: -65%	2034: -96% 2044: -96%	2034: -100% 2044: -100%
High Growth	1.5%	$39.2	[to be developed]	2033: -46% 2044: -34%	2033: -95% 2044: -93%	2033: -100% 2044: -100%
Low Growth	-2.3%	$25.6	[to be developed]	2034: -35% 2044: -35%	2034: -93% 2044: -94%	2034: -100% 2044: -100%

Draft Portfolio Performance Comparison

Pillar	Reliability			Reliability/ Resiliency	Grid Stability Resiliency
Performance Indicators and Metrics	***Energy Market Risk*** *Purchases*	***Energy Market Risk*** *Sales*	***Planning Reserves*** *% Reserve Margin*	***Resource Diversity***	***Fleet Resiliency:*** *Dispatchable Capacity*
Year Ref.	10 years | 20 years	10 years | 20 years	10 years | 20 years	10 years | 20 years	10 years | 20 years
Units	NPV of Market Purchases & MWhs % of Total Demand	NPV of Market Sales & MWhs % of Total Demand	Average of Annual PRM %	Portfolio Index Percent Change from 2025	Dispatchable Nameplate MW/ % of Company Peak Demand
Base Reference	10 Years: $2.6B (27%) 20 Years: $4.3B (22%)	10 Years: $0.0B (0.1%) 20 Years: $0.1B (0.3%)	10 Years: -0.7% 20 Years: -3.4%	Capacity: 31% | 19% Energy: 173% | 139%	10 Years: 86% 20 Years: 93%
Base Under EPA Section 111(b)(d)	10 Years: $3.1B (31%) 20 Years: $5.5B (28%)	10 Years: $0.5B (4.0%) 20 Years: $1.4B (5.7%)	10 Years: 5.5% 20 Years: -0.2%	Capacity: 36% | 38% Energy: 281% | 299%	10 Years: 92% 20 Years: 92%
Low Carbon: Expanded Build Limits	10 Years: $2.1B (22%) 20 Years: $3.6B (18%)	10 Years: $0.4B (3.6%) 20 Years: $1.4B (6.0%)	10 Years: 4.5% 20 Years: -0.8%	Capacity: 56% | 52% Energy: 317% | 311%	10 Years: 85% 20 Years: 85%
Low Carbon: Transition	10 Years: $2.7B (27%) 20 Years: $4.1B (20%)	10 Years: $0.2B (1.6%) 20 Years: $1.7B (7.7%)	10 Years: 2.0% 20 Years: 0.5%	Capacity: 53% | 54% Energy: 302% | 304%	10 Years: 88% 20 Years: 91%
High Growth	10 Years: $4.0B (30%) 20 Years: $6.6B (23%)	10 Years: $0.1B (0.5%) 20 Years: $0.3B (0.9%)	10 Years: 3.9% 20 Years: -0.7%	Capacity: 41% | 43% Energy: 71% | 79%	10 Years: 91% 20 Years: 93%
Low Growth	10 Years: $1.8B (24%) 20 Years: $2.5B (19%)	10 Years: $0.0B (0.3%) 20 Years: $0.2B (1.9%)	10 Years: -0.3% 20 Years: -1.5%	Capacity: 18% | 5% Energy: 161% | 154%	10 Years: 89% 20 Years: 97%

Remaining Modeling and Next Steps

Stakeholder Meeting 3A

- Meeting Minutes will be posted on 1/10/25. Extension in timeline to post due to the holidays.

Stakeholder Meeting 3B: 1/27/2025

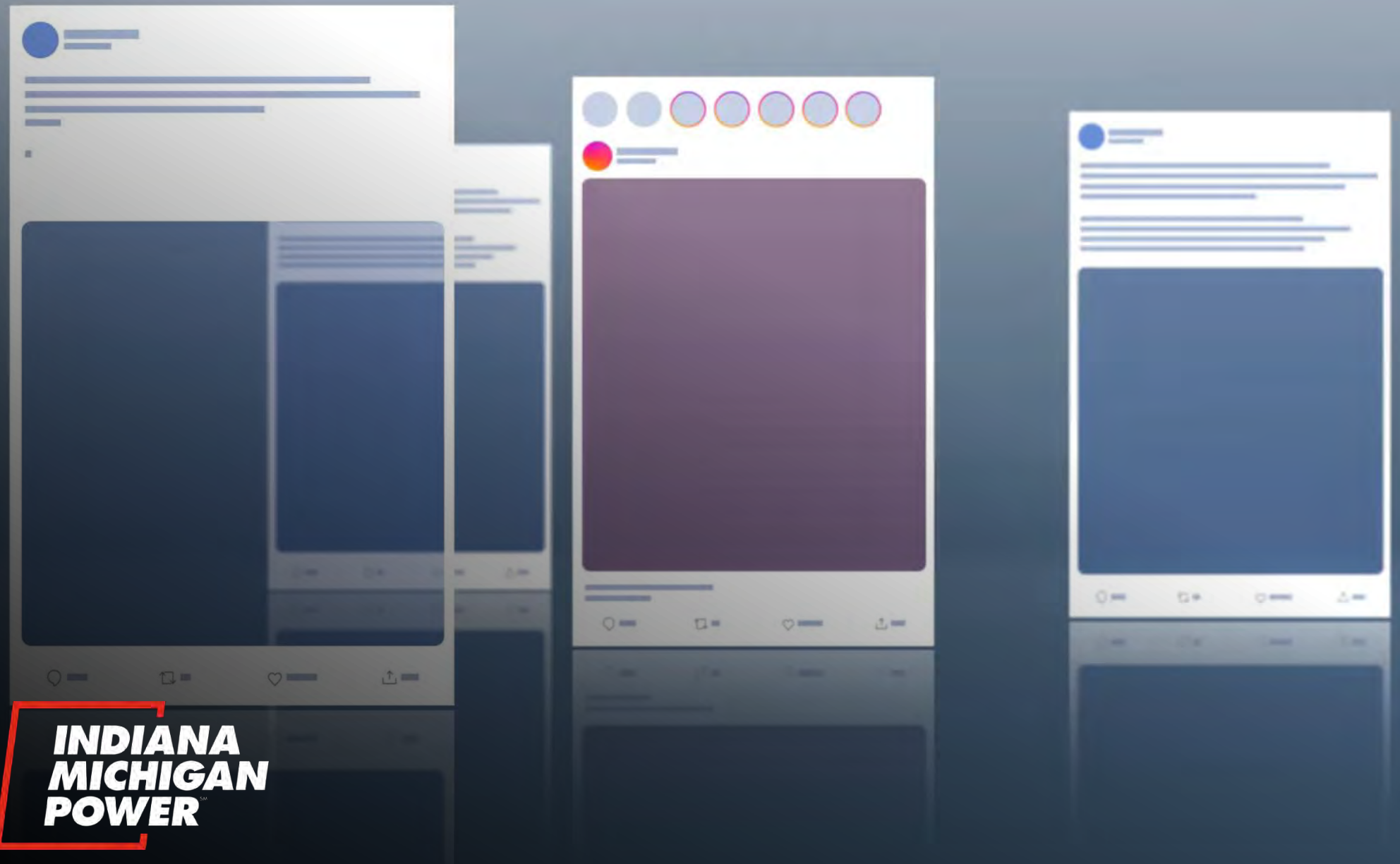
- Remaining Sensitivities to be modeled
  - Base with High and Low IN Load
  - Rockport Unit 1 Retires 2025 and 2026
  - Exit OVEC ICPA in 2030
  - High Technology Cost

Stakeholder Meeting 4: 3/5/2025

- Risk Analysis
- Preferred Plan

Submit IRP: 3/28/2025

Feedback and Discussion



INDIANA MICHIGAN POWER

An AEP Company

Resource Modeling Parameters (Baseload Resources)

Base Load (New Resources)					
Resource Type	First Year Available	Annual Build Limit (MW)	Cumulative Build Limit through 2030 (MW)	Total Cumulative Build Limit Through Planning Horizon (MW)	Installed Cost[1] $/kW
NUCLEAR SMALL MODULAR REACTOR	2037	600	N/A	5,100	$11,700
NEW NG COMBINED CYCLE (2x1)	2031	1,030	N/A	5,600	$1,800
NEW NG COMBINED CYCLE (1x1)	2031	420	N/A		$2,000
NEW NG COMBINED CYCLE W/CARBON CAPTURE SYSTEM (CCS)	2035	380	N/A	3,800	$4,300

Base Load (Existing Resources)								
Resource Type	First Year Available	Last Year Available	Annual Build Limit (MW)	Cumulative Build Limit through 2030 (MW)	Total Cumulative Build Limit Through Planning Horizon (MW)	Installed Cost[1] $/kW	Installed Cost[1] $/MW-D
EXISTING NG COMBINED CYCLE (5 YEAR)	2028	2031	1,800	3,600	5,400	N/A	~~$485~~ $680
EXISTING NG COMBINED CYCLE (10 YEAR)	2028	2031					
EXISTING NG COMBINED CYCLE (20 YEAR)	2028	2031				$1,100	N/A

Note 1: Costs represent nominal dollars in the first year that the resource is available

Resource Modeling Parameters (Peaking Resources)

Peaking (New Resources)					
Resource Type	First Year Available	Annual Build Limit (MW)	Cumulative Build Limit through 2030 (MW)	Total Cumulative Build Limit Through Planning Horizon (MW)	Installed Cost[1] $/kW
NEW COMBUSTION TURBINE	2030	920	920	6,670	$1,500
COMBUSTION TURBINES AERODERIVATIVE	2031	330	N/A	1,320	$2,020
RECIPROCATING INTERNAL COMBUSTION ENGINES (RICE)	2031	100	N/A	400	$3,300

Peaking (Existing Resources)							
Resource Type	First Year Available	Last Year Available	Annual Build Limit (MW)	Cumulative Build Limit through 2030 (MW)	Total Cumulative Build Limit Through Planning Horizon (MW)	Installed Cost[1] $/kW	Installed Cost[1] $/MW-D
EXISTING NG COMBUSTION TURBINE (5 YEAR)	2028	2031	1,000	3,000	4,000	N/A	~~$320~~ $493
EXISTING NG COMBUSTION TURBINE (10 YEAR)	2028	2031					
EXISTING NG COMBUSTION TURBINE (20 YEAR)	2028	2031				~~$540~~ $644	N/A

Note 1: Costs represent nominal dollars in the first year that the resource is available

Resource Modeling Parameters (Intermittent Resources)

Intermittent (Wind & Solar)						
Resource Type	First Year Available	Annual Build Limit (MW)	Cumulative Build Limit through 2030 (MW)	Total Cumulative Build Limit Through Planning Horizon (MW)	Installed Cost[1] $/kW	Installed Cost[1] $/MWh
WIND (15 YEAR)	~~2029~~ 2028	~~600~~ 200	~~800~~ 400	~~3200~~ 4000	N/A	$86
WIND (30 YEAR)	2031	400	N/A		$3,000	N/A
SOLAR (15 YEAR)	2028	600	1,200	4,800	N/A	$85
SOLAR (35 YEAR)[2]	2028	600	1,200	4,800	$2,500	N/A
SOLAR w/STORAGE (4-HOUR)	2028	600	750	1,350	$3,100	N/A

Intermittent (Storage)					
Resource Type	First Year Available	Annual Build Limit (MW)	Cumulative Build Limit through 2030 (MW)	Total Cumulative Build Limit Through Planning Horizon (MW)	Installed Cost[1] $/kW
NEW STORAGE (4-HOUR)	2028	250	500	3,000	$2,000
NEW STORAGE (6-HOUR)	2029	150	300	1,800	$3,000
NEW STORAGE (8-HOUR)	2029	100	200	1,200	$4,000
NEW STORAGE (100-HOUR)	2032	40	N/A	240	$2,800

Note 1: Costs represent nominal dollars in the first year that the resource is available

Preliminary PJM ELCC and FPR Forecasts

ELCC Class	2026/ 27	2027/ 28	2028/ 29	2029/ 30	2030/ 31	2031/ 32	2032/ 33	2033/ 34	2034/ 35
Onshore Wind	35%	33%	28%	25%	23%	21%	19%	17%	15%
Offshore Wind	61%	56%	47%	44%	38%	37%	33%	27%	20%
Fixed-Tilt Solar	7%	6%	5%	5%	4%	4%	4%	4%	3%
Tracking Solar	11%	8%	7%	7%	6%	5%	5%	5%	4%
Landfill Intermittent	54%	55%	55%	56%	56%	56%	56%	56%	54%
Hydro Intermittent	38%	40%	37%	37%	37%	37%	39%	38%	38%
4-hr Storage	56%	52%	55%	51%	49%	42%	42%	40%	38%
6-hr Storage	64%	61%	65%	61%	61%	54%	54%	53%	52%
8-hr Storage	67%	64%	67%	64%	65%	60%	60%	60%	60%
10-hr Storage	76%	73%	75%	72%	73%	68%	69%	70%	70%
Demand Resource	70%	66%	65%	63%	60%	56%	55%	53%	51%
Nuclear	95%	95%	95%	96%	95%	96%	96%	94%	93%
Coal	84%	84%	84%	85%	85%	86%	86%	83%	79%
Gas Combined Cycle	79%	80%	81%	83%	83%	85%	85%	84%	82%
Gas Combustion Turbine	61%	63%	66%	68%	70%	71%	74%	76%	78%
Gas Combustion Turbine Dual Fuel	79%	79%	80%	80%	81%	82%	83%	83%	83%
Diesel Utility	92%	92%	92%	92%	92%	93%	93%	93%	92%
Steam	74%	73%	74%	75%	74%	75%	76%	74%	73%

https://www.pjm.com/-/media/planning/res-adeq/elcc/preliminary-elcc-class-ratings-for-period-2026-2027-through-2034-2035.ashx

Delivery Year	Forecast Pool Requirement (% of Peak Load)
2026/27	93.67%
2027/28	92.69%
2028/29	92.75%
2029/30	93.47%
2030/31	92.96%
2031/32	92.72%
2032/33	92.10%
2033/34	89.99%
2034/35	87.09%

- I&M's forecasted capacity need is influenced by the accredited capacity PJM recognizes for I&M's resources (i.e., ELCC Class values) as well as by the load requirement PJM sets (i.e., the "FPR" or Forecast Pool Requirement)
- PJM's forecasted decline in ELCC class values for resources such as wind, solar, and storage is offset, in part, by a lower forecasted peak load requirement (i.e., a lower FPR)

Affordability

The Affordability indicators compare the cost to customers under Base Case market scenario conditions over the short- and long-term and the Portfolio cost range when evaluated across the different market scenarios.

Performance Indicator	Metric	Description
Near-term	7-year Power Supply Cost CAGR under the Base Case (2024-2031)	• I&M measures and considers the expected Compound Annual Growth Rate ("CAGR") of expected power supply costs for the years 2024-2031 as the metric for the short-term performance indicator • A lower number is better, indicating slower growth in power supply costs
Long-term	Portfolio NPVRR under the Base Case (2025-2044)	• I&M measures and considers the growth in Net Present Value Revenue Requirement (power supply costs) over 20 years as the long-term metric • NPVRR represents total long-term cost paid by I&M 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 • A lower number is better, indicating lower costs to supply customers with power
Portfolio Resilience	High Minus Low Scenario Range 20-yr NPVRR (2025-2044)	• I&M measures and considers the range of 20-yr NPVRR reported by each portfolio across all PJM market scenarios. This metric reports the difference between the highest and lowest cost scenarios reported by the candidate portfolio on an NPVRR • A lower number is better, indicating a tighter grouping of expected customer costs across a wide range of long-term market conditions

Reliability

The Reliability indicators compare the amount of excess reserves and the reliance on market resources to serve customers across candidate portfolios.

Performance Indicator	Metric	Description
Planning Reserves	Reserve Margin %	• I&M measures and considers the average amount of firm capacity in each candidate portfolio over 10 and 20 years • A higher number is better, indicating more reserves are available to meet PJM requirements
Energy Market Risk	Portfolio Cost Range of market purchases, MWhs as % of internal Load	• I&M measures and considers the reliance of each candidate portfolio on market purchases to balance seasonal generation with customer load • The metric reports the NPV of the cost of market purchases and the average MWhs as a % of internal load over 10 and 20 years • A lower number indicates less reliance on the market to meet customer needs
	Portfolio Revenue Range of market sales, MWhs as % of internal Load	• I&M measures and considers the reliance of each candidate portfolio on market sales to balance seasonal generation with customer load • The metric reports the NPV of the cost of market sales and the average MWhs as a % of internal load over 10 and 20 years • A lower number indicates less reliance on the market to meet customer needs

Resiliency

The Resiliency indicators compare the amount of dispatchable capacity in the fleet and the technology diversity for capacity and energy of the Indiana generating mix across candidate portfolios.

Performance Indicator	Metric	Description
Resource Diversity	Percent Change of the Capacity and Energy Diversity Index in 2034 and 2044	• I&M measures and considers the capacity and energy diversity of new technologies added to its portfolio when comparing candidate portfolios • The metric will use the Shannon-Weiner Index to measure the number of different technologies and their respective contribution to the portfolio totals for both capacity and energy diversity for each Portfolio. A percent change from 2025 is calculated in year 2034 and 2044 • A higher number is better. A portfolio that includes diverse resources for both capacity and energy delivery mitigates customers' performance risk when conditions for that technology are unfavorable
Fleet Resiliency	Nameplate MW of dispatchable units in 2034 and 2044	• I&M measures and considers the average amount of dispatchable units added to the portfolio over 10 and 20 years • The metric for this indicator is the average of total Nameplate MW of dispatchable units as a percent of company peak demand • A higher number is better, indicating greater ability to ramp generation up or down to react to market conditions and follow load

(Grid) Stability

The Grid Stability indicator compares the amount of dispatchable capacity in the fleet, and the technology diversity of the Indiana generating mix across candidate portfolios.

Performance Indicator	Metric	Description
Fleet Resiliency	Nameplate MW of dispatchable units in 2034 and 2044	• I&M measures and considers the average amount of dispatchable units added to the portfolio over 10 and 20 years • The metric for this indicator is the average of total Nameplate MW of dispatchable units as a percent of company peak demand • A higher number is better, indicating greater ability to ramp generation up or down to react to market conditions and follow load

Sustainability

I&M also considered a Sustainability indicator to compare portfolio performance towards meeting corporate sustainability targets.

Performance Indicator	Metric	Description
CO_2, NOx, SO_2, Emissions	2034 & 2044 % Change from 2005 Baseline	• I&M measures and considers the total amount of expected CO_2, NOx and SO_2 emissions of each candidate portfolio. • This metric compares the forecasted emissions of candidate portfolios in 2034 and 2044 under Reference Case market conditions with actual historical emissions from the year 2005. • A higher number indicates greater levels of emissions reductions have been achieved and customers are less exposed to potential future CO_2 costs.