Decarbonized Economy

		Scenarios
	20-Year PVRR (2023\$MM, 2023-2042)	Decarbonized Economy
	No Early Retirement	\$9,917
es S	Pete Refuel to 100% Gas (est. 2025)	\$9,546
trategi	One Pete Unit Retires (2026)	\$9,955
ation S	Both Pete Units Retire (2026 & 2028)	\$9,923
Generation Strategies	"Clean Energy Strategy" Both Pete Units Retire and Replaced with Wind, Solar & Storage (2026 & 2028)	\$9,690
	Encompass Optimization without predefined Strategy – Selects Pete 3 Refuel in 2025 & Pete 4 Refuel in 2027	\$9,572



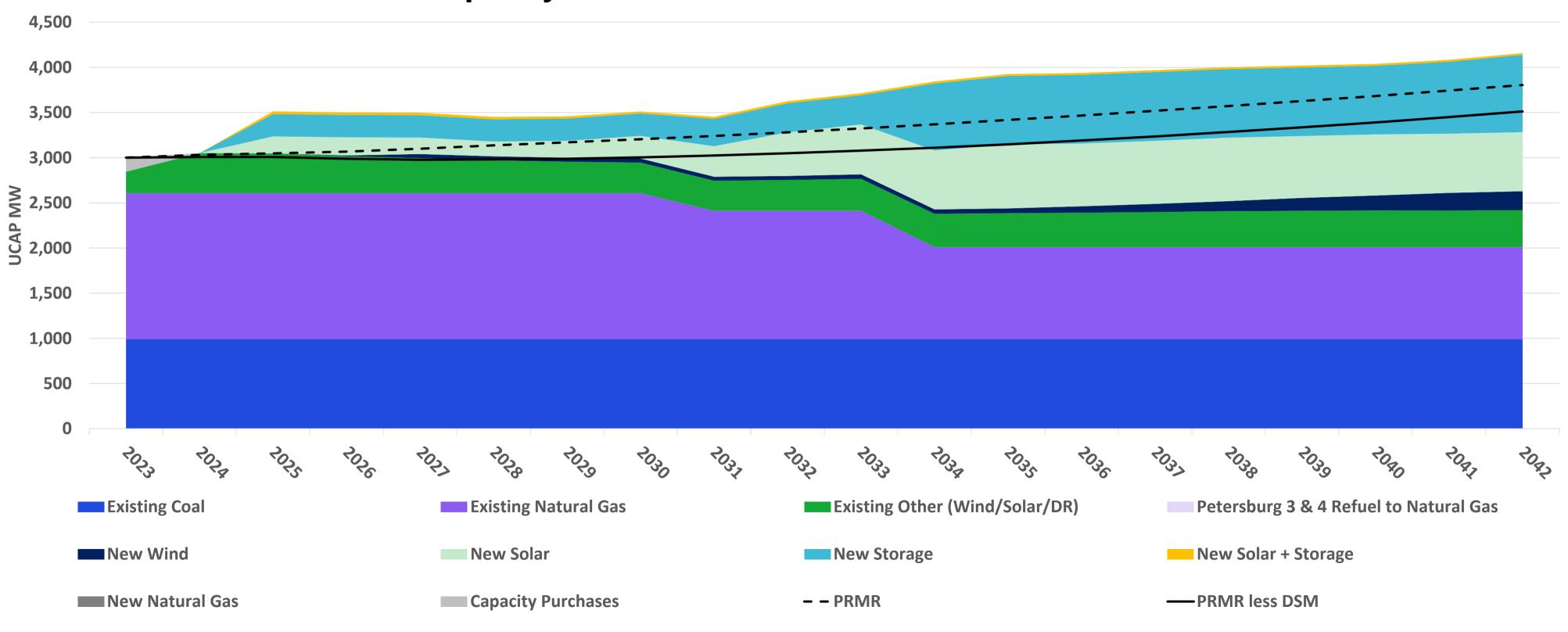
A. No Early Retirement

	Scenarios				
Strategy: <i>tirement</i>	No Environmental Action	Aggressive Environmental	Decarbonized Economy		
				\$9,917	

Generation Strategy: No Early Retirement

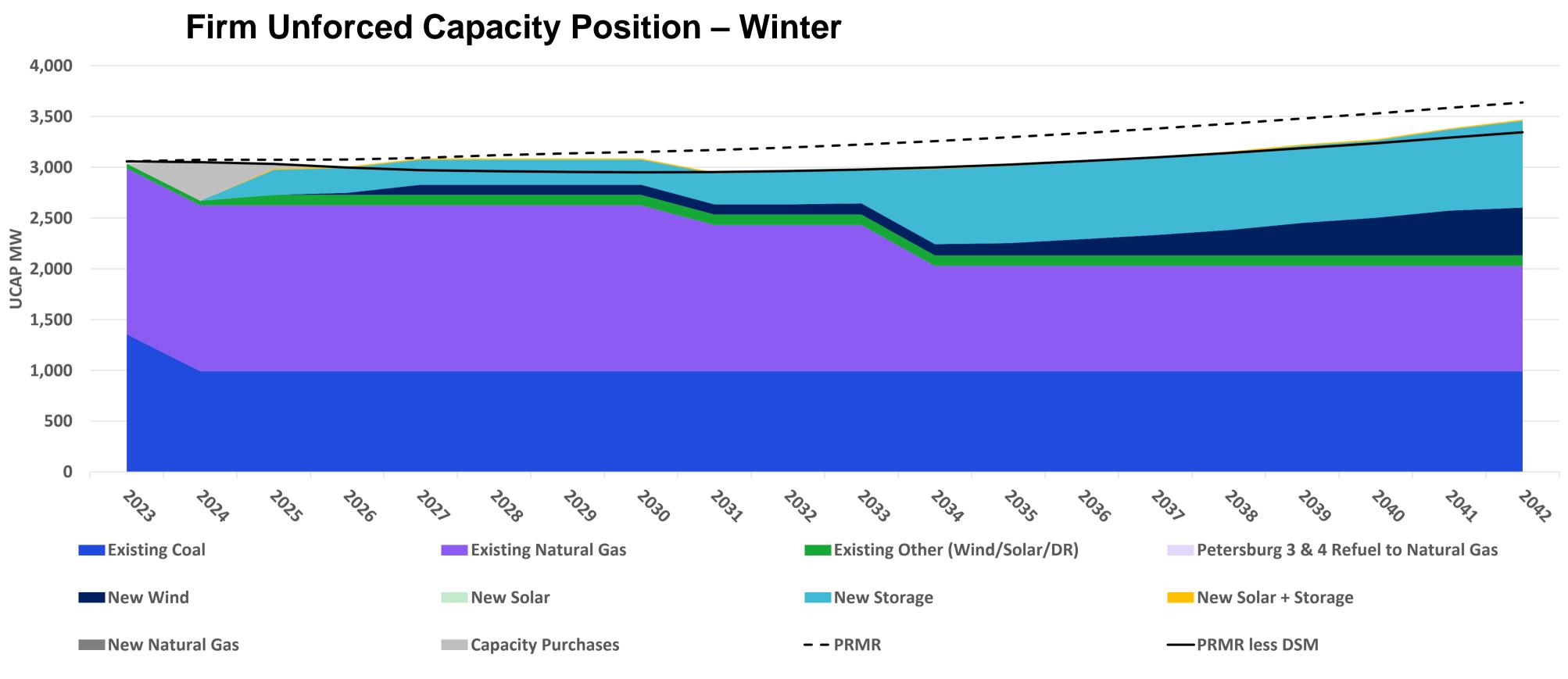






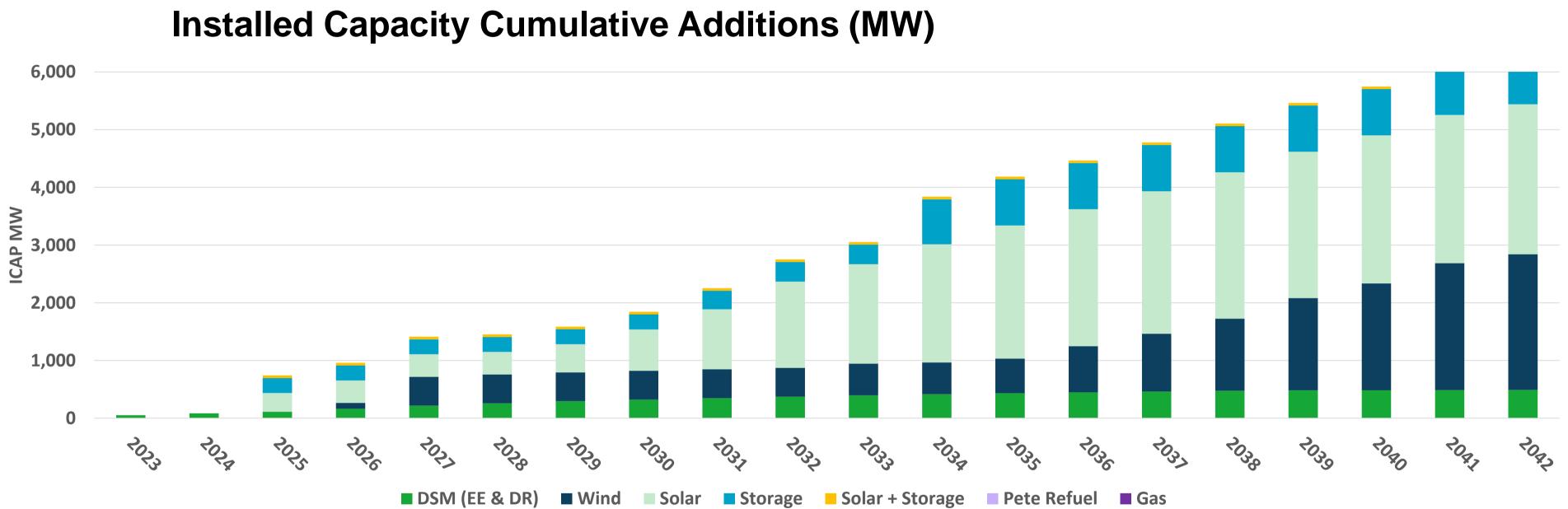
2022 IRP





2022 IRP



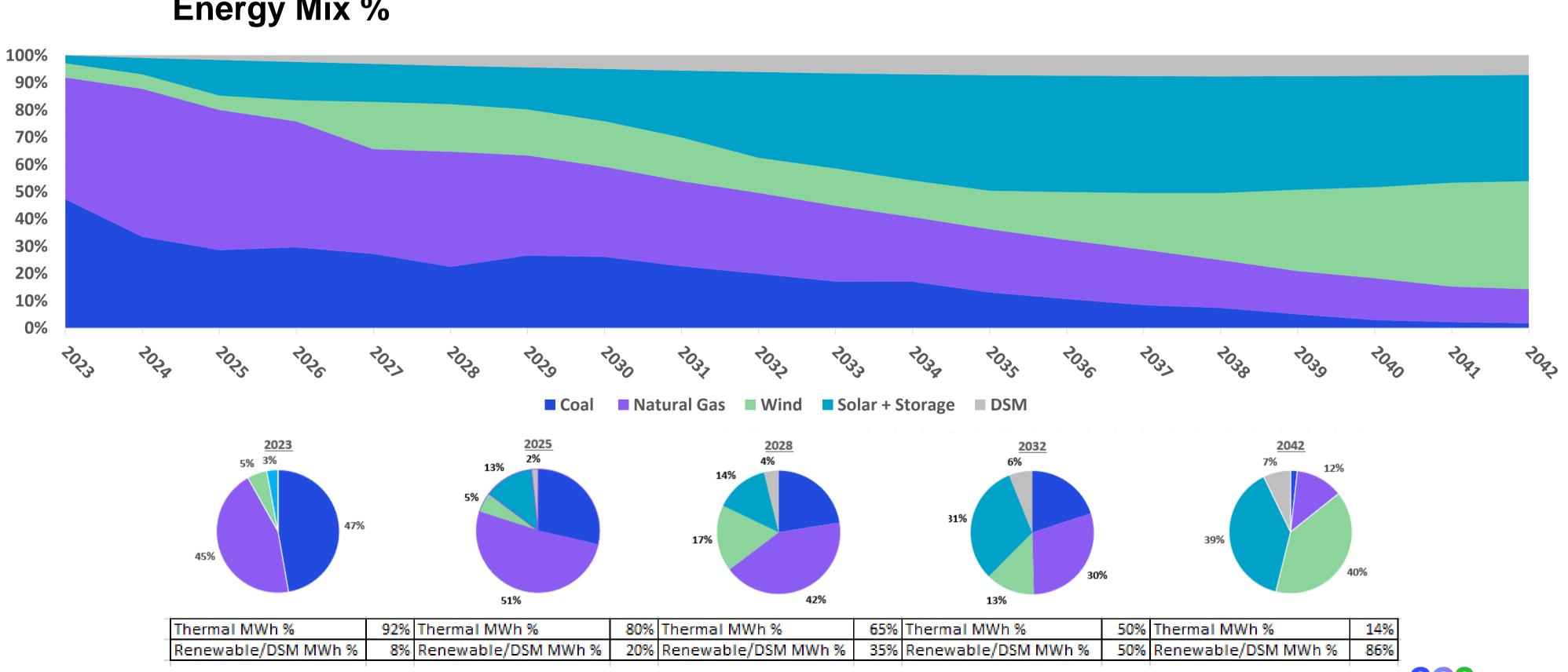


Installed Capacity Incremental Additions (MW): 2023 - 2028

	<u>2023</u>	<u>2024</u>	<u>2025</u>	<u>2026</u>	<u>2027</u>	<u>2028</u>
Wind	0	0	0	100	400	0
Solar	0	0	325	65	0	0
Storage	0	0	260	0	0	0
Solar + Storage	0	0	45	0	0	0
Gas	0	0	0	0	0	0







6



Portfolio Overview <i>Retirements</i>
Harding Street:
\rightarrow HS ST5 Nat Gas: 2030
\rightarrow HS ST6 Nat Gas: 2030
\rightarrow HS ST7 Nat Gas: 2033
Total Nat Gas Retired MW
Replacement Additions by 20
\rightarrow DSM: 490 MW
\rightarrow Wind: 2,350 MW
\rightarrow Solar: 2,600 MW
→ Storage: 900 MW
→ Solar + Storage: 45 MW
Thermal: 0 MW

Current Trends PVRR Summary 20-Year PVRR (2023\$MM, 2023-2042)

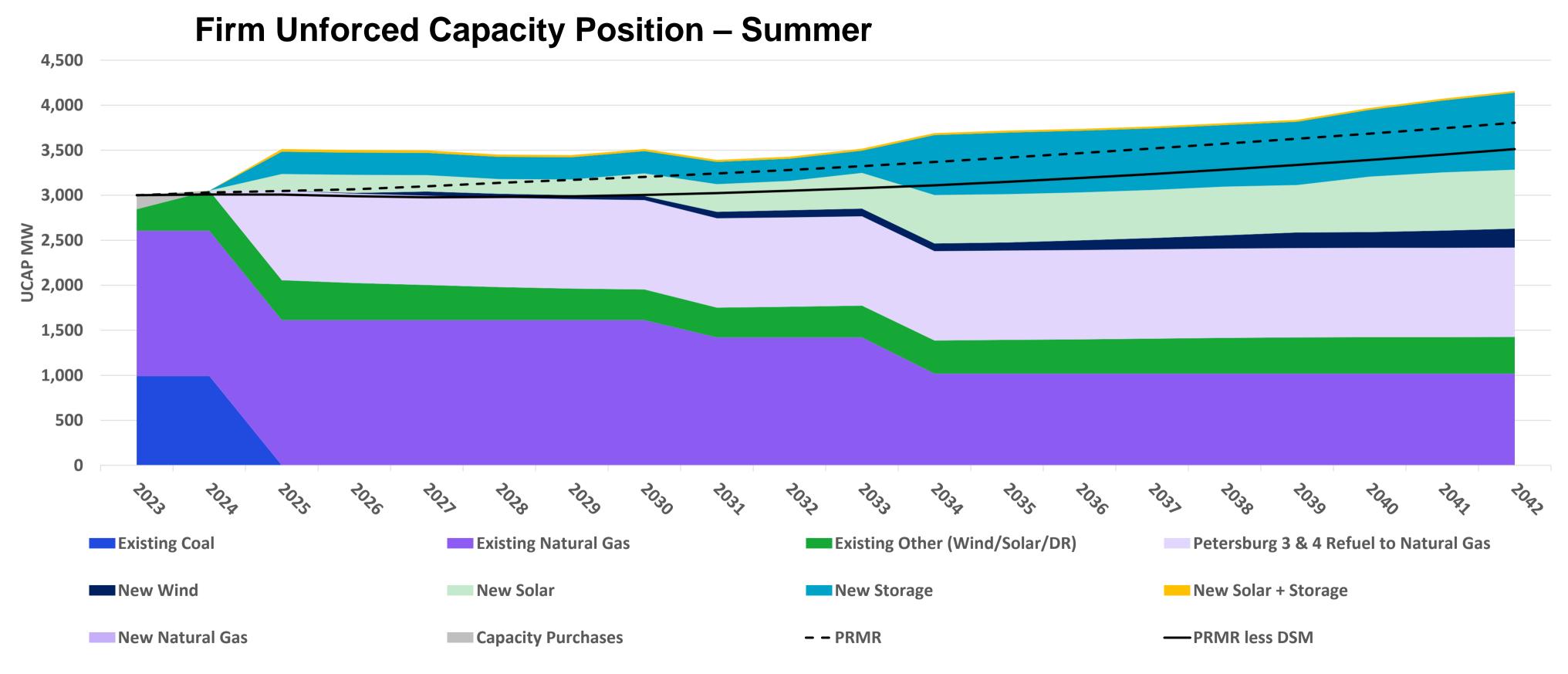
	Scenarios Decarbonized Economy
letirement	\$9,917
el to 100% Gas (est. 2025)	\$9,546
Jnit Retires (2026)	\$9,955
Units Retire (2026 & 2028)	\$9,923
ergy Strategy" Units Retire and Replaced , Solar & Storage (2026 & 2028)	\$9,690
ss Optimization without I Strategy	\$9,572



B. Pete Refuel by 2025

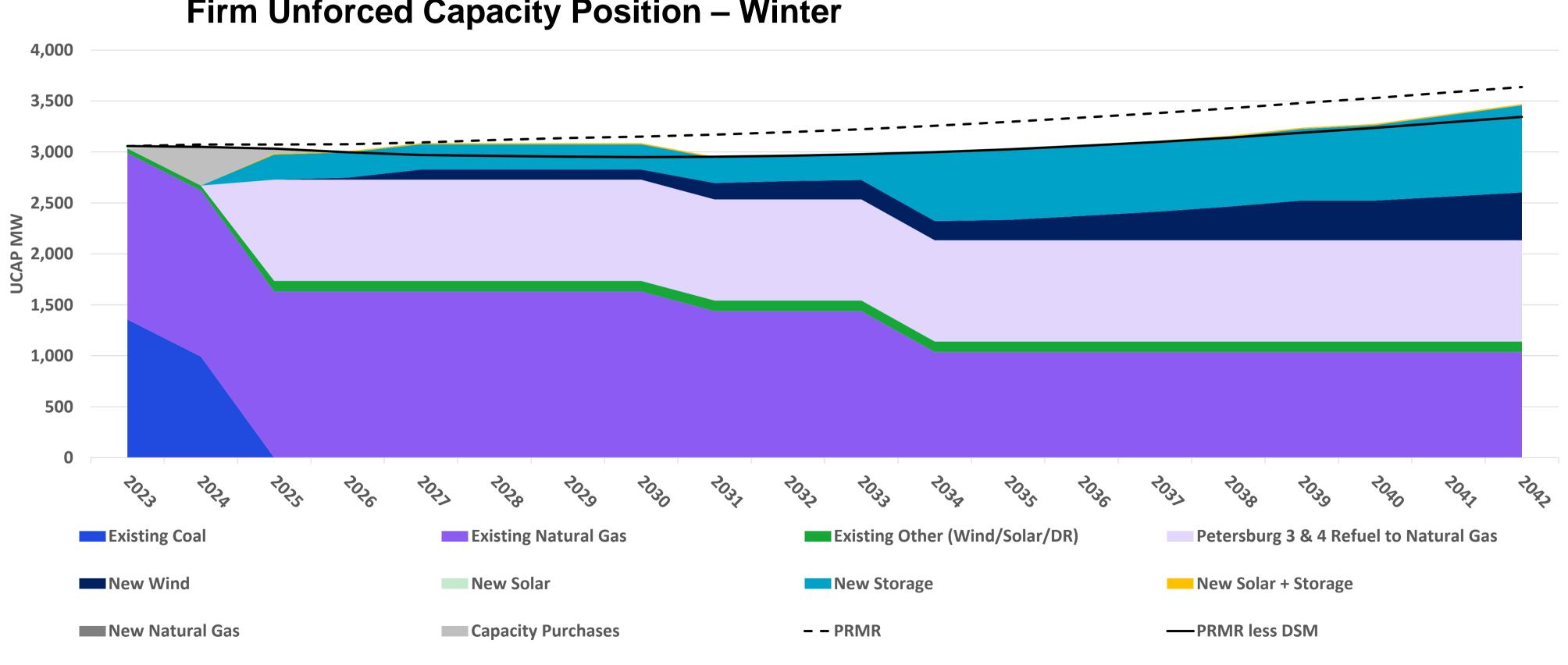
20-Year PVRR (2023\$MM, 2023-2042)	Scenarios			
Generation Strategy:	No Environmental Action	Current Trends	Aggressive Environmental	Decarbonized Economy
Pete Refuel to 100% Gas (est. 2025)				\$9,546







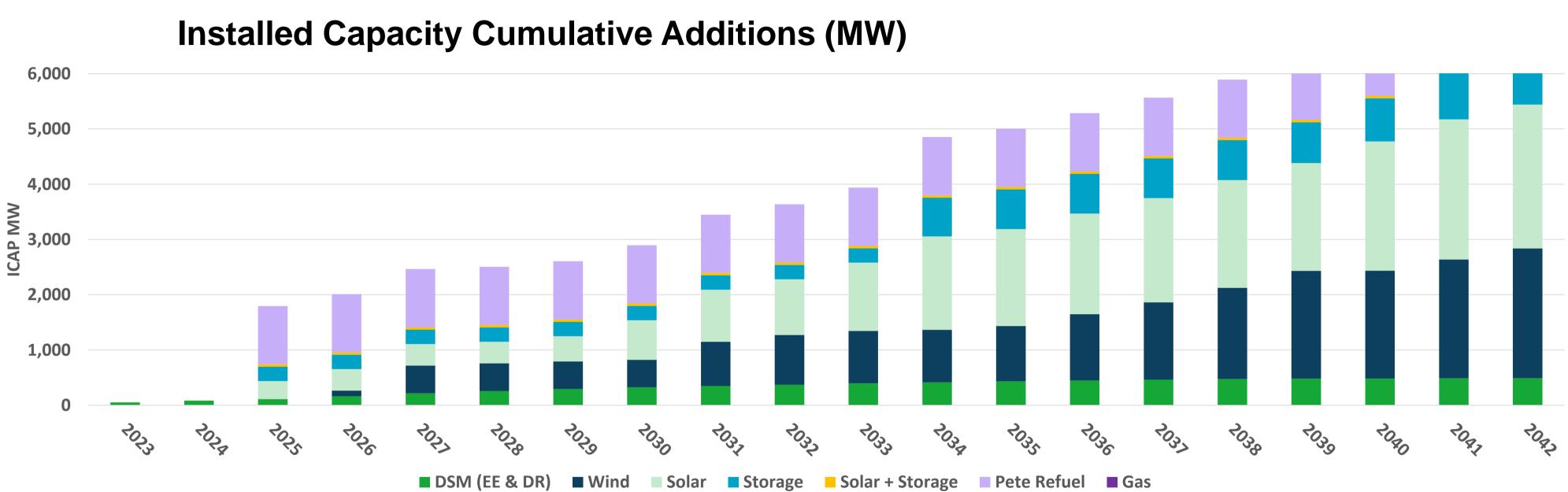
Firm Unforced Capacity Position – Winter



10

2022 IRP



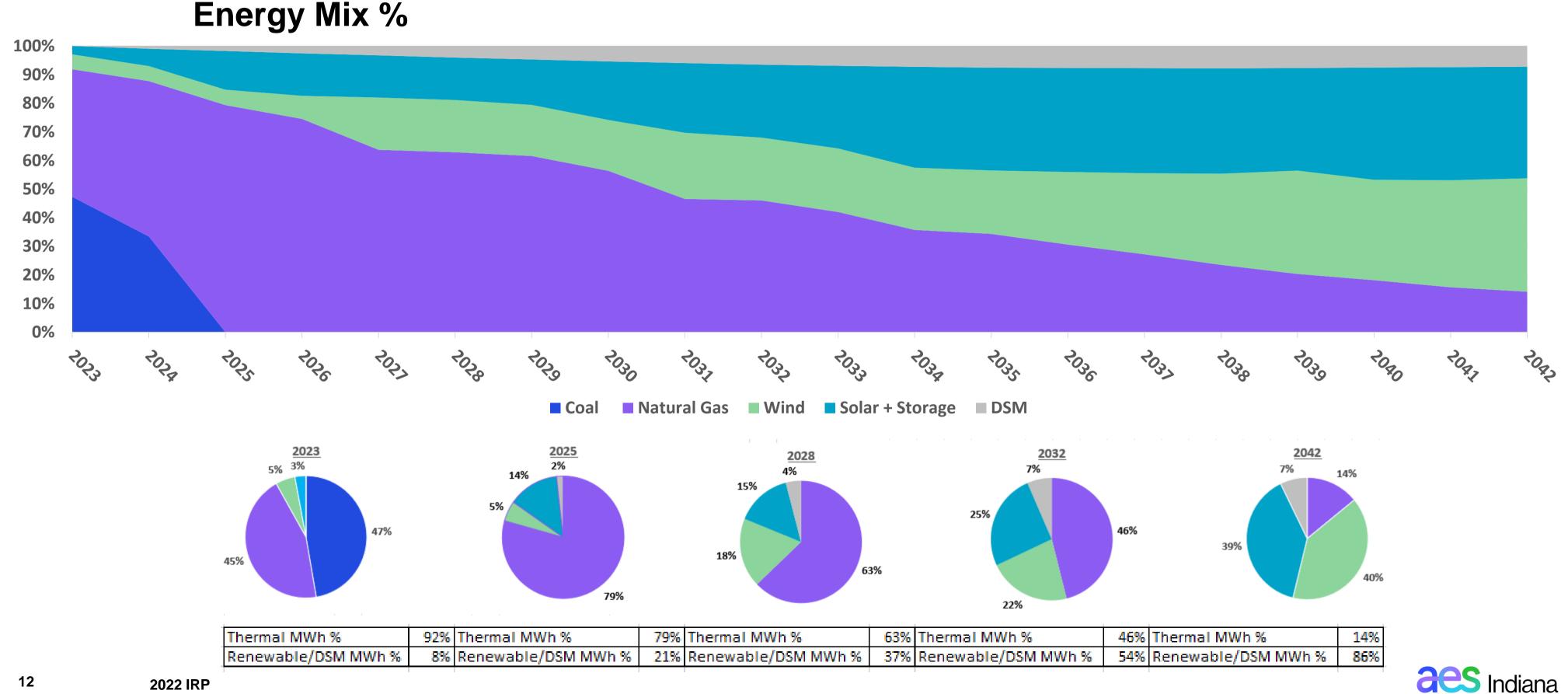


Installed Capacity Incremental Additions (MW): 2023 - 2028

	<u>2023</u>	<u>2024</u>	<u>2025</u>	<u>2026</u>	<u>2027</u>	<u>2028</u>
Wind	0	0	0	100	400	0
Solar	0	0	325	65	0	0
Storage	0	0	260	0	0	0
Solar + Storage	0	0	45	0	0	0
Gas	0	0	0	0	0	0

2022 IRP





Portfolio Overview Retirements Petersburg: → Pete 3 & 4 Coal: 2025 Refuel with Nat Gas → Total Refueled MW: 1,040 MW	C
Harding Street: → HS ST5 Nat Gas: 2030 → HS ST6 Nat Gas: 2030	No Early Re
→ HS ST7 Nat Gas: 2033 → Total Nat Gas Retired MW: 618 MW	Pete Refuel One Pete U
Replacement Additions by 2042 → DSM: 490 MW → Wind: 2,350 MW	Both Pete U
 → Solar: 2,600 MW → Storage: 900 MW 	"Clean Ener Both Pete U with Wind, S
 Solar + Storage: 45 MW Thermal: 0 Pete 3 & 4 Refueled to Nat Gas: 1,052 MW 	Encompass predefined

Current Trends PVRR Summary 20-Year PVRR (2023\$MM, 2023-2042)

	Scenarios Decarbonized Economy
etirement	\$9,917
el to 100% Gas (est. 2025)	\$9,546
Jnit Retires (2026)	\$9,955
Units Retire (2026 & 2028)	\$9,923
ergy Strategy" Units Retire and Replaced , Solar & Storage (2026 & 2028)	\$9,690
s Optimization without Strategy	\$9,572



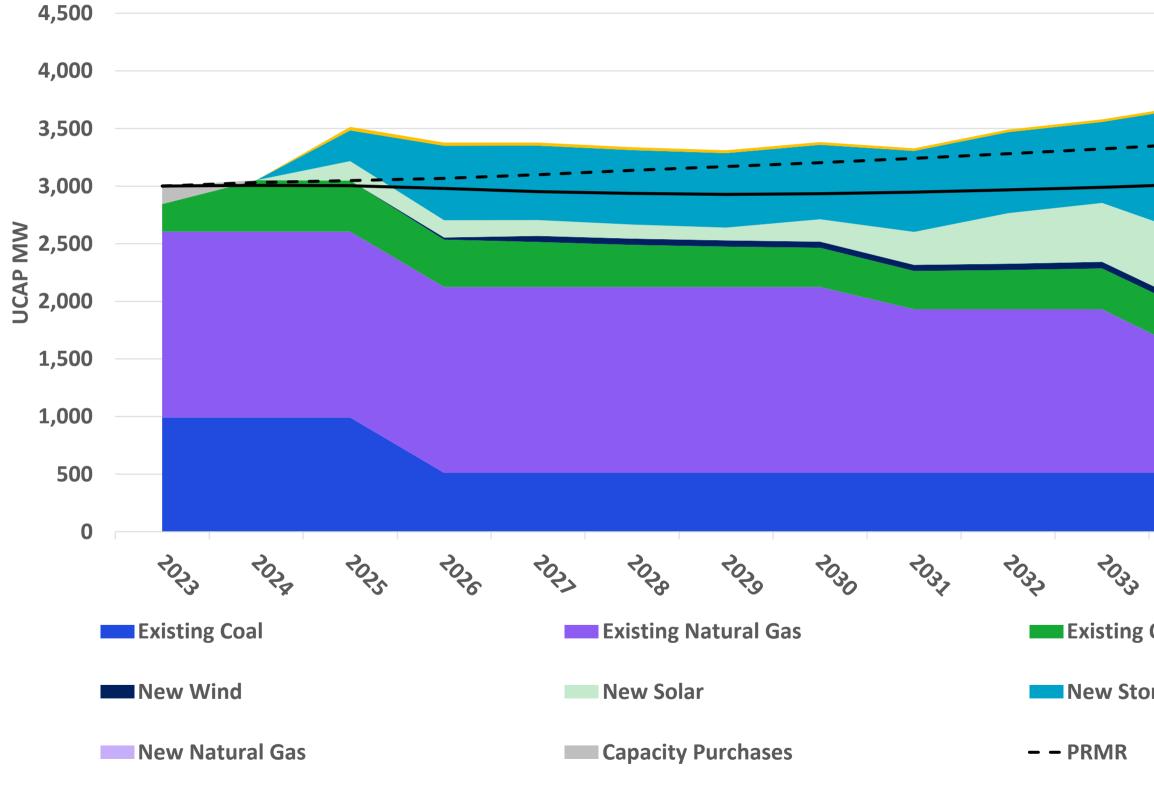
C. One Pete Unit Retires (2026)

20-Year PVRR	Scenarios				
<i>(2023\$MM, 2023-2042)</i> Generation Strategy:	No Environmental Action	Current Trends	Aggressive Environmental	Decarbonized Economy	
One Pete Unit Retires (2026)				\$9,955	





Firm Unforced Capacity Position - Summer

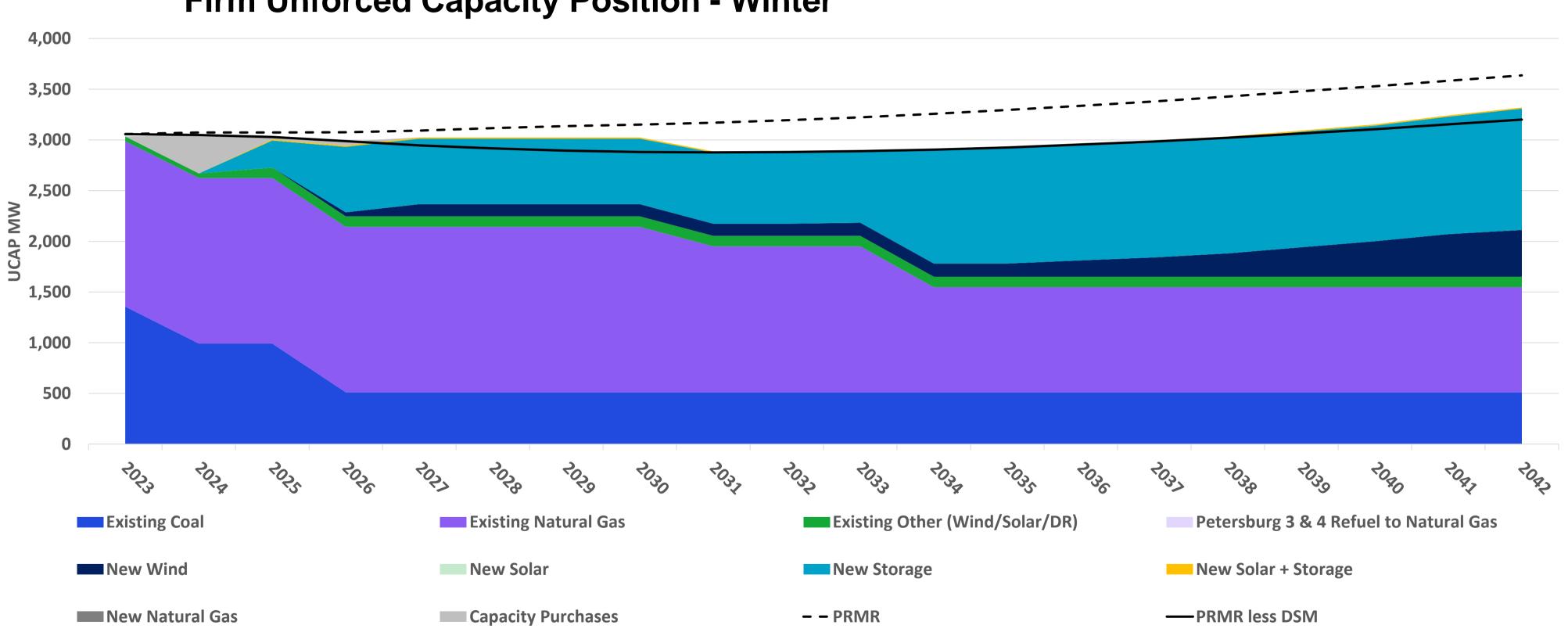


5 2022 IRP

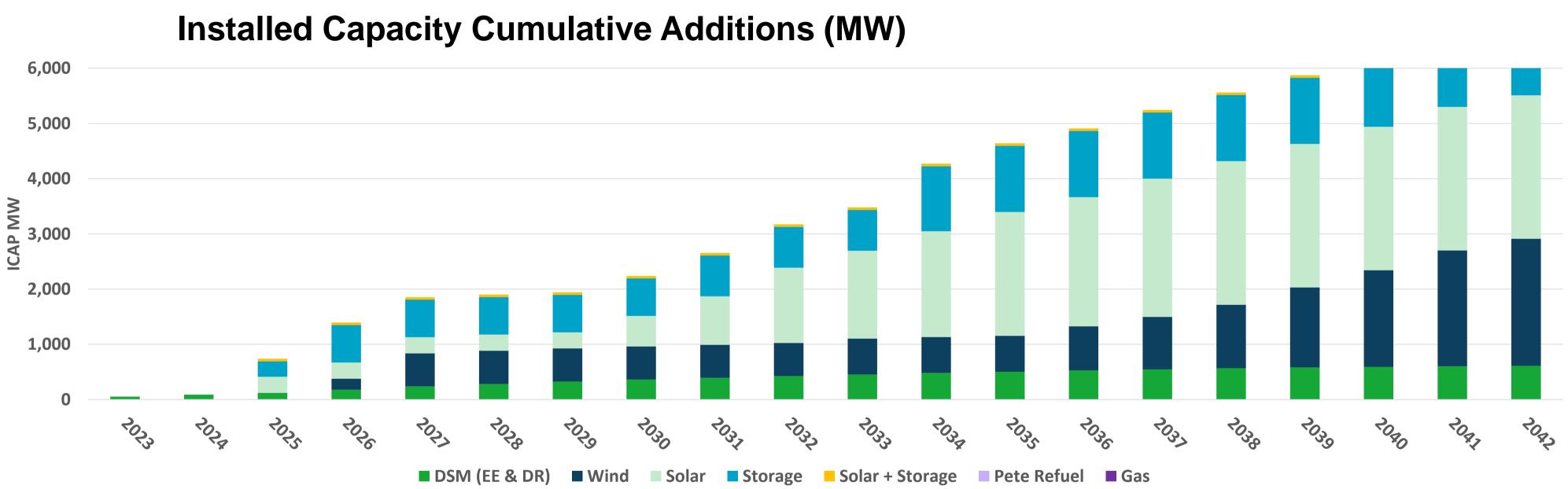
						•
						-
						-
2034 2035	2036 2033	2038	7039	2040	2041	PORL
g Other (Wind/Solar/DR) Petersburg 3 & 4 Refuel				el to Nat	ural Gas	
orage	lew Solar +	Storage				
	— P	RMR less D	SM			







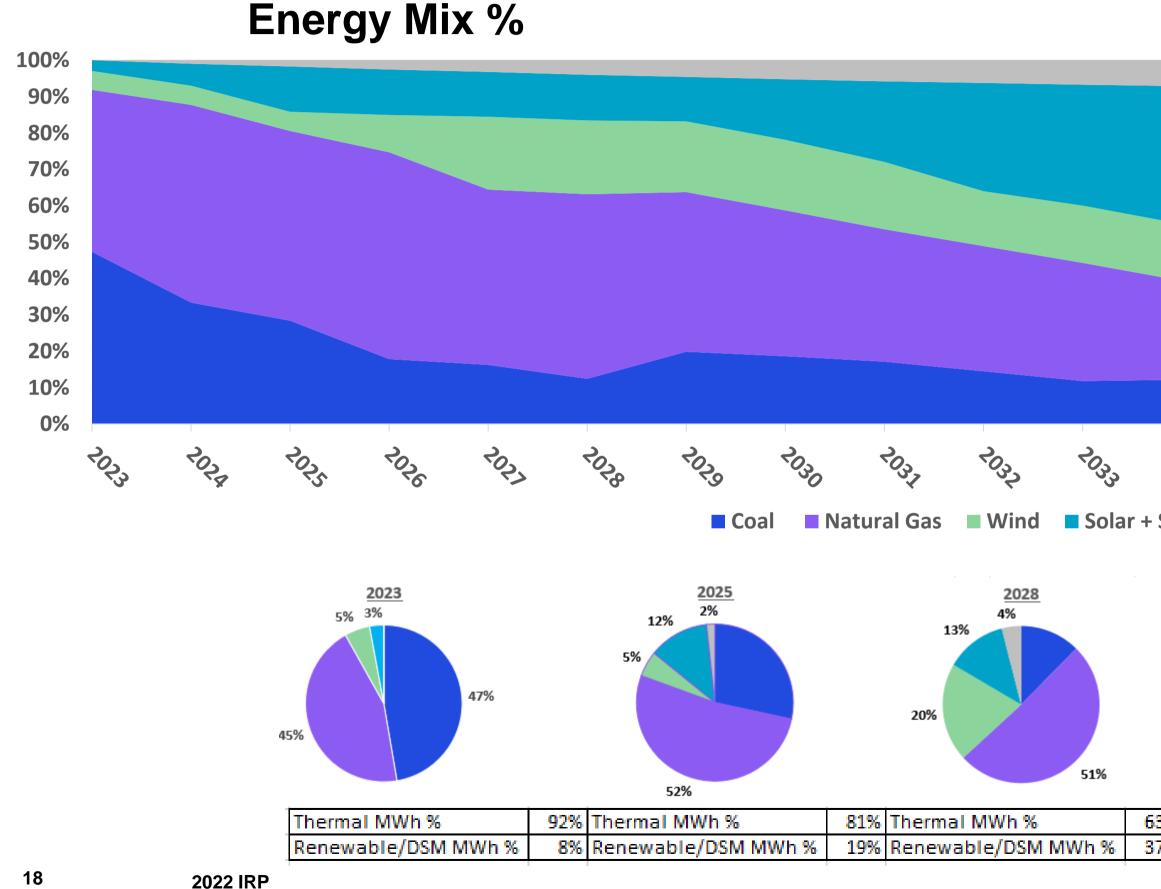




Installed Capacity Incremental Additions (MW): 2023 - 2028

	<u>2023</u>	<u>2024</u>	<u>2025</u>	<u>2026</u>	<u>2027</u>	<u>2028</u>
Wind	0	0	0	200	400	0
Solar	0	0	293	0	0	0
Storage	0	0	280	400	0	0
Solar + Storage	0	0	45	0	0	0
Gas	0	0	0	0	0	0





2034 2035 2036	2033 2038 2039	2090 2091 2093
Storage DSM		- • •
	2042	
<u>2032</u> 6%	<u>2042</u> 7% 13%	
30%		
	40%	
15%	470	39%
63% Thermal MWh %	49% Thermal MWh %	14%
37% Renewable/DSM MWh %	51% Renewable/DSM MWh %	86%
		aes Indiana

Portfolio Overview <i>Retirements</i> Petersburg: → Pete 3 Coal: 2026 → Total Coal Retired MW: 520 MW	C
Harding Street:	
\rightarrow HS ST5 Nat Gas: 2030	No Early Re
\rightarrow HS ST6 Nat Gas: 2030	
\rightarrow HS ST7 Nat Gas: 2033	Pete Refuel
\rightarrow Total Nat Gas Retired MW: 618 MW	
	One Pete U
Replacement Additions by 2042	
\rightarrow DSM: 610 MW	Both Pete L
\rightarrow Wind: 2,300 MW	
\rightarrow Solar: 2,600 MW	"Clean Ene
→ Storage: 1,260 MW	Both Pete L with Wind, S
→ Solar + Storage: 45 MW	
\rightarrow Thermal: 0 MW	Encompase
	predefined

Current Trends PVRR Summary 20-Year PVRR (2023\$MM, 2023-2042)

	Scenarios Decarbonized Economy
etirement	\$9,917
el to 100% Gas (est. 2025)	\$9,546
Jnit Retires (2026)	\$9,955
Units Retire (2026 & 2028)	\$9,923
ergy Strategy" Units Retire and Replaced , Solar & Storage (2026 & 2028)	\$9,690
s Optimization without Strategy	\$9,572



D. Both Pete Units Retire (2026 & 2028)

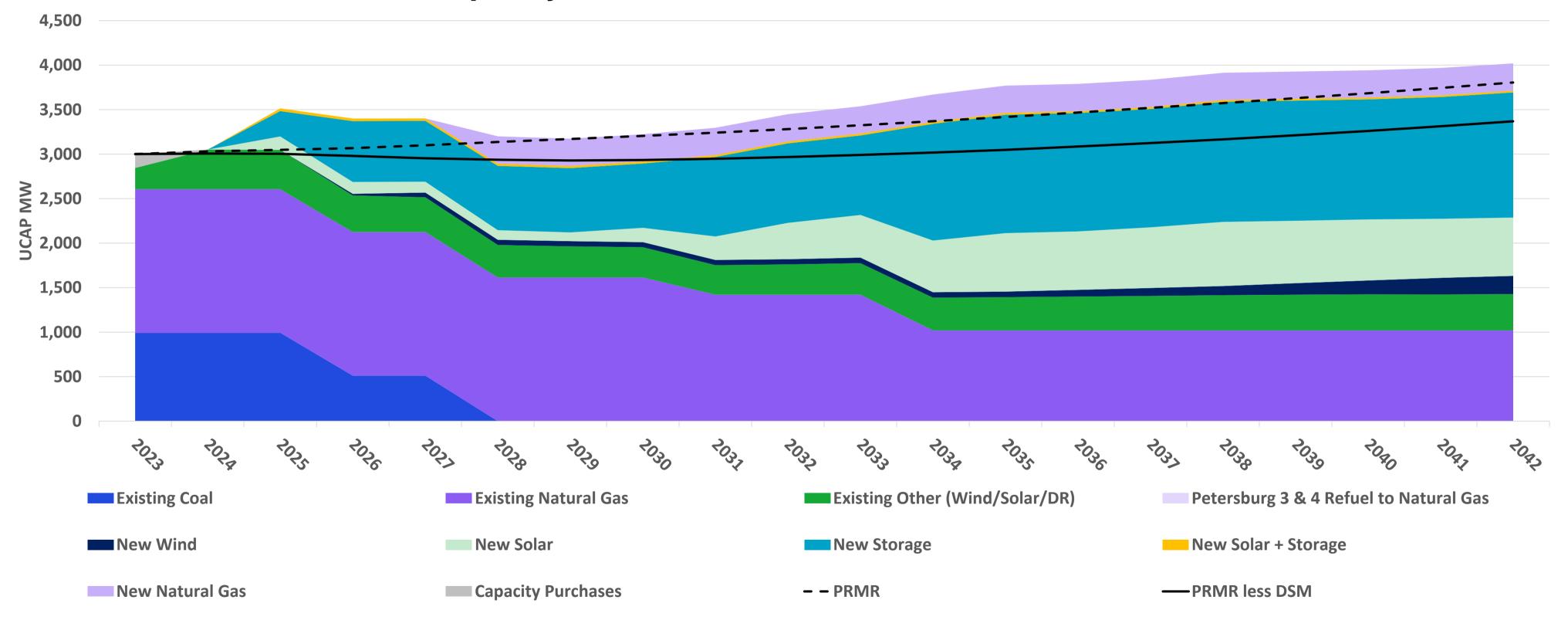
20-Year PVRR	Scenarios						
(2023\$MM, 2023-2042) Generation Strategy:	No Environmental Action	Current Trends	Aggressive Environmental	Decarbonized Economy			
Both Pete Units Retire (2026 & 2028)				\$9,923			





Both Pete Units Retire: Decarbonized Economy

Firm Unforced Capacity Position – Summer

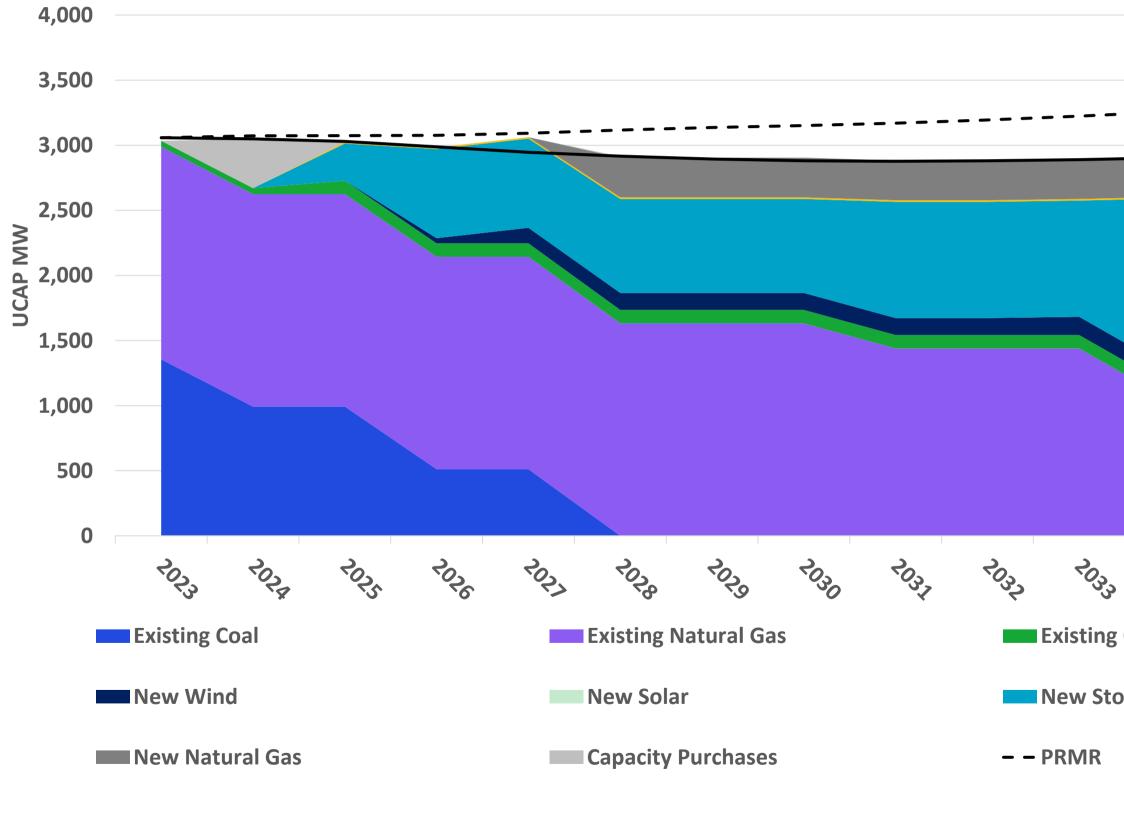


1 2022 IRP



Both Pete Units Retire: Decarbonized Economy

Firm Unforced Capacity Position – Winter

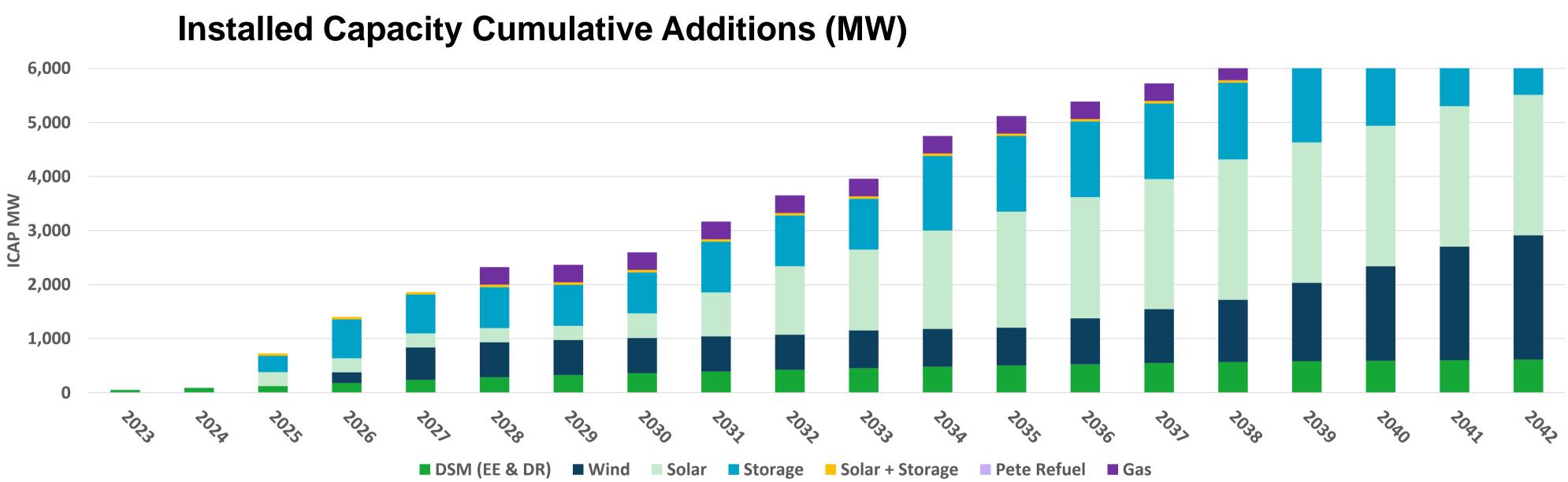


2022 IRP

$\begin{array}{cccc} & & & \\ & & & & \\ & & & \\ & & & \\ & & & \\ & & & \\ & & & \\ & & & & \\ & & & \\ $	$r_{0_{3}}$ $r_{0_{3}}$ $r_{0_{3}}$ $r_{0_{3}}$ $r_{0_{4}}$ $r_{0_{4}}$ $r_{0_{4}}$
ng Other (Wind/Solar/DR)	Petersburg 3 & 4 Refuel to Natural Gas
Storage	New Solar + Storage
R	PRMR less DSM



Both Pete Units Retire: Decarbonized Economy 2026 & 2028

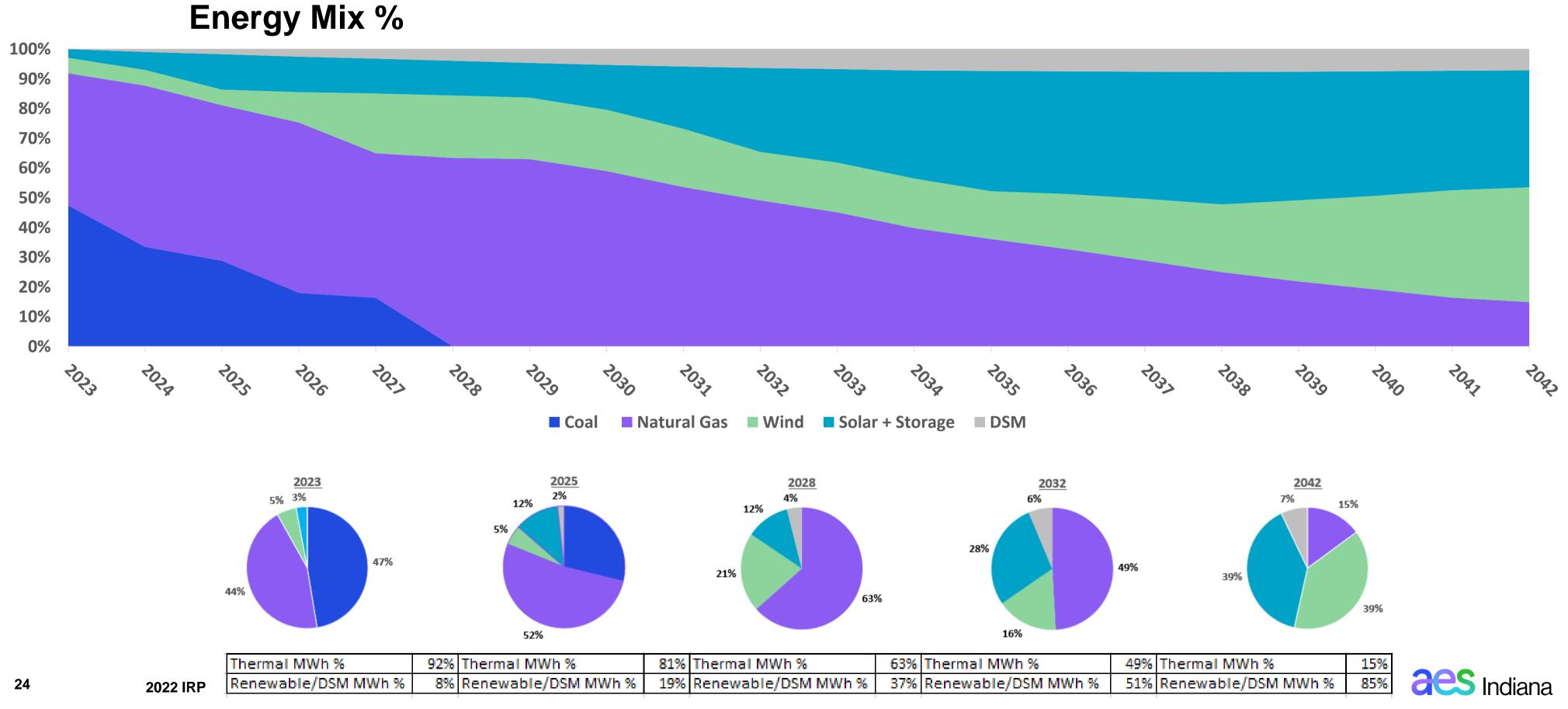


Installed Capacity Incremental Additions (MW): 2023 – 2028

	<u>2023</u>	<u>2024</u>	<u>2025</u>	<u>2026</u>	<u>2027</u>	<u>2028</u>
Wind	0	0	0	200	400	50
Solar	0	0	260	0	0	0
Storage	0	0	300	420	0	40
Solar + Storage	0	0	45	0	0	0
Gas	0	0	0	0	0	325

aes Indiana

Both Pete Units Retire: Decarbonized Economy 2026 & 2028



Both Pete Units Retire: Decarbonized Economy

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Portfolio Overview	
Retirements	
 → Petersburg: → Pete 3 Coal: 2026 	
\rightarrow Pete 4 Coal: 2028	
→ Total Coal Retired MW: 1,040 MW	
→ Harding Street:	No Early Re
→ HS ST5 Nat Gas: 2030 → HS ST6 Nat Gas: 2030	Pete Refuel
→ HS ST7 Nat Gas: 2033	One Pete U
→ Total Nat Gas Retired MW: 618 MW	Both Doto I
Replacement Additions by 2042	Both Pete L
 → DSM: 610 MW → Wind: 2,300 MW → Solar: 2,600 MW 	"Clean Ene Both Pete L with Wind, S
 → Storage: 1,480 MW → Solar + Storage: 45 MW → Thermal: 325 MW 	Encompase predefined
25 2022 IRP	

Current Trends PVRR Summary 20-Year PVRR (2023\$MM, 2023-2042)

	Scenarios Decarbonized
	Economy
etirement	\$9,917
el to 100% Gas (est. 2025)	\$9,546
Jnit Retires (2026)	\$9,955
Units Retire (2026 & 2028)	\$9,923
ergy Strategy" Units Retire and Replaced , Solar & Storage (2026 & 2028)	\$9,690
s Optimization without Strategy	\$9,572



E. Clean Energy Strategy

20-Year PVRR (2023\$MM, 2023-2042)

Generation Strategy: "Clean Energy Strategy" Both Pete Units Retire and Replaced with Wind, Solar & Storage (2026 & 2028)

Scenarios						
No Environmental Action	Current Trends	Aggressive Environmental	Decarbonized Economy			
			\$9,690			

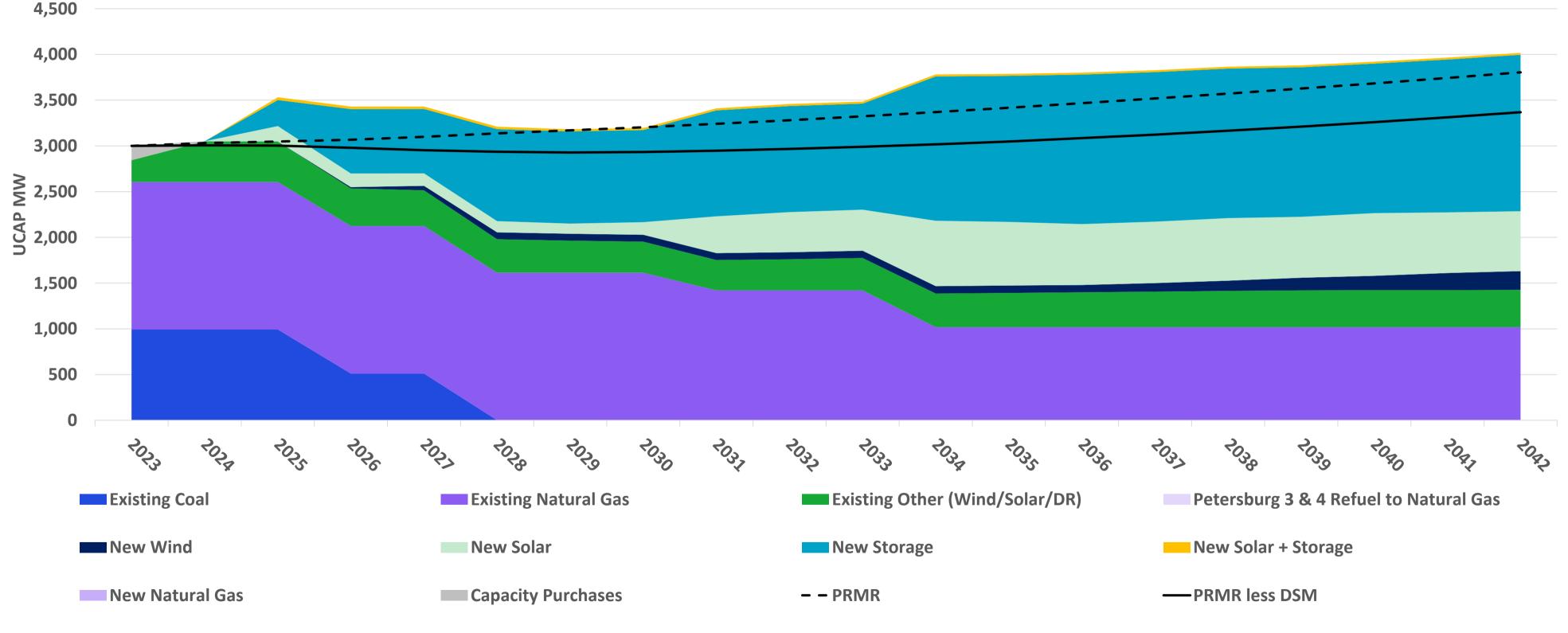
Retire & Replace Pete with Clean Energy



Clean Energy Strategy: Decarbonized Economy

Retire & Replace Pete with Clean Energy

Firm Unforced Capacity Position – Summer

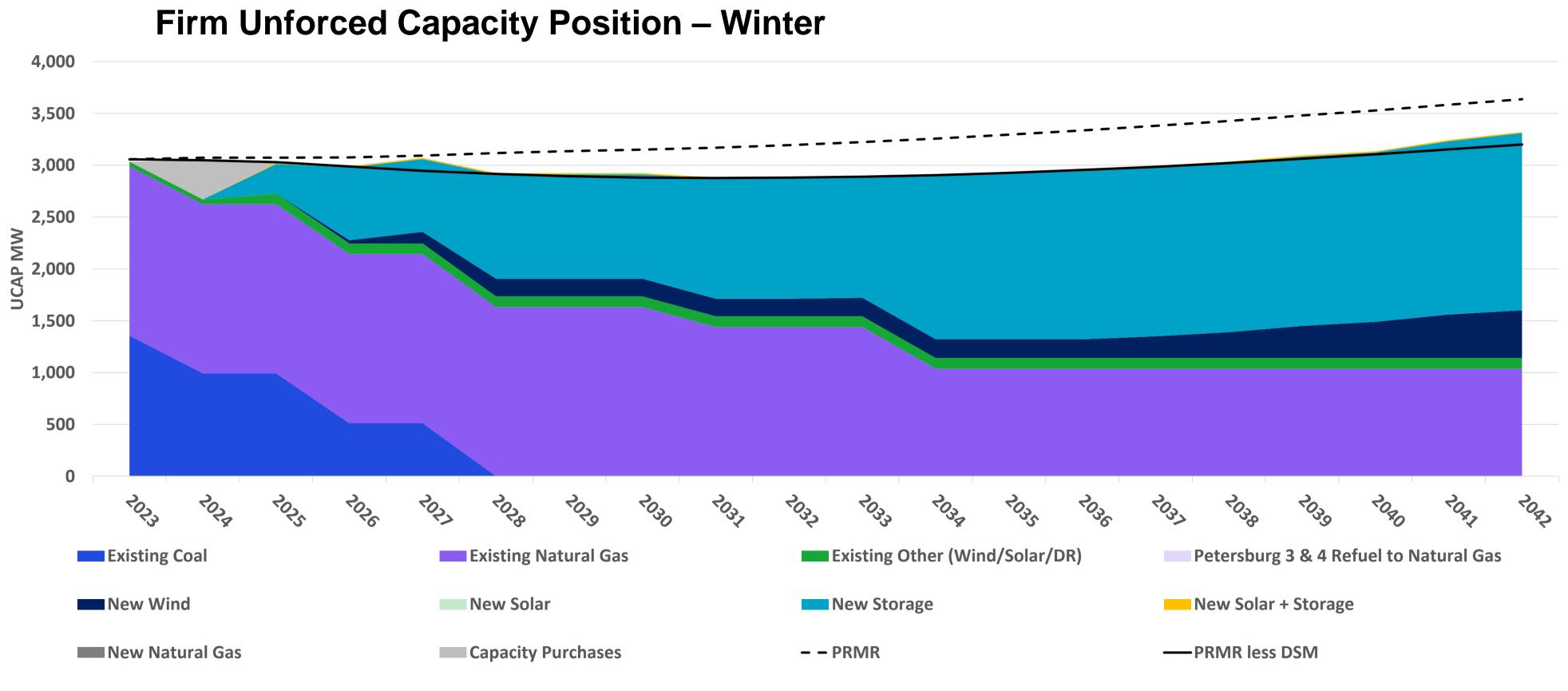


2022 IRP



Clean Energy Strategy: Decarbonized Economy

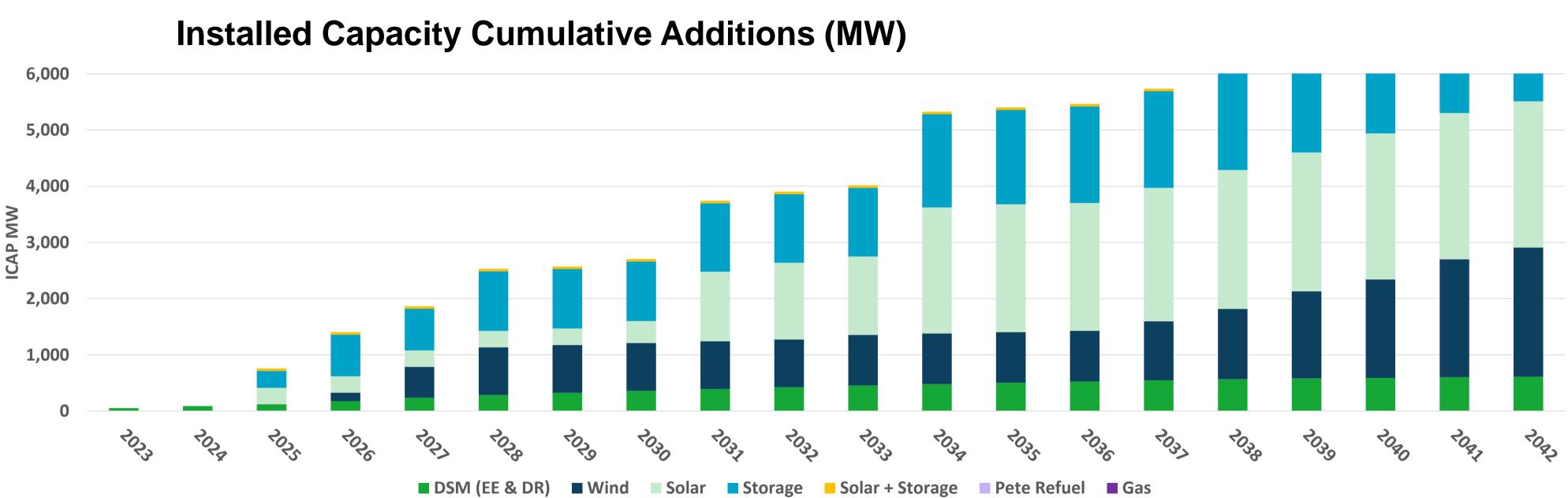
Retire & Replace Pete with Clean Energy



2022 IRP



Clean Energy Strategy: Decarbonized Economy **Retire & Replace Pete with Clean Energy**



Installed Capacity Incremental Additions (MW): 2023 – 2028

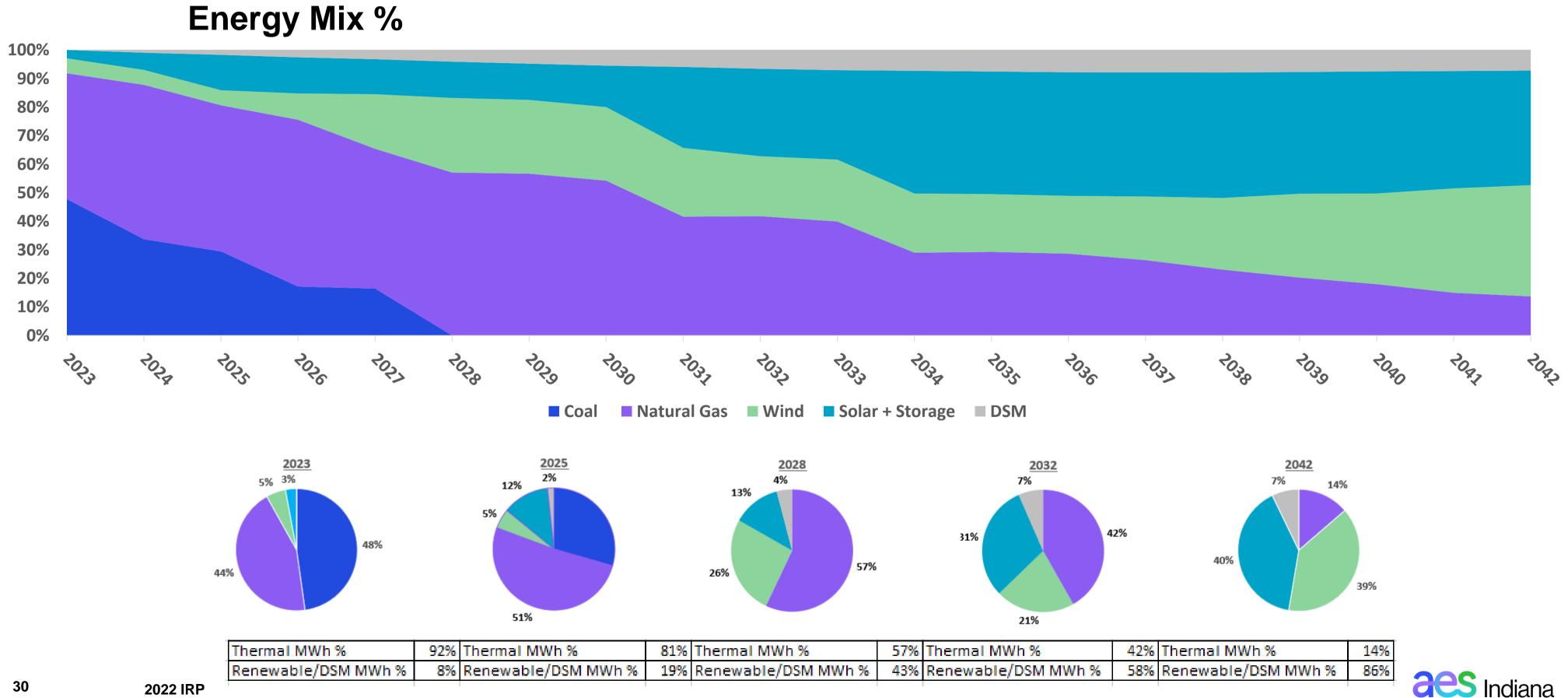
	<u>2023</u>	<u>2024</u>	<u>2025</u>	<u>2026</u>	<u>2027</u>	<u>2028</u>
Wind	0	0	0	150	400	300
Solar	0	0	293	0	0	0
Storage	0	0	300	440	0	320
Solar + Storage	0	0	45	0	0	0
Gas	0	0	0	0	0	0

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Clean Energy Strategy: Decarbonized Economy

Retire & Replace Pete with Clean Energy



2022	IRI
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Clean Energy Strategy: Decarbonized Economy

Retire & Replace Pete with Clean Energy

Portfolio Overview Retirements Petersburg: → Pete 3 Coal: 2026 → Data 4 Coal: 2029	C
→ Pete 4 Coal: 2028 → Total Coal Retired MW: 1,040 MW	
Harding Street:	No Early Re
→ HS ST5 Nat Gas: 2030	
\rightarrow HS ST6 Nat Gas: 2030	Pete Refuel
HS ST7 Nat Gas: 2033	One Pete U
Replacements by 2042	Both Pete U
\rightarrow DSM: 610 MW	
\rightarrow Wind: 2,300 MW	"Clean Ener Both Pete U
\rightarrow Solar: 2,600 MW	with Wind, S
→ Storage: 1,800 MW → Solar + Storage: 45 MW	Encompass
\rightarrow Thermal: 0 MW	predefined
31 2022 IRP	

Current Trends PVRR Summary 20-Year PVRR (2023\$MM, 2023-2042)

	Scenarios
	Decarbonized Economy
letirement	\$9,917
el to 100% Gas (est. 2025)	\$9,546
Jnit Retires (2026)	\$9,955
Units Retire (2026 & 2028)	\$9,923
ergy Strategy" Units Retire and Replaced , Solar & Storage (2026 & 2028)	\$9,690
s Optimization without Strategy	\$9,572



F. Encompass Optimization

20 -	-Year PVRR
(2023\$MM,	2023-2042)

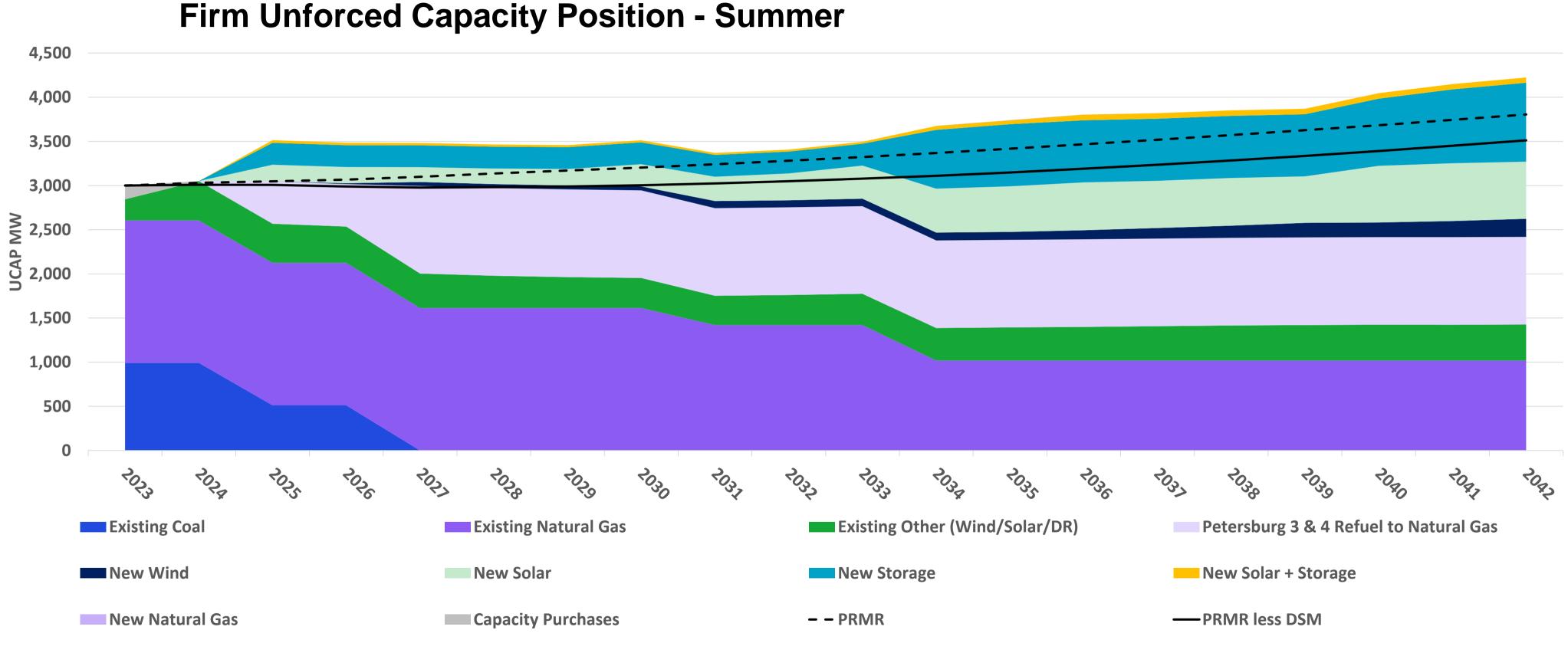
Generation Strategy: Encompass Optimization without predefined **Strategy – Selects Pete 3** Refuel in 2025 & Pete 4 Refuel in 2027

Scenarios					
No Environmental Action	Decarbonized Economy				
			\$9,572		





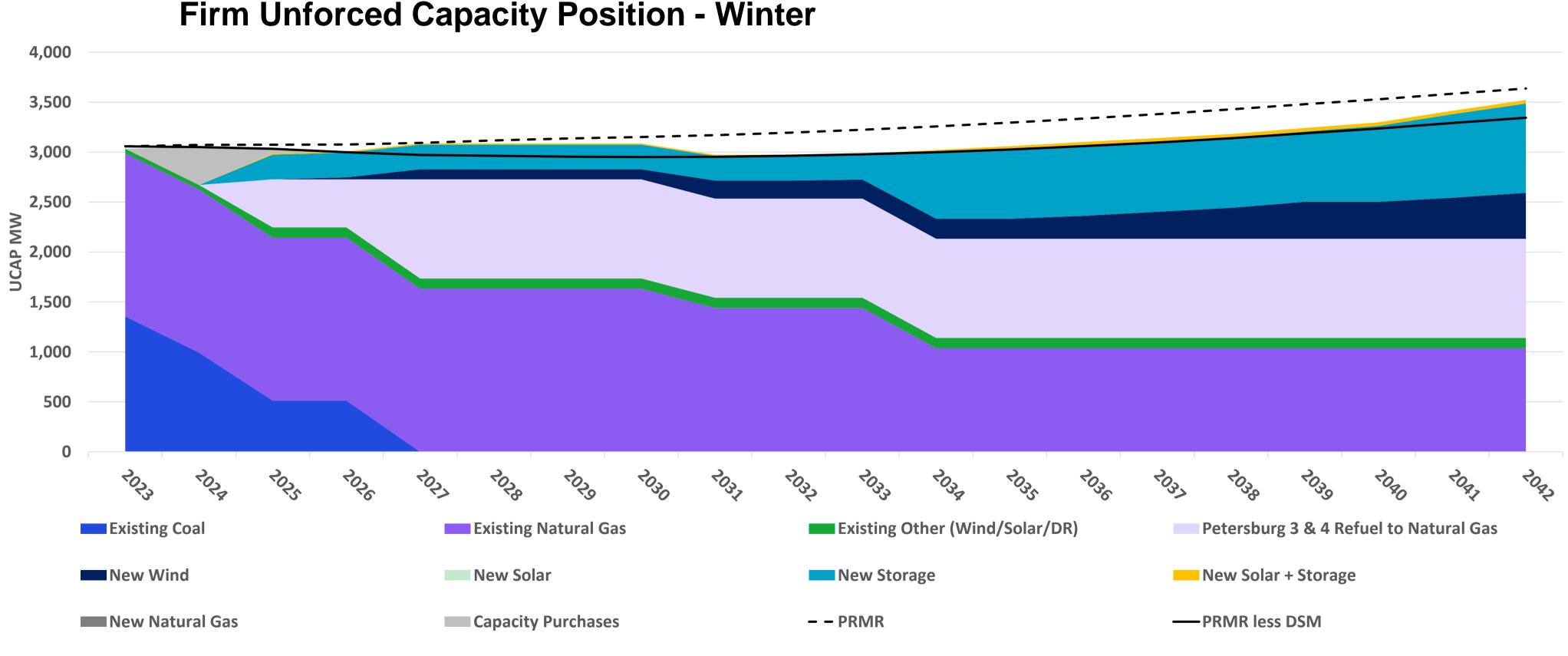
Selects Pete 3 Refuel in 2025 & Pete 4 Refuel in 2027





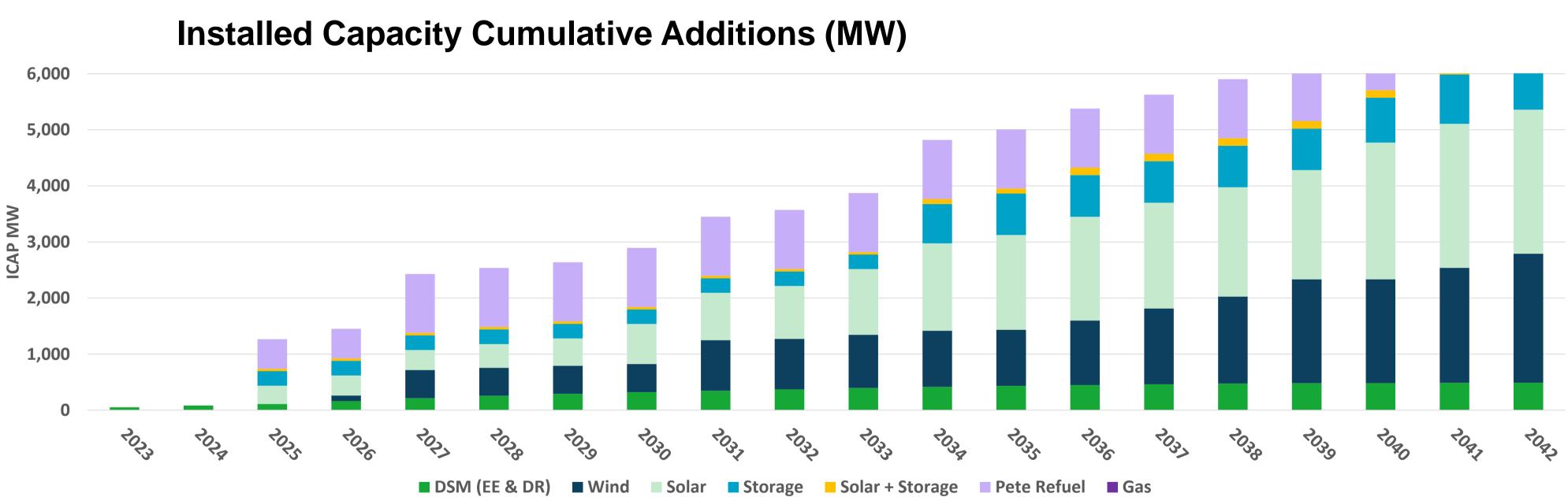
Selects Pete 3 Refuel in 2025 & Pete 4 Refuel in 2027

Firm Unforced Capacity Position - Winter





Selects Pete 3 Refuel in 2025 & Pete 4 Refuel in 2027

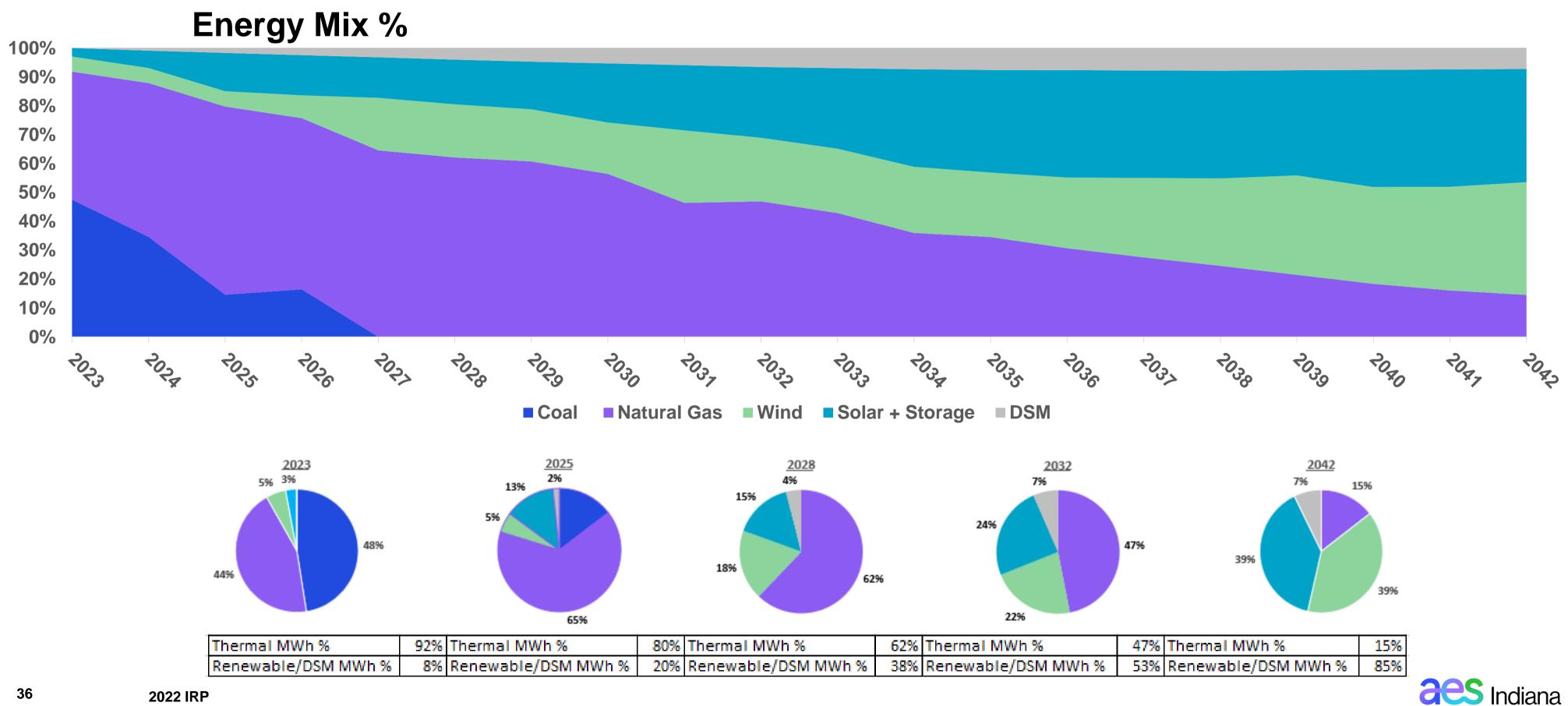


Installed Capacity Incremental Additions (MW): 2023 - 2028

	<u>2023</u>	<u>2024</u>	<u>2025</u>	<u>2026</u>	<u>2027</u>	<u>2028</u>
Wind	0	0	0	100	400	0
Solar	0	0	325	33	0	65
Storage	0	0	260	0	0	0
Solar + Storage	0	0	45	0	0	0
Gas	0	0	0	0	0	0



Selects Pete 3 Refuel in 2025 & Pete 4 Refuel in 2027



Selects Pete 3 Refuel in 2025 & Pete 4 Refuel in 2027

Portfolio Overview

Retirements Petersburg:	Current Trends PVRR Summary 20-Year PVRR (2023\$MM, 2023-2042)	
→ Pete 3 Coal: 2025 → Pete 4 Coal: 2027		Scenarios
→ Total Refueled MW: 1,040 MW Harding Street:		Decarbonized Economy
→ HS ST5 Nat Gas: 2030 → HS ST6 Nat Gas: 2030	No Early Retirement	\$9,917
→ HS ST7 Nat Gas: 2033 → Total Nat Gas Retired MW: 618 MW	Pete Refuel to 100% Gas (est. 2025)	\$9,546
Replacement Additions by 2042	One Pete Unit Retires (2026)	\$9,955
→ DSM: 490 MW → Wind: 2,300 MW	Both Pete Units Retire (2026 & 2028)	\$9,923
 → Solar: 2,568 MW → Storage: 940 MW → Solar + Storage: 135 MW 	"Clean Energy Strategy" Both Pete Units Retire and Replaced with Wind, Solar & Storage (2026 & 2028)	\$9,690
 → Thermal: 0 → Pete 3 & 4 Refueled to Nat Gas: 1,052 MW 	Encompass Optimization without predefined Strategy	\$9,572

Current Trande DVDD Summary

Scenarios	
	2



Portfolio Matrix

		Scenarios					
20-Year PVRR (2023\$MM, 2023-2042)		No EnvironmentalCurrent TrendsAction(Reference Case)			Aggressive Environmental	Decarbonized Economy	
No Early Retirement	\$	\$7,111	\$9,572		\$11,349	\$9,917	
Pete Refuel to 100% Gas (est. 2025)	\$	\$6,621 \$9,330 \$11,181		\$9,546			
$O_{12} = D_{21} + U_{12} + D_{21} + U_{12} = (0000)$	\$	\$7,462 \$9,773		,773 \$11,470		\$9,955	
Both Pete Units Retire (2026)	\$	\$7,425			\$11,145	\$9,923	
"Clean Energy Strategy" Both Pete Units Retire and Replaced with W Solar & Storage (2026 & 2028)	nd, \$	\$9,211			\$11,184	\$9,690	
Encompass Optimization without predefine Strategy	d \$	\$6,610			\$10,994	\$9,572	
	Encompass Opti	imization Results by	Scenario:				
		Refuels Petersburg Units 3 & 4 in 2025 U			s Petersburg 4 in 2027	Refuels Petersburg Unit 3 in 2025 & Refuels Petersburg Unit 4 in 2027	

Saaparias

