



CPS ENERGY CONSIDERATIONS FOR LONG DURATION ENERGY STORAGE

PRESENTED BY:

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Manager, Generation Planning and New Technologies
CPS Energy

July 31, 2024



HOW WE SERVE

— BY THE NUMBERS ¹ —

UP TO **14%**

Annual Revenue goes to
City of San Antonio's
General Fund

\$9.1B

City Payments since
October 1942

164

Years of Serving
San Antonio

LARGEST

Municipally Owned
Electric & Natural
Gas Utility in the U.S.



930K

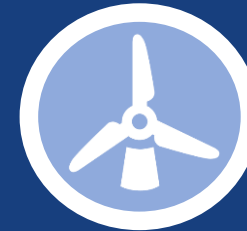
Electric
customers

381K

Gas
customers



#1 Solar Power
Production in Texas
& **#5** in the Nation ²



#2 Wind Power
Production in Texas

Our Mission

To serve our community through
reliable, competitively priced, and
sustainable energy services in an
equitable manner.

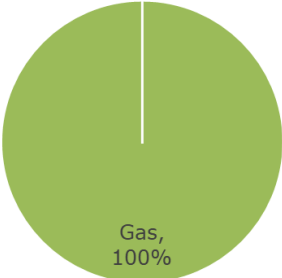
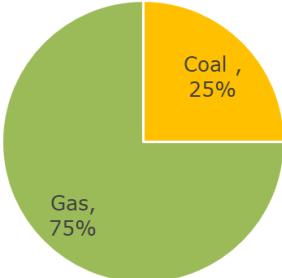
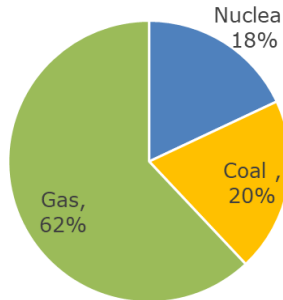
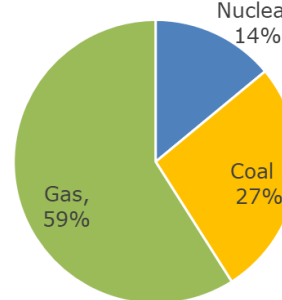
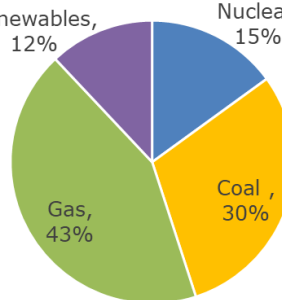
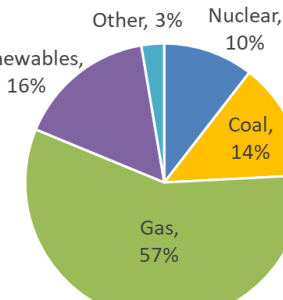
~**3,000** Team Members

¹ As of 1/31/2023

² Environment Texas Research & Policy Center. "Shining Cities 2022: The Top US Cities for Solar Energy"

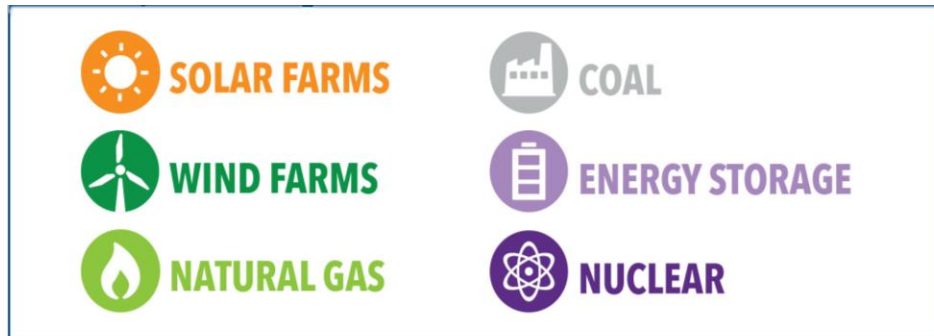
GENERATION DIVERSIFICATION

1970s TO 2020s

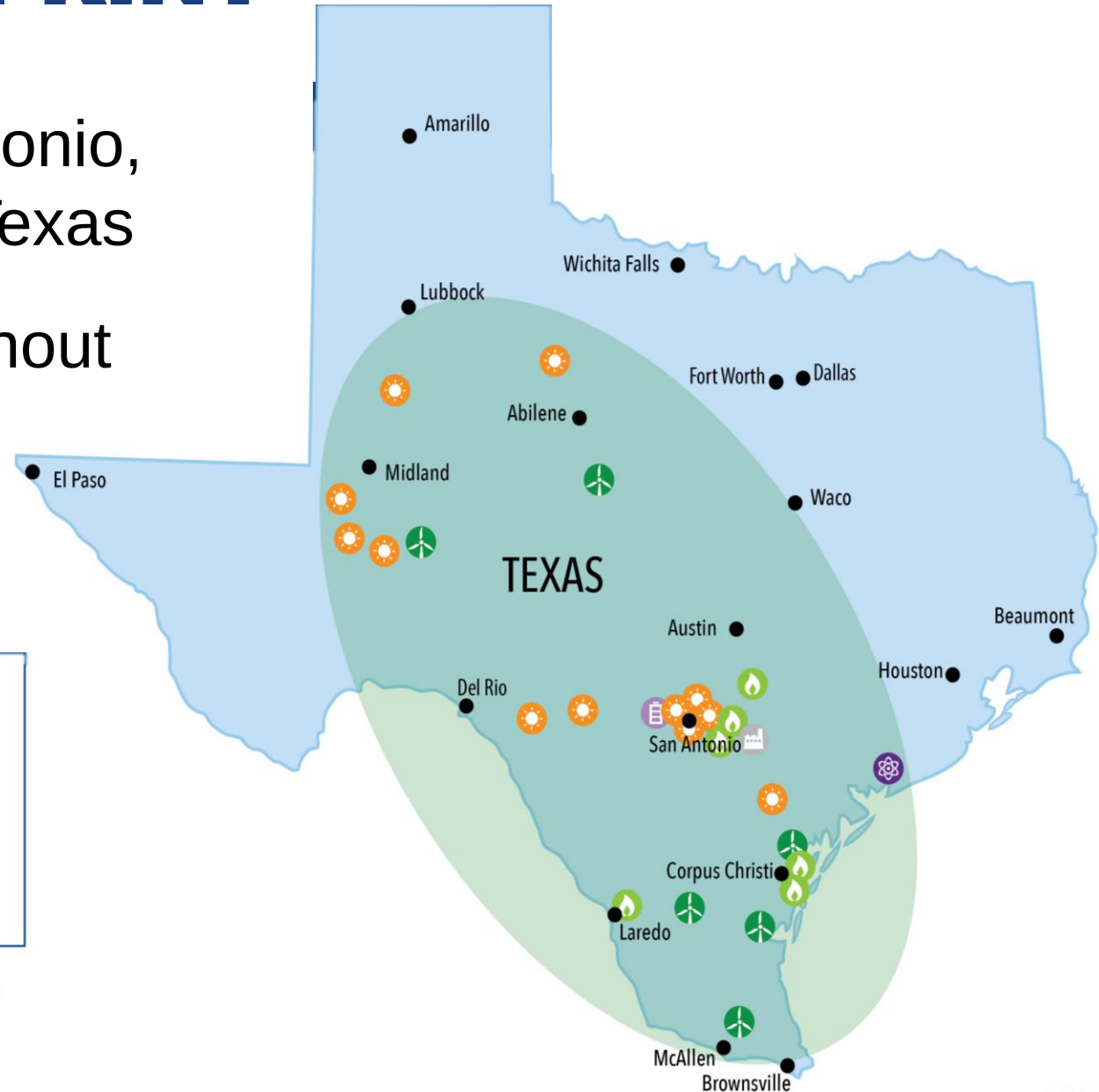
1970	1980	1990	2000	2010	2024
					
1,700 MW	3,250 MW	4,000 MW	5,000 MW	7,200 MW	9,815 MW
Various issues with natural gas supply led to higher customer bills.	Coal was added.	Nuclear was added.	Additional coal and high efficiency, flexible natural gas technologies were added.	Final coal plant added in 2010. Nuclear ownership increased and renewables added.	Began to move away from coal by retiring the Deely coal units in 2018.

GENERATION FOOTPRINT

- Owned Resources in San Antonio, Corpus Christi, and Laredo, Texas
- Solar and Wind PPAs throughout Texas



CPS Energy is ERCOT's 4th largest energy generator.



NEW GENERATION ASSETS

1,710 MEGAWATTS



Laredo CT – 178 MW



Barney Davis NGCC – 605 MW



Nueces Bay NGCC – 635 MW

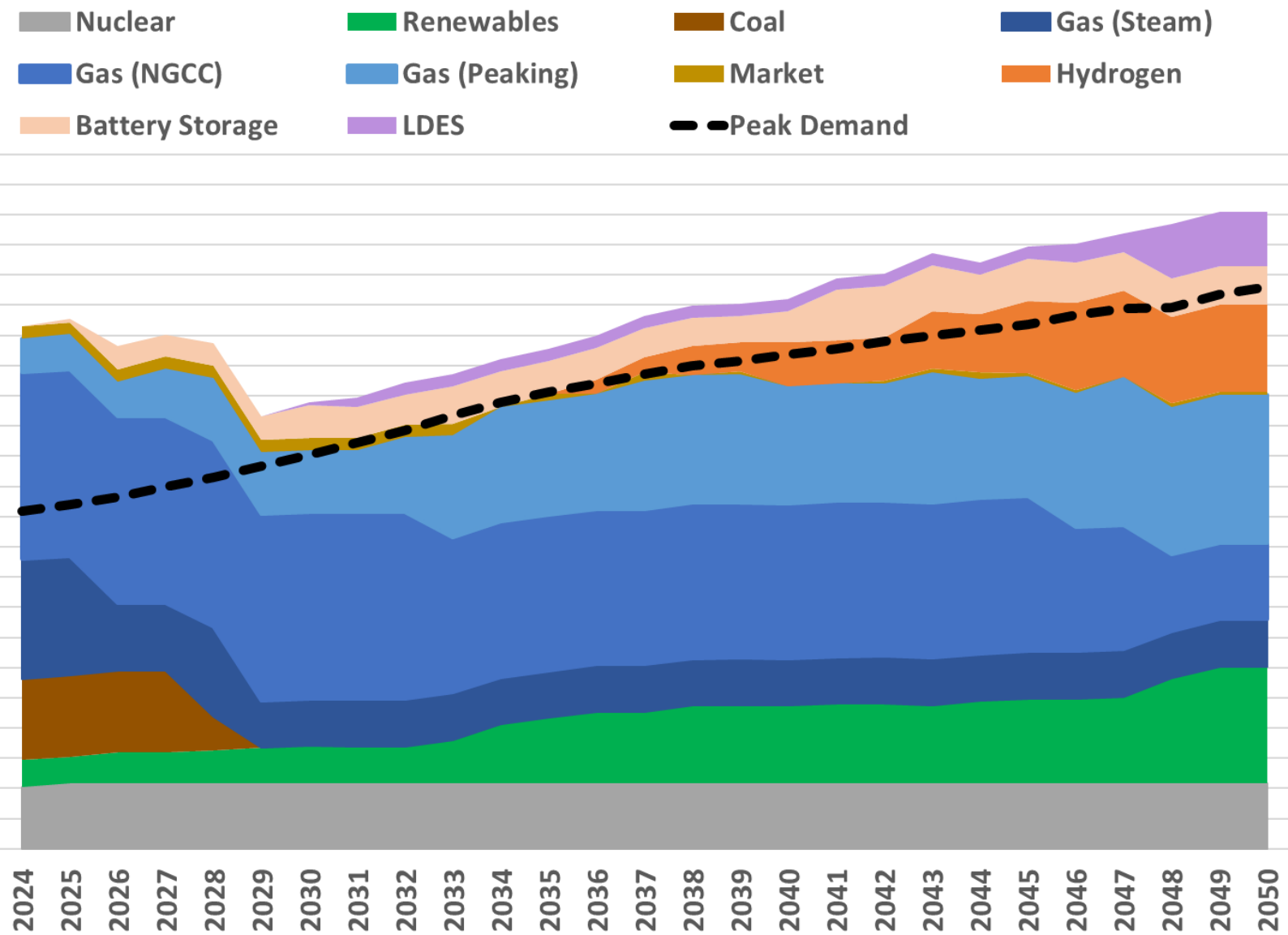


Barney Davis ST – 292 MW



RESOURCE PLAN (MW)*

EFFECTIVE LOAD CARRYING CAPABILITY (ELCC)

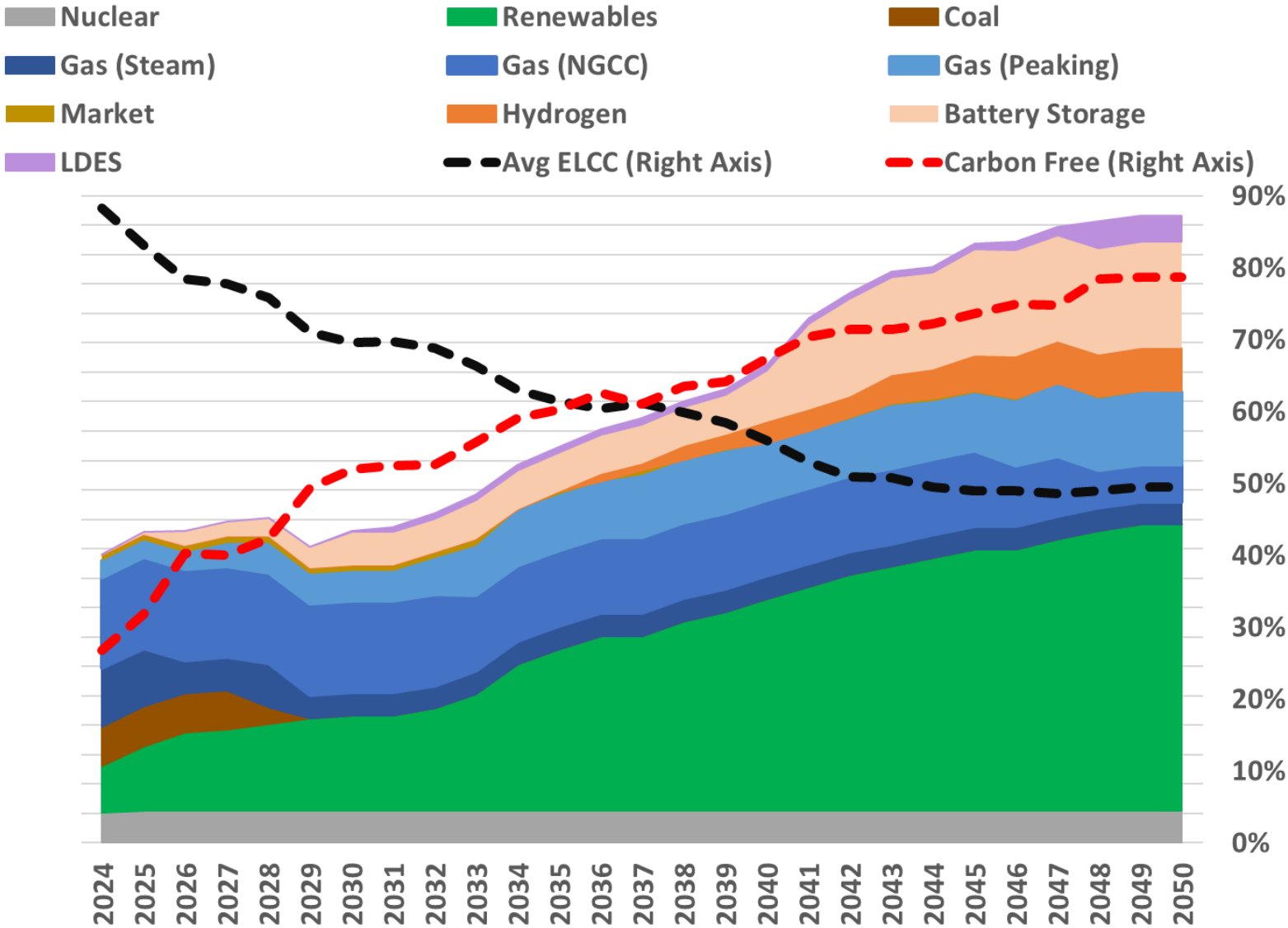


- **Peak Demand:** Avg growth ~ 160 MW/Yr
- **Nuclear:** Steady baseload resource
- **Renewables:** Grow from less than 20% in 2024 to nearly 50% by 2050
- **Coal:** Discontinue coal use by 2030
- **Gas:** Retire old gas steam by 2030 but rely on NGCCs & Peakers for reliability, resiliency, and flexibility
- **Market:** Small amount through early 2030s to support planning reserves
- **Hydrogen:** Placeholder future option to support decarbonization and resiliency goals
- **Battery Storage:** Various durations to support growing renewables in our Plan and ERCOT
- **LDES:** Small amount as placeholder to support hydrogen in displacement of fossil fuel

* 2024 long-range resource plan not yet approved by CPS Energy senior leadership

RESOURCE PLAN (MW)

NAMEPLATE



Carbon-free resources expand from 27% in 2024 to 79% in 2050

Average ELCC of Portfolio Resources decreases from 88% to 49%

LDES VS OTHER RESOURCES*



KEY



	NGCC	Gas Peaking	Battery Storage	Hydrogen	LDES	Coal w/ CCS	Gas w/ CCS	SMR
Cost								
Dispatchability								
Carbon Free								
Technology Readiness								
Deployment in ERCOT								
Use Case Understanding								
In resource plan?	Yes	Yes	Yes	Placeholder	Place-holder	No	No	No

LDES has gaps to close before it is a viable option to compete with shorter-duration battery storage and gas options.

* This comparison table is meant to be high level and illustrative and is not a comprehensive comparison.

WHAT'S NEEDED TO SUPPORT LDES AND CLOSE THE GAP

- Better Analysis Tools
- Policy Support
- Proven Demonstrations at Utility-Scale
- Use Case Strategies
- Reduced Cost
- Lower cost solar & wind



THANK YOU

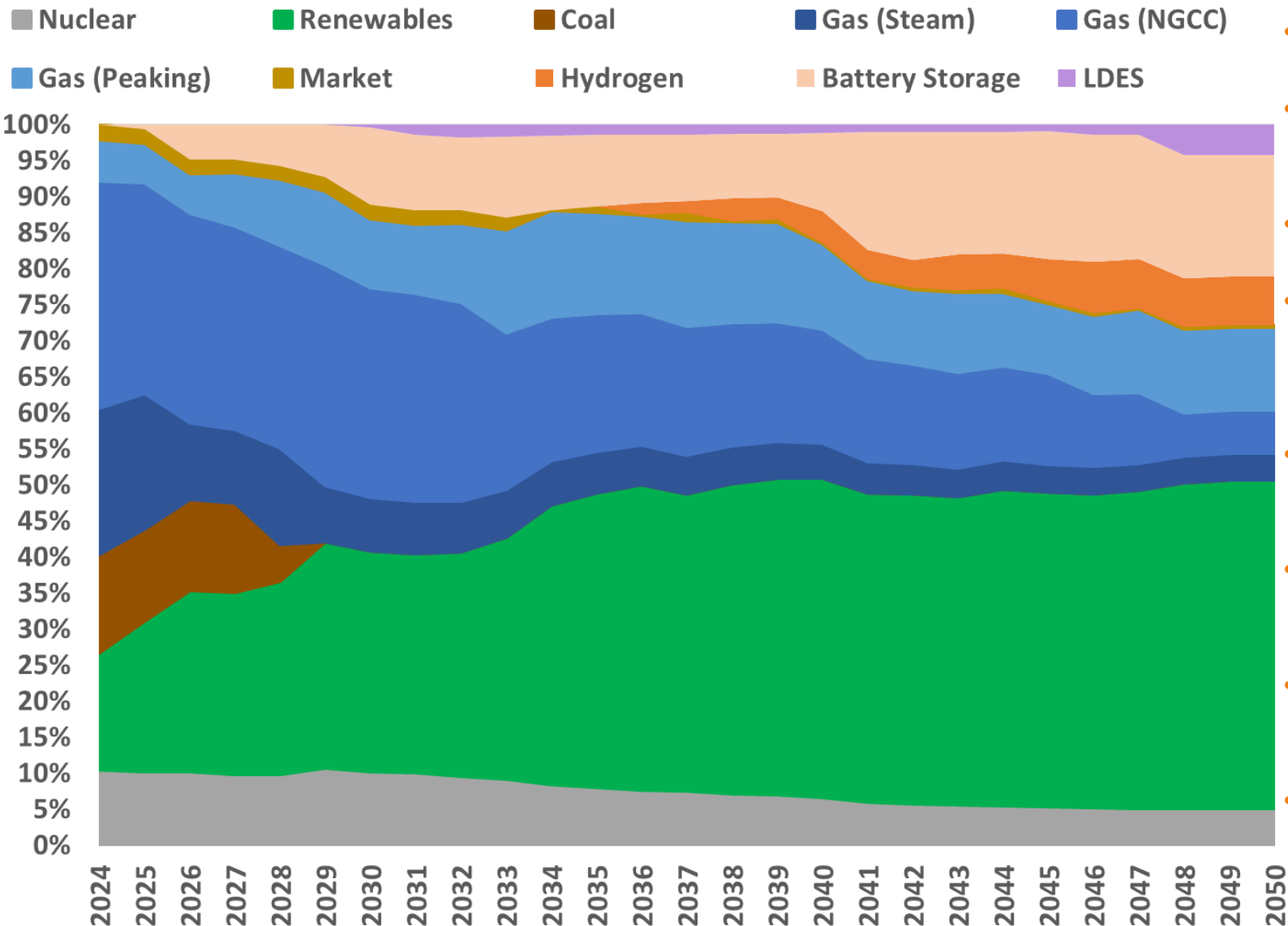


APPENDIX

RESOURCE PLAN (% OF TOTAL CAPACITY)



NAMEPLATE

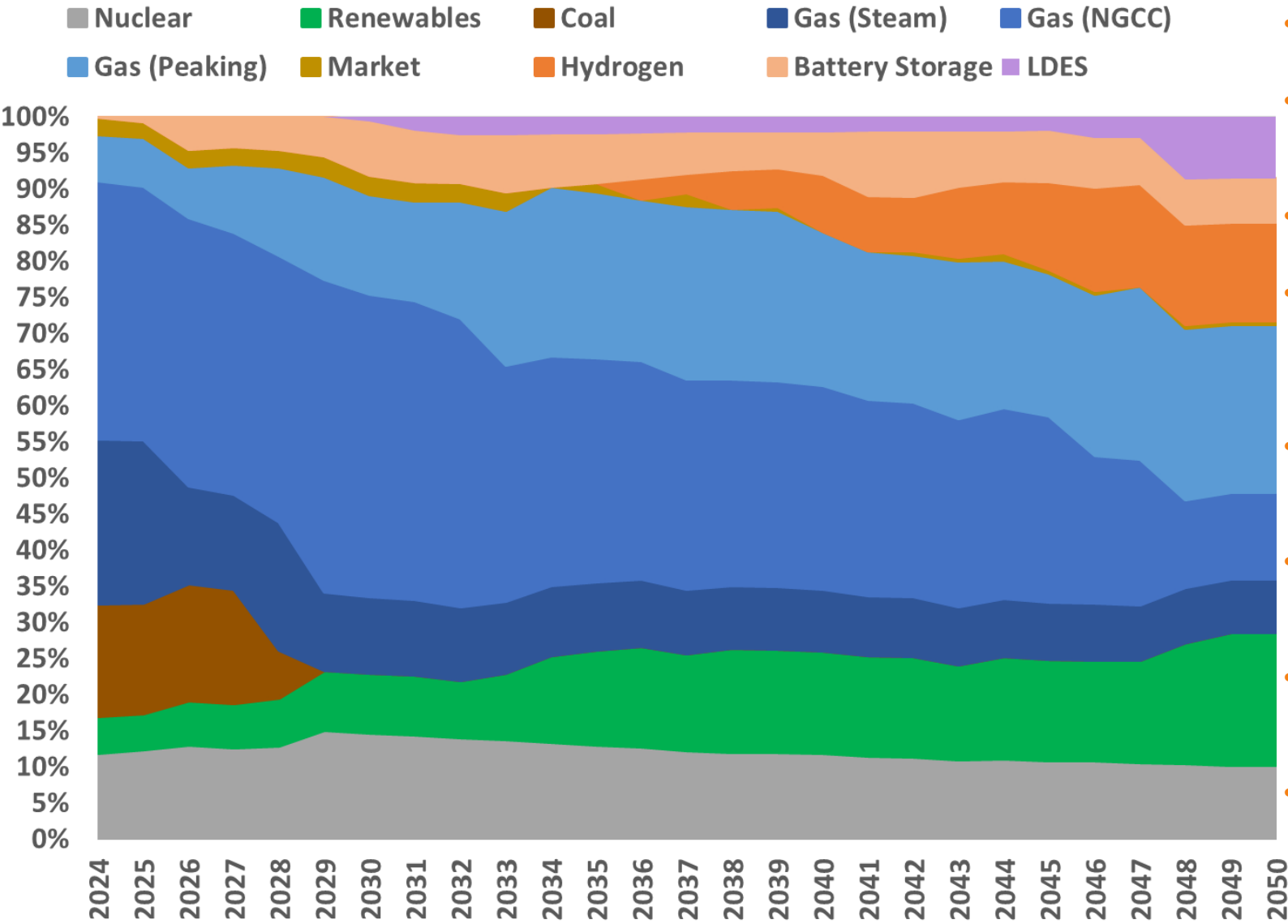


- **Nuclear**: Steady baseload resource
- **Renewables**: Grow from 16% in 2024 to 46% by 2050
- **Coal**: Discontinue coal by 2030
- **Gas**: Retire old gas steam by 2030 but rely on NGCCs & Peakers for reliability, resiliency, and flexibility
- **Market**: Small amount through early 2030s to support planning reserves
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RESOURCE PLAN (% OF TOTAL CAPACITY)



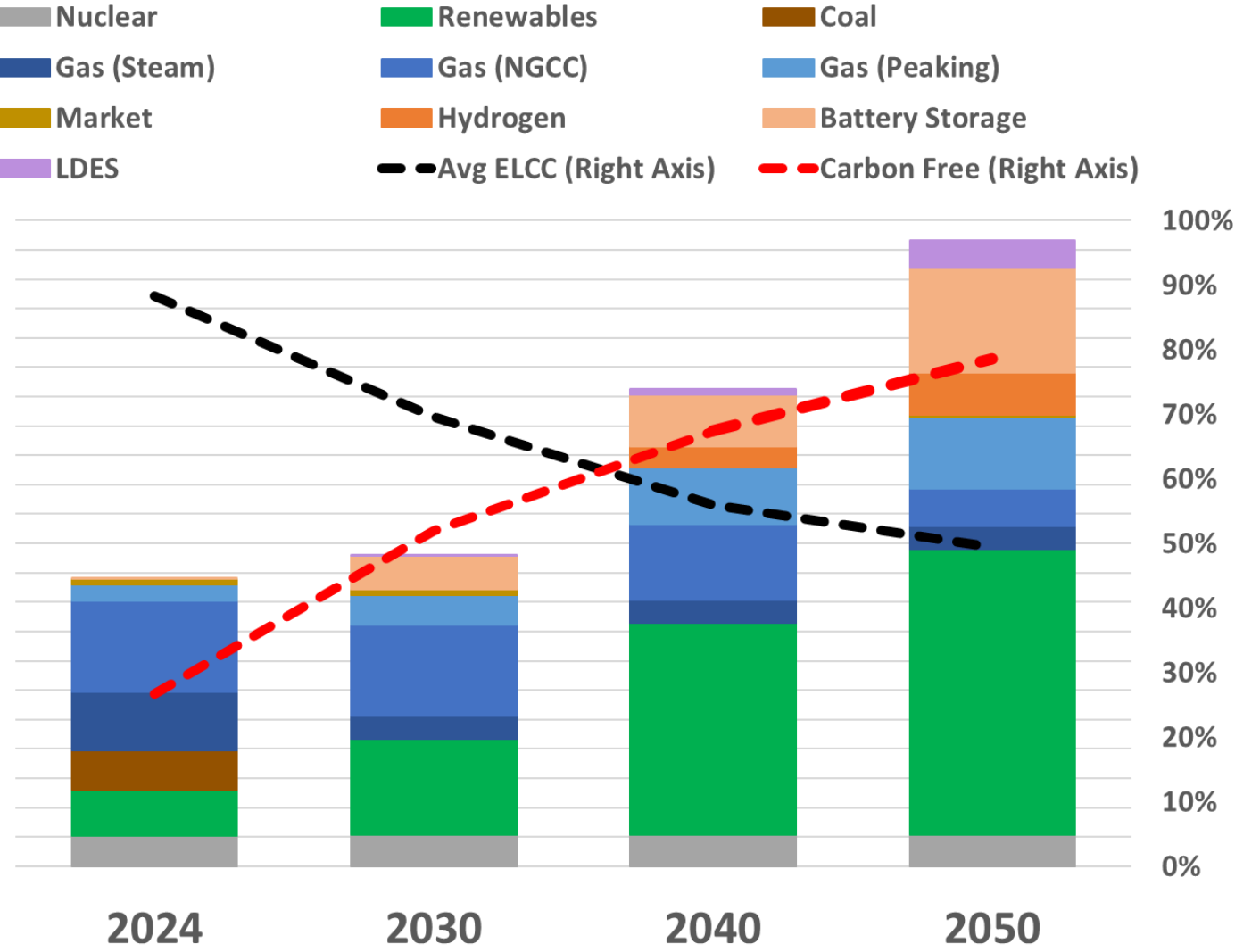
ELCC



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RESOURCE PLAN BY DECADE (MW)

NAMEPLATE



Carbon-free resources expand from 27% in 2024 to 79% in 2050

Average ELCC of Portfolio Resources decreases from 88% to 49%