



CO₂ Accounting Process Calculations for BP-SD-05, Carbon Emissions Reductions

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NPPD Board of Directors Meeting
STRATEGIC SESSION
May 2026

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Strategic Directive Carbon Emissions Reductions

Net Zero Goal by 2050:

- The use of proven and reliable generation will be employed until alternative, reliable sources of generation are developed
- The use of certified offsets, energy efficiency projects, lower or zero carbon emission generation resources, beneficial electrification or other economical and practical technologies will be evaluated
- NPPD will meet the goal at costs equal to, or lower than, the current resources, and may reconsider the goal in light of adverse cost or reliability impacts
- NPPD recognizes the importance of balancing affordability, reliability/resilience, and sustainability when addressing the business risks related to carbon emissions and emissions regulations

Calculation Definitions

Baseline Year: 2005 has been the year selected to base carbon reductions as this is the highest carbon emission year on record

NPPD Share: Includes an assessment of all our generation sources (fossil fuel, carbon free, and market purchases); but excludes contractual electricity sales (e.g., Lincoln Electric System (LES))

NPPD Native Load: Includes an assessment of all our generation sources (fossil fuel, carbon free, and market purchases); but excludes contractual electricity sales (e.g., LES) and Market Sales

Calculation Assumptions

		NPPD's Share ¹	Native Load ²	Notes
Part Sale (e.g., LES)		exclude gen & emissions	exclude gen & emissions	
Generation under NPPD control	GGS	include	exclude pro-rated share of gen & emissions	Tie to the excess market sales generation total
	Sheldon			
	NC2			
	BPS	include	include	
	Wind/Hydro	include	include	
Mkt Purchases		include	include	
Qualified Local	Retail	include gen	include gen	
Generation (QLG)	Wholesale	exclude	exclude	Include if purchase RECs
RECs		include gen	include gen	
CO2 equivalent	Gen	exclude	exclude	e.g., N2O, CH4, SF6
	Other (fleet, bldg, etc.)	exclude	exclude	Unless directed by Board
Energy Efficiency		exclude	exclude	
Offsets		include	include	No offsets at this time
Net metering		exclude	exclude	
WAPA ³		include	include	Approximately 90% renewable

¹NPPD's Share is primarily generation from owned and purchased resources, excluding participants share and wholesale QLG

²Native Load is NPPD's share minus generation from "excess" SPP market sales

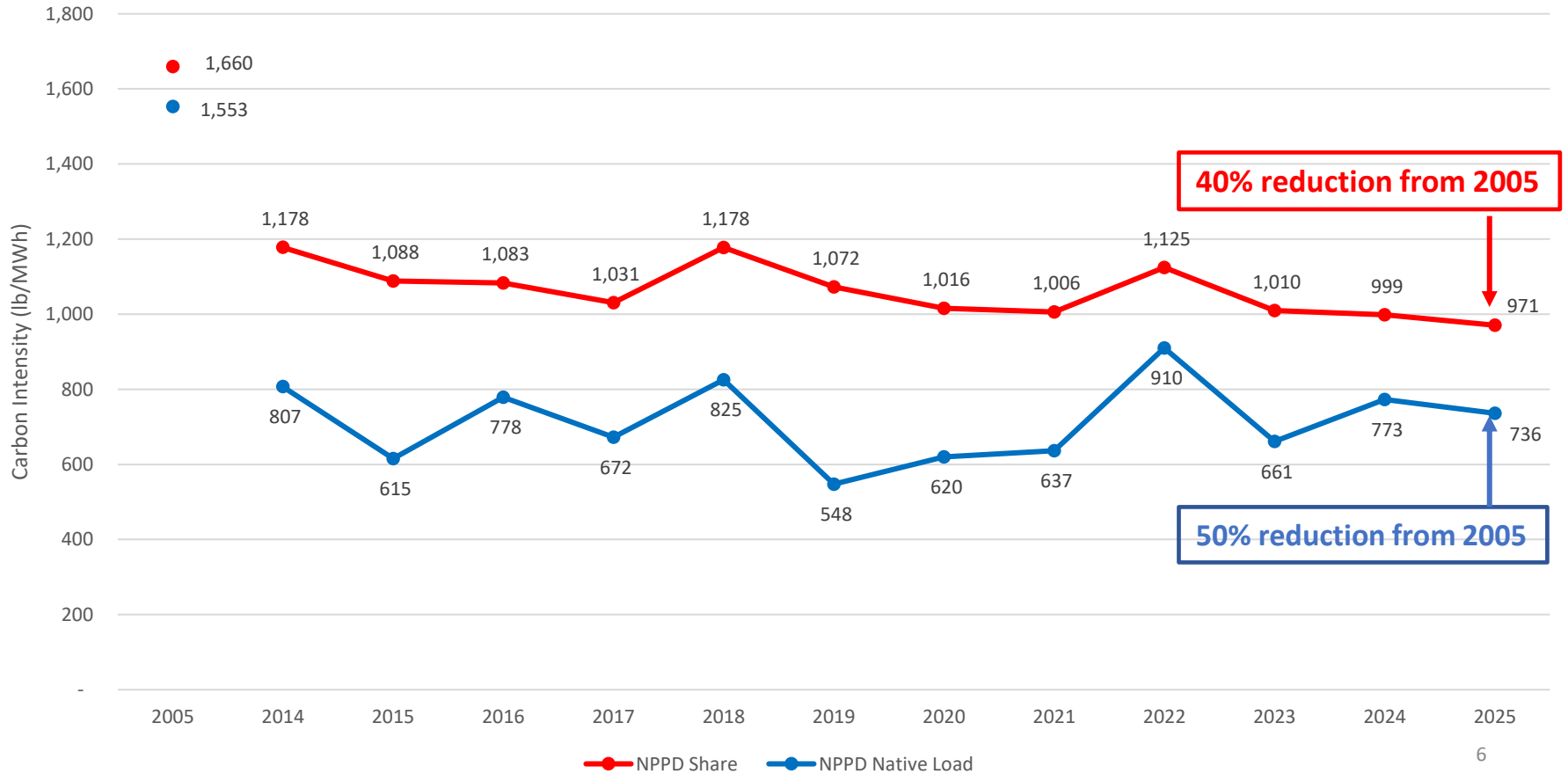
³Western Area Power Administration (WAPA) - Non-renewable share of WAPA generation added to market purchases

Variations of Carbon Emission from Year to Year

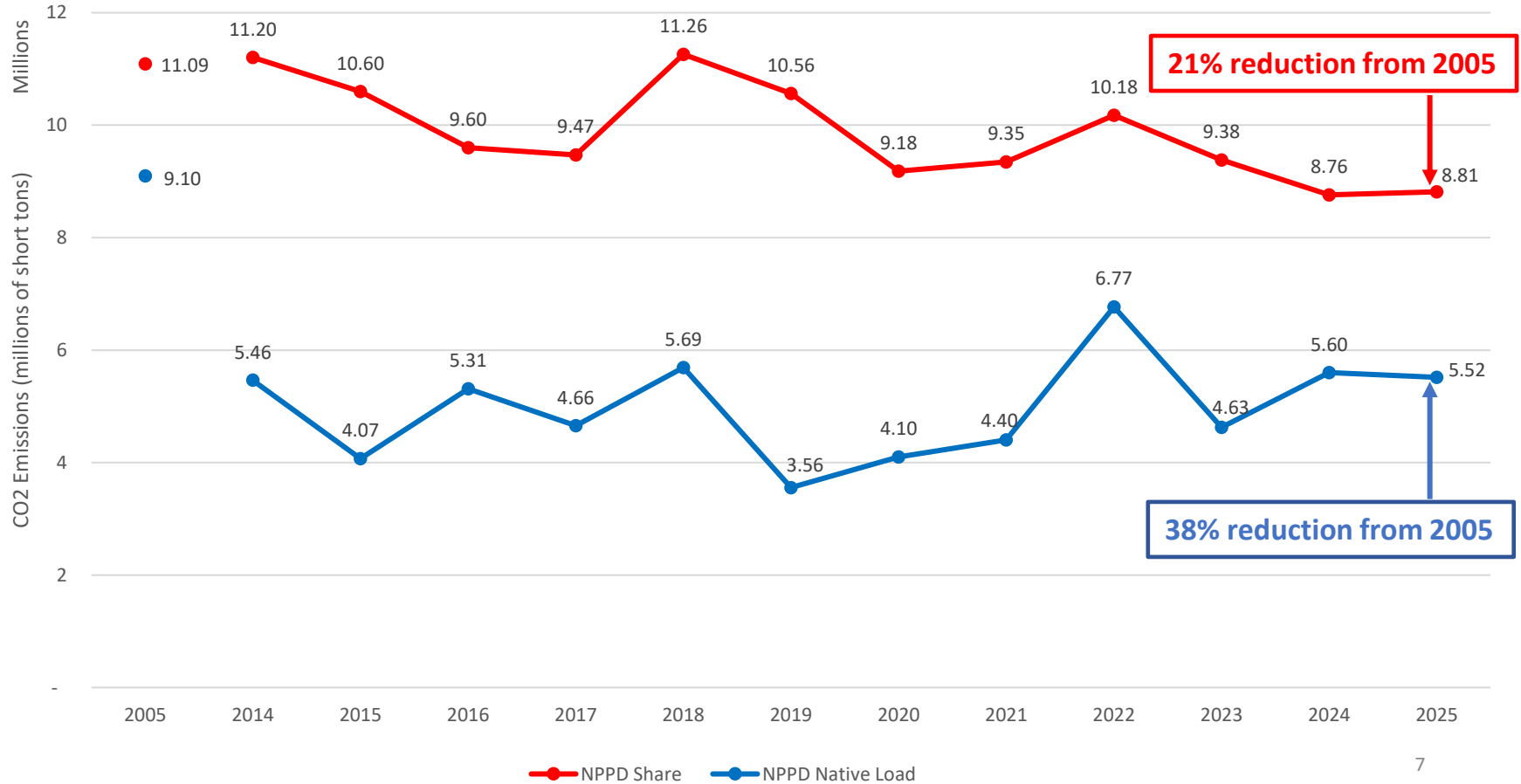
Variations can be associated with:

- Planned and unplanned outages at fossil fuel and nuclear units

NPPD Carbon Intensity (lb/MWh)



NPPD CO2 Emissions (Tons)



Generation Mix – NPPD Share vs. Native Load Share

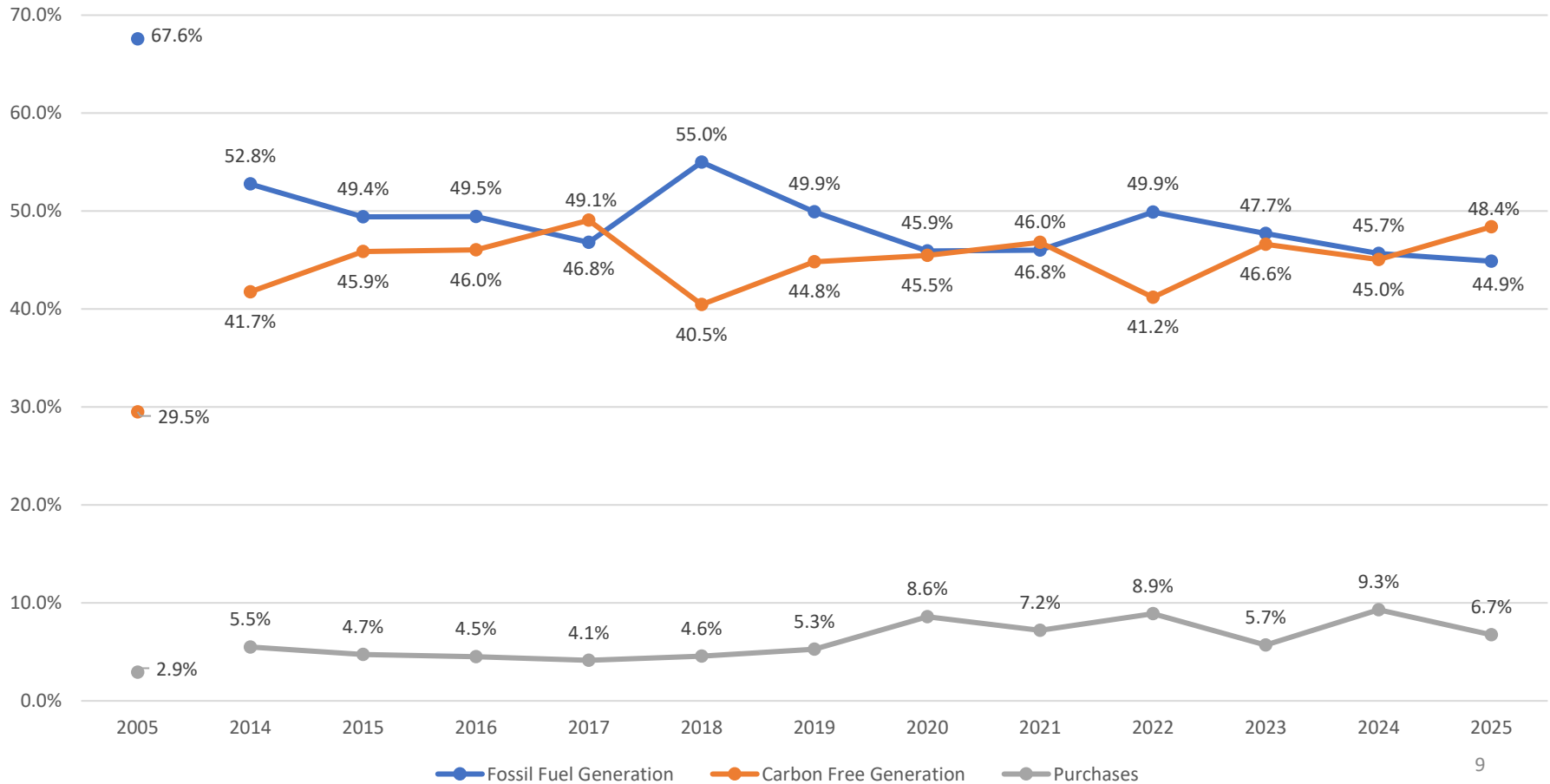
NPPD Share has a higher carbon footprint as it assumes all the carbon generated from the facilities we operate

Native Load has a lower carbon footprint as our net sales to the market are excluded from the carbon footprint

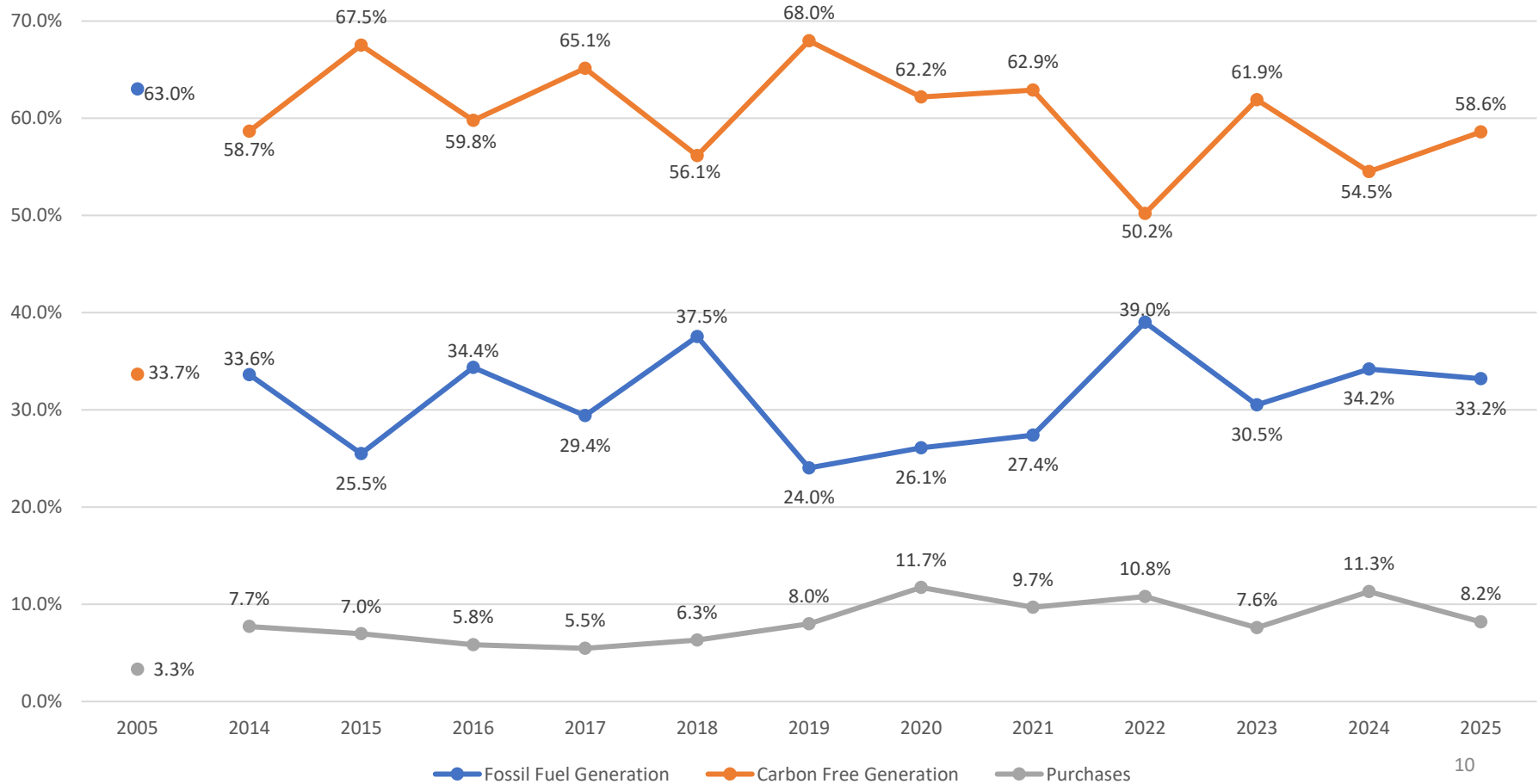
- Entities purchasing market energy would assume the carbon responsibility
- The majority of NPPD's net market sales would come from our fossil generation (coal and gas generating units)
- We do assume carbon from our market purchases

Note: NPPD is not obligated to any rule or guidelines on carbon assessments.

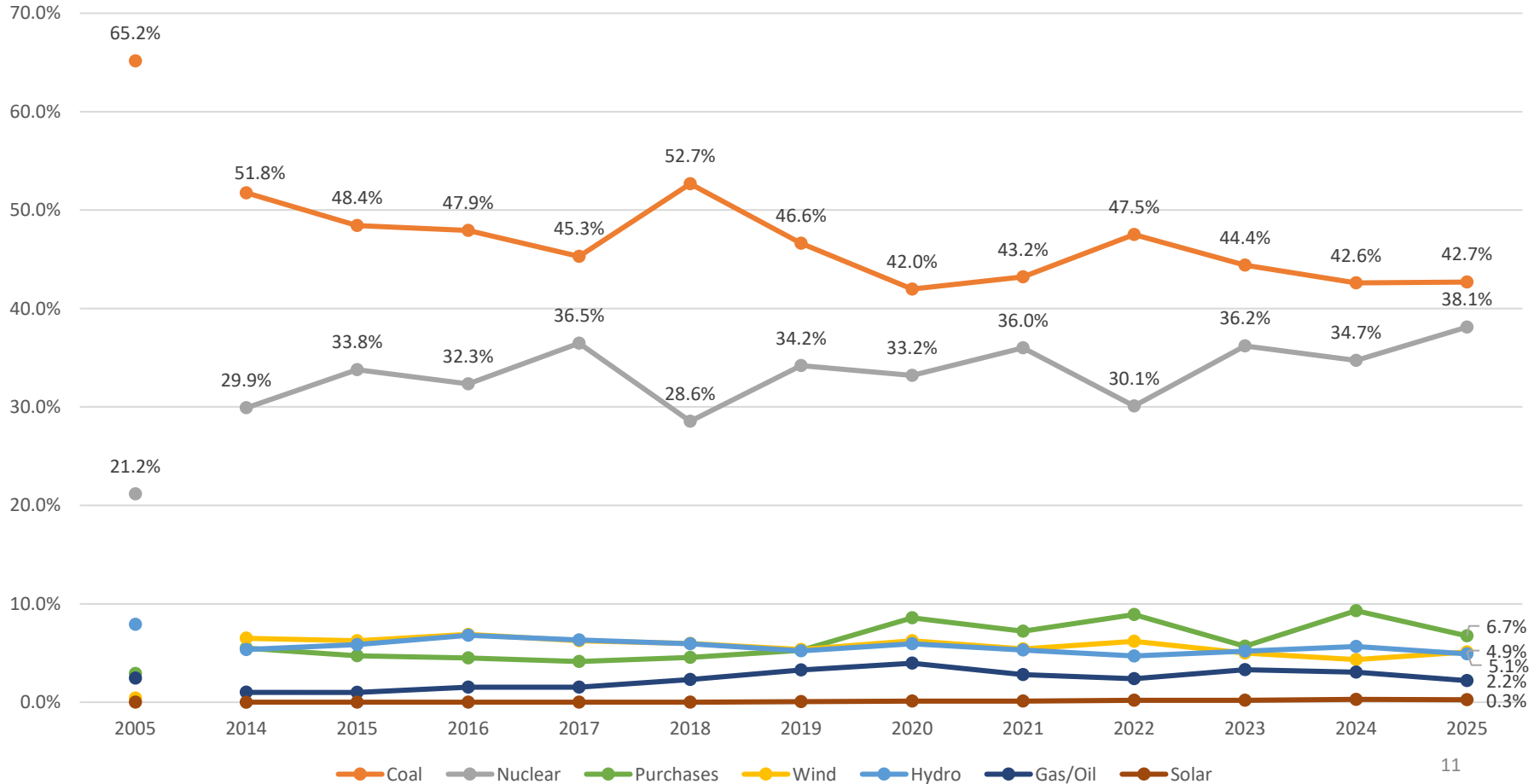
NPPD Share Generation Mix



NPPD Native Load - Generation Mix



NPPD Share - Generation Mix Portfolio



NPPD Share – Generation Mix Portfolio

Carbon Reduction Notes since 2005:

- NPPD's sole ownership of Cooper Nuclear Station (zero carbon emissions) contributed significantly to our carbon reduction since 2005
- Wind and Solar have been added since 2005 and provided reduction
- Market Purchases have increased since 2005 and resulted in a lower carbon footprint
 - ✓ Purchases often involve wind energy which has zero fuel costs and no carbon emissions
 - ✓ Purchases are difficult to assess as the electricity does not have a carbon/zero carbon ear tag unless a source is identified through purchase power agreements. Assumptions are made about carbon content for these sources

Looking Forward

- Carbon Regulatory uncertainty continues
- It is anticipated that Market Purchases will continue to drive down carbon portfolio as more zero carbon renewable sources are added to the market
- New Capacity Build-out Project, which are mainly natural gas units, will be 50% less carbon than coal units, but will increase our carbon tonnage profile, but will reduce our carbon lb/MWh emission rate
- Zero carbon Nuclear options are being evaluated
- Carbon Capture and Sequestration technologies for coal facilities are being evaluated



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Questions

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