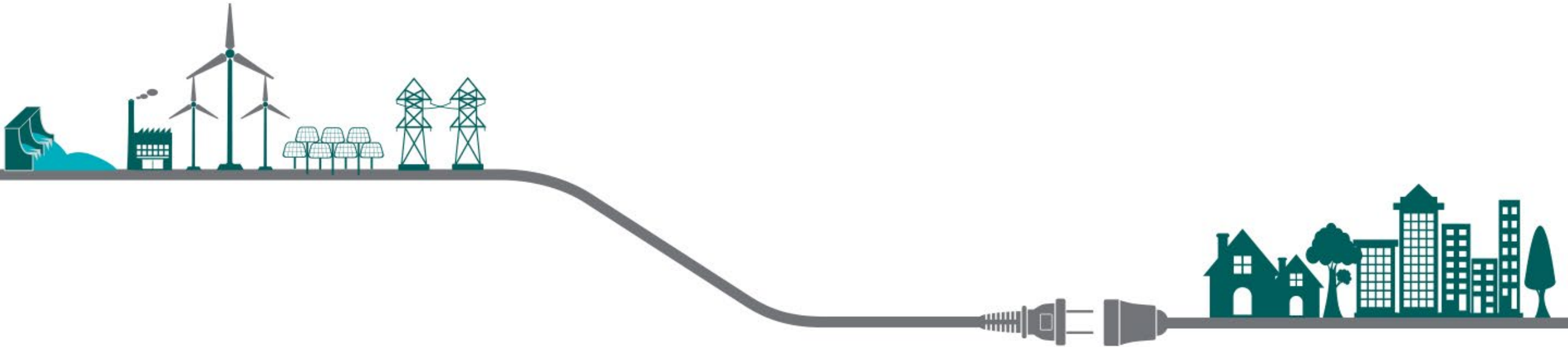


2023 IRP Carbon Price Forecast



John Carstensen, Joint Projects Leader
Sept. 8, 2022

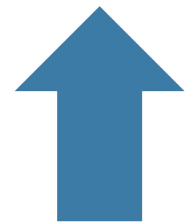
Carbon Assumptions in 2023 IRP



Carbon Adder

- Carbon adders are used to assign cost/risk of carbon emitting generation in portfolios
- Cost imposed on carbon emitting resources
 - Planning Case – What we assume will happen if there is a carbon adder
 - High/Low Case – Used to define stochastic analysis range

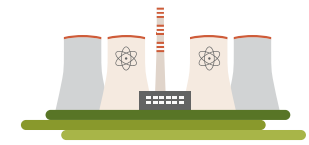
Carbon Price Influence On Resource Selection



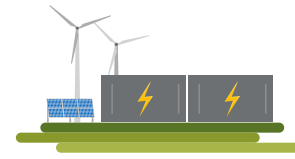
Carbon Price =



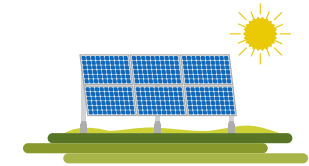
COAL ENERGY



NUCLEAR ENERGY



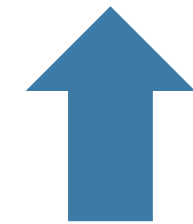
BATTERY STORAGE



SOLAR ENERGY



WIND ENERGY



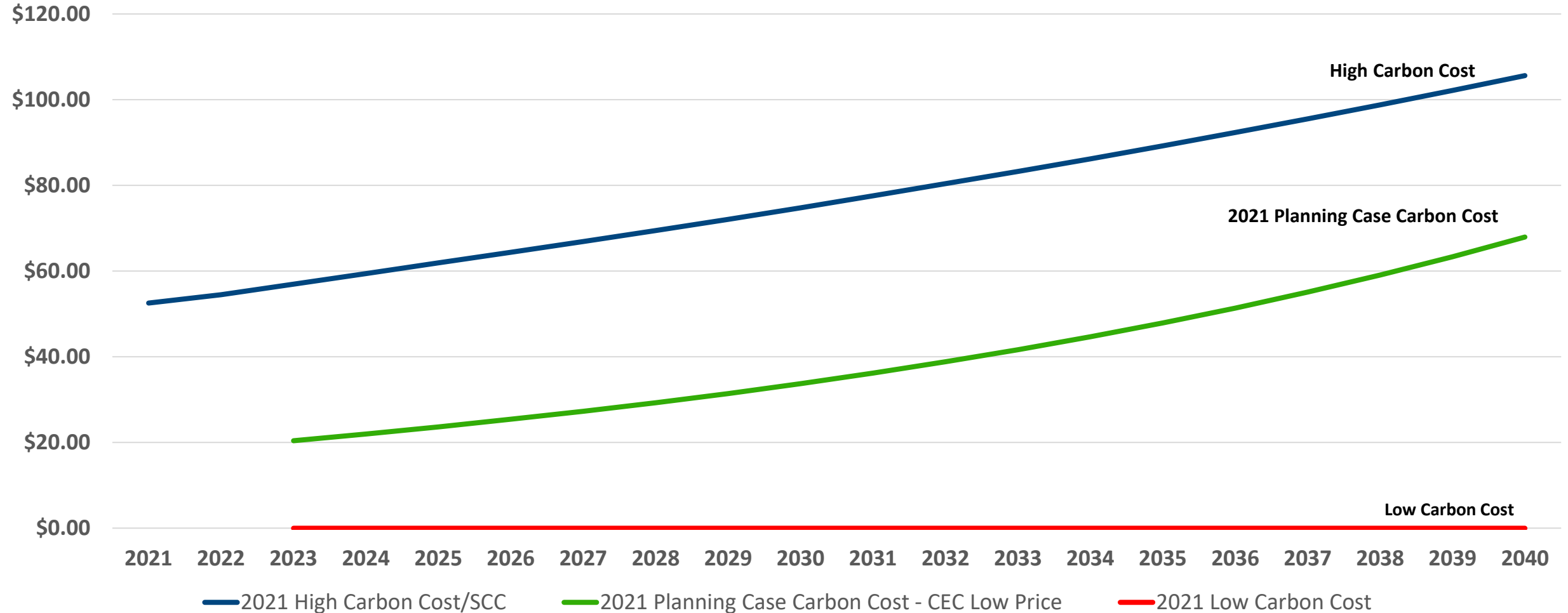
2021 IRP Carbon Price Assumptions



- Adder on CO₂ Emissions for Planning Purposes
- High Carbon Price Forecast
 - Technical Support Document: *Social Cost of Carbon, Methane, and Nitrous Oxide*. Interim Estimates under Executive Order 13990. Interagency Working Group on Social Cost of Greenhouse Gases, United States Government, February 2021
 - Started in 2021
- Planning Carbon Price Forecast
 - 2020 California Energy Commission's *Integrated Energy Policy Report (IEPR)* Preliminary Green House Gas Allowance Price Projections. Energy Assessment Division, August 2020
 - Low Price Scenario
 - Started in 2023
- Low Carbon Price Forecast
 - Zero dollars per ton

2021 IRP Carbon Price Forecast

Nominal Dollars per Ton CO₂



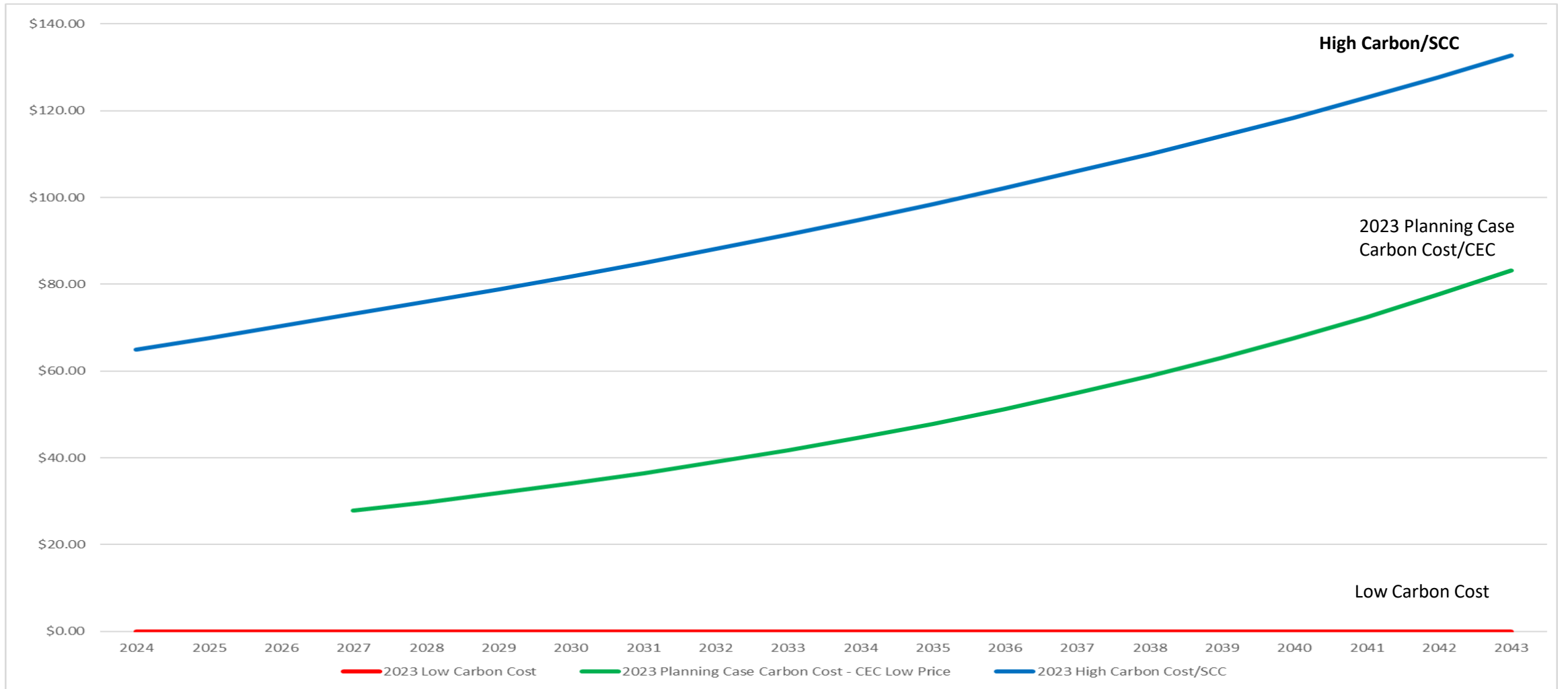
2023 IRP Carbon Price Assumptions



- Adder on CO₂ Emissions for Planning Purposes
- High Carbon Price Forecast
 - Technical Support Document: *Social Cost of Carbon, Methane, and Nitrous Oxide*. Interim Estimates under Executive Order 13990. Interagency Working Group on Social Cost of Greenhouse Gases, United States Government, February 2021
 - Start in 2024
- Planning Carbon Price Forecast
 - 2020 California Energy Commission's *Integrated Energy Policy Report (IEPR)* Preliminary Greenhouse Gas Allowance Price Projections. Energy Assessment Division, December 2021
 - Low Price Scenario
 - Start in 2027
- Low Carbon Price Forecast
 - Zero dollars per ton

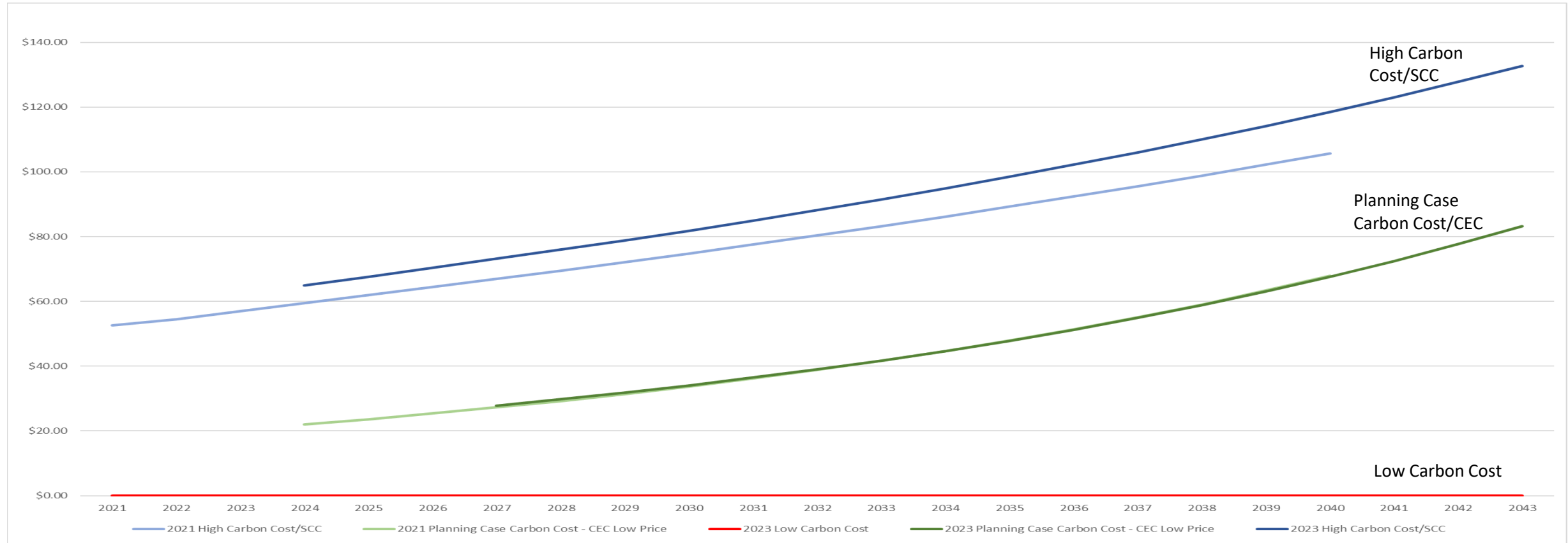
2023 IRP Carbon Price Forecast

Nominal Dollars per Ton CO₂



2021 IRP vs 2023 IRP Carbon Price Forecast

Nominal Dollars per Ton CO₂



Questions?

