



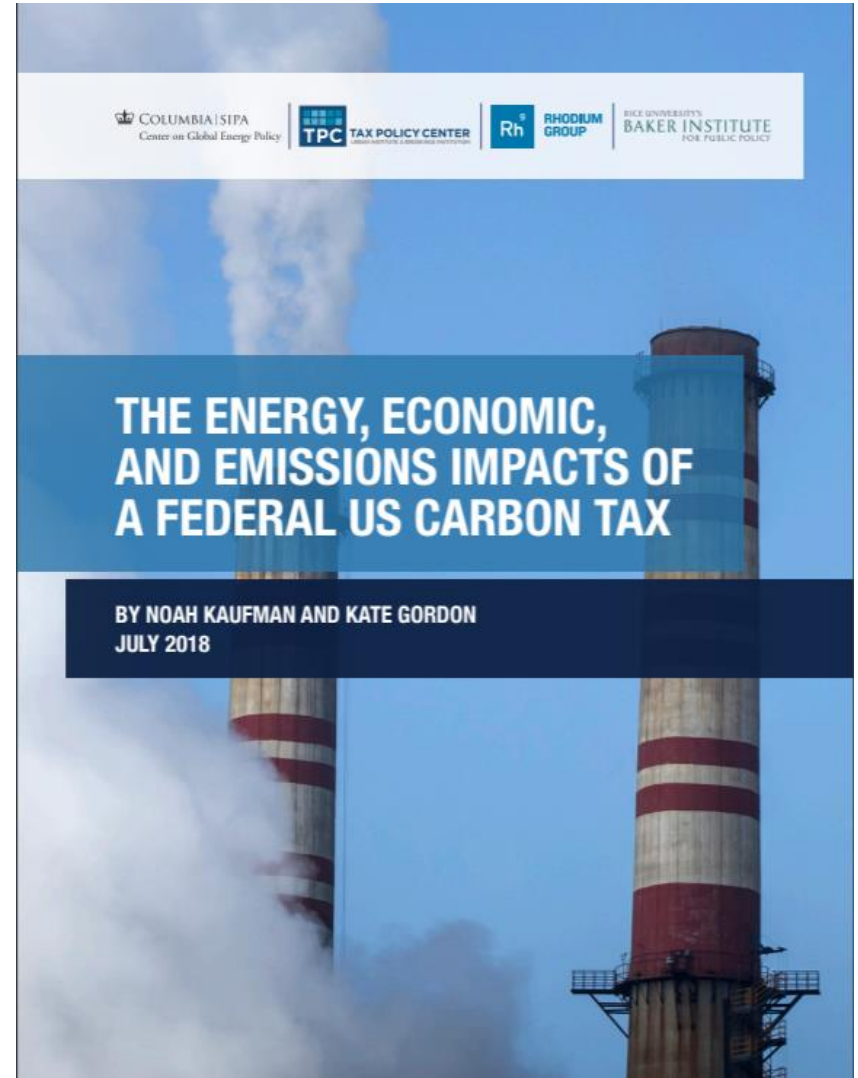
Emissions, Energy Market, and economic Impacts of a Federal US Carbon Tax

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May 2019*



Overview of CGEP Carbon Tax Research Initiative

- Launched in January 2018
- Collaboration among CGEP, broader Columbia community, and external experts
- Objective: produce clear and objective analysis that enables the thoughtful consideration of federal carbon tax policy in the United States



Modeling the potential impacts of federal carbon tax policies

- Energy and emissions impacts from Rhodium Group using the RHG-NEMS model
- Macroeconomic and distributional outcomes, from the Baker Institute for Public Policy at Rice University
- Tax burden across the income distribution, from the Urban-Brookings Tax Policy Center
- Policy design assumptions across models:
 - Three tax trajectories starting in 2020 at \$14, \$50 and \$73 per ton
 - Revenues used for rebates, deficit reductions, tax swaps
- Outputs of Rhodium Group analysis are inputs to the Baker Institute and Tax Policy Center studies

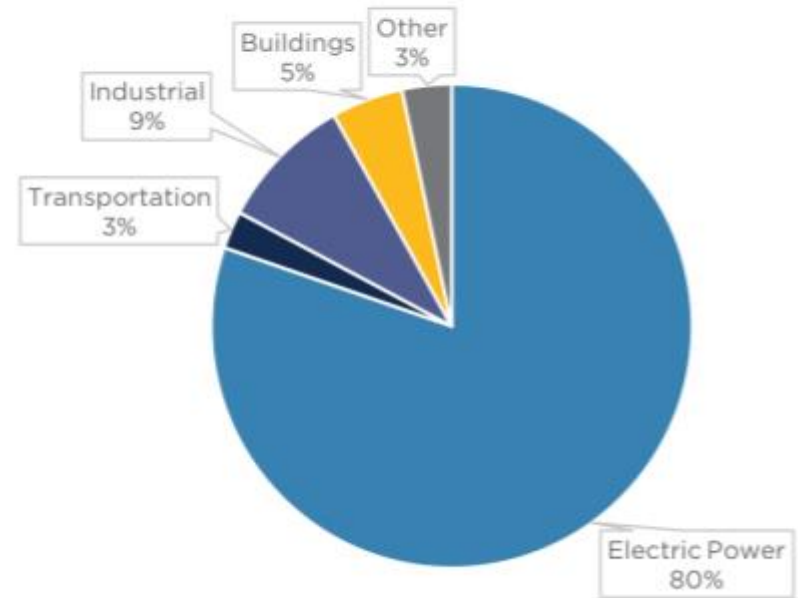


Emissions Impacts of a Carbon Tax (alone)

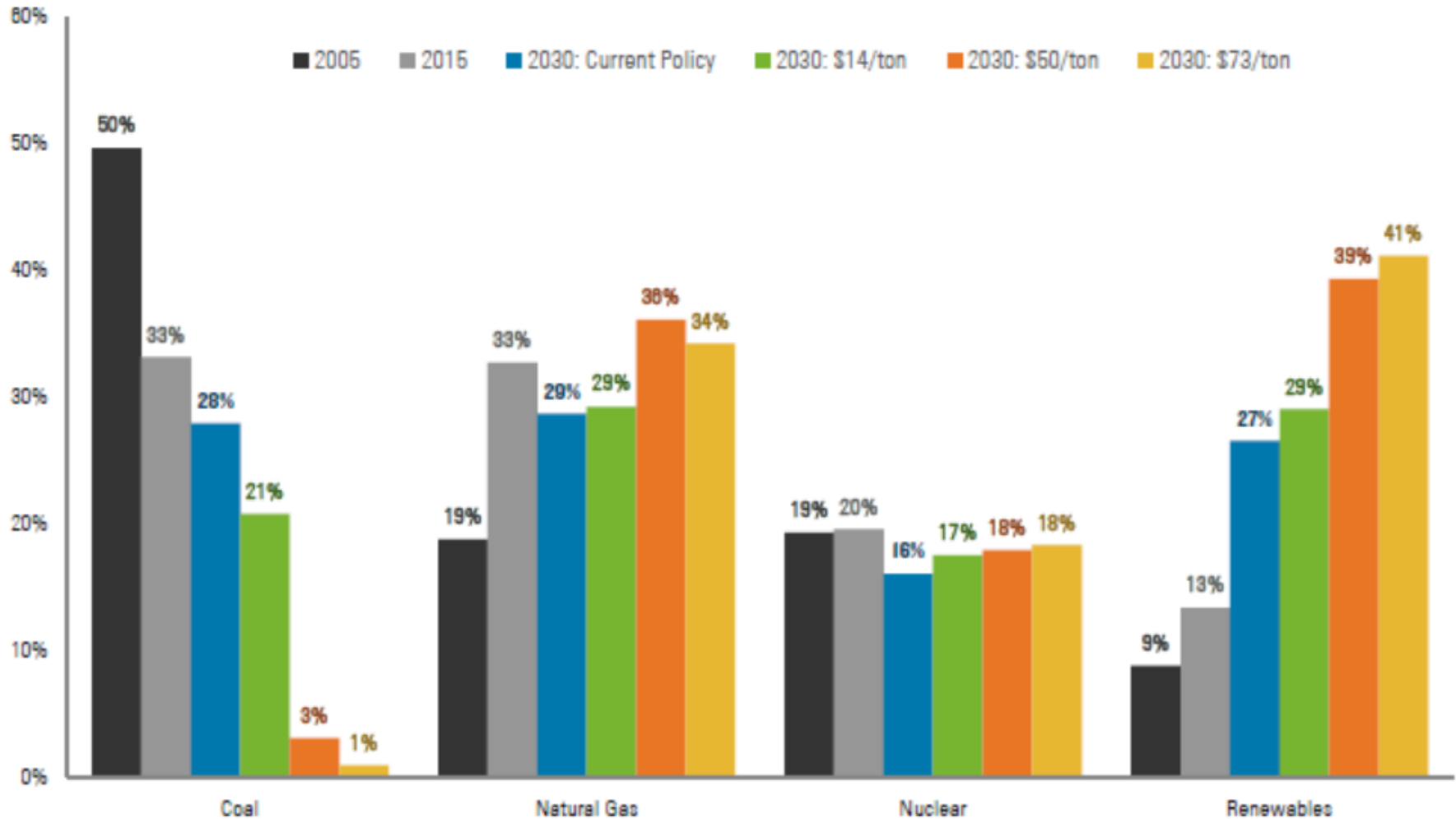
GHG Emissions in 2030
(percent change from 2005 levels)



Emissions Reductions by Sector in 2030:
\$50/Ton Scenario vs. Current Policy Scenario



Impacts on Electricity Generation Mix of a Carbon Tax

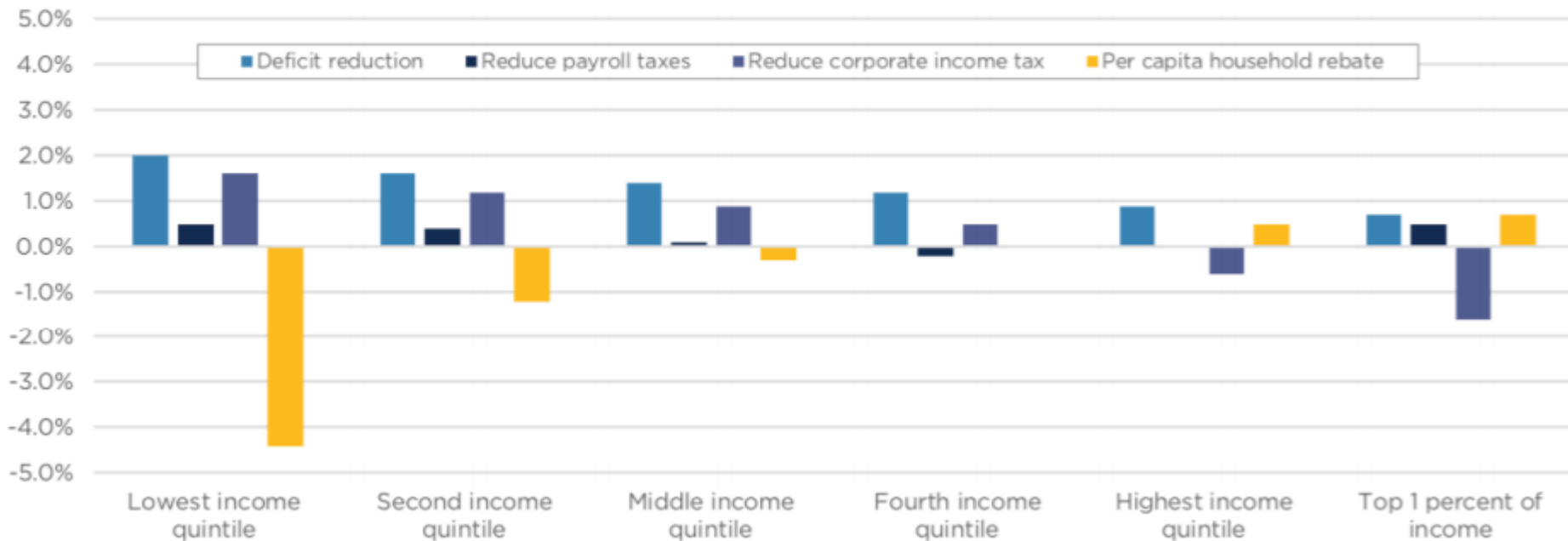


Source: EIA, Rhodium Group analysis



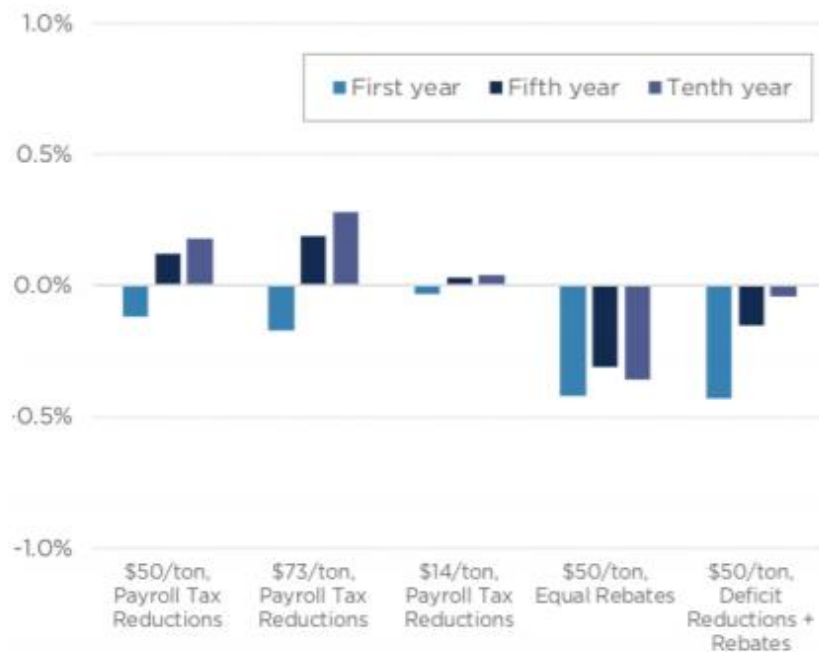
Impacts on Households across the Income Distribution

Change in Tax Burden as a Percent on Pre-Tax Income in 2025: \$50/Ton Scenario

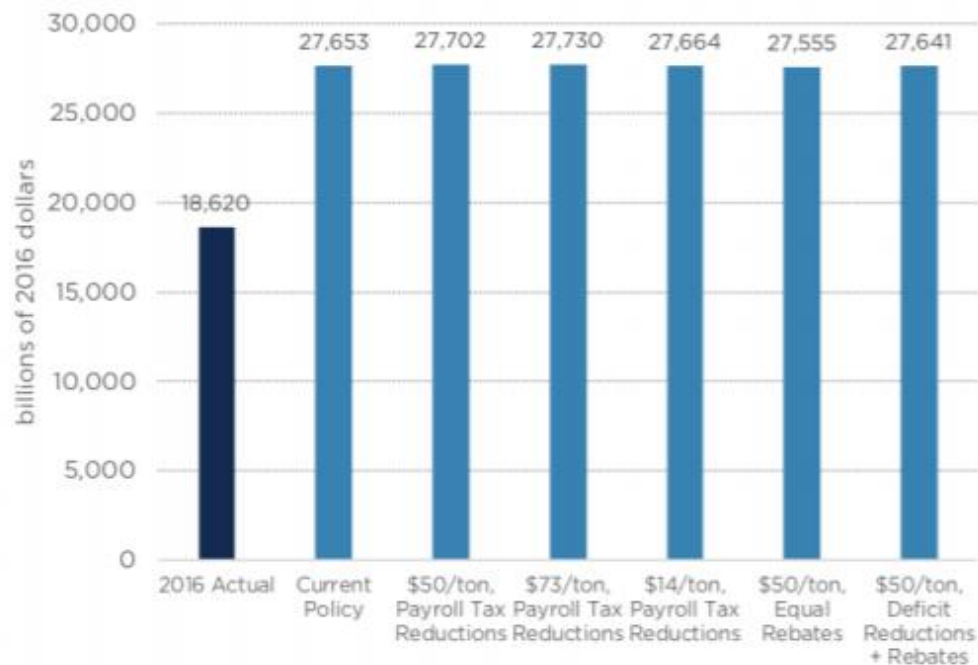


Impacts on Gross Domestic Product

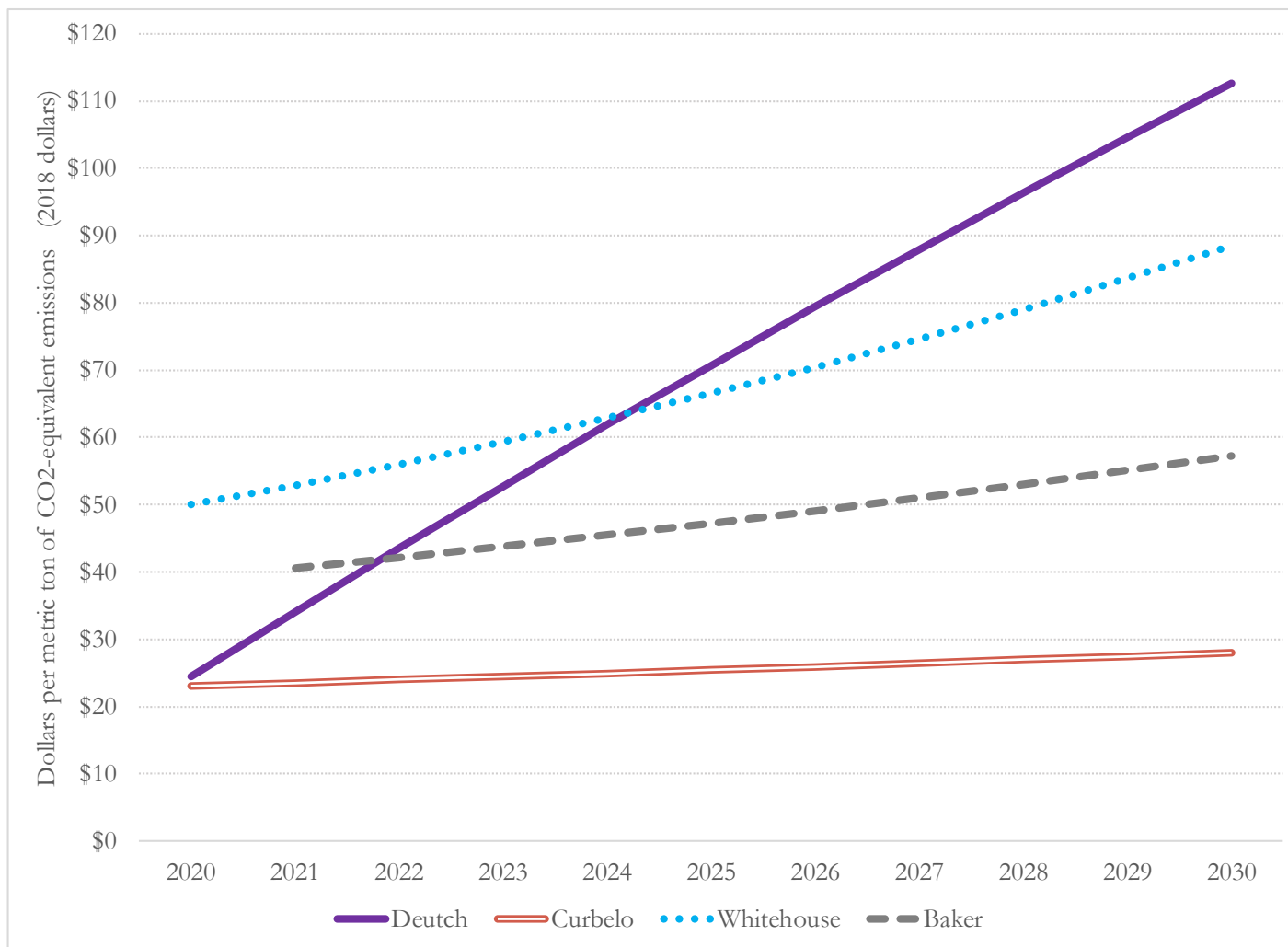
Percent Impacts on GDP vs. Current Policy Scenario



US Gross Domestic Product after 10 Years of Carbon Tax



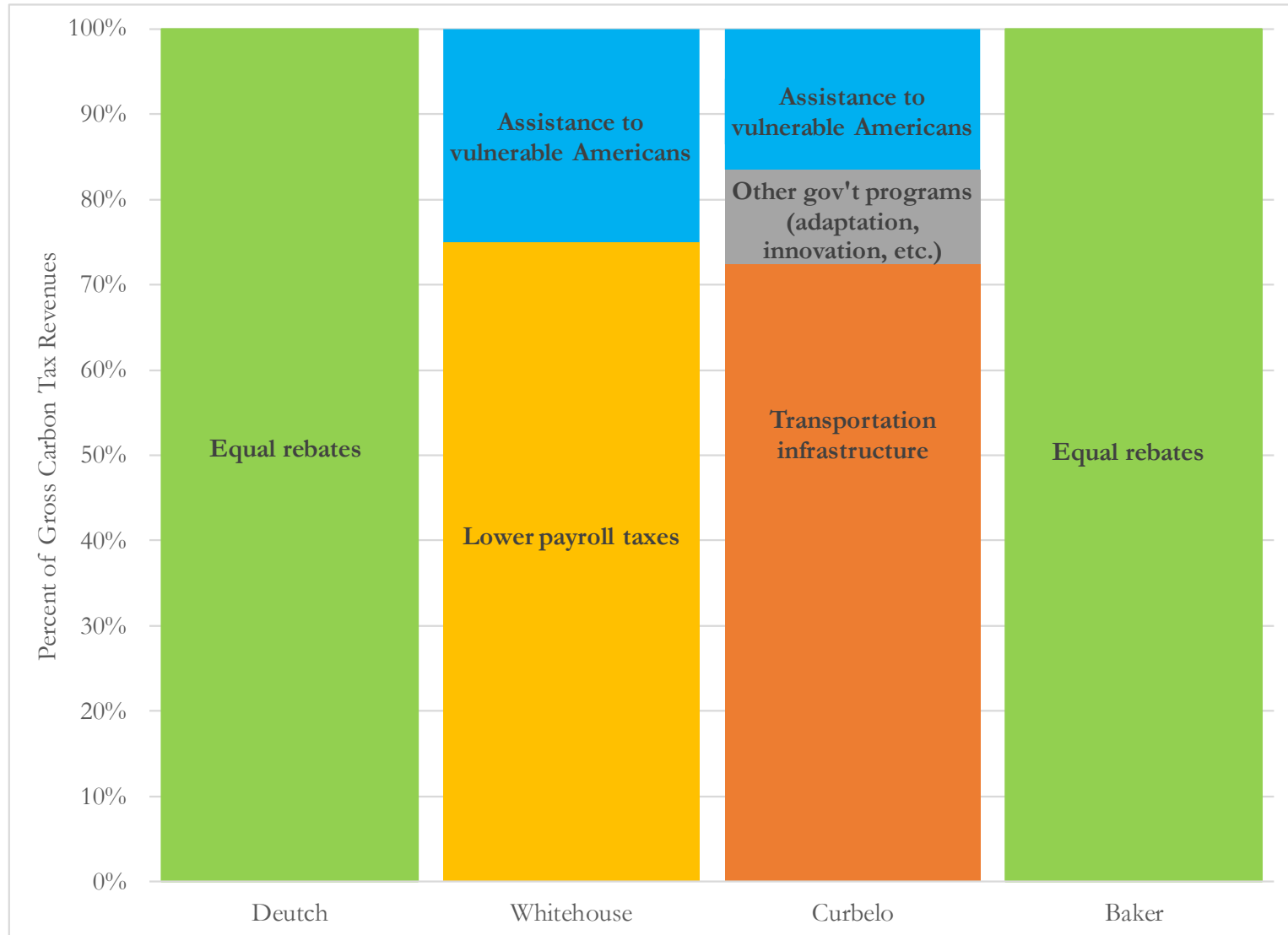
Comparison of Carbon Tax Proposals: Tax Rates



Notes: Assumes an annual inflation rate of 2 percent per year.
The Baker Proposal has not been formally proposed. A 2018 Climate Leadership Council report designated the carbon tax rates displayed above as its "mid-point" pathway (Climate Leadership Council 2018).



Comparison of Carbon Tax Proposals: Revenues



Comparison of Carbon Tax Proposals: Regulatory Changes

	Deutch	Whitehouse	Curbelo	Baker (indications)
Modifications to existing policies:				
EPA regulations of GHGs from stationary sources covered by the carbon tax	Moratorium ¹	Retained	Moratorium ¹	Eliminated
EPA regulation of motor vehicle GHGs	Retained	Retained	Retained	Retained
EPA regulations of emissions not covered by the tax	Retained	Retained	Retained	Retained
Fuel excise taxes	Retained	Retained	Eliminated	Retained
Payment of state-level carbon prices	Retained	Retained	Temp. credit ²	Retained
Tort liability for emitters	Retained	Retained	Retained	Eliminated
Policies in addition to the carbon tax:				
HFCs/other flourinated gases	Fee on HFCs	Separate Fee	Contingent ³	May be added ⁴
Methane and other GHGs from fossil fuel production	No	Separate Fee	No	May be added ⁴

Notes: The Baker proposal has not released formal legislation; the information above is based on preliminary indications and assumptions made in the reports released by the Climate Leadership Council (Baker et al. 2017, Climate Leadership Council 2018).

¹ Regulations are eliminated as long as emissions targets stipulated in the proposed legislation are achieved.

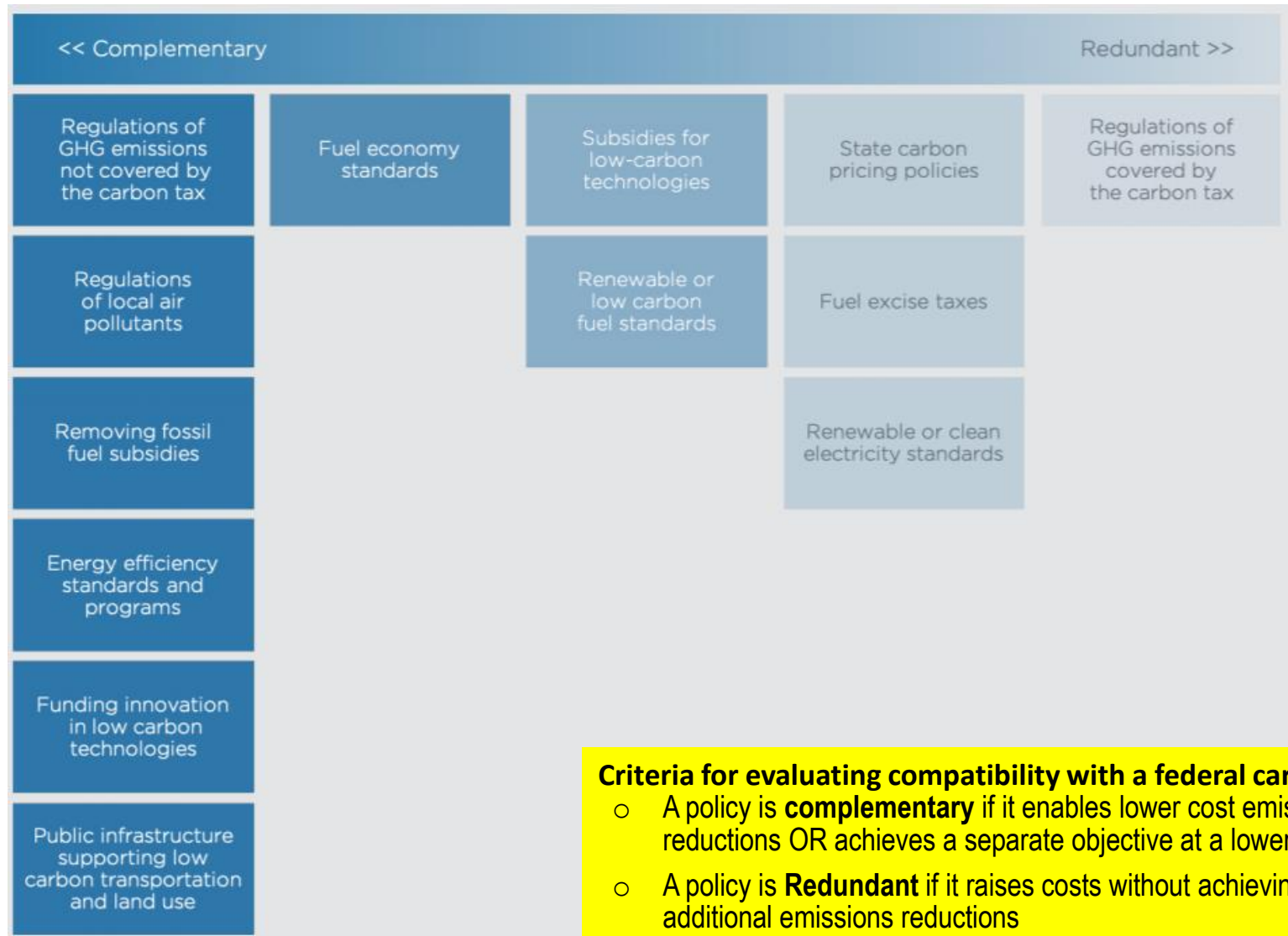
² A temporary and declining credit against any carbon price paid at the state level, as in California or the RGGI states, that phases out after five years.

³ The carbon tax covers HFC emissions if the United States has not ratified the Kigali Amendment to the Montreal Protocol.

⁴ The Climate Leadership Council has indicated that it intends to propose measures that cover non-CO₂ greenhouse gas emissions (Climate Leadership Council 2018).



Compatibility of (well-designed) carbon taxes w/ other policies



Criteria for evaluating compatibility with a federal carbon tax:

- A policy is **complementary** if it enables lower cost emissions reductions OR achieves a separate objective at a lower cost
- A policy is **Redundant** if it raises costs without achieving additional emissions reductions

