BROOKINGS | QUALITY. INDEPENDENCE. IMPACT.

COLUMBIA | SIPA
Center on Global Energy Policy

The Risk of Fiscal Collapse in Coal-Reliant Communities

Adele C. Morris, Ph.D.
Senior Fellow
Policy Director, Climate & Energy Economics Project
Brookings

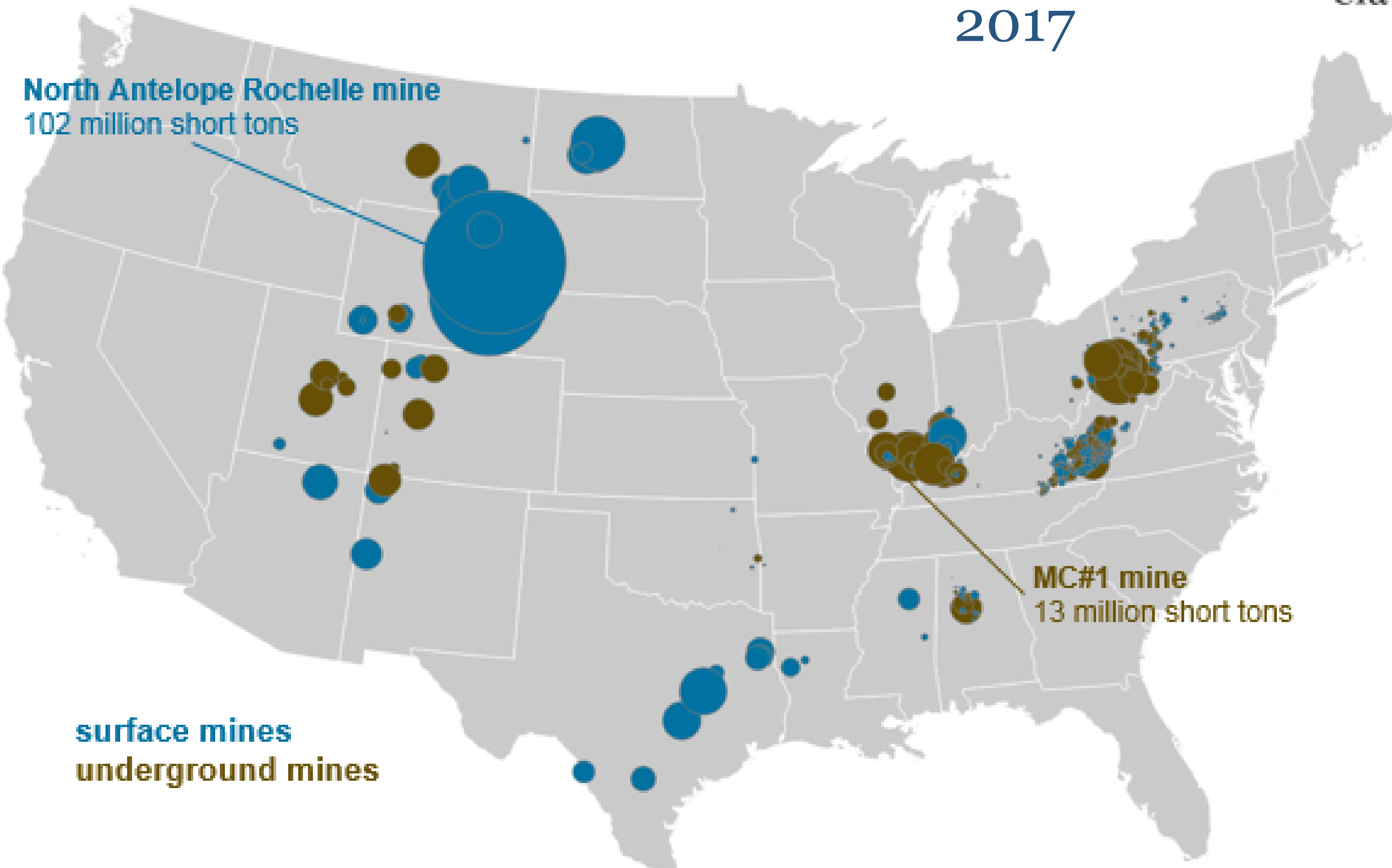
Noah Kaufman, Ph.D.
Research Scholar & Director of Carbon Tax Research Initiative
SIPA Center on Global Energy Policy
Columbia University

Siddhi Doshi
Senior Research Assistant
Brookings

July 15, 2019

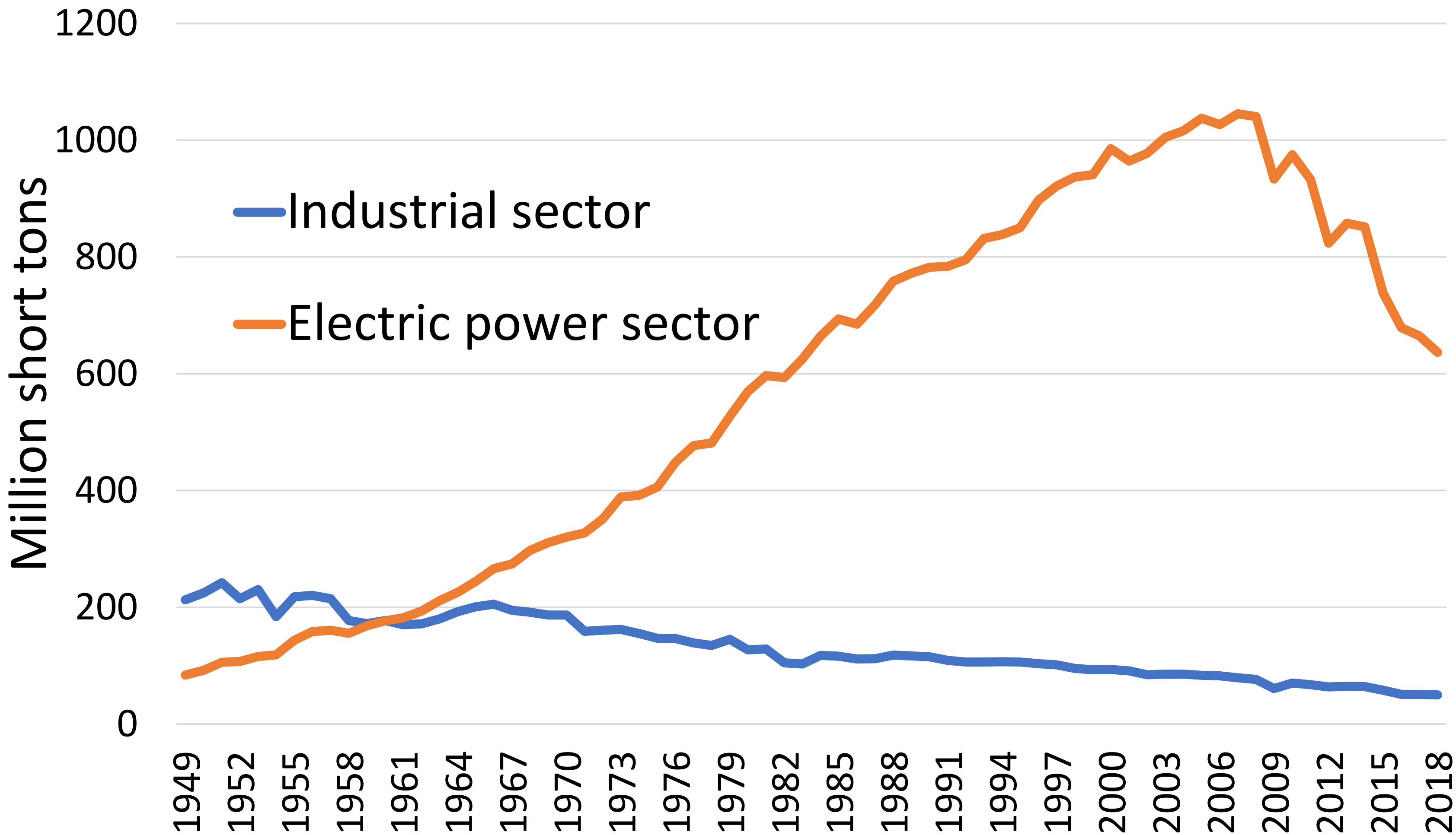
Surface and underground coal mines in the United States

2017



https://www.eia.gov/todayinenergy/detail.php?id=38172

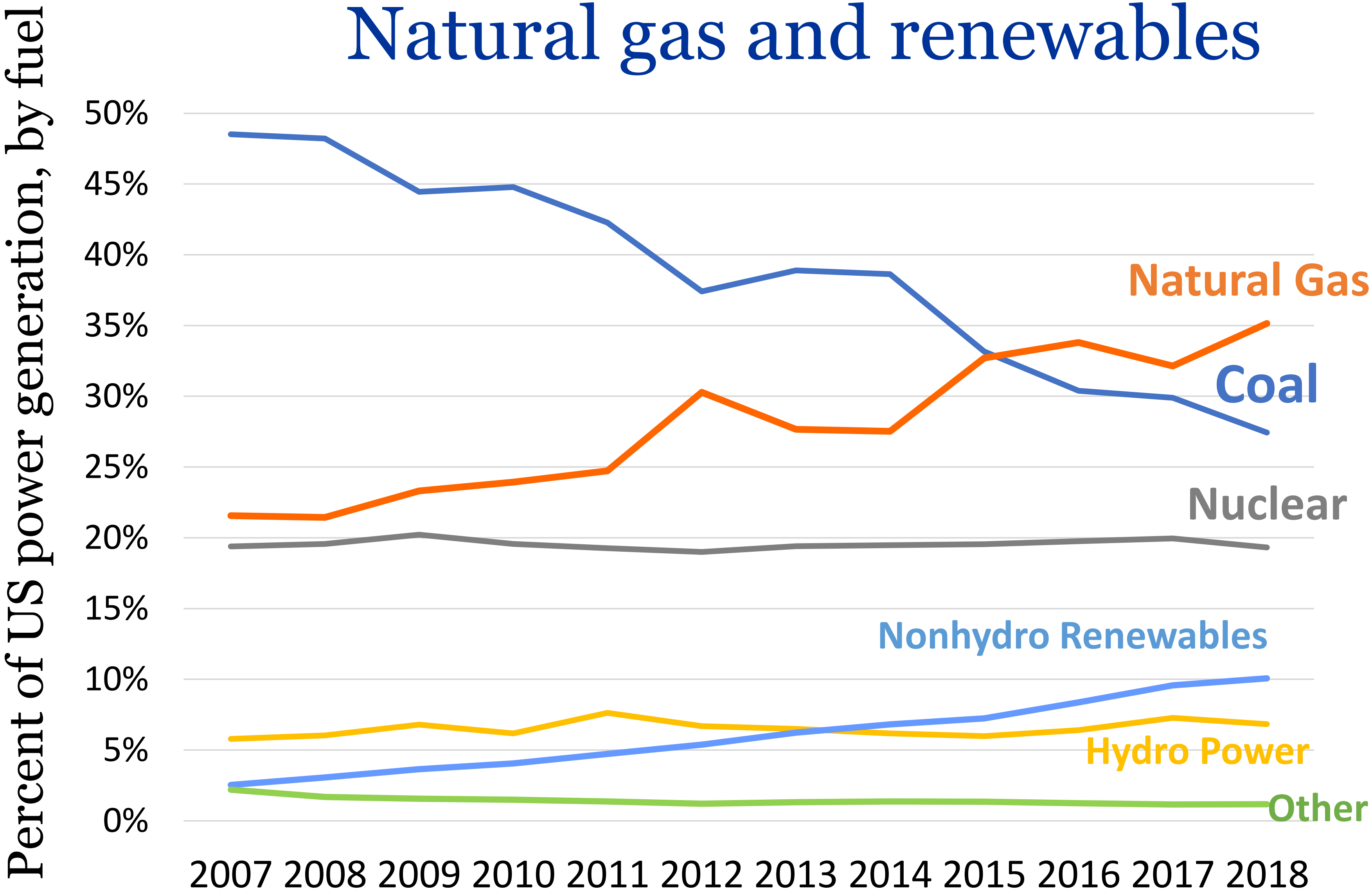
US coal use has declined steeply in US power sector



Source: U.S. Energy Information Administration.

Note: Two series have been merged to achieve continuity of data.

Coal's key competitors: Natural gas and renewables



Source: U.S. Energy Information Administration, *Short-Term Energy Outlook,* March 2019

What happens to US coal production with climate policy?

US Energy Information Administration's Annual Energy Outlook (AEO 2018) modeled:

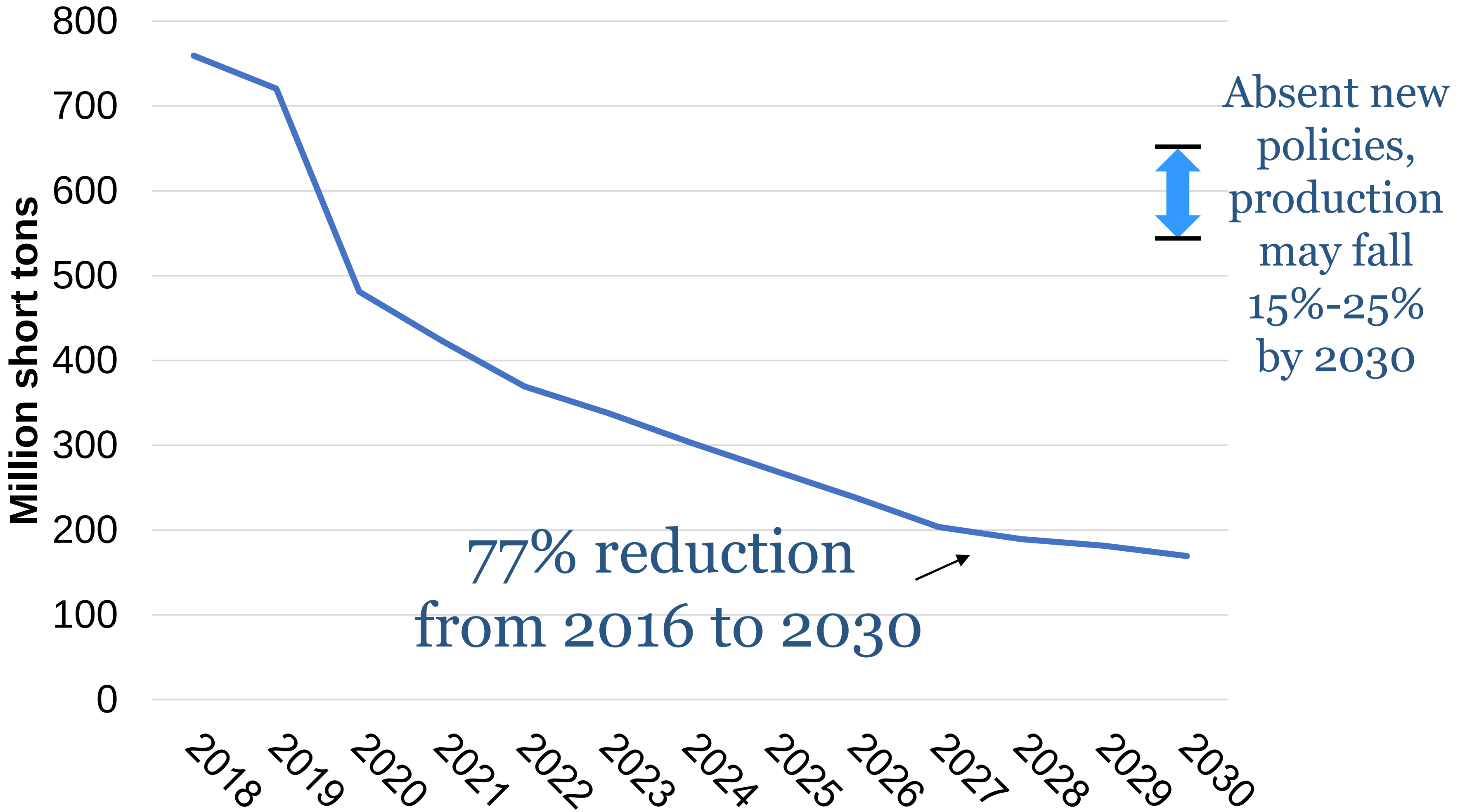
-- a price on CO_2 from the power sector (only)

-- $25 /ton CO_2 in 2020, rising at 5 % real annually

Projections help anticipate a range of possible outcomes

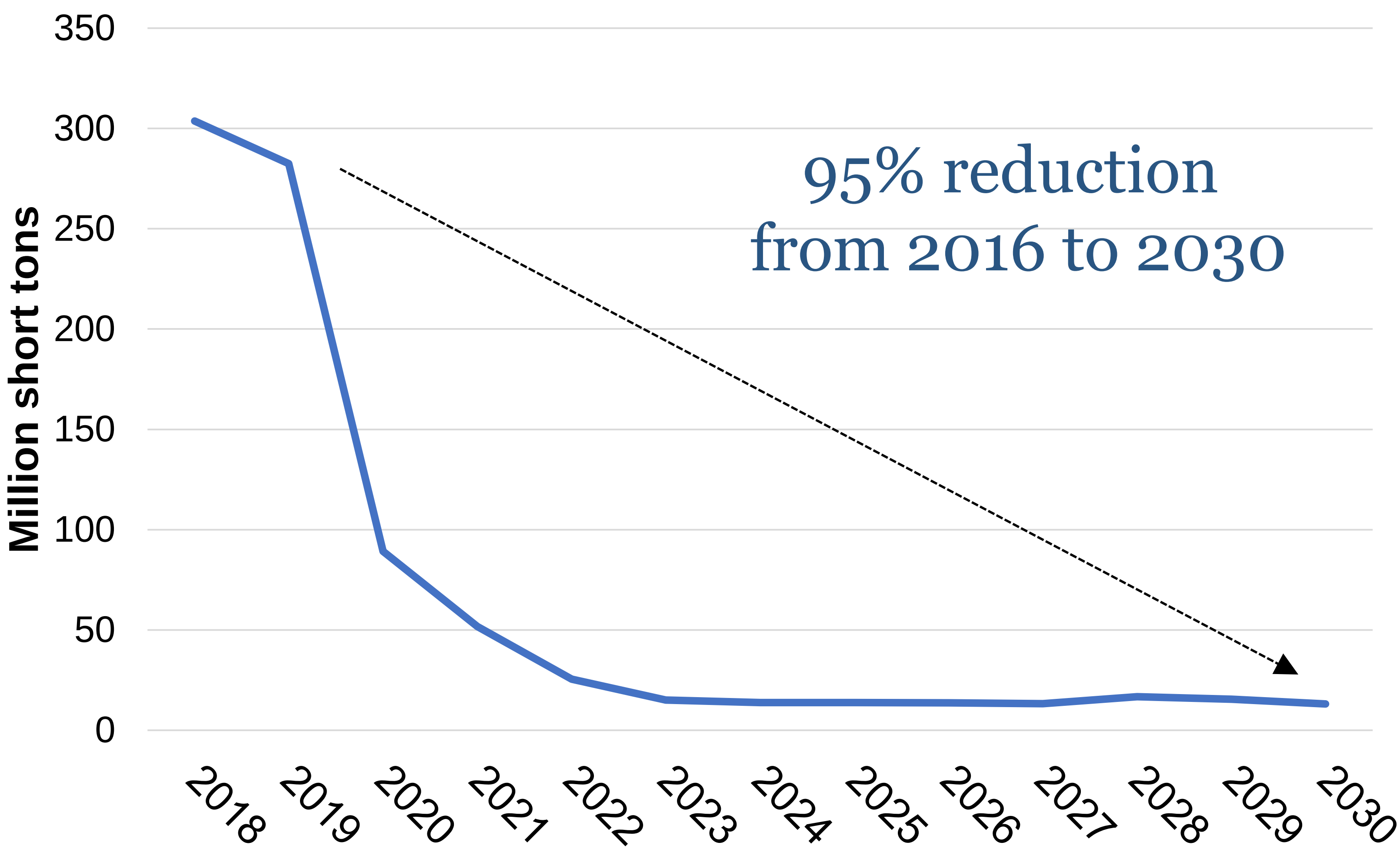
Large uncertainties around policy & model assumption/parameters

CO_2 Price Case: Total US Coal Production



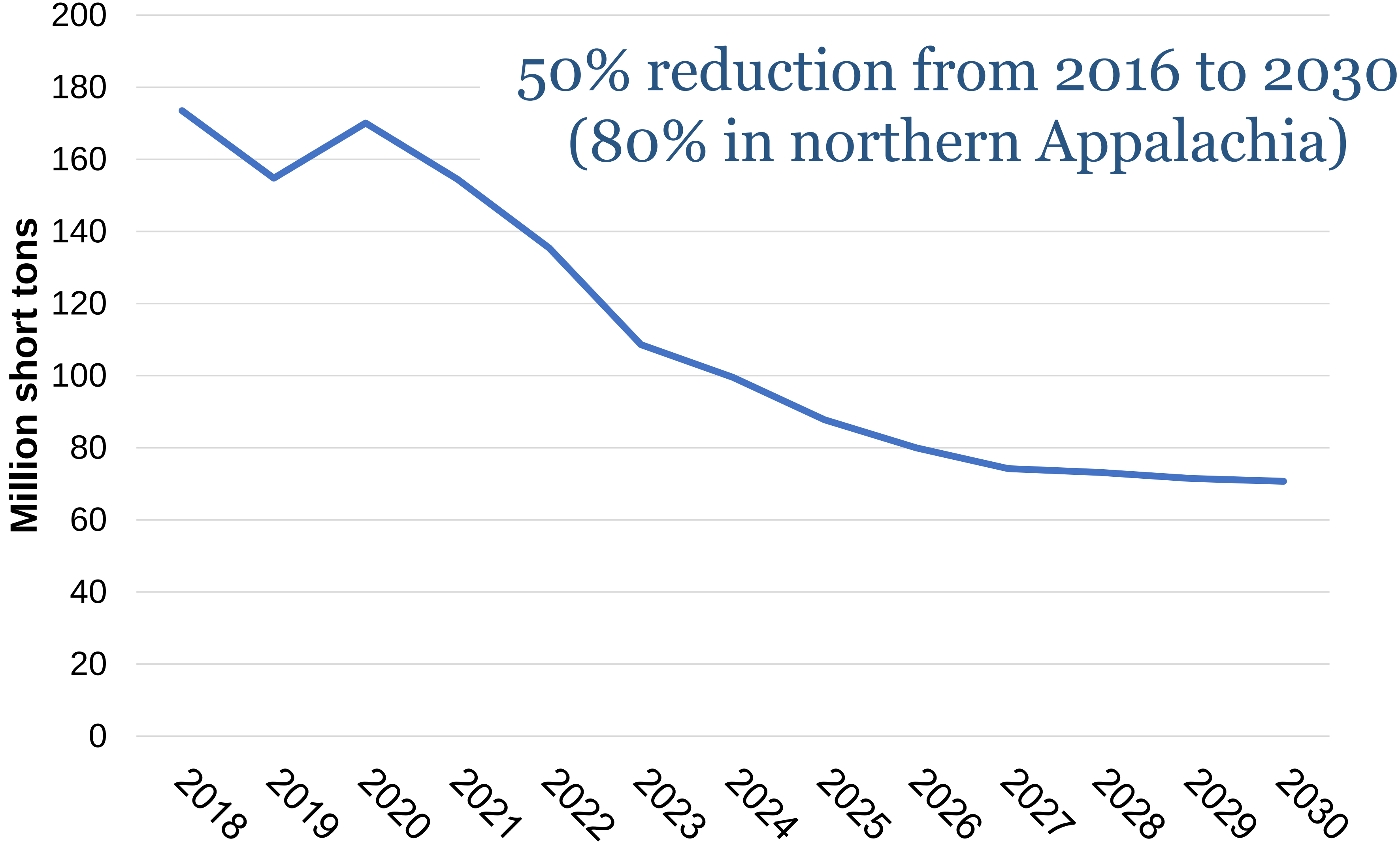
Source: U.S. EIA's $25 per ton of CO_2 "side case" from Annual Energy Outlook 2018

CO_2 Price Case: Powder River Basin Coal Production



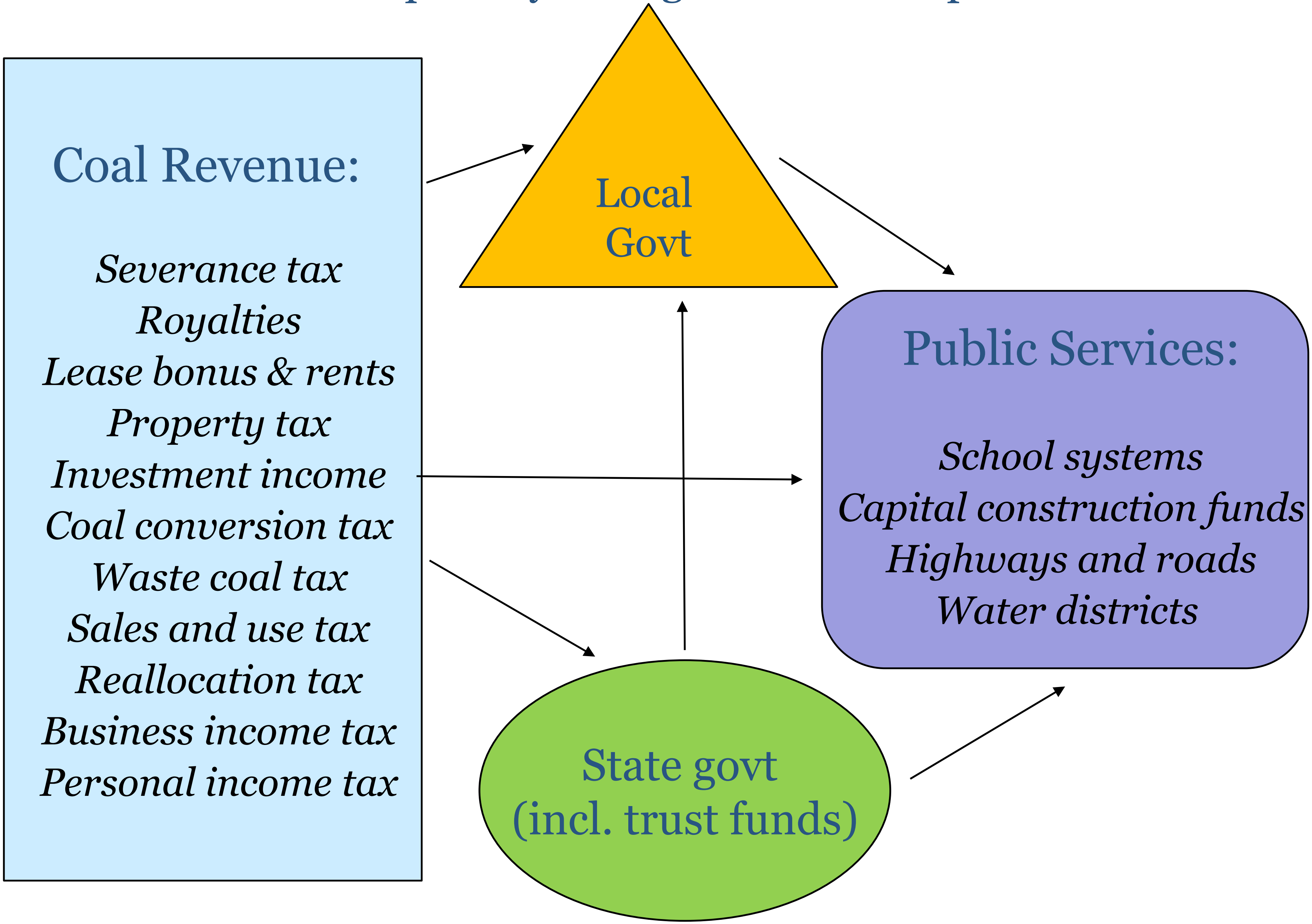
Source: U.S. EIA's $25 per ton of CO_2 "side case"
from Annual Energy Outlook 2018

CO_2 Price Case: Appalachia Coal Production



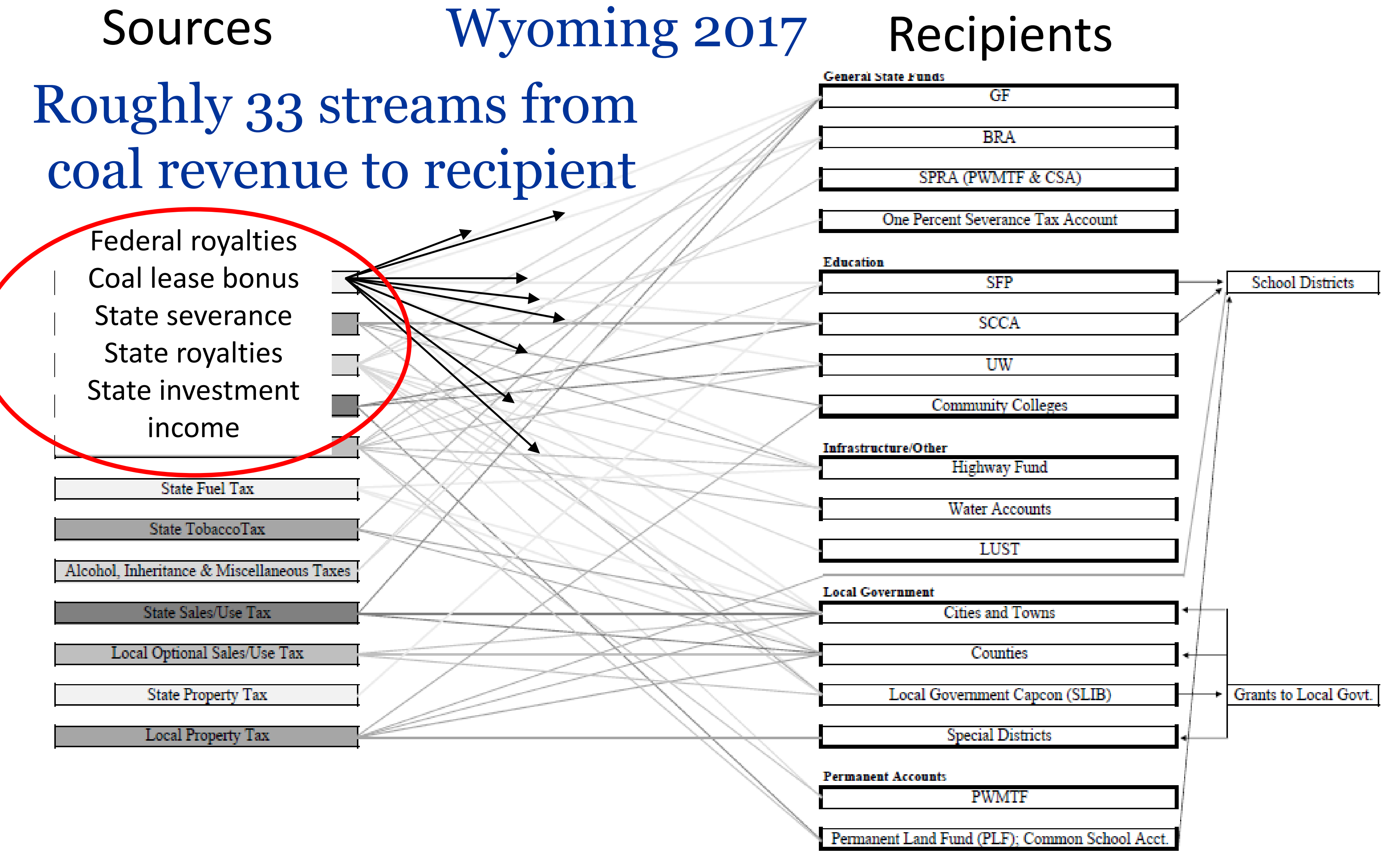
Source: U.S. EIA's \$25 per ton of CO_2 "side case" from Annual Energy Outlook 2018
Includes northern, southern, and central Appalachia

Hard to track and quantify local government dependence on coal



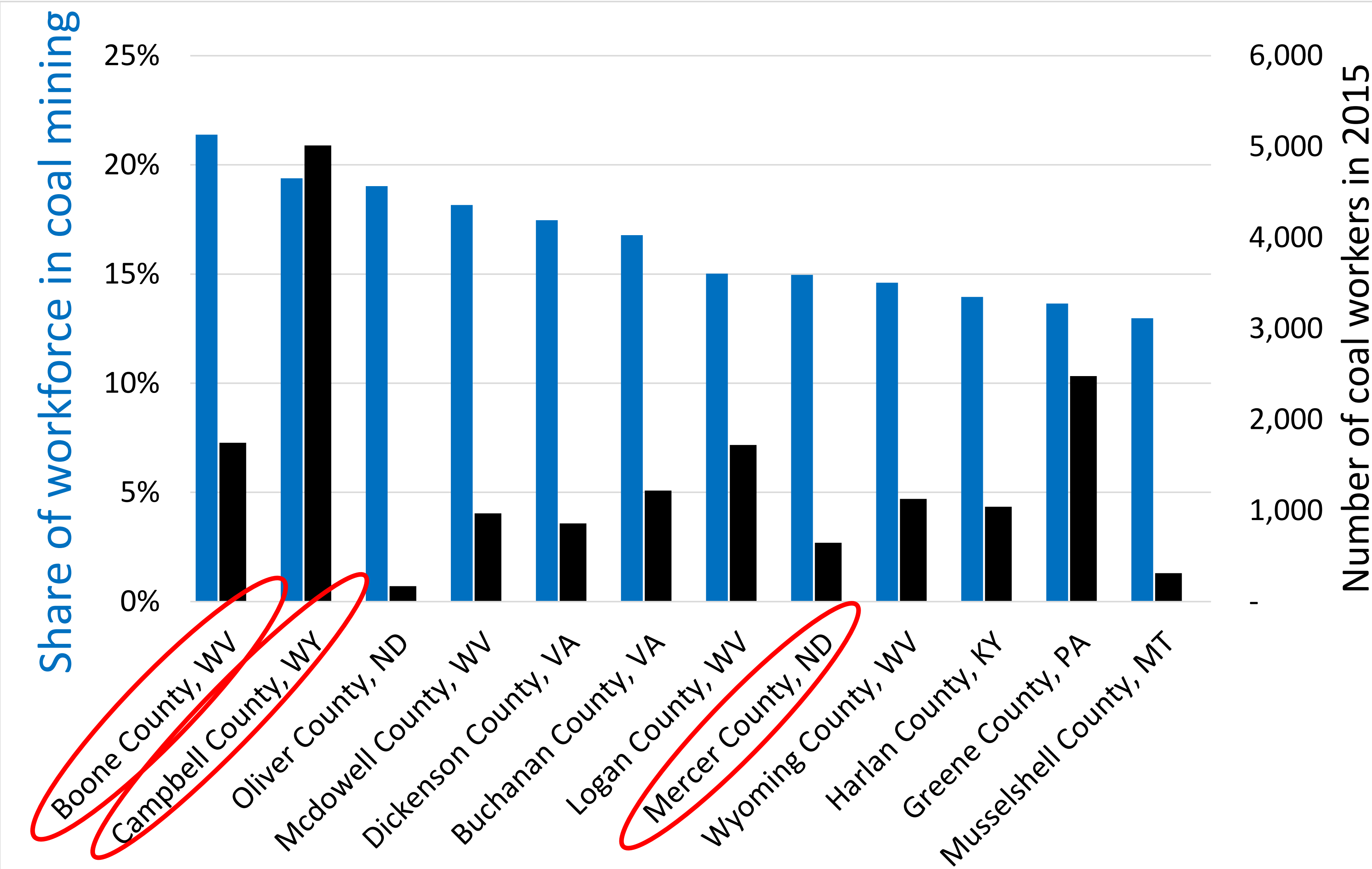
Flow Chart of Major Revenue Sources

Wyoming 2017



Source: WY 2017 Budget Fiscal Data Book

12 most coal-reliant US counties by 2015 employment share



Source: US Bureau of Labor Statistics

Three illustrative counties…

Significant data limitations

Boone County, WV (pop. 22,000)

- 70% decline in coal from 2012-2017;
- -> 38% decline in county govt revenue.

Campbell County, WY (pop. 46,170)

- Two largest revenue sources tied strongly to coal
- Mine bankruptcies thwart tax collection

Mercer County, ND (pop. 8,267)

- Coal severance, coal conversion, and royalties provide around 1/2 revenue to county government (as of 2016)

Downturn in a key industry can set off a fiscal death spiral

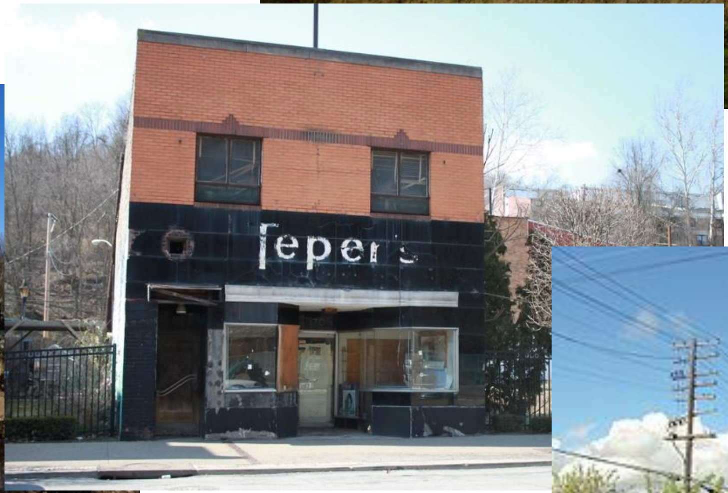
Case studies in paper:

Coal in South Wales, United Kingdom

Steel in Aliquippa, Pennsylvania

Automobiles in Detroit, Michigan

Textiles in Greenville, South Carolina



We reviewed 7 outstanding bonds from Campbell and Mercer Counties

- Principal: $3.5 million to $445 million
- Terms of 20 to 30 years;
- Maturing in 2022 – 2039

Risk disclosure in official statements is limited or nil

- Vague references to dependence on the economy
- Only two mentioned climate/environment policy risks
- One characterized coal-intensive economy as positive
- Ratings arguably under-appreciate risks, especially from policy
  - Some bonds received downgrades, e.g. A+ to A
  - All with ratings are investment grade or higher

Conclusions and questions

Climate action is important, if uncertain.

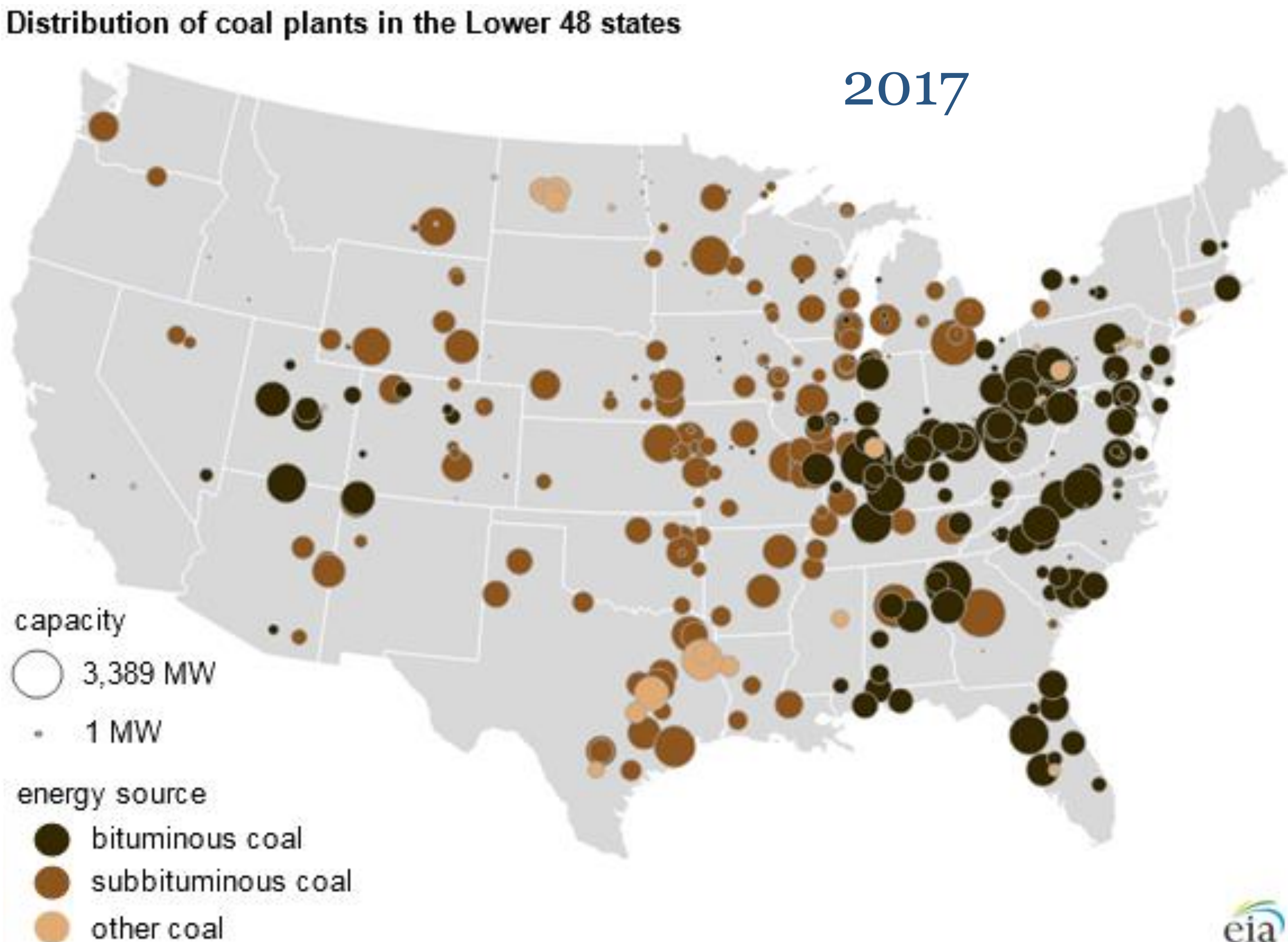
Policymakers should prepare for the end of US coal production.

Dependence on coal should be transparent in budget

- Additional disclosure regulations for bonds?
- Voluntary disclosure measures for public sector entities?
- How should stakeholders (borrowers, insurers, ratings agencies, and underwriters) better account for the risks from the coal industry?
- Is private bank debt at risk as well?

And…

Could risks extend to counties with coal-fired power plants?



https://www.eia.gov/todayinenergy/detail.php?id=30812