

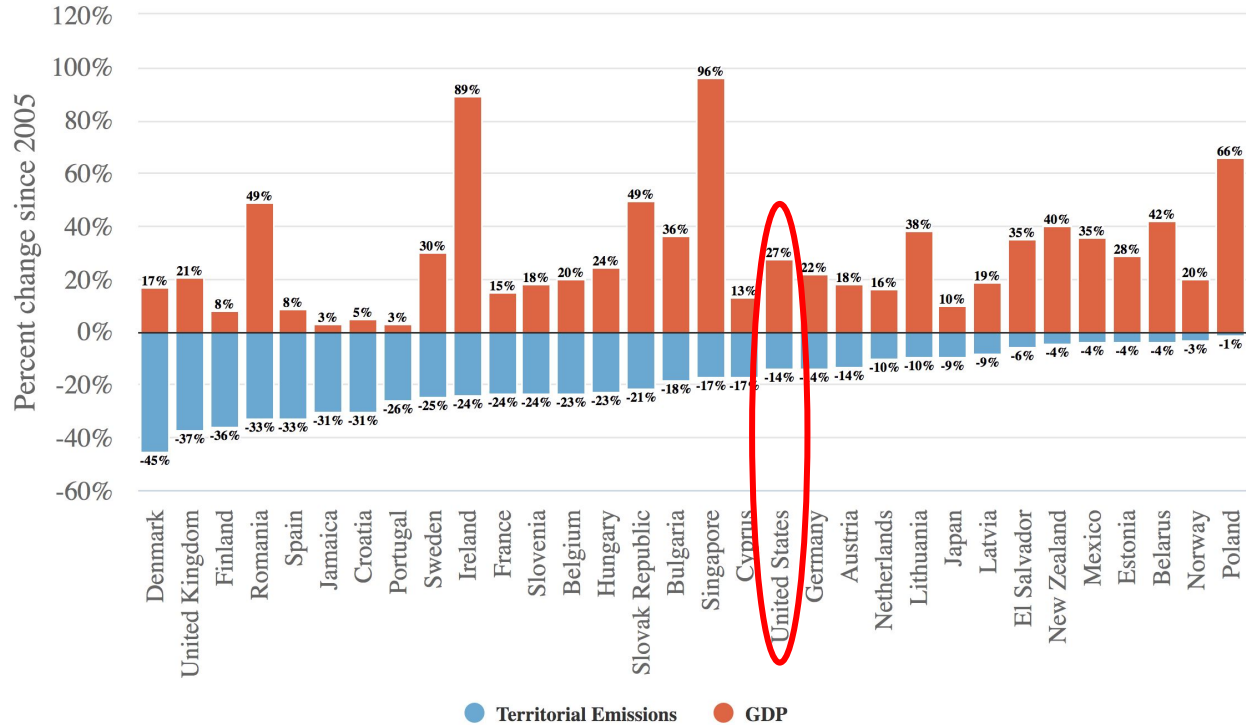


Enabling Deep Decarbonization
in a Partisan Era

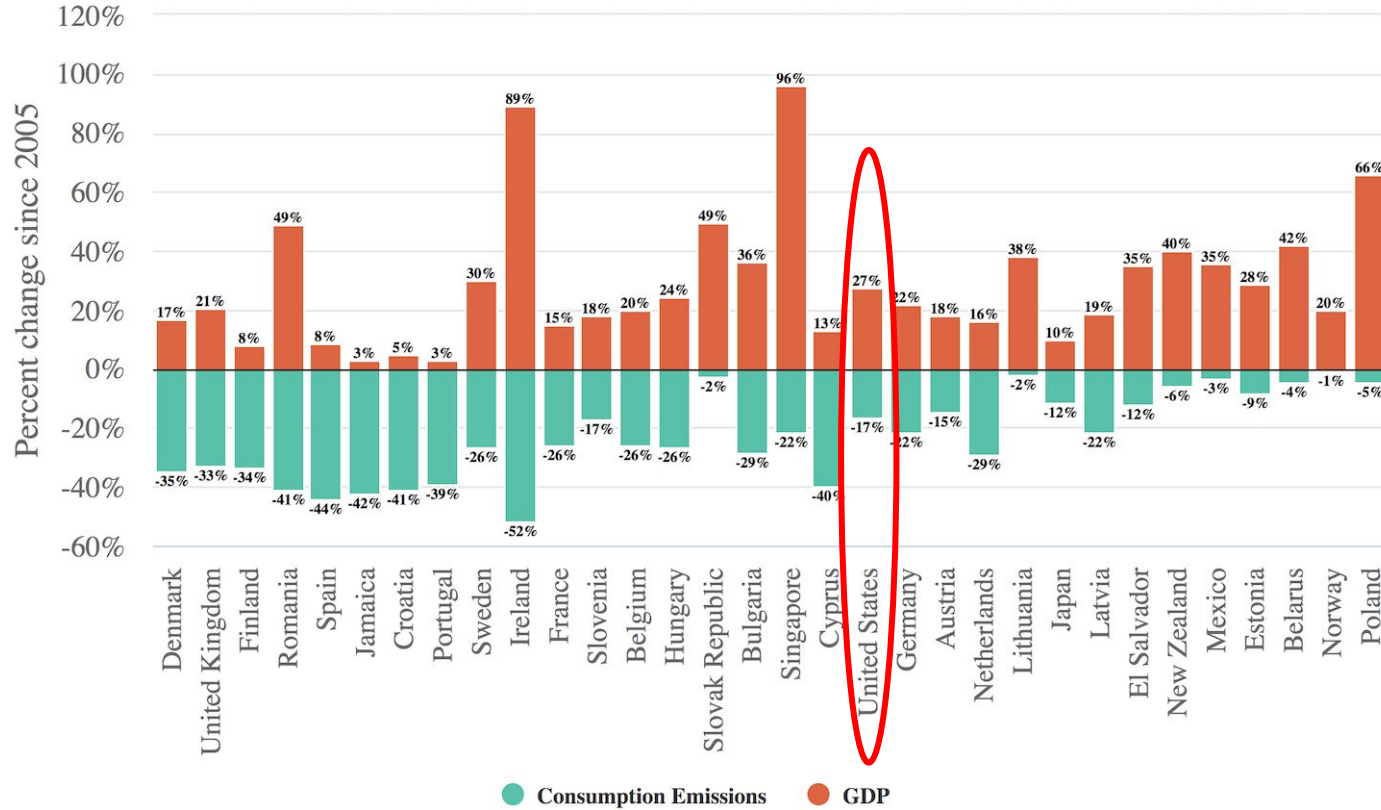
Zeke Hausfather
April 7th, 2021

1) Green Growth is Possible

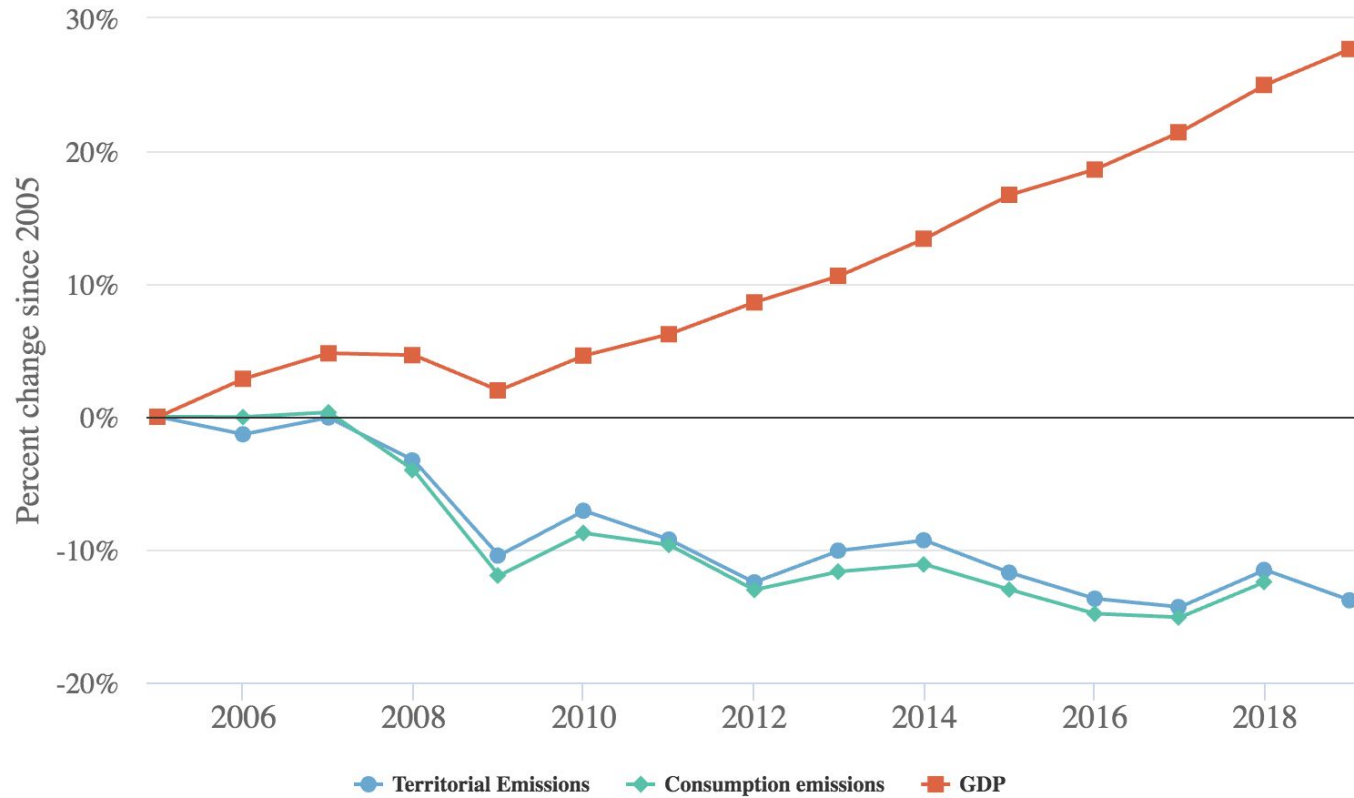
Decoupling of territorial emissions and GDP: 2005-2019



Decoupling of consumption emissions and GDP: 2005-2019



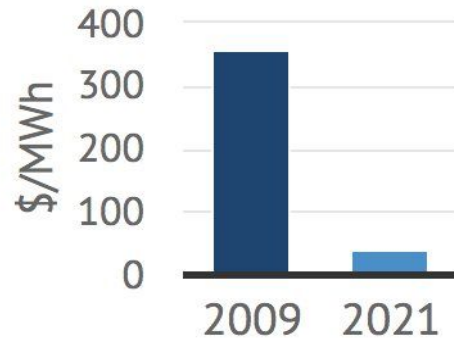
Emissions and GDP: United States, 2005-2019



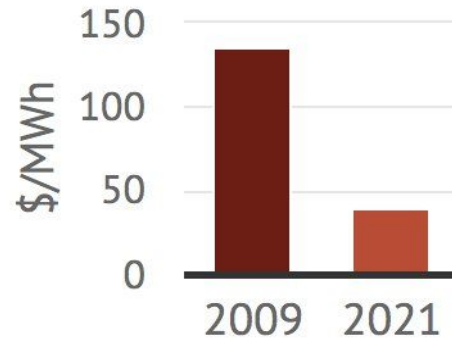
2) Technology Enables Policy – Importance of Innovation

Clean energy has become cheap

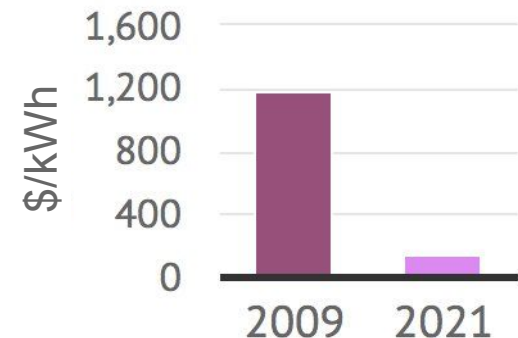
Solar



Wind



Batteries

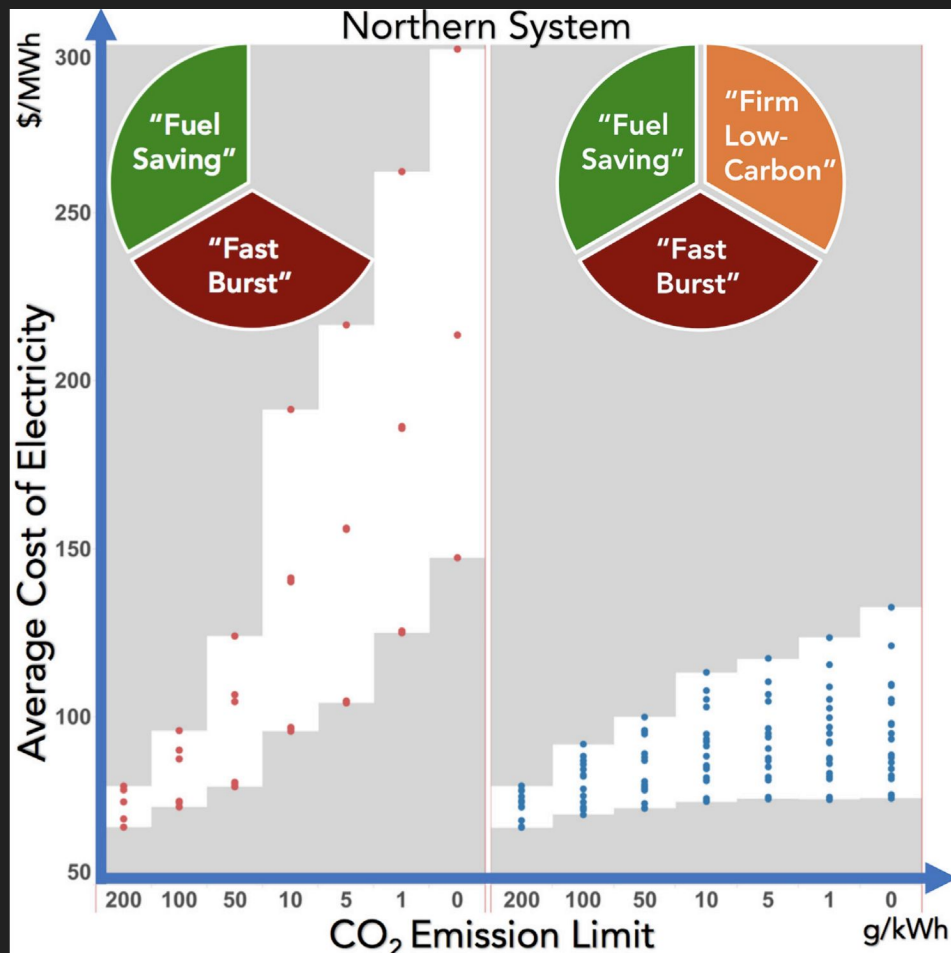


BREAKTHROUGH
INSTITUTE

Lazard 2020, BNEF 2020

Deep decarbonization requires both speeding up the deployment of existing clean energy technologies and dramatic expansions of RD&D for clean firm generation and hard-to-decarbonize sectors.

- “The 2020s is the decade to invest in maturing and improving a range of technologies that improve options for the long term.” - Princeton Net Zero America project



3) Supporting Infrastructure Key to Deep Decarbonization

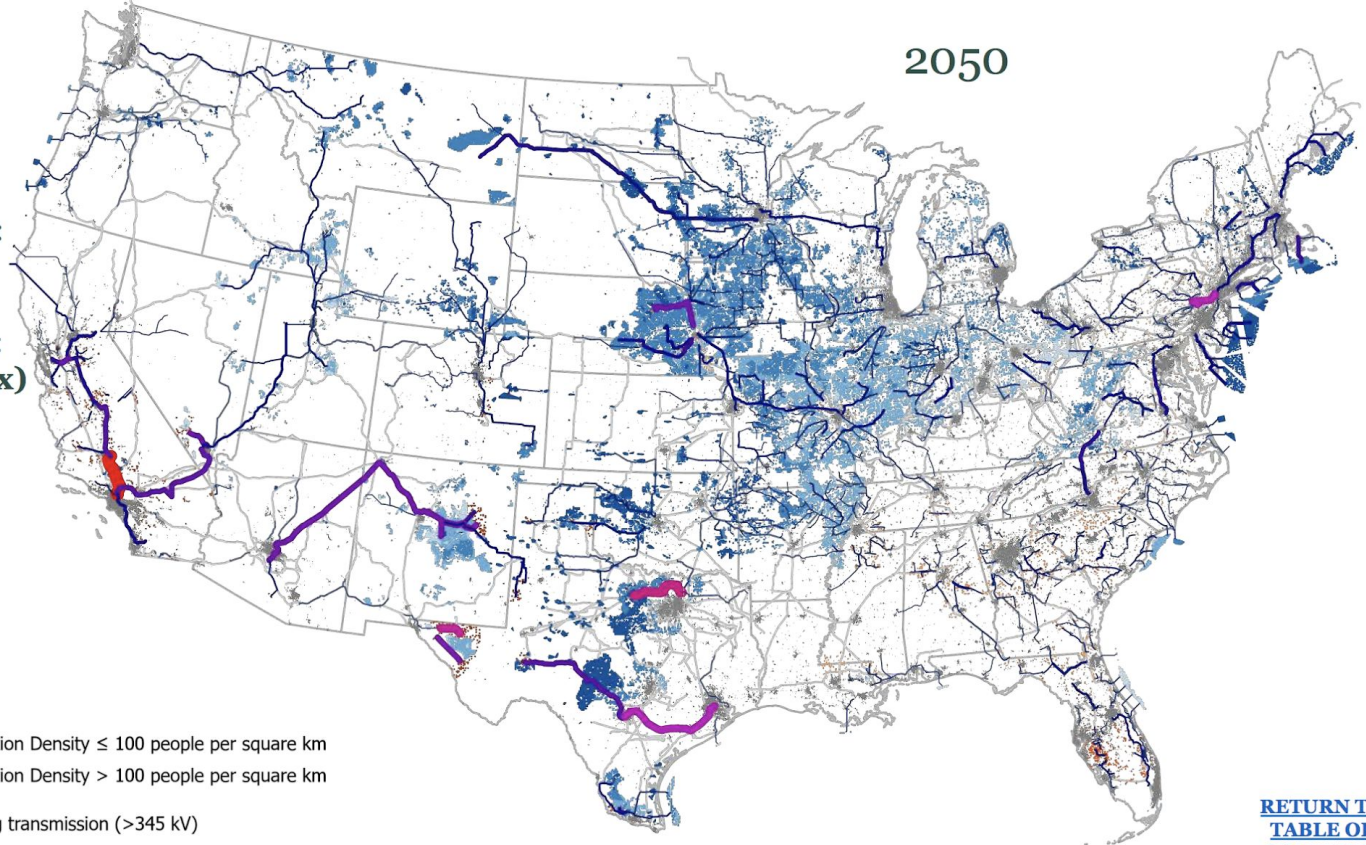
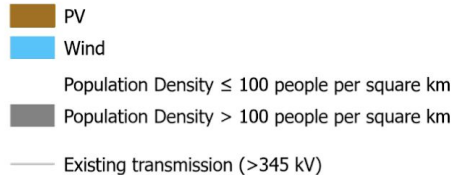
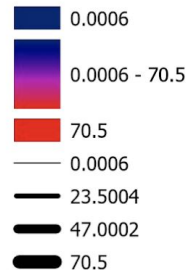
Transmission & generators.

Note: Capacity factors at generator sites are reflected in color intensity, with highest CF = darkest color.

2020 transmission capacity:
~320,000 GW-km

2050 transmission capacity:
~1,012,000 GW-km (3.2x)

Transmission Capacity (GW)

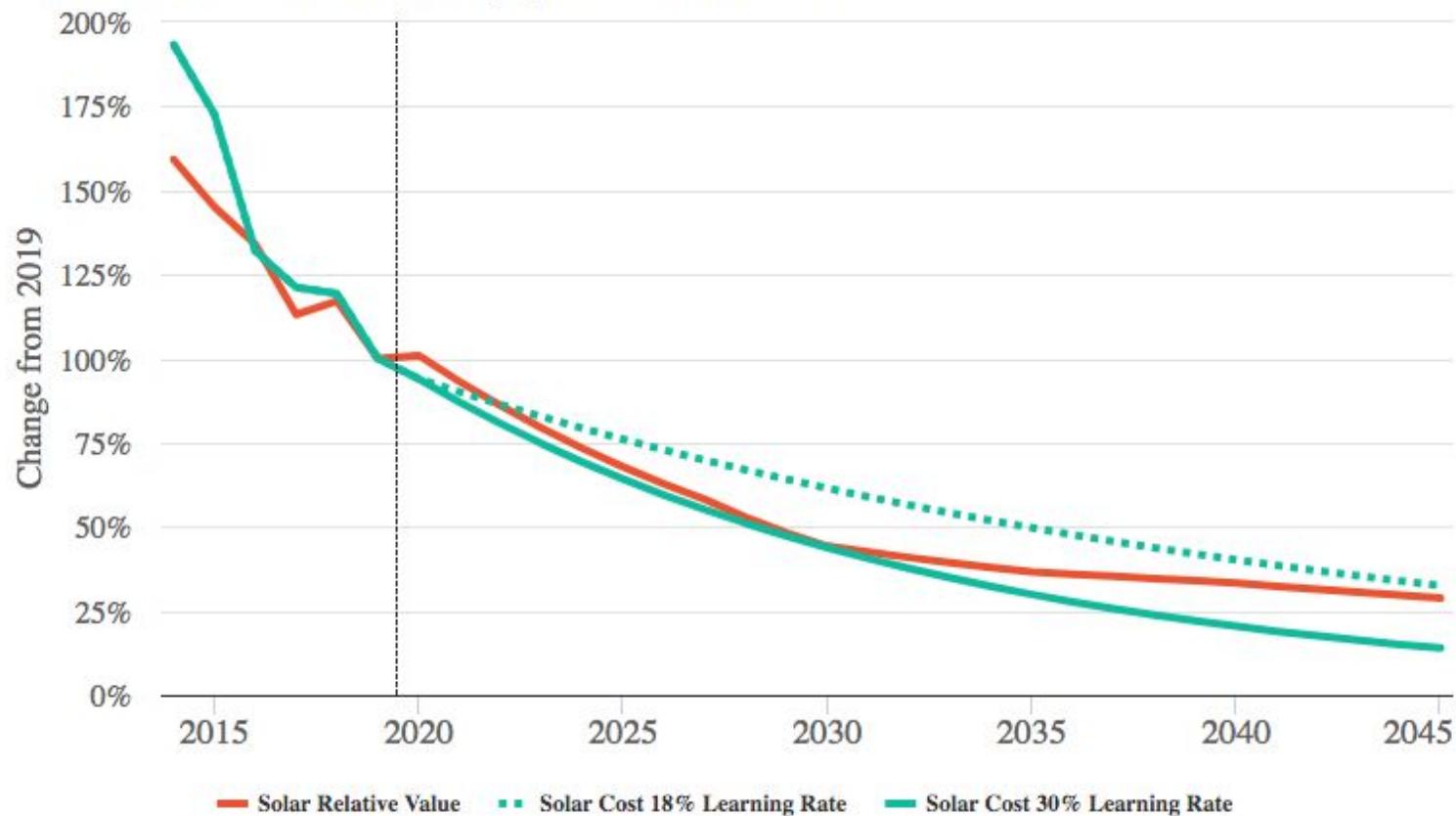


Note: Transmission expansion is visualized along existing rights of way (>160 kV); paths are indicative not definitive.

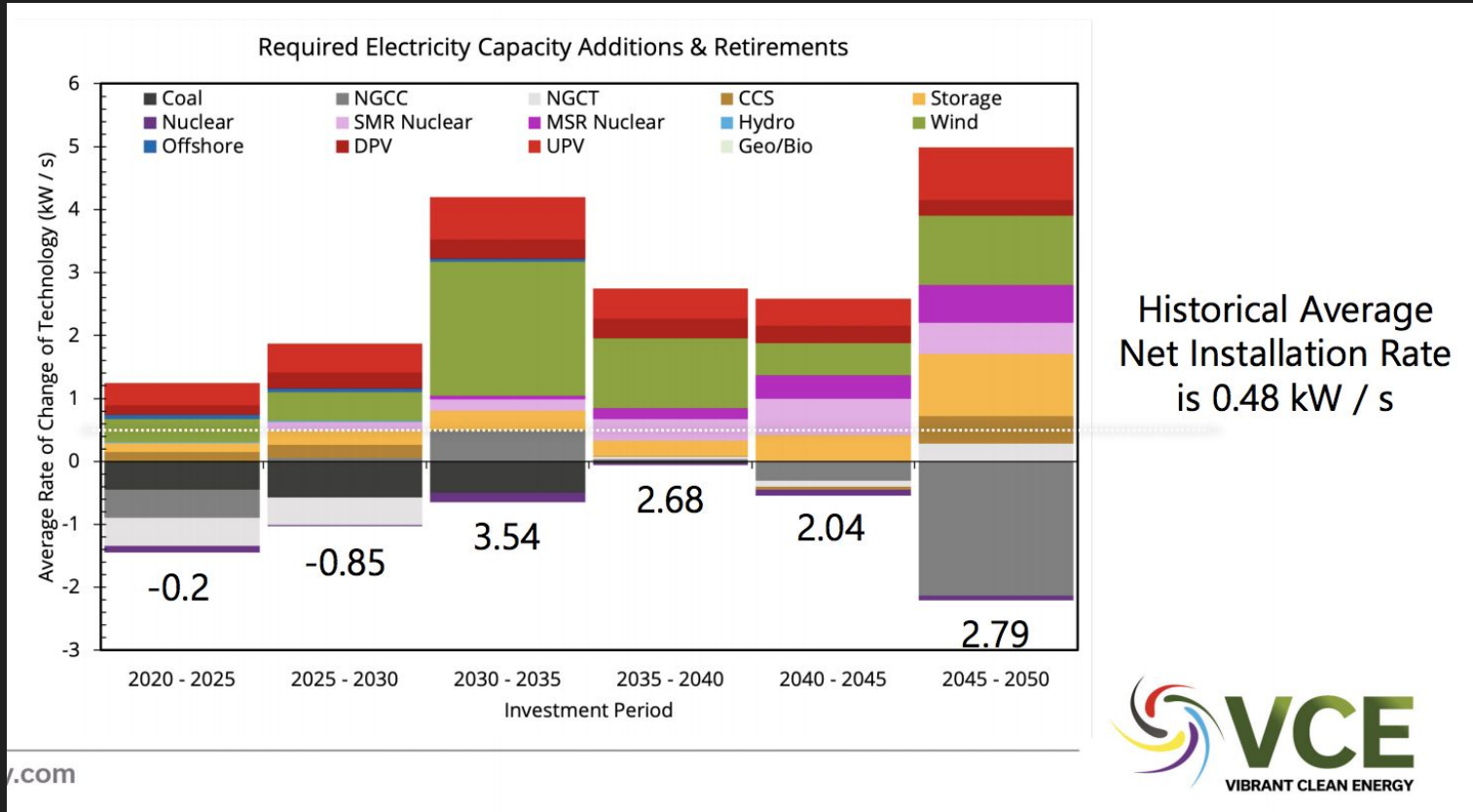
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Race between value deflation and cost reductions in California

Historical data from 2014-2019, model projections from 2020-2045.



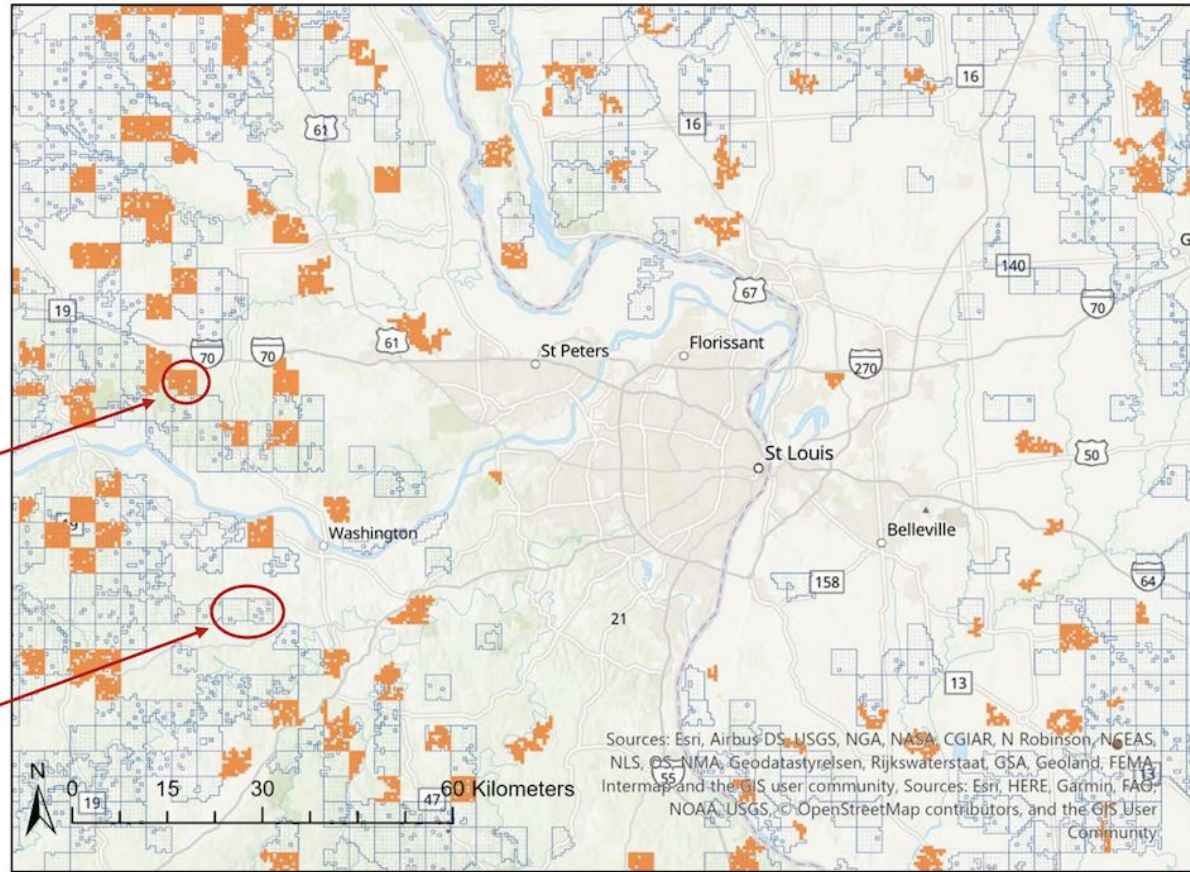
4) Importance of Cutting Red Tape



- Solar, existing and planned
- Solar, additional selected sites 2050 E+ base
- Wind, existing and planned
- Wind, additional selected sites 2050 E+ base
(dots indicate approximate turbine footprint)

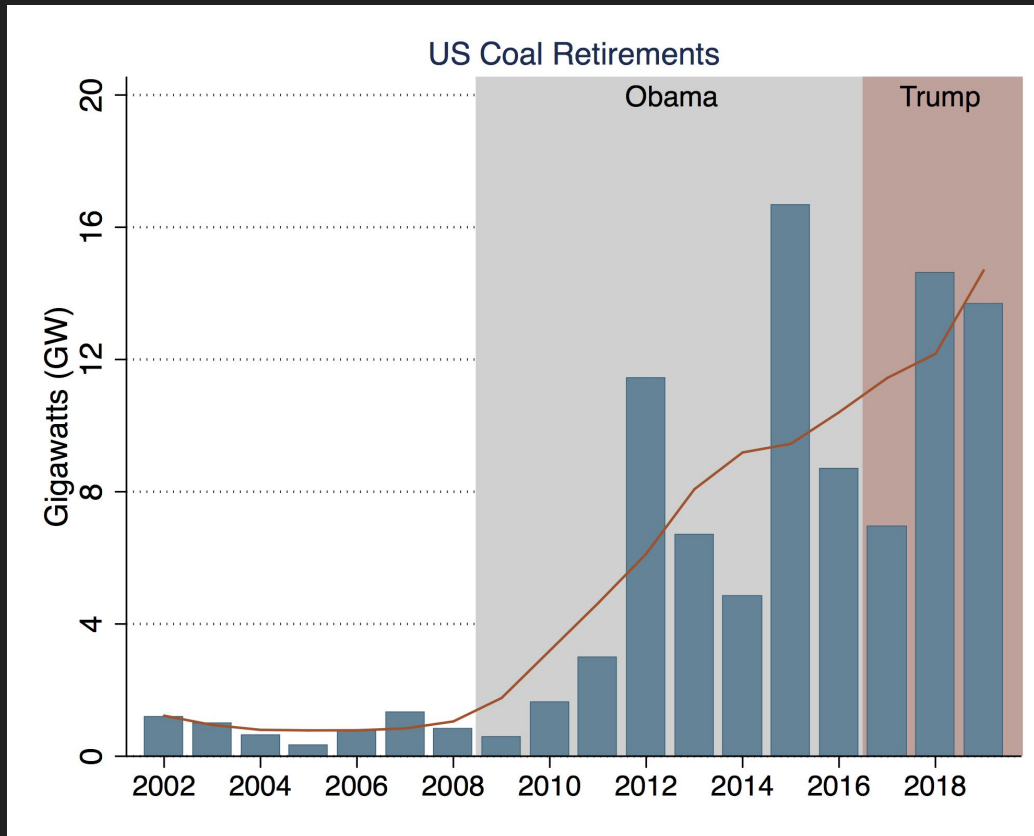
500 MW solar facility
(generic future facility)

80 MW wind facility
(generic future facility)



Sources: Esri, Airbus-DS, USGS, NGA, NASA, CGIAR, N Robinson, NCEAS, NLS, OS, NMA, Geodatastyrelsen, Rijkswaterstaat, GSA, Geoland, FEMA, Intermap and the GIS user community, Sources: Esri, HERE, Garmin, FAO, NOAA, USGS, © OpenStreetMap contributors, and the GIS User Community

5) Permanence in an age of Partisanship



Thanks!

Questions?

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