SPARKS & SCALES OF RENEWABLE ENERGY POLICY

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Background

Carbon Reduction Policymaking

When pressured by top-down and bottom-up drivers to address climate change from electricity production (the largest source of human CO2 emissions), legislators respond by evaluating various regulatory models using personal and party ideologies. To progressives, centralized energy policy adoption is a key tool that "makes socially desirable uses economically practicable" while adequately addressing climate concerns.[1]

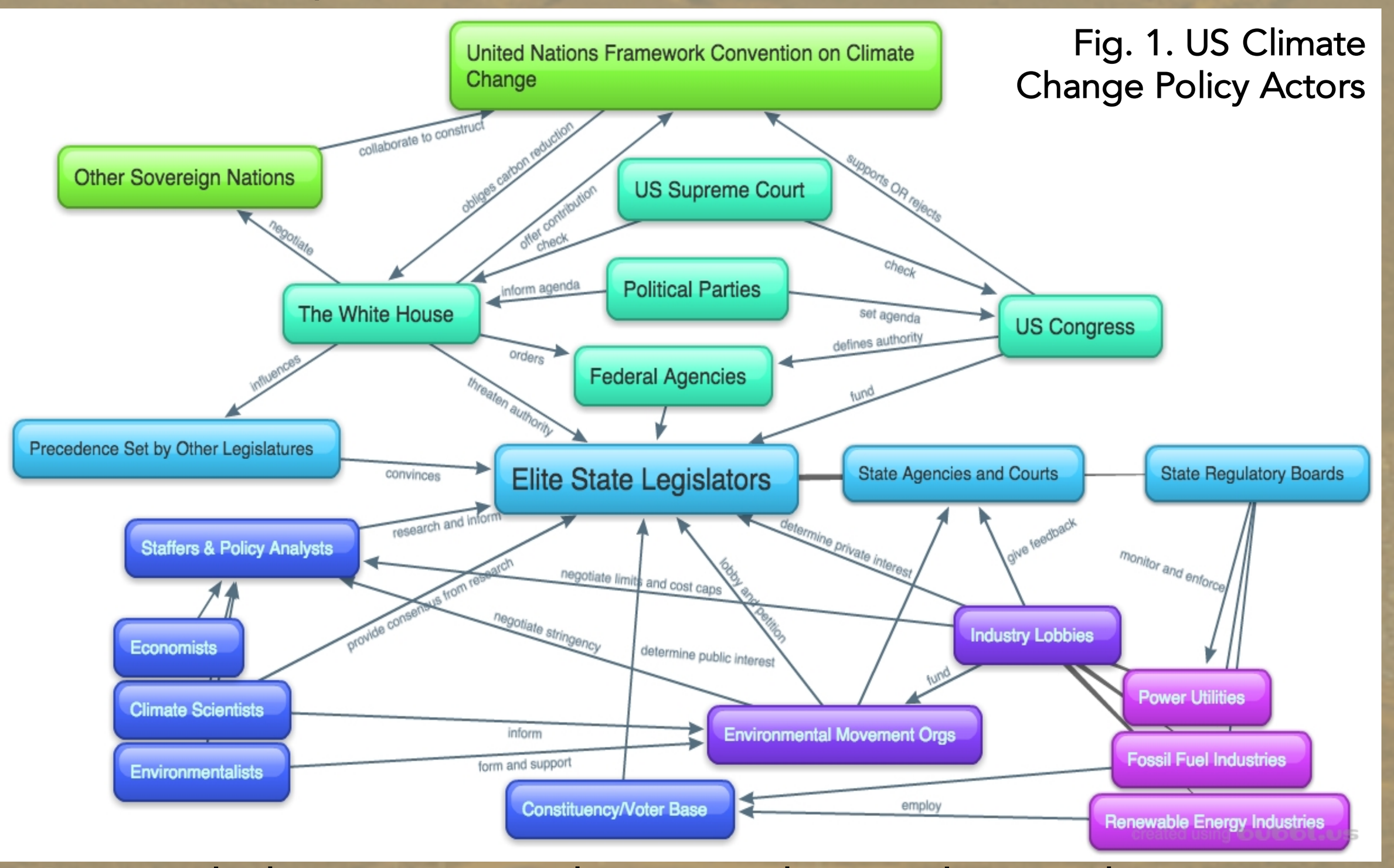


Fig. 1. US Climate Change Policy Actors

Central decision-makers in the policy adoption process evaluate policy models based on:

- *predicted outcomes for public & private good*[2] *(e.g. CO2 reduction, public health, energy jobs)*
- *policy "norms" in similar political bodies*[3]
- *advice from entrenched social movements, environmental organizations, & industry lobbies*

Policy emphasis on renewable energy typically evolves *after* env. movements and renewable energy special interests find legislative champions and form coalitions.[4] Then, the content and stringency of a policy innovation is adapted by elite policymakers to the internal political and energy-related economies of their region.[2 5] This process can lead to non-adoption. Sometimes, environmentalists and renewable energy special interests will attempt to circumvent legislative bodies using forms of direct democracy.

National Carbon Policy Norms

Centralized:

- Many diverse examples of Climate Action Plans[6]
- Elected leadership and international frameworks drive policy formation
- Most incorporate some form of Renewable Portfolio Standard (RPS), mandates which differ in % generated goal, timeline, qualifying energy technologies, enforcement level
- Tend to raise electricity rates for consumers without changing underlying utility structure

Decentralized:

- *British Columbia*: Only jurisdiction in North America to levy fossil fuel consumption charge. Utilities are public. Electricity and "hydro" are synonymous.[7] Passed gradually increasing carbon tax in 2006. Reduced fossil fuel consumption by 16% in 6 years with better GDP growth than Canadian average (despite claims of PM Harper).[8]
- *European Union*: Emissions Trading Scheme launched in 2005. Price adjustment and increased stringency eliminated leakage and reduced power sector emissions 3% in 2013 (a growth year).[9]

Crescent Dunes Solar Energy Project, Tonopah, NV. Image courtesy of BrightSource Energy.

Research Question

Although **Renewable Portfolio Standards** have become an increasingly popular model over the last two decades, are they an ***effective*** form of environmental policy?

1. *can pass through the legislative body*
2. *have a measurable outcome on carbon emissions from energy generation*

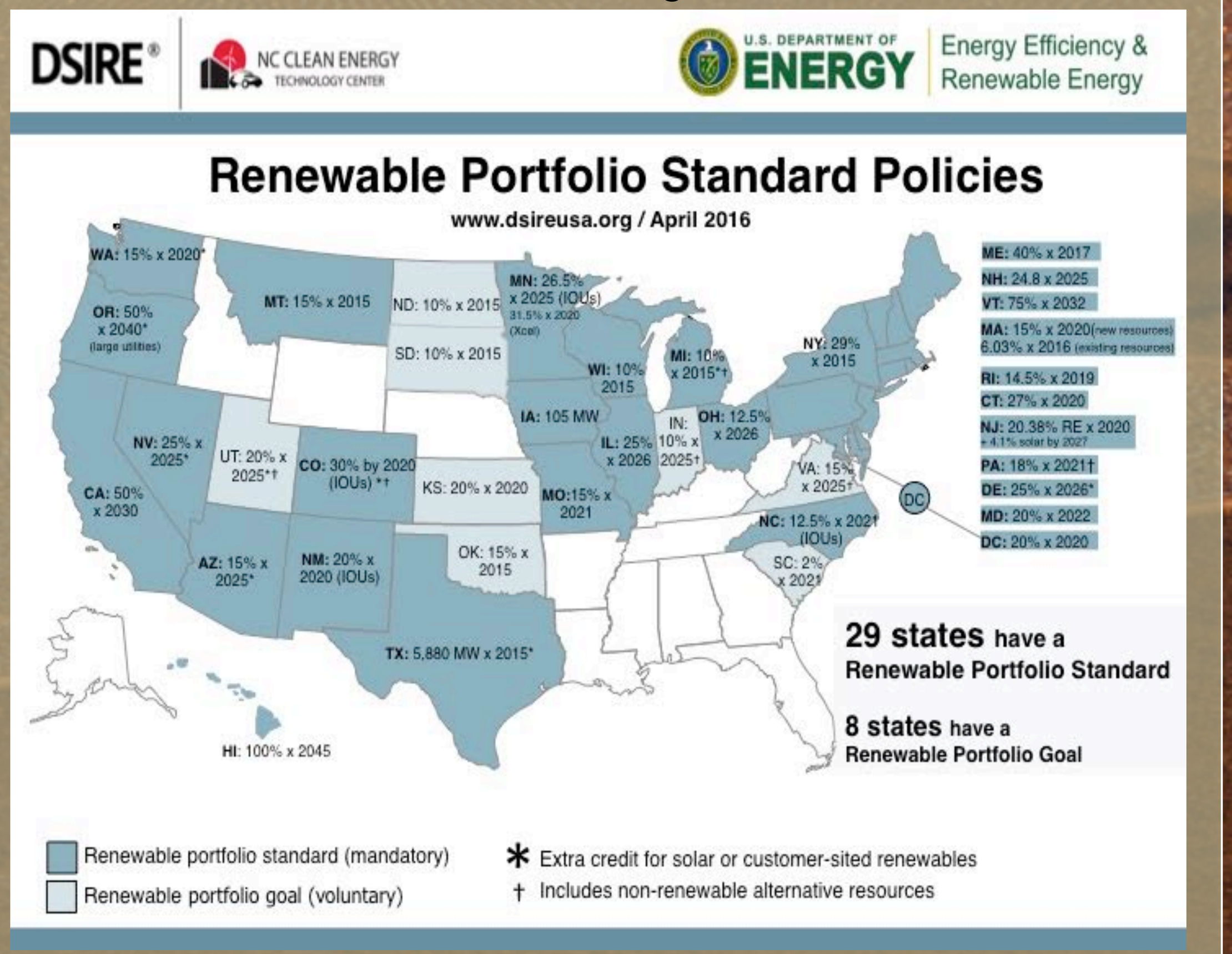
State to State Comparisons

Analysis of RPS Adoption, 1991-2014[2]

Initial conditions with statistical significance: Democratic control of legislatures, geographic potential for solar and wind, higher median incomes, presence of environmental orgs., decoupled utilities, direct ballot initiatives and restructured energy markets increase likelihood of adoption. Prior adoption by neighboring states also increases likelihood of adoption. Portion of state economy from fossil fuel production decreases likelihood.

Results: Wealthy states with competitive energy markets have higher RPS adoption rates.

Fig. 3. States with RPS and RPG



Historical Context for Washington, Oregon, and Colorado RPS Adoption

Progressive planners in Western US states envisioned clean energy utopias when constructing large dams and grids in the 1910s -'20s. Their vision of public power threw out coal plants in favor of smokeless technics that improve society via higher employment rates, cleaner cities, and "environmental quality to sustain [the state] as an attractive place to reside and invest".[10] They framed environmental quality as a tempting luxury good, which does not conflict with a region's economic and population growth. Washington and Oregon initially imitated the UN Rio Earth Summit by setting 1990 level emissions as a goal, but abandoned their emission targets when escalating growth made them unachievable. Environmental movements in all three cases circumvented politically-entrenched fossil fuel or utility industries, and partisan gridlock, utilizing direct ballot initiatives (a Progressive-Era invention). Direct democracy was thereby key to contested RPS adoptions.

Federal Inaction

Low-Energy Congress Shifts Responsibility

Recent Congressional sessions were the least productive in several decades. This is not a new trend (see Fig. 2). Despite vows by the last three presidents to enact a federal plan to reduce greenhouse gases, no comprehensive climate legislation has overcome partisan gridlock.

Increasingly, inaction around climate mitigation at the US federal level has shifted the regulatory burdens and political risks of environmental policy-making down onto elite state legislators.[10] With little federal guidance, 37 states have responded by implementing renewable portfolio standards in a balkanized regulatory "race to the top".[11]

Primer on US Green Energy Policy

- #1 nation in total energy consumption
- #2 nation in total energy production, 13.4% renewable (includes hydro, excludes nuclear power)
- >70% of voters support green energy development
- Obama's 2014 Climate Action Plan attempts to keep RE regulation decentralized, but centralize emissions reduction (30% from 2005 levels by 2030)

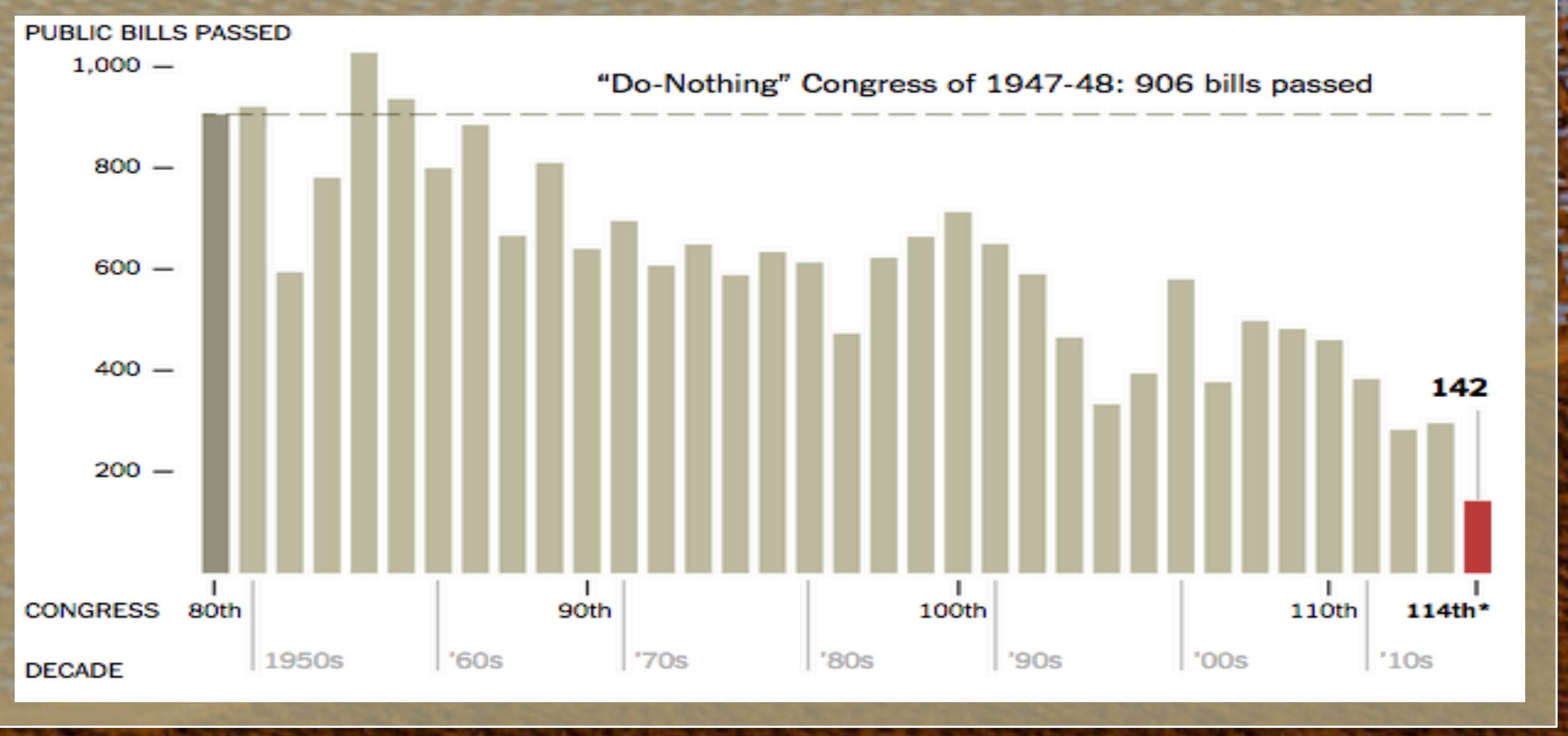


Fig. 2. Public Bill Passage, 1947-2016

Meeting UN Goals

Should the US adopt a federal renewable energy standard?

1. Passable through Congress? Not politically viable under current conditions.

- Previous failed attempts to pass a federal RPS, even with better adoption conditions (more stable pre-Recession economy, less natural gas production, D-controlled legislature) suggest it is not.
- Could use political momentum from 2015 UN Convention framing climate change as serious concern.
- However, Congressional R-majority rejected US financial commitments to Paris Climate Goals and challenged legality of 2014 EPA Clean Power Plan regulating existing carbon-emitting plants.

2. Measurable effect? Precedence suggests RPS reduce CO2, but there may be better options.

- Wealthy consumers can shoulder higher rates, but what about low-income households?
- Political capital could be better spent supporting: existing federal tax credits, utility deregulation, or feed-in tariffs for wind and solar development.
- Proven cost-effective emission reduction models (carbon markets, carbon taxes, and policies that decouple utility profits from energy sales) are far less popular options at both the state and federal level, even amongst progressives. This may be because they challenge the entrenched, monopolistic utility industry, or do not fit as neatly into longstanding environmentalist narratives of green tech utopias for the public good.

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