Looking Toward the Future

EES 2110

Introduction to Climate Change

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Review of Views on Climate Policy

Nordhaus & Pielke

Nordhaus

- Economic analysis:
  - Compare harms from warming and costs of mitigating emissions
    - Choose the policy with the smallest damages + costs
      - Tipping points make it hard to be certain which policy is optimal
        - Insurance: pay extra to avoid unlikely but catastrophic damages
    - Putting a price on emissions (carbon tax) is his preferred policy
      - Coase: the solution to externalities is to assign property rights to shared public resources

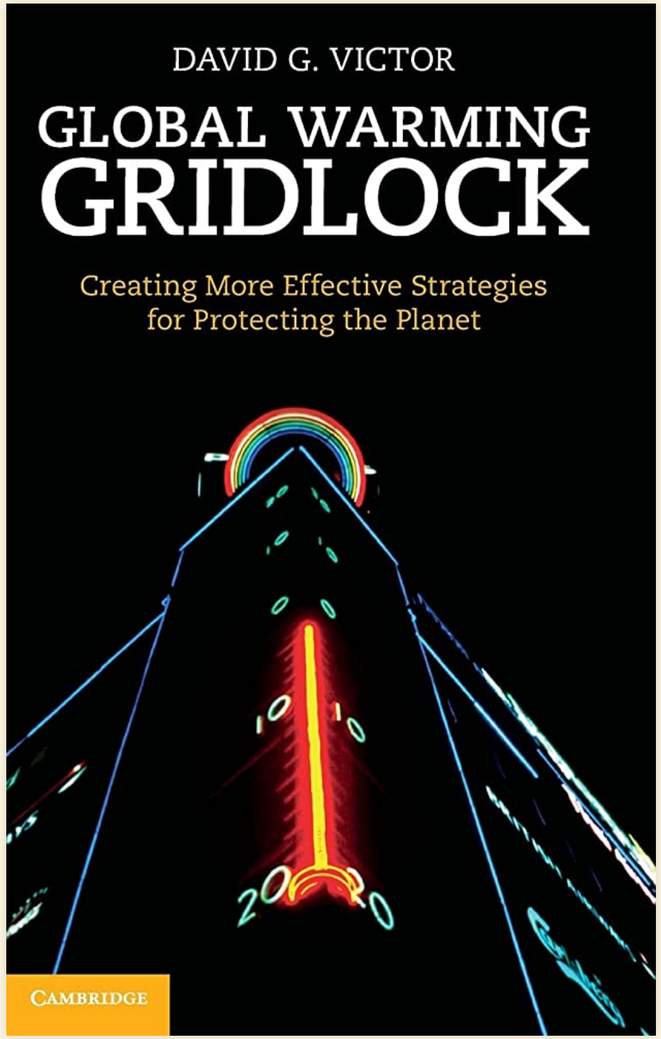
Pielke

- Political analysis:
  - The biggest obstacle to climate policy is the cost
    - Iron Law
  - The best solution is to make clean energy cheaper than fossil fuels.
    - We need a lot of research & development to do this

Other approaches

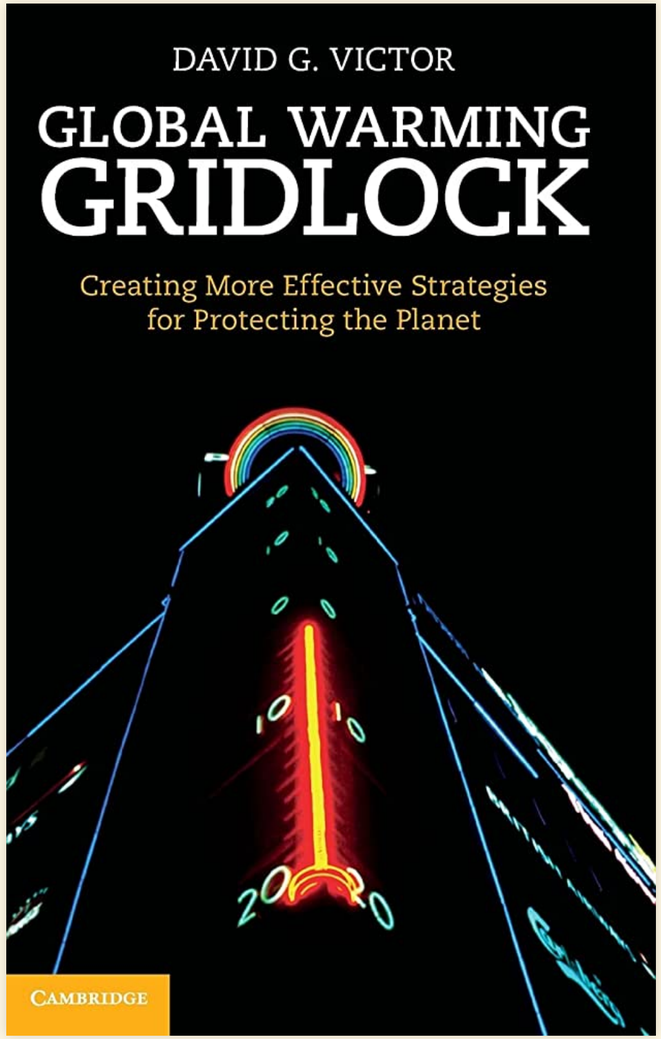
David Victor: Global Warming Gridlock

- 3 Myths
  - **Scientist's Myth**
    - Science can tell us the best policy goals (how many degrees of warming, how many ppm of CO_2, etc.), so we should focus on reducing scientific uncertainty about climate change.
    - In fact, terms like "safe" and "dangerous" are political, not scientific, because they're about values.
  - **Diplomat's Myth**
    - We need binding agreements among most nations, and should focus on negotiating those agreements.
    - Universal treaties are very hard, and we're unlikely to make much progress soon.
  - **Engineer's Myth**
    - If we make clean energy technology cheap, the world will quickly switch to renewable energy.
    - There are many other obstacles to clean energy: infrastructure, politics, etc.



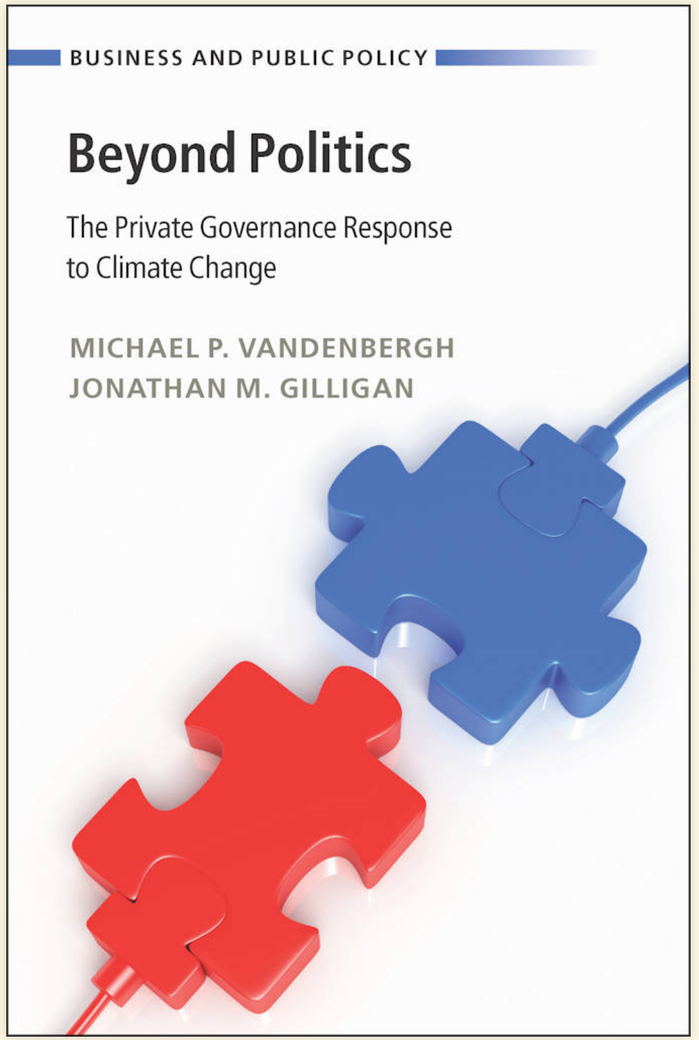
David Victor: Global Warming Gridlock

- So what should people do?
- “Clubs”
  - Instead of trying to get all the nations together, start with a few.
    - 12 countries account for 77% of greenhouse gas emissions
      - China, US, EU, India, Russia, Brazil, Japan, Canada, Australia, etc.
    - Make a small “club” in which nations that cut emissions get favorable treatment.
    - Other nations will want to join to get access to markets, etc.



Vandenbergh & Gilligan: Beyond Politics

- US Politics are badly broken
  - 1970–1990: 15 major pollution-control laws
  - 1991–2023: 1 major pollution-control law
  - Partisan polarization is largely to blame
- Private environmental governance
  - Actors
    - Individuals & Households
    - Businesses
    - Activists, not-for-profits, etc.
  - Can’t replace public governance
    - But it can move quickly
    - It may persuade conservatives to support action



Private Governance

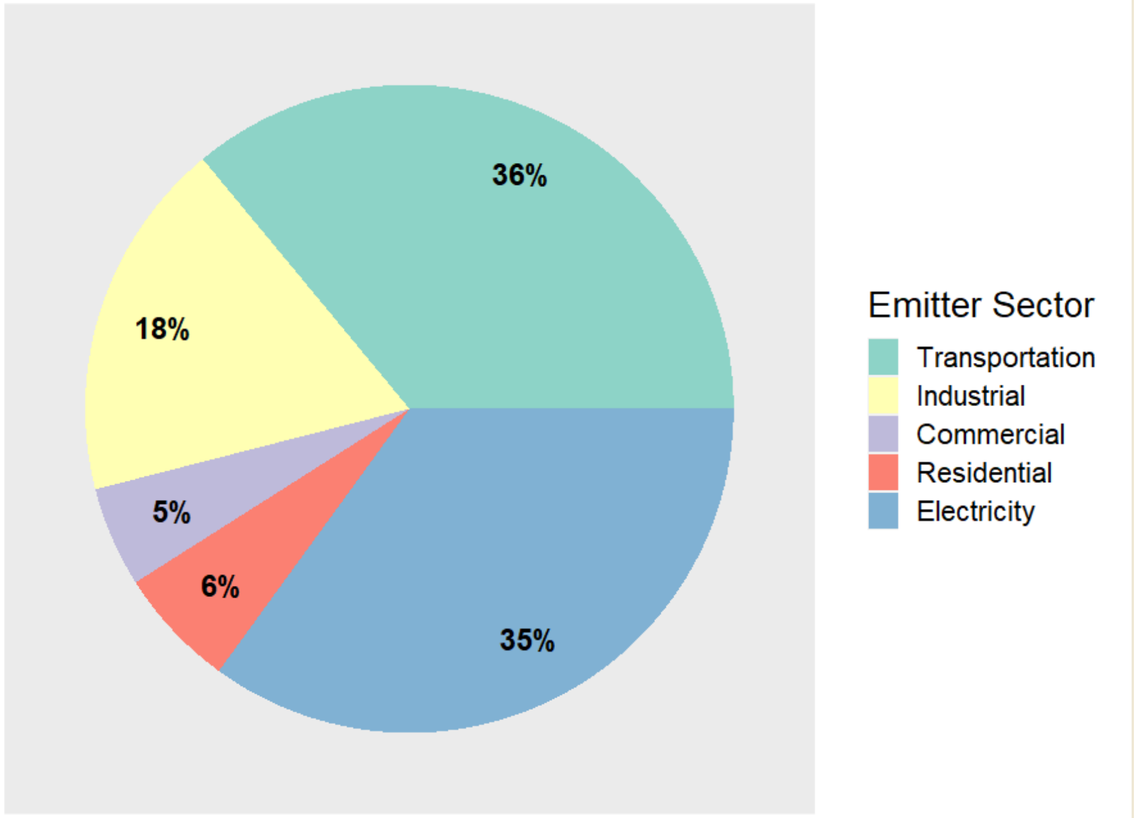
Problems with Policy Approach So Far

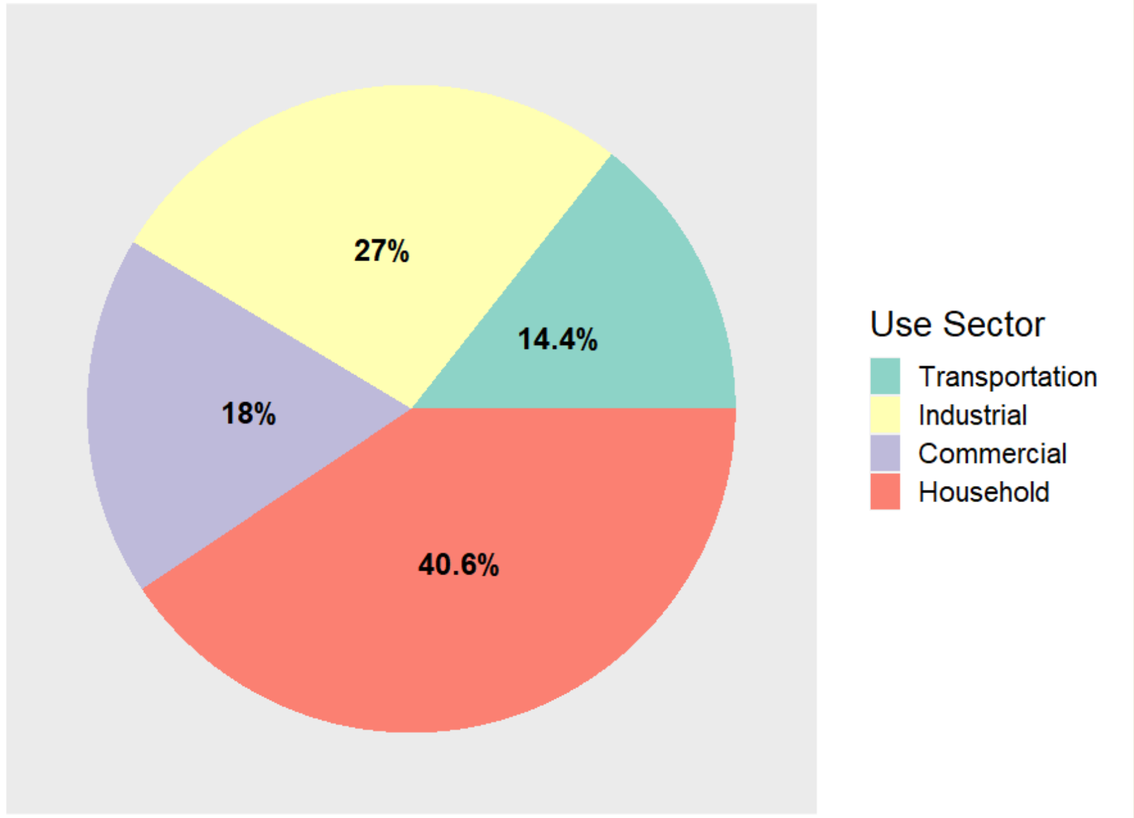
- Focus on **best** solutions (e.g., carbon tax)
- Emphasis on how well it will work when put into practice
- Neglects how hard it is to get government to adopt best solutions
  - "Political opportunity cost"
- Second-best or third-best may be easier to enact quickly

> *A good plan violently executed now is better than a perfect plan executed next week*
> *—Gen. George Patton, attrib.*

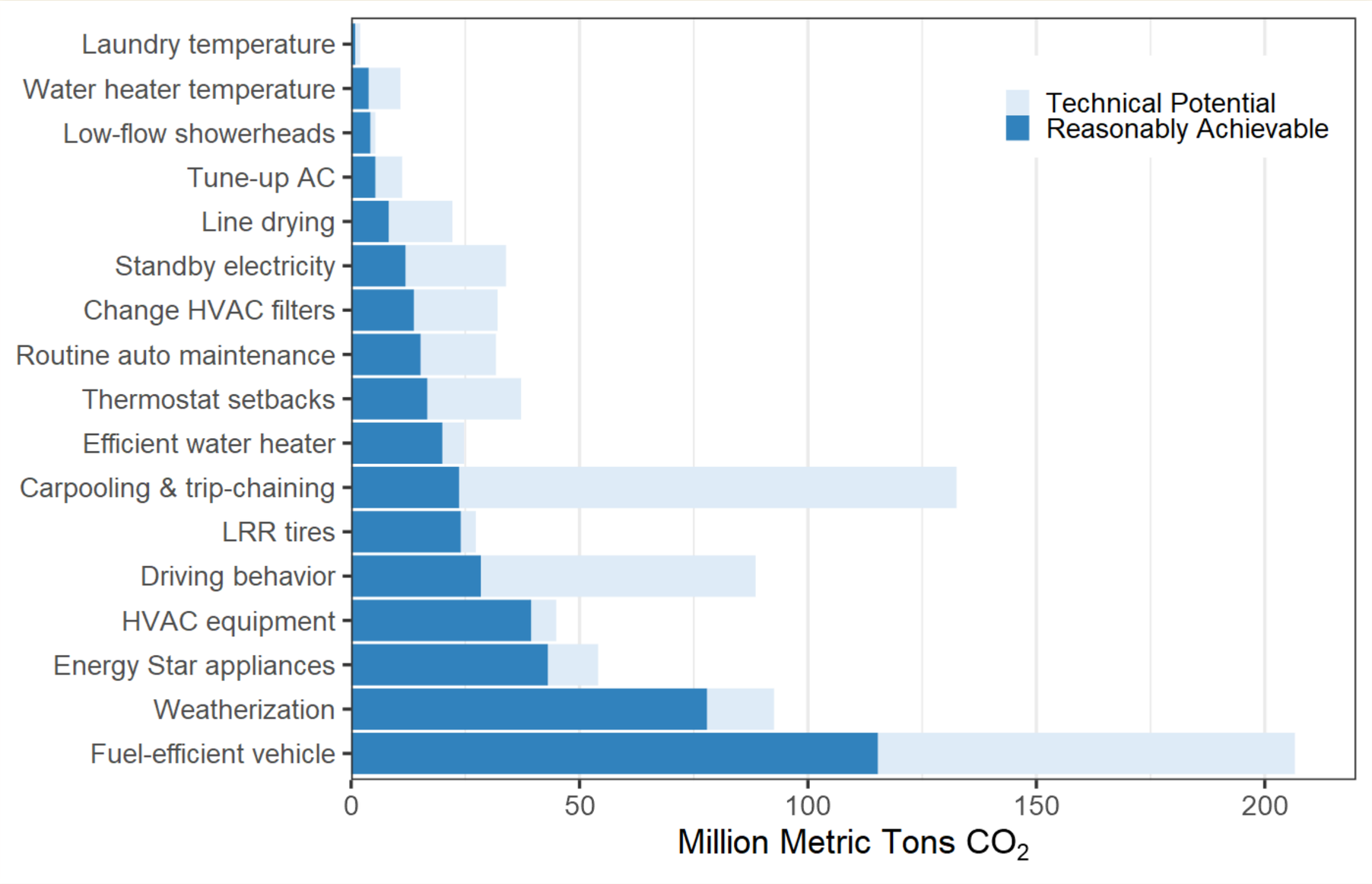
Household Sector

Who Emits CO_2?





Behavioral Wedge Analysis



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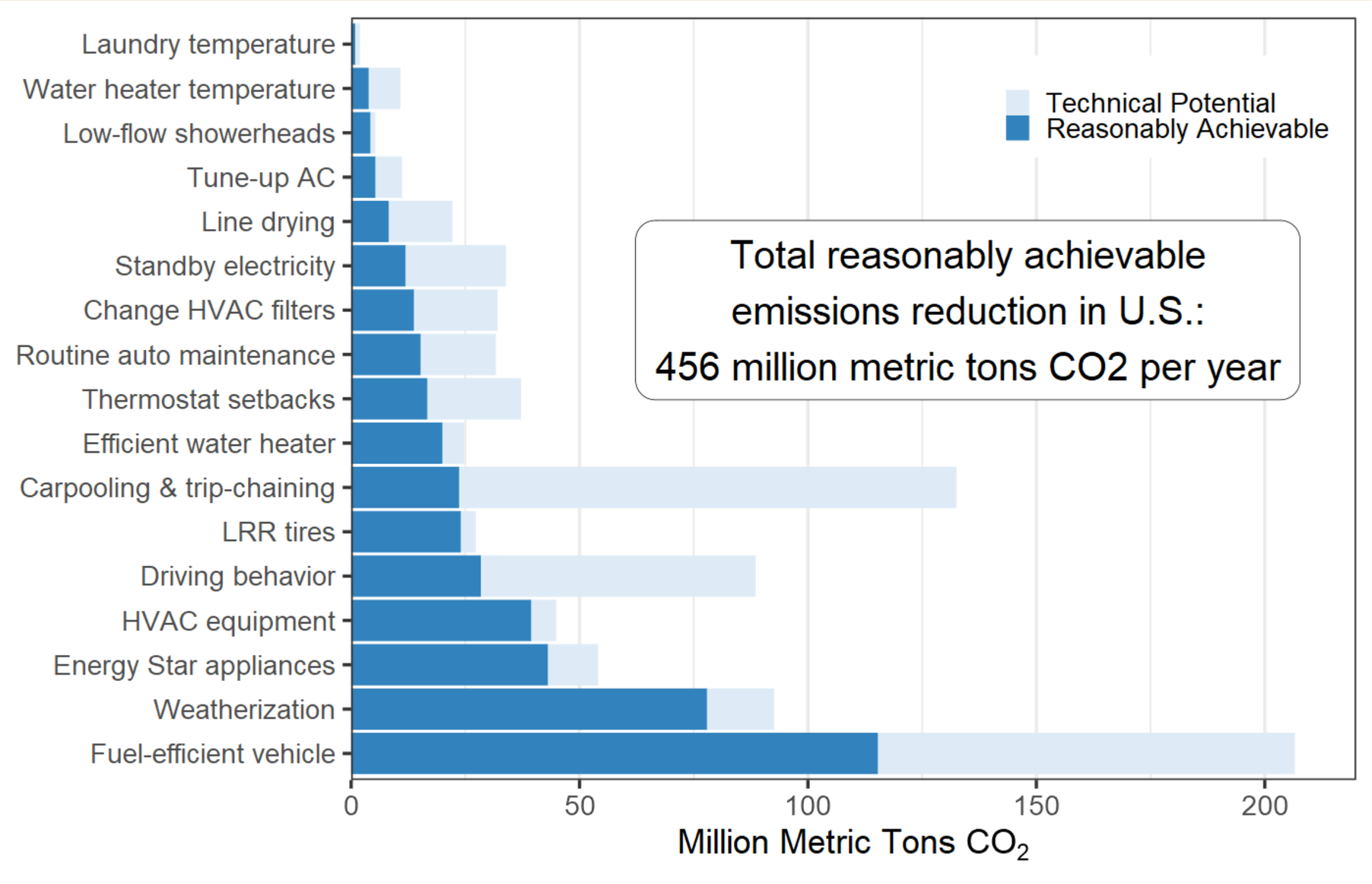
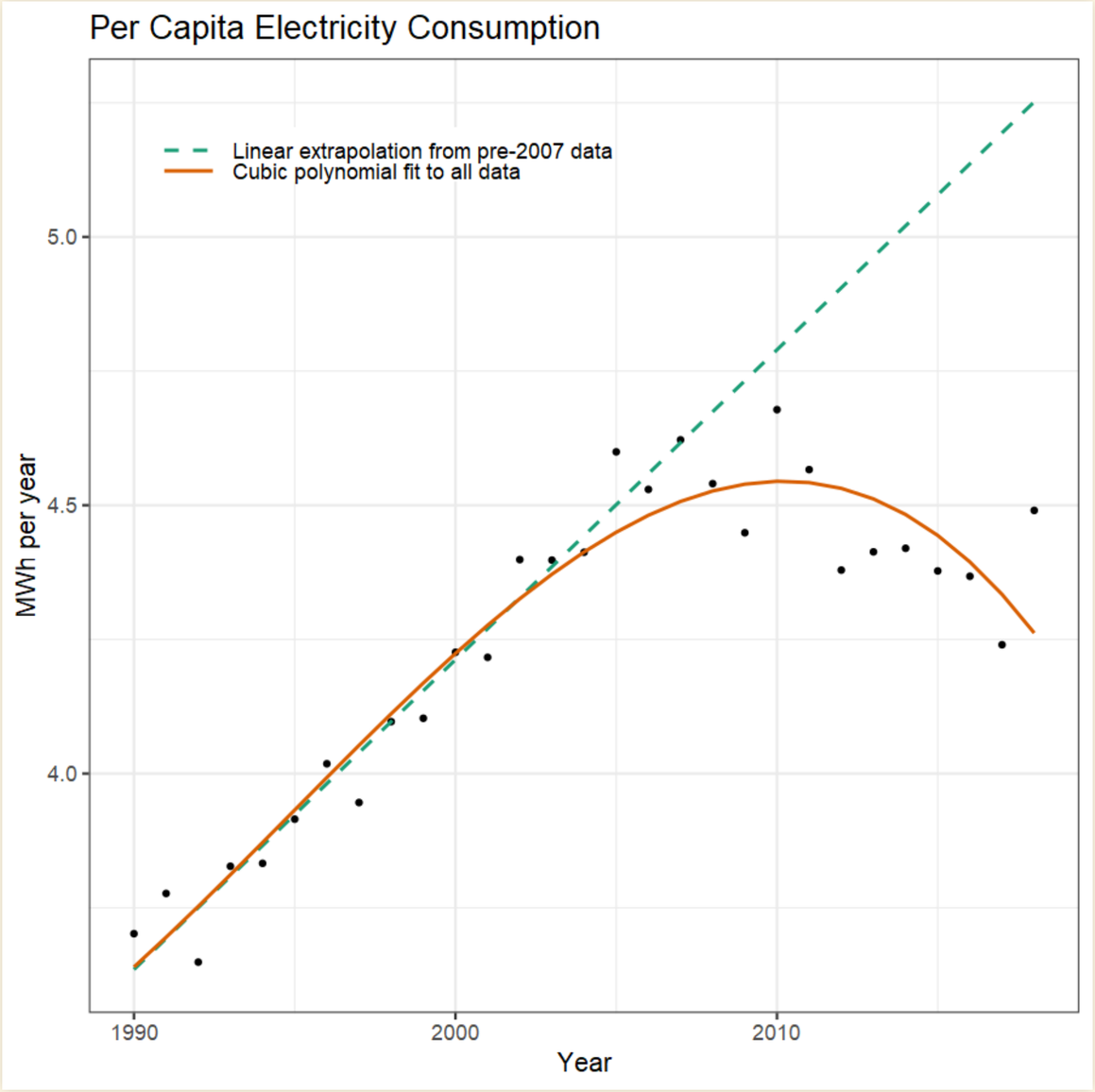
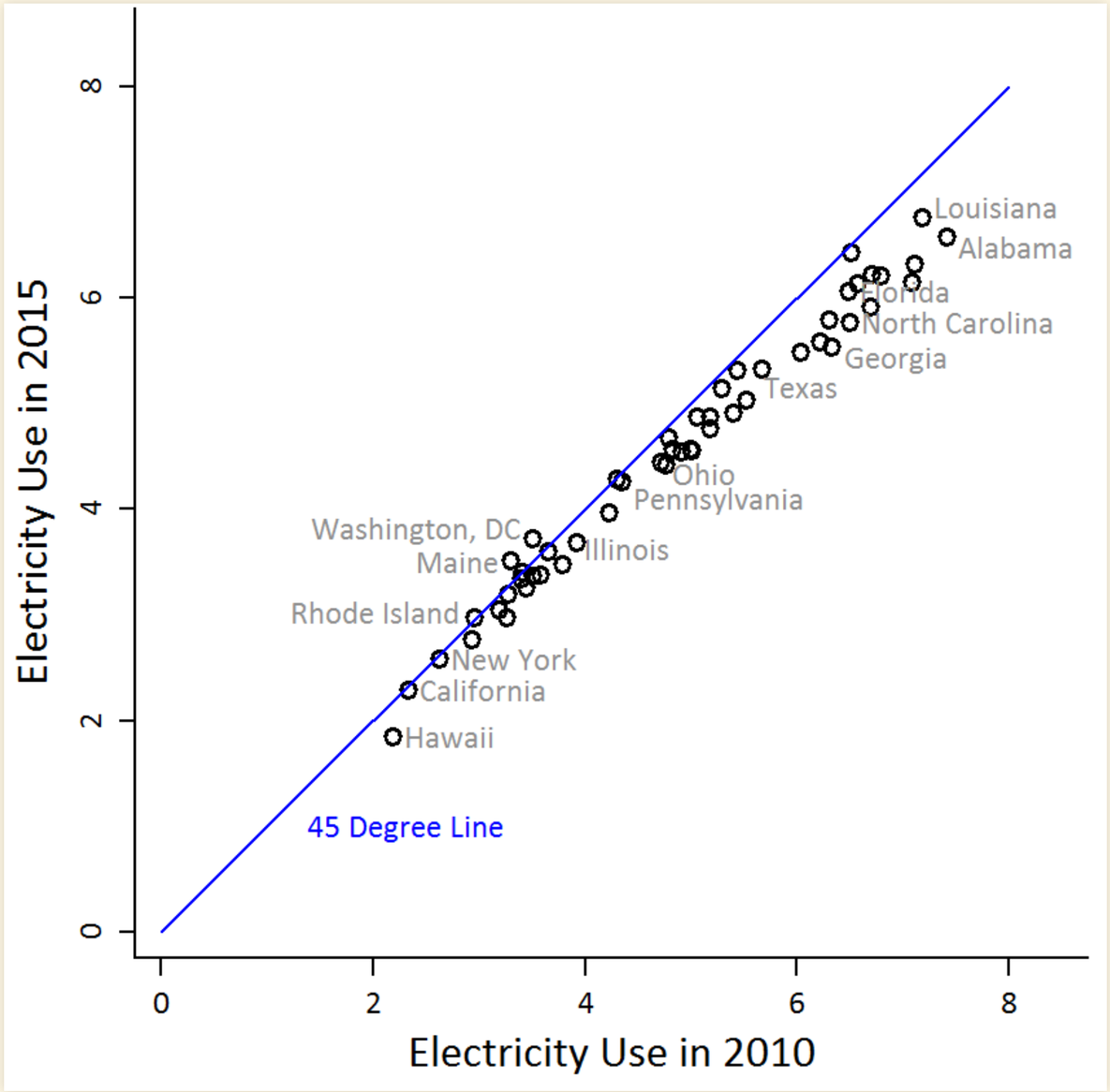


Recent Developments: Household Electricity Use

- LED and CFL lighting saves consumers money & reduces greenhouse gas emissions
- Reduced household electricity use cut U.S. emissions by 130 million metric tons of CO_2.



Reductions in 48 States

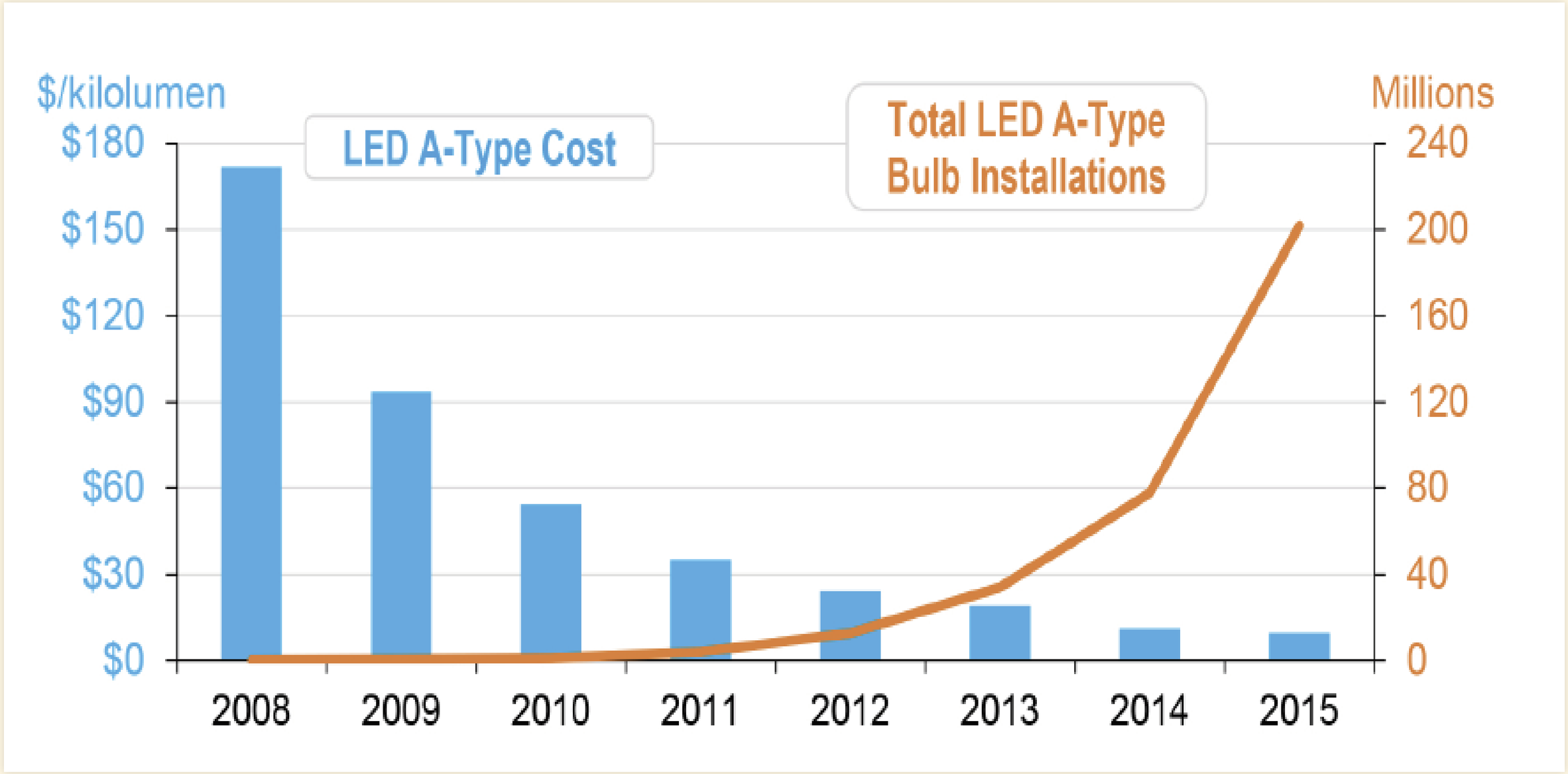


Lucas Davis, https://energyathaas.wordpress.com/2017/05/08/evidence-of-a-decline-in-electricity-use-by-u-s-households/

Private Governance

- 2007: Walmart sets and exceeds goal of selling 100 compact fluorescent light bulbs in one year.
  - Meets goal in 10 months
- 2011: Walmart launches competition among suppliers:
  - Best high-quality LED bulb under $10: We will help you sell hundreds of millions!
- 2013: Walmart teams up with TCP to launch 60W equivalent bulb for less than $9
- Replacing 5 most used bulbs in your house with LEDs will save around $75/year

LED Light Bulb Sales



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Corporate Emissions

Corporate Initiatives

- Carbon Disclosure Project (CDP)
  - 10,000 companies have disclosed their greenhouse gas emissions,
  - Used by investors with $106 trillion in assets
  - Participating companies have reduced their emissions by more than 700 million tons CO_2e per year
- Two thirds of the S&P 500 have set climate or clean-energy targets
- Over 20 major insurance companies limit sales to fossil-fuel intensive companies

Specifics

- Walmart pledged 1 billion tons CO_2e emissions cuts through 2030
- Microsoft has been 100% carbon neutral since 2012
  - Pledged to remove all its past CO_2 emissions by 2050
- Google went carbon-neutral in 2017
  - Pledged to power all operations with renewable energy by 2030
  - Investing in 5 billion watts of renewable power
  - Will work with 500 cities to reduce their emissions by more than 1 billion tons/year

Policy Analysis for Private Governance

Principles of Private Governance Analysis

- **Technical Potential**

  Reduction if everyone takes action

- Behavioral Plasticity

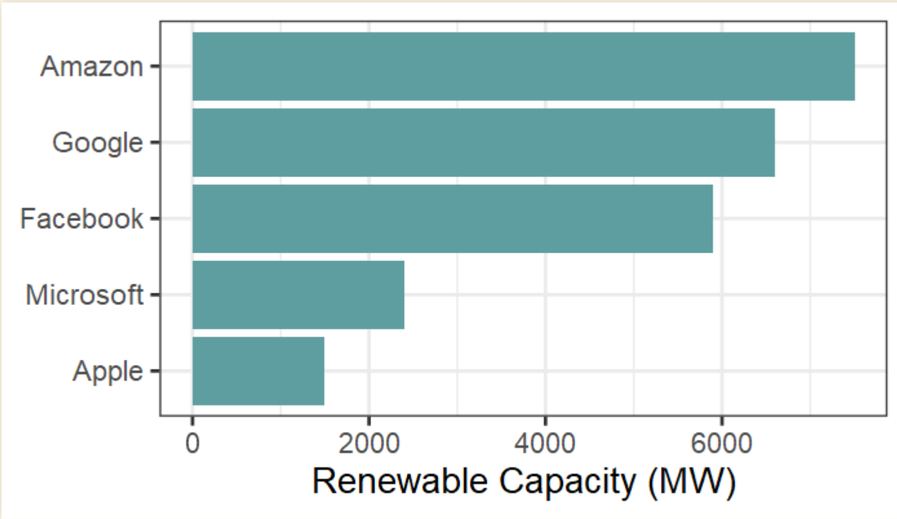
  What fraction of actors would take action with appropriate incentives?

- Policy Plasticity

  Potential for public or private actors to provide incentives

Corporate Pressure to Adopt Green Energy

- Southeastern states:
  - Hostile to renewable energy
  - Heavy coal use
- Corporate pressure
  - Offer big data center, but only if renewable energy is available
  - Amazon, Apple, Facebook, Google, Microsoft
- Over 1000 MW new renewable power planned for NC, TN, VA
  - Worldwide, more than 77,000 MW are planned



Conclusions

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- Political gridlock threatens public governance
  - Most policy analysis ignores political feasibility
- Private governance can likely reduce global emissions by more than 1 billion tons per year rapidly
- This isn’t even close to solving the whole climate problem
- But it can help considerably, and buy time to enact other measures.
- May promote bipartisan agreement about climate science
  - But may polarize views about private businesses engaging in governance