Effects on Environment from Particles and Climate Change:

Ancillary Benefits of Cap and Trade

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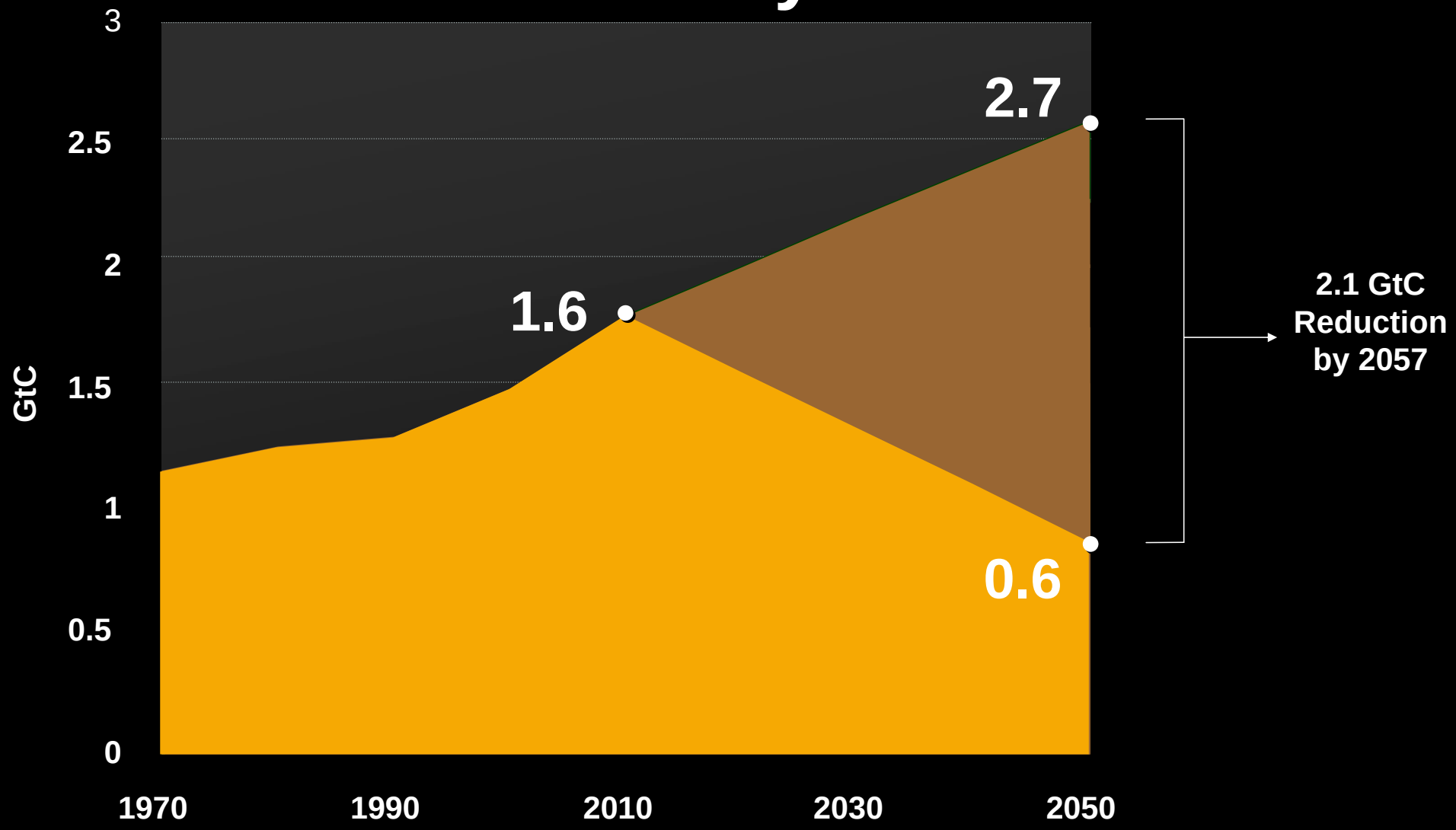
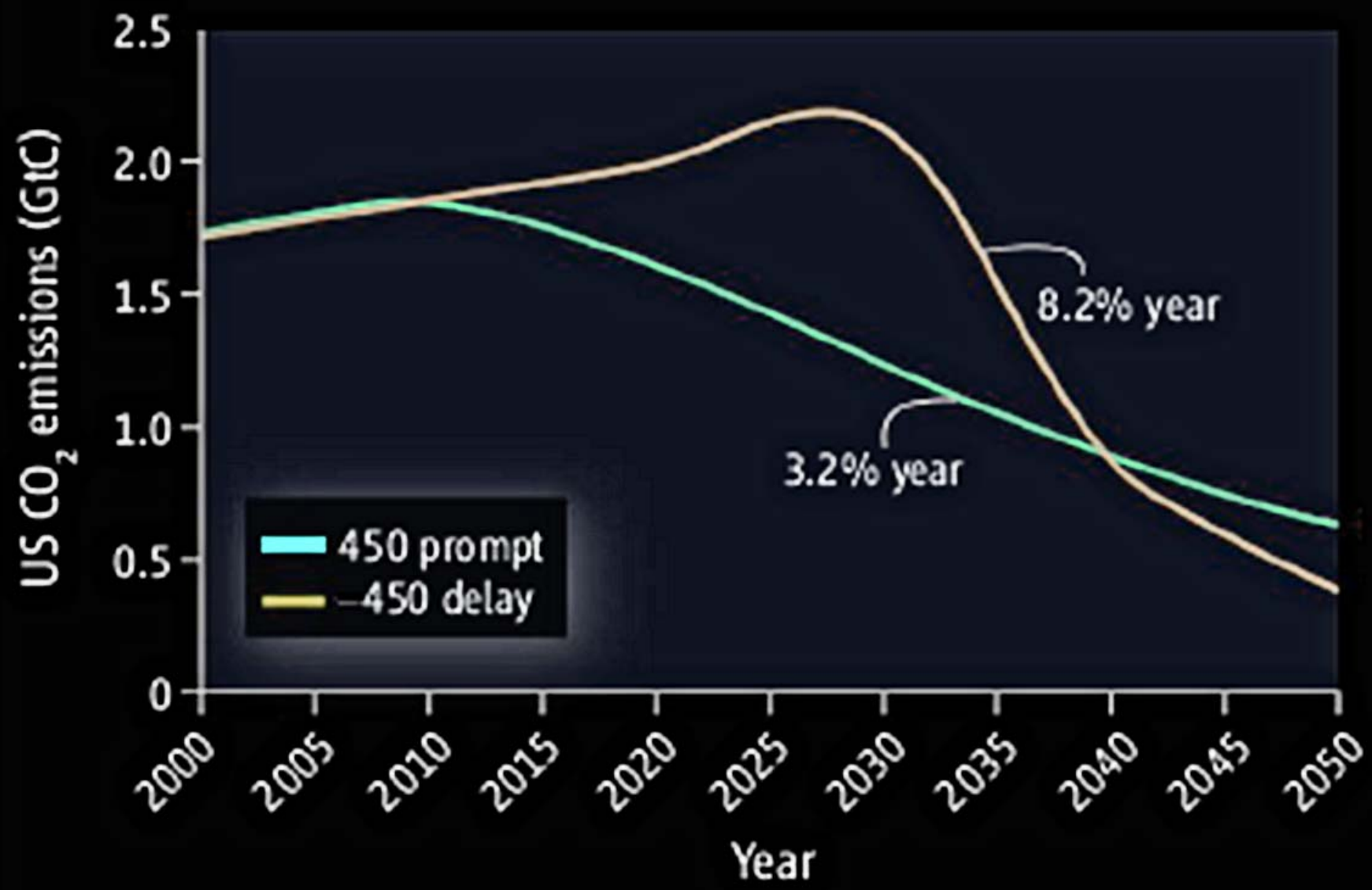
Summer Artic Sea Ice Boundary in 2004-5

Now 40% of the Summer Artic Sea Ice Boundary is gone

National Priority: Cut CO_2 Pollution 60%-80% by 2050

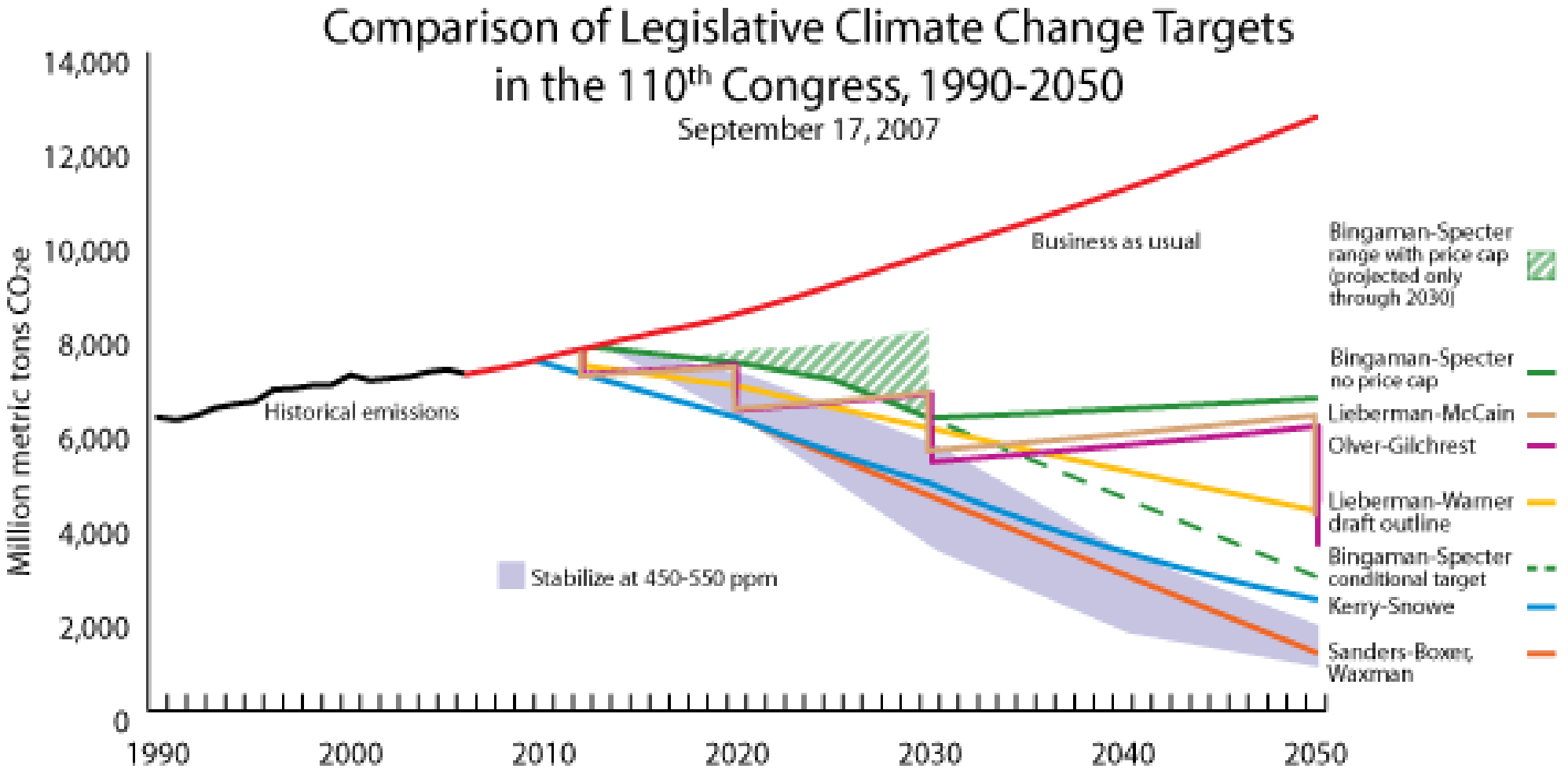


We need to get started!



Source: Doniger, Herzog, & Lashof, *Science*, 3 November 2006

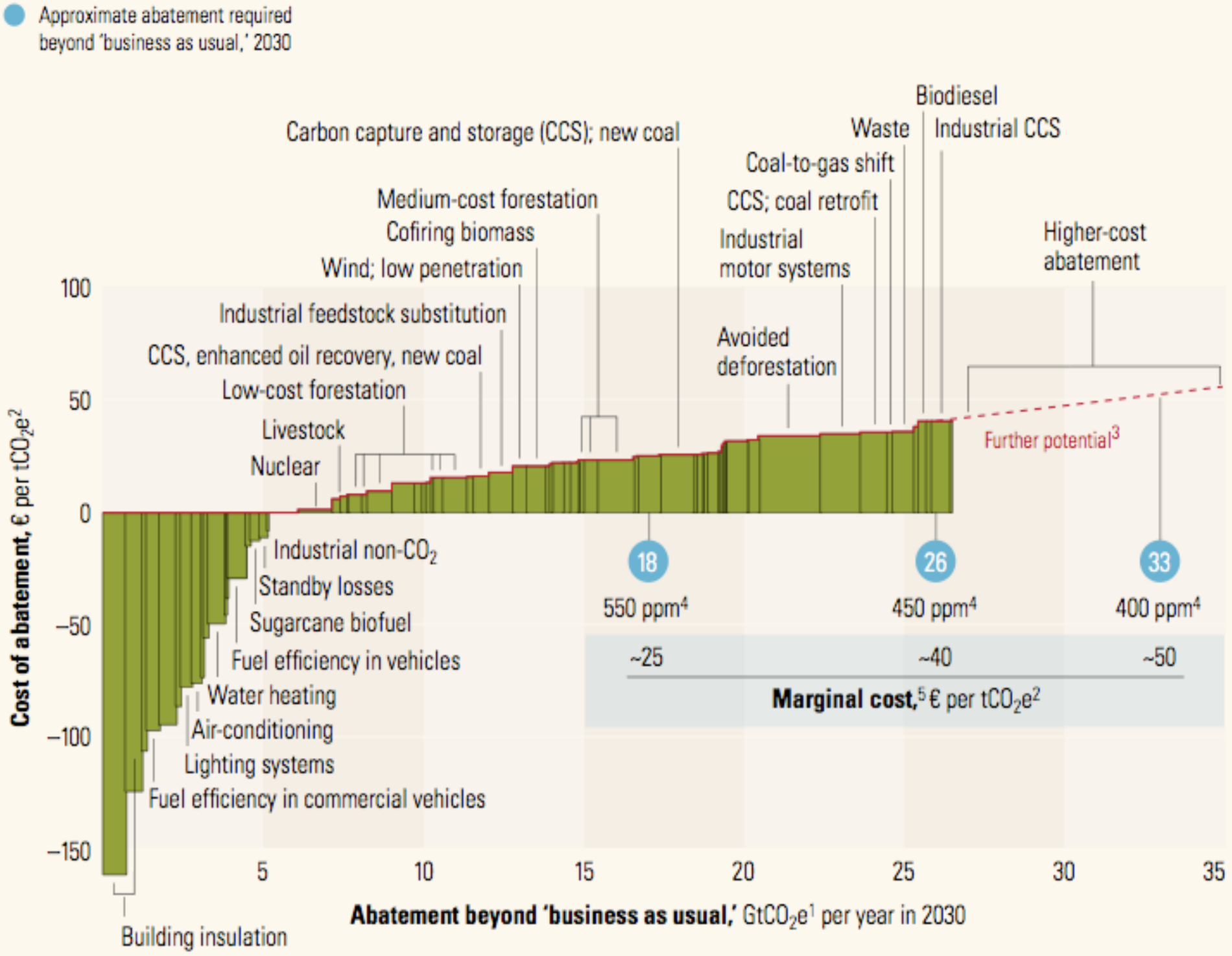
How are we doing?



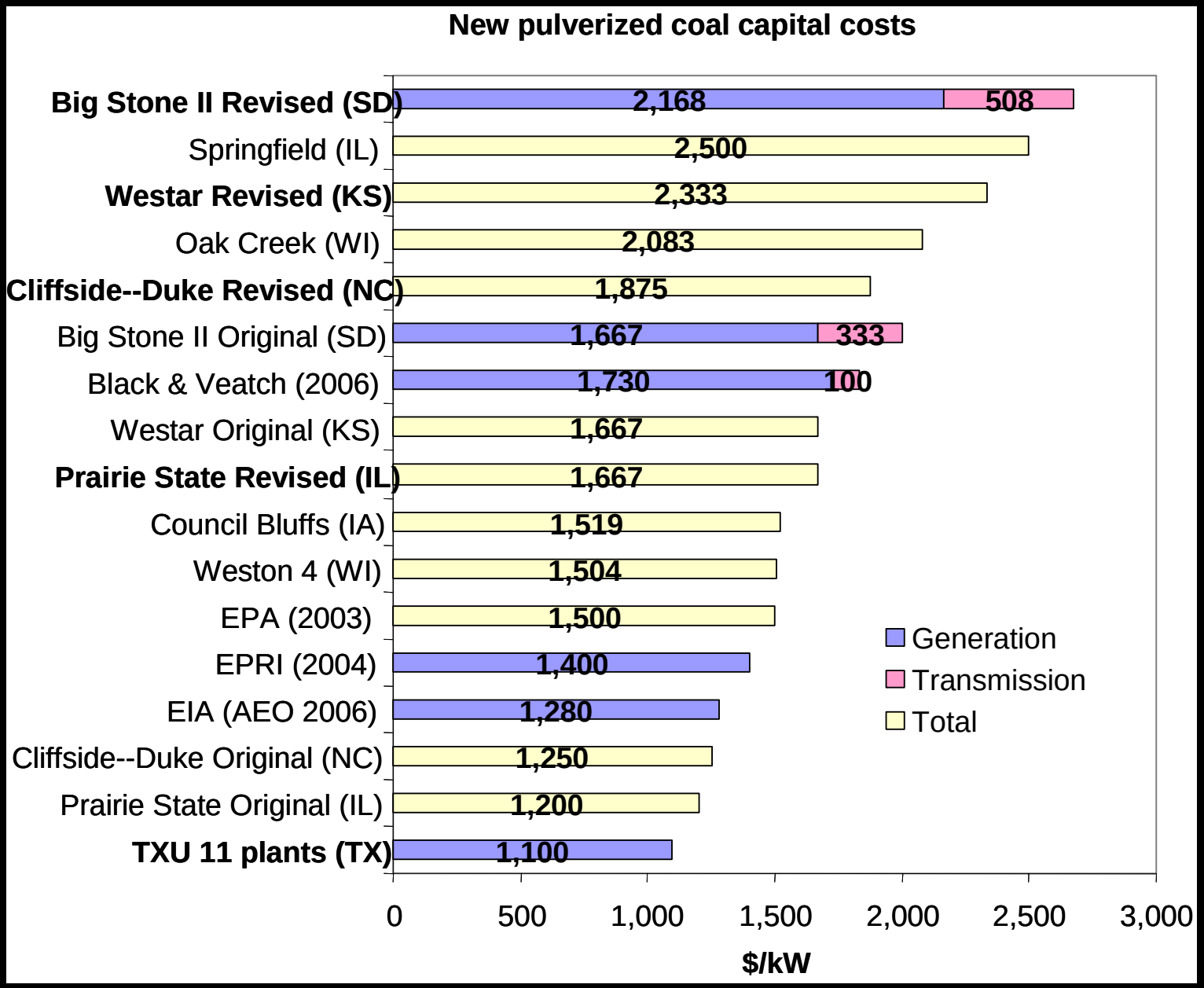
NRDC Criteria for Sound Climate Policy

- Does it solve the problem
- Does it change investment patterns
- Does it provide incentives for promising clean energy technologies
- Does it protect consumers, displaced workers, and impacted communities

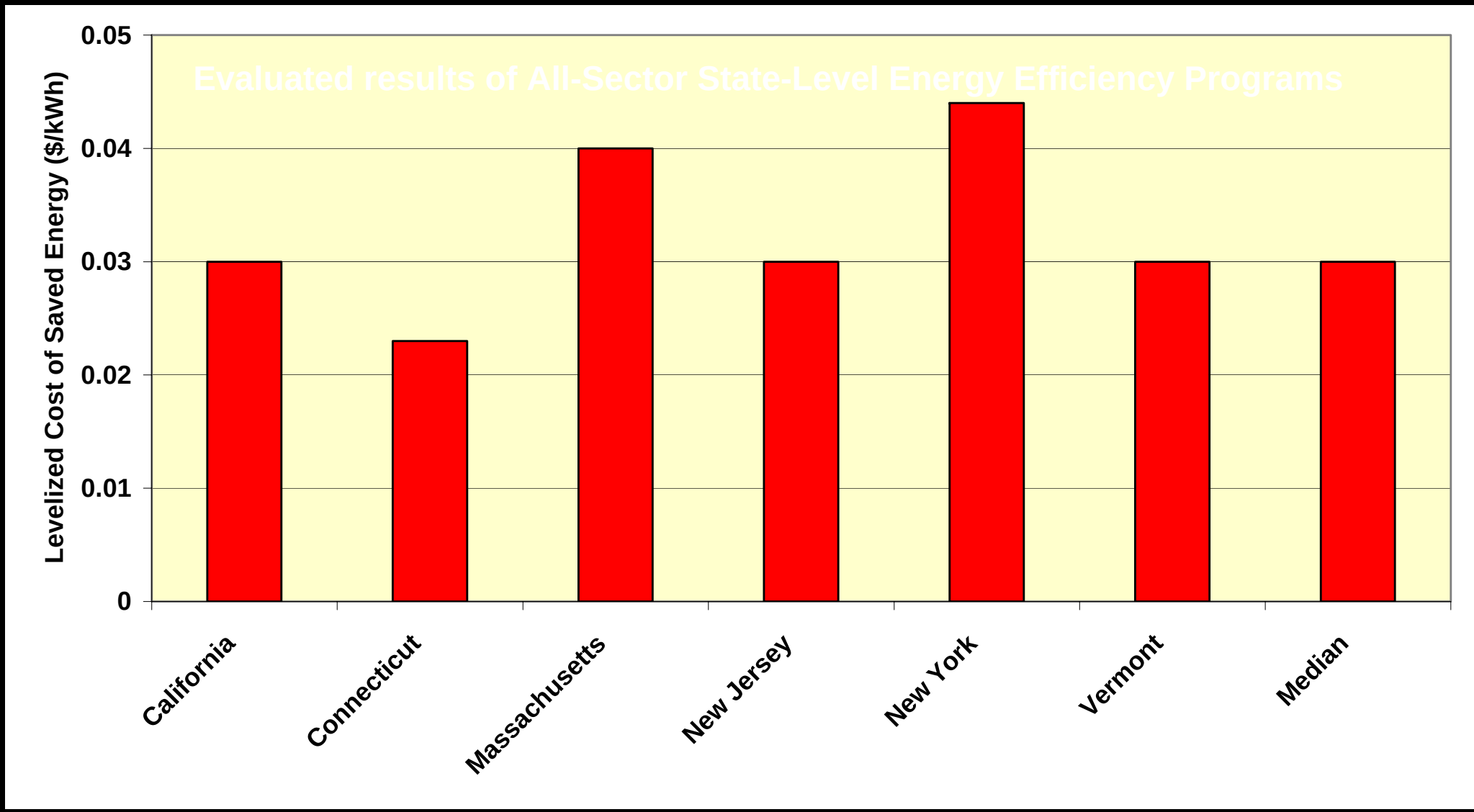
Global cost curve for greenhouse gas abatement measures beyond 'business as usual'; greenhouse gases measured in $GtCO_2e$[1]



Cost of new generation is high



Efficiency Resources are the most Cost Effective

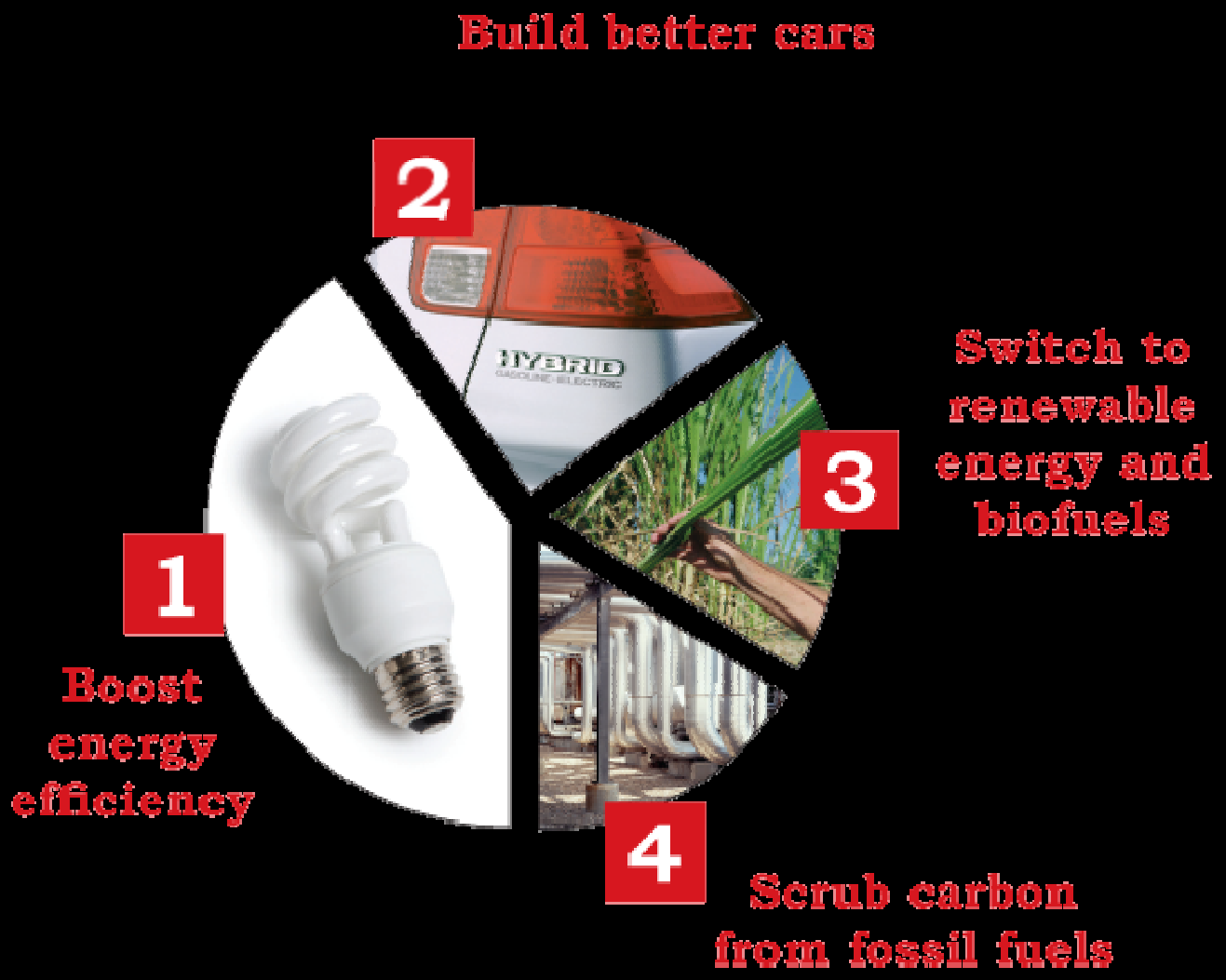


Source: ACEEE 2005

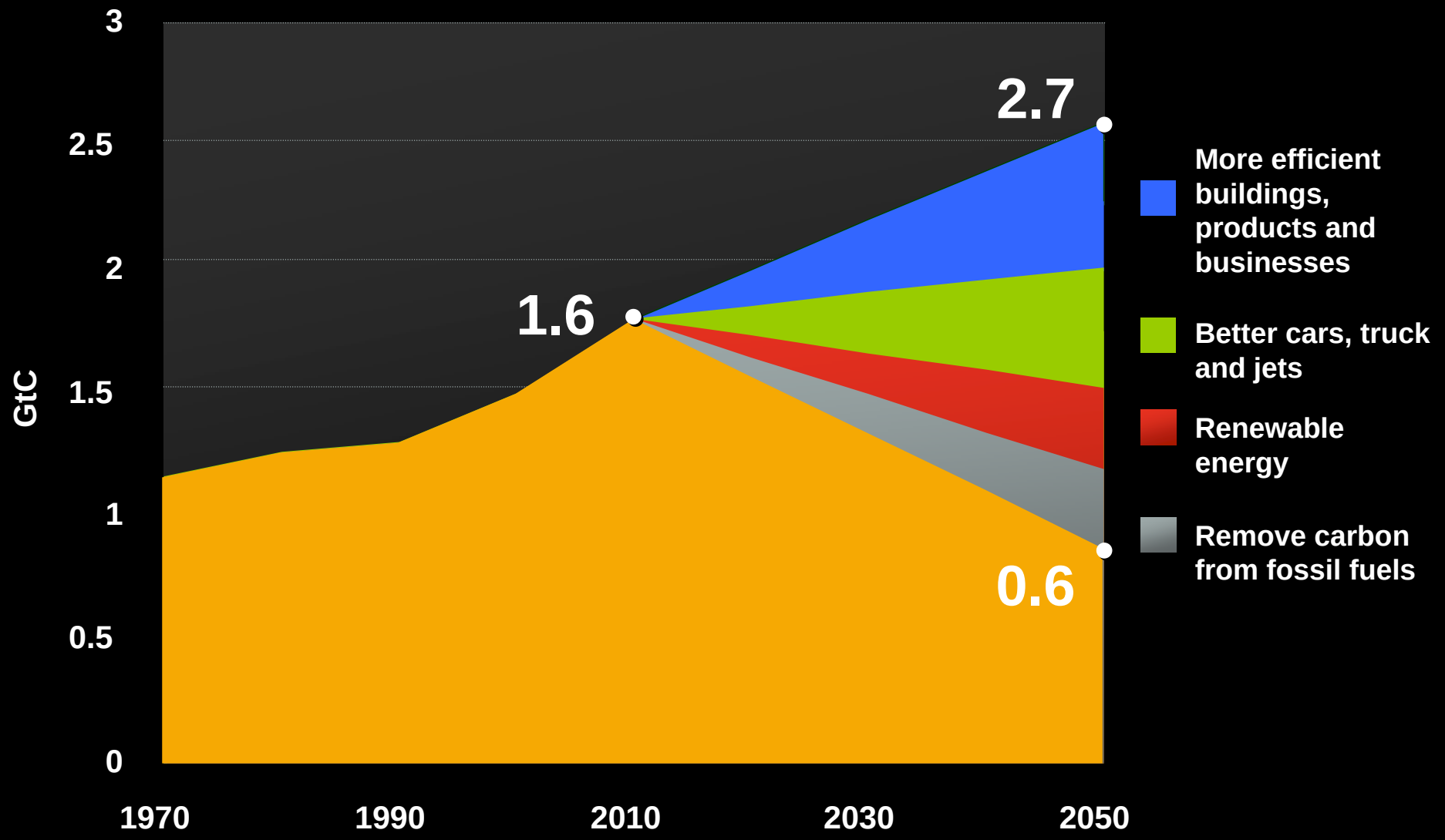
Role for energy efficiency resources

- **Traditional supply solutions take years to come to market and are expensive**
- **Energy efficiency fastest, cheapest, cleanest source**
- **Energy efficiency can produce savings in both the near-term and longer-term**
- **Energy efficiency can stretch conventional resources – allow time to develop long-term supply solutions**

Clean Energy Solutions Exist Now



U.S. Emissions Reductions



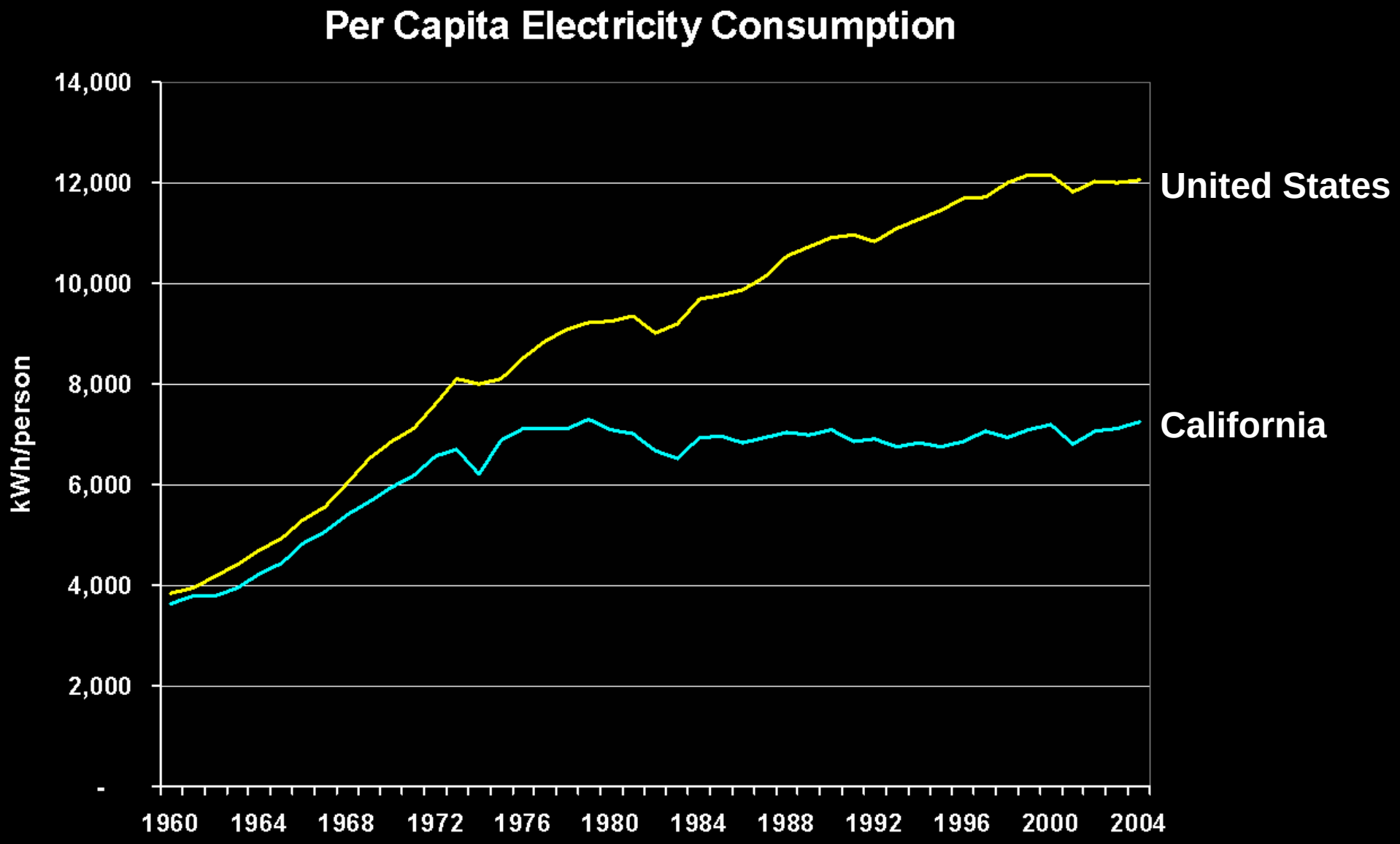
Boost Energy Efficiency of Buildings, Products and Businesses

Carbon Savings	41%

- Reduce electricity demand by 41% for things such as motors, lighting and refrigeration

- Reduce building & industry fuel use by 40% with green building design, better industrial processes and combined heat and power

Energy Efficiency Works



Source: California Energy Commission, 2005

What's the latest on the Hill?

Senate: **Lieberman and Warner have released an outline of a comprehensive climate change bill.**

Coverage and Targets: Economy-wide bill that will hit 2005 levels in 2012, 10% below in 2020, 30% below in 2030, 50% below in 2040 and 70% below in 2050.

Offsets: 15% limit on use of domestic offsets and 15% limit on use of international credits.

Allocation: 24% in 2012-2034, rising to 52% in 2035

Borrowing: Up to 15% per company

Need more resources for energy efficiency!

What's the latest on the Hill?

House: Energy and Commerce Committee will be releasing a series of white papers on different cap and trade issues. Dingell's staff will be working on the different aspects of cap and trade design.

Boucher has started drafting a bill and will work with Hastert as a cosponsor. There may be a potential mark-up in Energy and Commerce.

What's the Latest on the Hill?
Federal Energy Bills

Renewable electricity standard with efficiency carve out in House version of the energy bill

- 15% (4% efficiency) renewable portfolio by 2020
- Up to 27% of requirement can be met with energy efficiency
- Addressing the issue of human capital – education and training
- Lighting standards

How can cap and trade bills better incorporate energy efficiency?

Ralph's Three Pillars:

1) Break the link between utility financial health and sales.

2) Performance-based energy efficiency programs.

3) Pay utilities and consumers to do the right thing! Sharing the benefits of energy efficiency…

Potential Mechanisms in Cap and Trade:

- **Auction allowances and use revenues for energy efficiency**

- **Distribute allowances to state LDCs and use as incentive to achieve real reductions in energy use and GHGs**

- **Use allowances as a carrot to incentivize states to implement effective EE policies.**

Use CO2 Allowances as Carrot for Good State Energy Policy

- Break the link between utility financial health and sales or decouple to align incentives
- Make cost-effective energy efficiency investments by as rewarding to their shareholders as alternative utility investments in new energy supplies or infrastructure
- Require adoption of most recent energy performance requirements of ASHRAE 90.1 and the International Energy Conservation Code for new buildings

Ancillary Benefits of Cap and Trade

Ancillary Benefits of Cap and Trade

Hits all of the major sources of particulate pollution

Seeks to reduce energy consumption and incentivize renewable energy production.

Will create big public health benefits, IPCC ancillary benefits report.

Maryland RGGI Example

- **University of Maryland Modeled sale of 25% of allowances in auction.**

Resulted in Job growth, State GDP Growth =

Imagine with 100% Auction

- **D**ecrease in statewide electricity bills of more than $100 million in 2010 and more than $200 million in savings by 2025.

- Over half of these savings accrue to commercial and industrial users, and the average residential electricity bill will see a decrease of about $22 per year in 2010.

THANK YOU!

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Build Better Cars, Trucks and Jets

Carbon Savings	24%

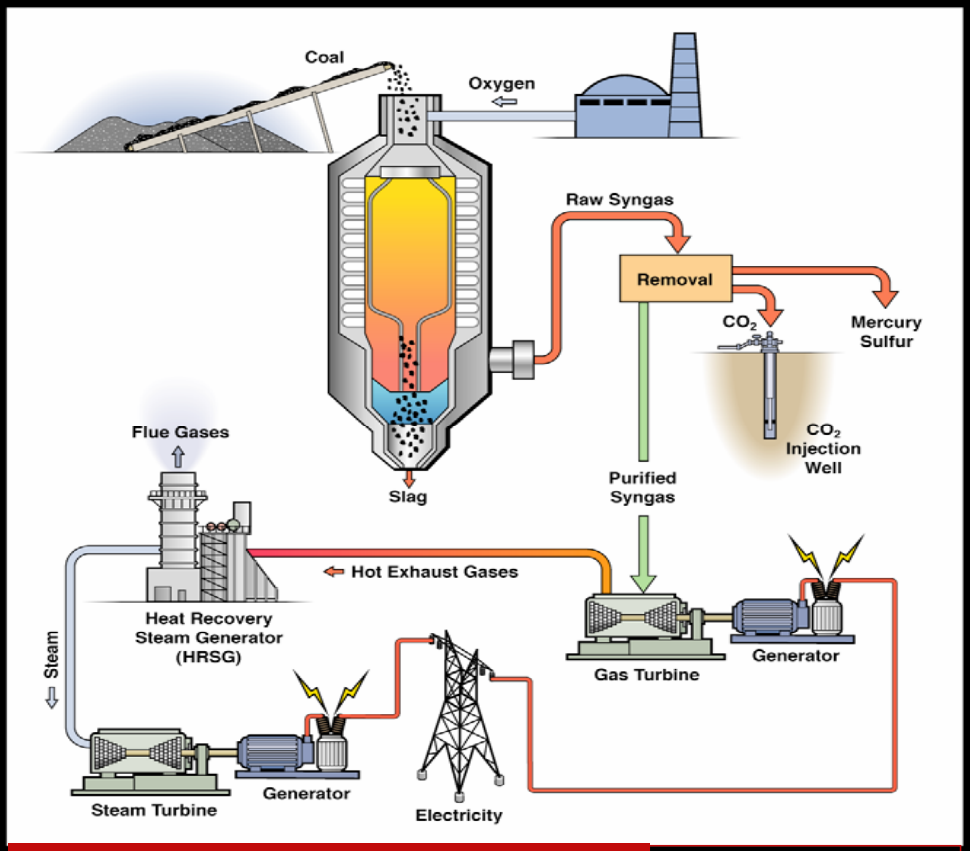
- Passenger vehicle fleet should average 54 mpg with hybrids, fuel cells, conventional vehicle improvements
- Heavy trucks should average 13 mpg; aircrafts 105 seat miles per gallon
- Travel should be reduced by 10% with smart growth

Switch to Renewable Energy and Biofuels

Carbon Savings	19%

- Corn Ethanol
- Biodiesel
- Ethanol from Biomass
- Wind Energy
- Biodigesters

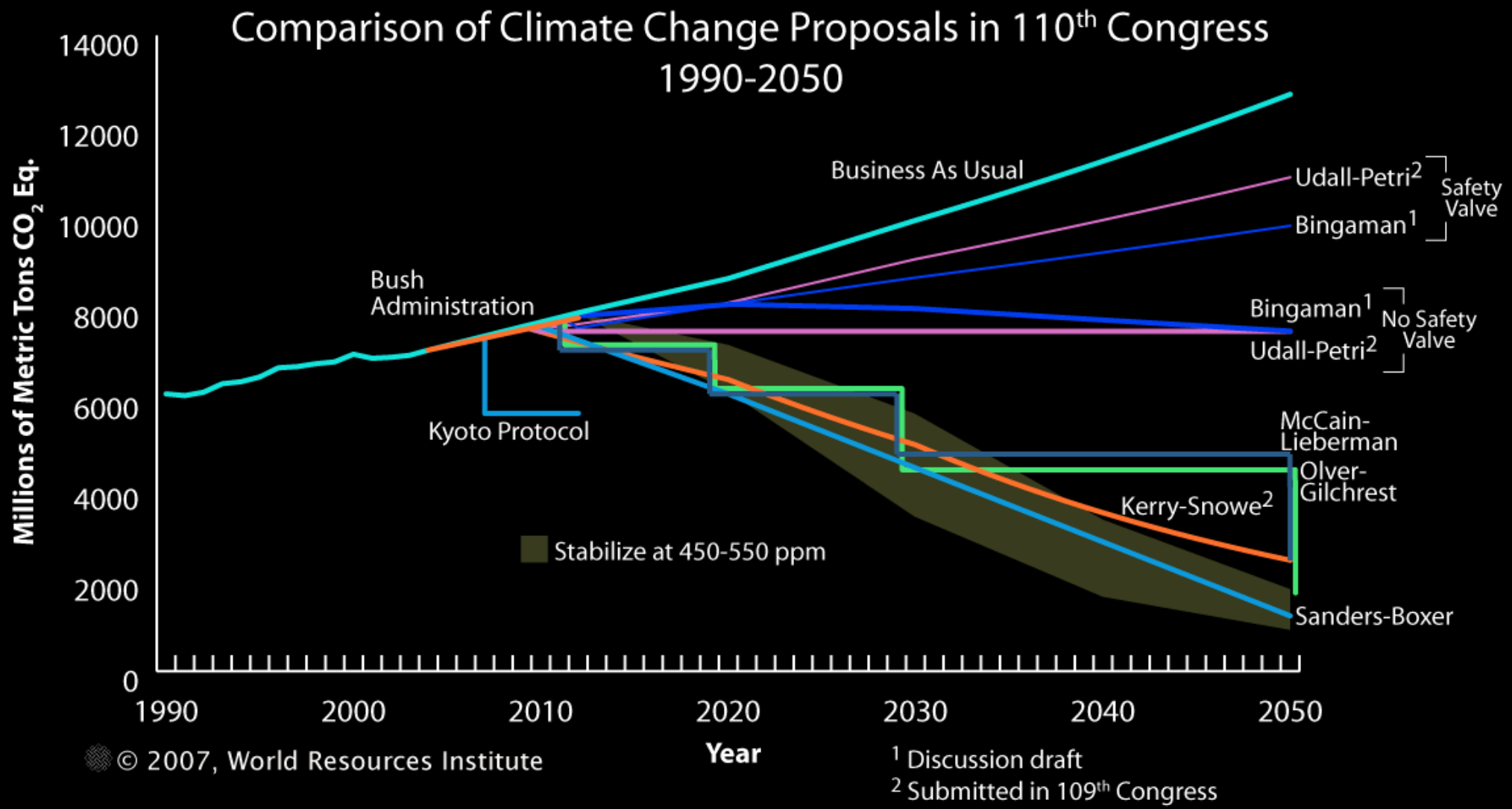
Scrub Carbon from Fossil Fuels



Carbon Savings	16%

- Any new coal plant must separate and capture its CO2
- As a liquid, the CO2 can injected into natural geologic structures deep in the Earth where it is gradually absorbed.
- Same as is done today with advanced oil recovery.

Does it solve the problem



Does it change investment patterns

- **Long term signal needed**
- **Comprehensive coverage**
- **No “safety valve”**
- **Limited use of high quality offsets**

Does it provide incentives for promising clean energy technologies

- **Complementary performance standards**
  - CAFE or vehicle CO2 emission standard
  - Low carbon fuel standard
  - Building and appliance efficiency standards
  - Renewable electricity standard
  - Low carbon coal generation obligation
- **Strategic use of emission allowances**
  - Retool auto industry
  - Deploy carbon capture and storage
  - R&D on renewables and other advanced technologies

Does it protect consumers, displaced workers, and impacted communities

- **Emission allowances are a public resource**
- **Grandfathered allowances = windfall profits**
- **Efficiency investments best way to protect consumers**
- **Allocations to states can be used for disproportionately affected works, communities**

Allowance Allocation