Transitioning to a Carbon-Constrained World: The Role of PUCs

Rick Morgan
Commissioner
D.C. Public Service Commission

MACRUC Climate Panel
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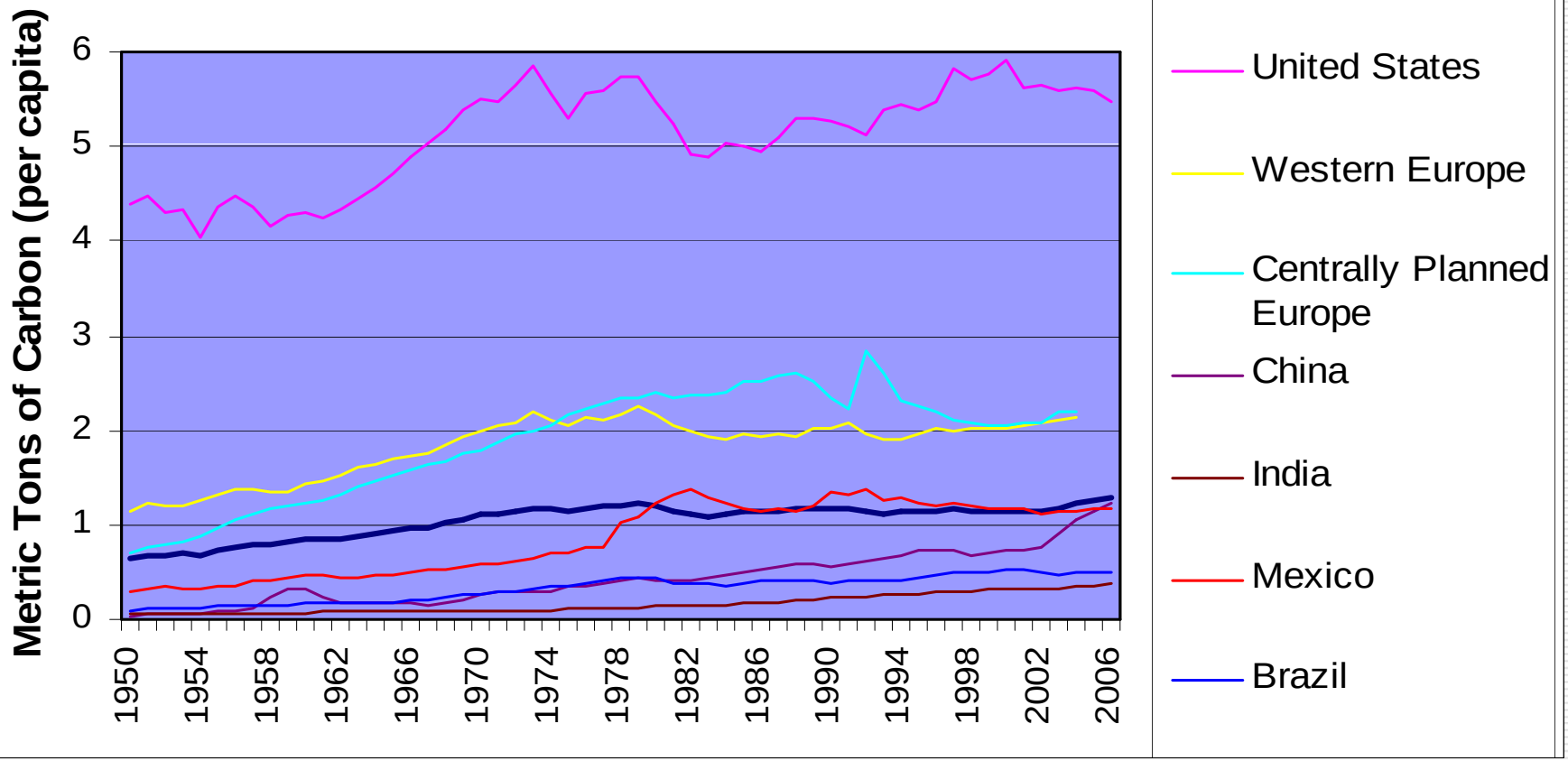
US per capita emissions stable and high

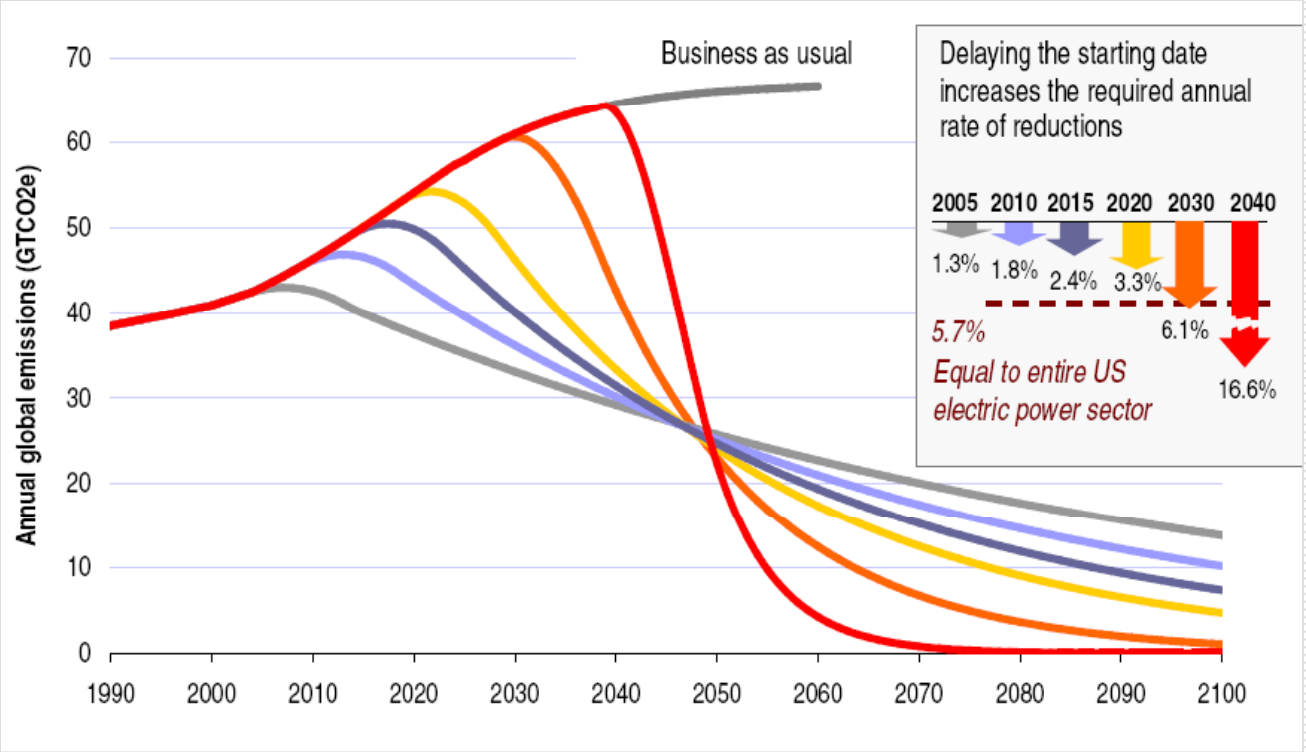
Figure 1: Per Capita Emission Trends 1950-2006
(Data sources: Marland et al. 2007 (data through 2004), 2005-2006: author's estimates using preliminary data)



Meyerson, F.A.B. 2009. Population. *in* Schneider, Stephen et al. (eds). Climate Change Science and Policy. Island Press, Washington, DC.

Different pathways to 450 ppm – Delay can be very costly

Delaying strong action will necessitate a much stronger response in the future



- Current estimates of the costs are of about 2% of GDP (per year) if immediate action is taken
- A ten-year delay could double the annual costs and costs rise to up to 20% GDP if no action is taken

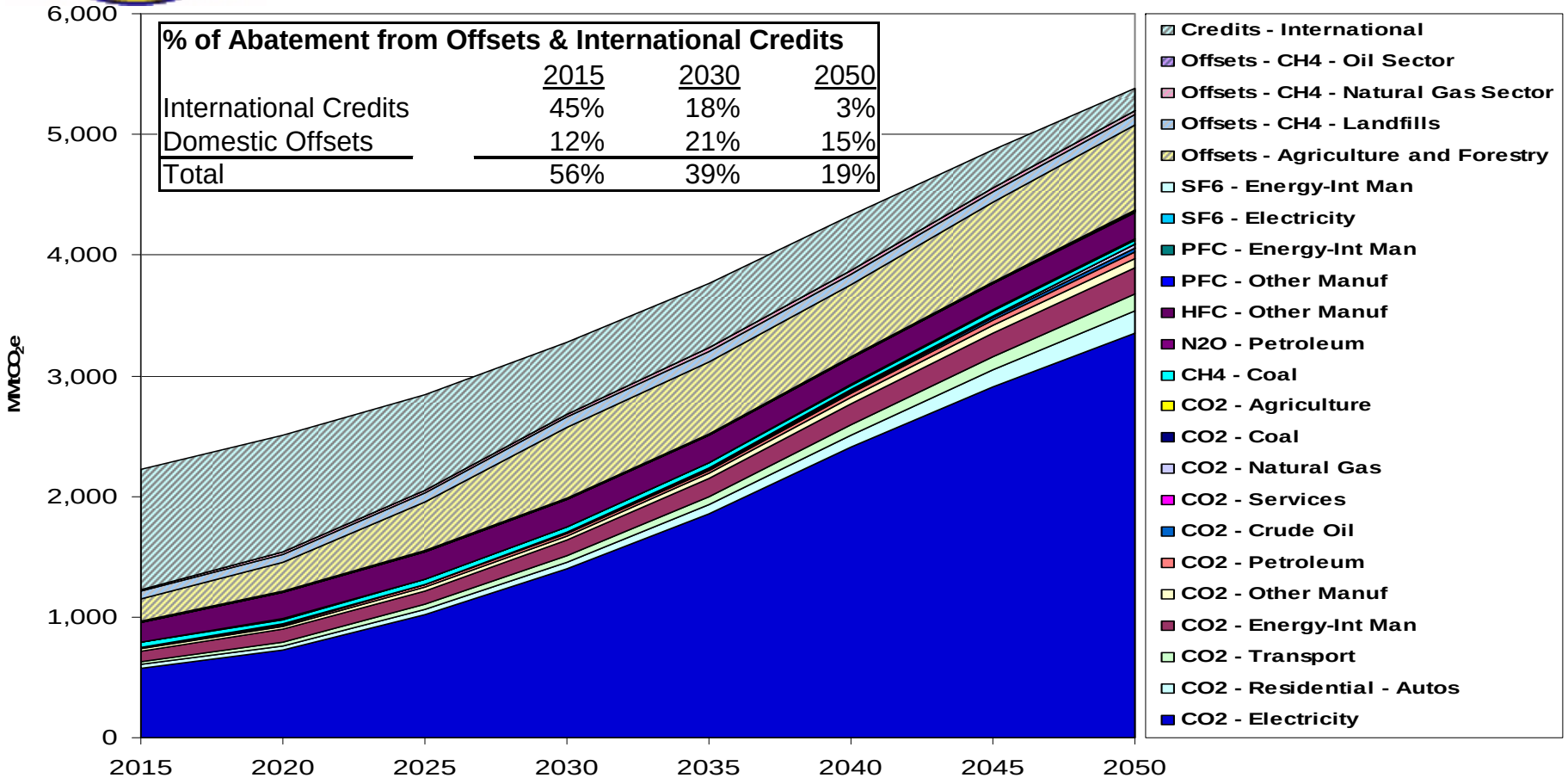
Source: Stern Report; Blair report; EDF calculations using the MAGICC climate model and IPCC assumptions

Climate policy & energy are intertwined

- Electric & gas industries dominate U.S. CO_2 emissions
  - 40% of U.S. CO_2 from power generation
  - 14% from retail natural gas usage
- PUCs will have key role in U.S. response to climate change
  - Policy choices re: energy resources
  - Approval of financing & cost recovery for utilities
  - Protecting ratepayer interests

Power sector bears much of the burden

Sources of GHG Abatement US EPA11-07; S. 280 Senate Scenario



Power generation is ~40% of the problem –
but may be called upon to be 75% of the solution!

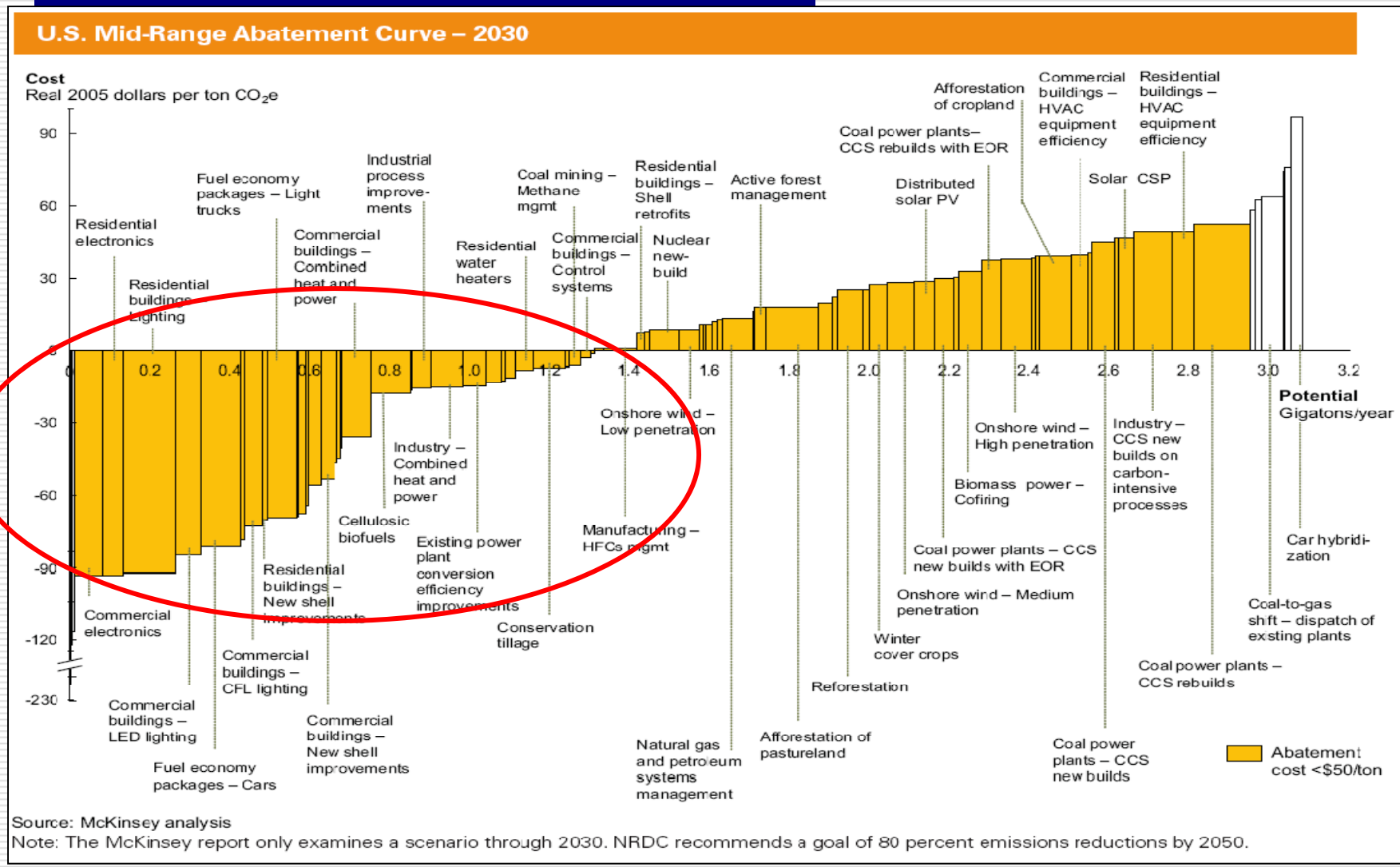
Where will power sector CO_2 reductions come from?

- Three options:
  - Re-dispatch the existing fleet
  - Lower the emission profile of new generation
  - Reduce consumption

"*Efficiency programs can save 7x more carbon per consumer $ than carbon taxes or prices*"

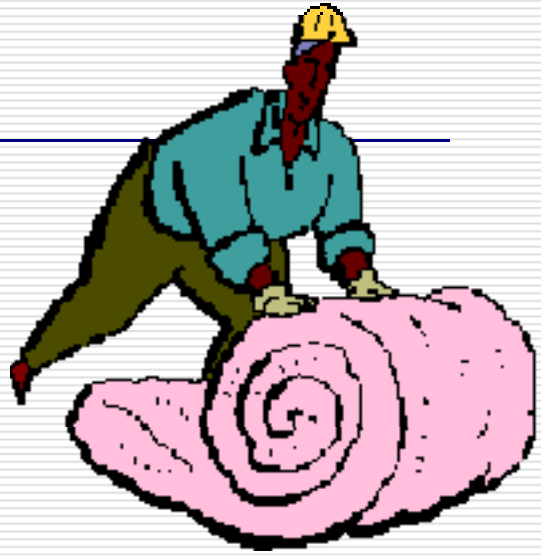
– Richard Cowart, Regulatory Assistance Project

McKinsey study: Efficiency is the low-cost "carbon scrubber"



Source: McKinsey analysis
Note: The McKinsey report only examines a scenario through 2030. NRDC recommends a goal of 80 percent emissions reductions by 2050.

Proactive climate policies for PUCs



- Require utility assessment of climate-related risk
- Resource acquisition policies
  - Incorporate carbon prices, uncertainty
  - Consider value of EE in reducing risk
- Consider societal benefits of emerging low-carbon technologies such as CCS
- Timely recovery of prudent costs

Subtle PUC policies that could make things worse

- Policies that shift risk to consumer:
  - Automatic fuel adjustment clauses
  - Special cost recovery for environmental costs
  - Approval of new fossil generation w/o climate risk assessment
- Policy barriers to EE:
  - Declining-block rates
  - Focus on minimizing rates, not customer bills

NARUC resolution re: state climate policies*

- Cost per ton of reducing GHGs can vary dramatically depending on path chosen
- PUCs should consider adoption of polices to:
  - Preserve system reliability while minimizing cost
  - Facilitate greater reliance on low-carbon resources & support R&D funding
  - Ensure timely utility recovery of prudent costs
  - Require utilities to assess and incorporate climate-related risks in planning & decisions

*http://www.naruc.org/Resolutions/ERE1%20Resolution%20on%20State%20Regulatory%20Policies%20Toward%20Climate%20Change.pdf

Messages from NARUC-NCEP Climate Conference, 12/09

- Coherent message from a broad mix of speakers:
  - Academics, utilities, regulators, financial community, activists
- Much agreement on key policy points:
  - **Decarbonizing the power sector** is essential --*while also* electrifying transport and housing
  - Carbon **pricing** (tax or cap) is not enough,
  - A suite of **policies** is essential on demand, delivery and supply,
  - Many of those policies are **in the hands of states and PUCs** – with or without federal action
- Conference presentations:

http://www.naruc.org/meetingpresentations.cfm?148

Appendix

No scenario works without an "Efficiency First" commitment

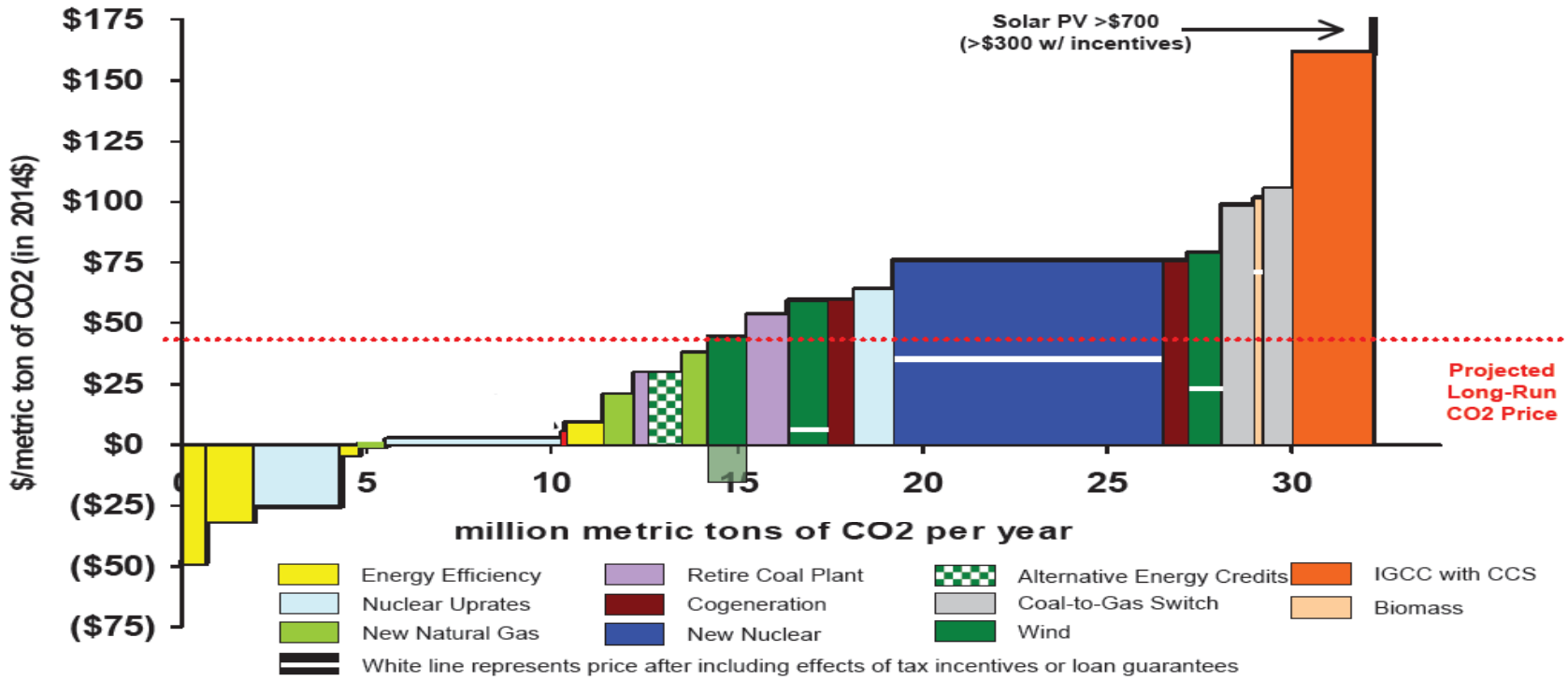
- ***"If I were emperor of the world, I would put the pedal to the floor on energy efficiency and conservation for the next decade."***

— Dr. Stephen Chu, United States Secretary of Energy

- Gina McCarthy -- ***"No matter what approach we take, if we don't focus on efficiency, the costs are staggering…Energy efficiency is the foundation of every strategy we can develop"***

We can't rely on carbon prices to deliver the needed investments

Cost of Carbon Mitigation in Electricity Supply



Note: Emissions abatement estimates for new generation capacity represents emissions reduced in the market as a result of the project less emissions introduced due to the project (if any). New nuclear plants assumes 1,460 MW of new generation.

Cap-and-trade legislation will encourage us to do the cheapest options first

Elements of a 2050 Roadmap – State PUCs roles in every step:

1. Deliver “Efficiency First” policies and programs
2. Halt lock-in of new unabated coal
3. Accelerate CCS for coal and gas
4. Add large-scale renewables
5. Grid expansion and access rules for renewables
6. Support nuclear where competitive
7. Electrify light-duty transportation (and buildings where needed)
8. Build a Smart/Green Grid for DR, EVs, PVs,etc.
9. Regulation and finance – Support profitable business models for utilities and investors