



Climate Legislation Update

SAEMS 2010 P2 Seminar

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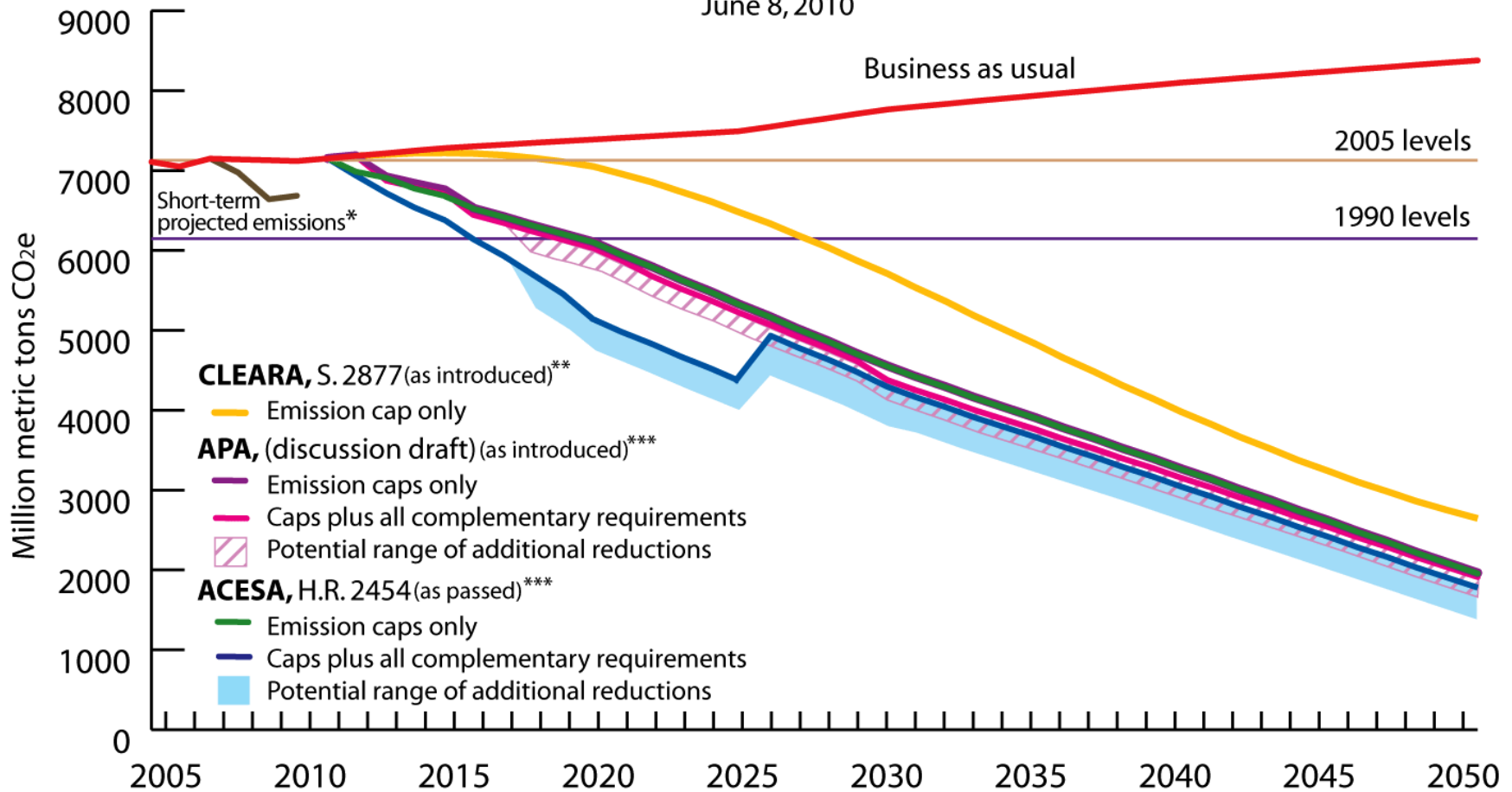


Climate Legislation in the 111th Congress

Bill Number	Author	Title	Status
S.5	Reid (D-NV)	Cleaner, Greener, and smarter Act of 2009	Introduced
H.R.594	Stark (D-CA)	Save our Climate Act of 2009	Introduced
H.R.1862	Van Hollen (D-MD)	Cap and Dividend Act of 2009	Introduced
H.R.2454	Waxman (D-CA) Markey (D-MA)	American Clean Energy and Security Act of 2009	Passed House
S.1733	Kerry (D-MA) Boxer (D-CA)	Clean Energy Jobs and American Power Act	Reported out of Committee
S.1933	Bingaman (D-NM)	Natural Resources Climate Adaptation Act	Introduced
S.2877	Cantwell (D-WA) Collins (R-ME)	Carbon Limits and Energy for America's Renewal Act	Introduced
S.J. Res. 26	Murkowski (R-AK)	EPA Regulation Disapproval Resolution	Failed (47-53)
H.R.4753	Rahall (D-WV)	Stationary Source Regulations Delay Act	Introduced
S.3464	Lugar (R-IN)	Practical Energy and Climate Plan Act of 2010	Introduced
S.3047	Rockefeller (D-WV)	Stationary Source Regulations Delay Act	Introduced
None	Kerry (D-MA) Lieberman (I-CT)	American Power Act	Draft Released

Net Estimates of Emissions Reductions Under Pollution Reduction Proposals in the 111th U.S. Congress, 2005-2050

June 8, 2010



 WORLD RESOURCES INSTITUTE

For a full discussion of underlying methodology, assumptions and references, please see <http://www.wri.org/usclimatetargets>.

*"Business as usual" emission projections are from EPA's reference case for its analysis of the Waxman-Markey bill. "Short-term projected emissions" represent EIA's most recent estimates of emissions for 2008-2010.

** The CLEARA sets economy-wide reduction targets beginning with a 20 percent reduction from 2005 levels by 2020. However, additional action by Congress would be required before these targets could be met. Reduction estimates do not include emissions increases above the cap that could occur if the safety-valve is triggered.

*** The APA and the ACESA allow offsets from emission reduction activities outside the cap to be used for a portion of compliance. If these offsets are not real, additional, verifiable and permanent, net emissions reductions would decrease proportionately.

Short-term Cap

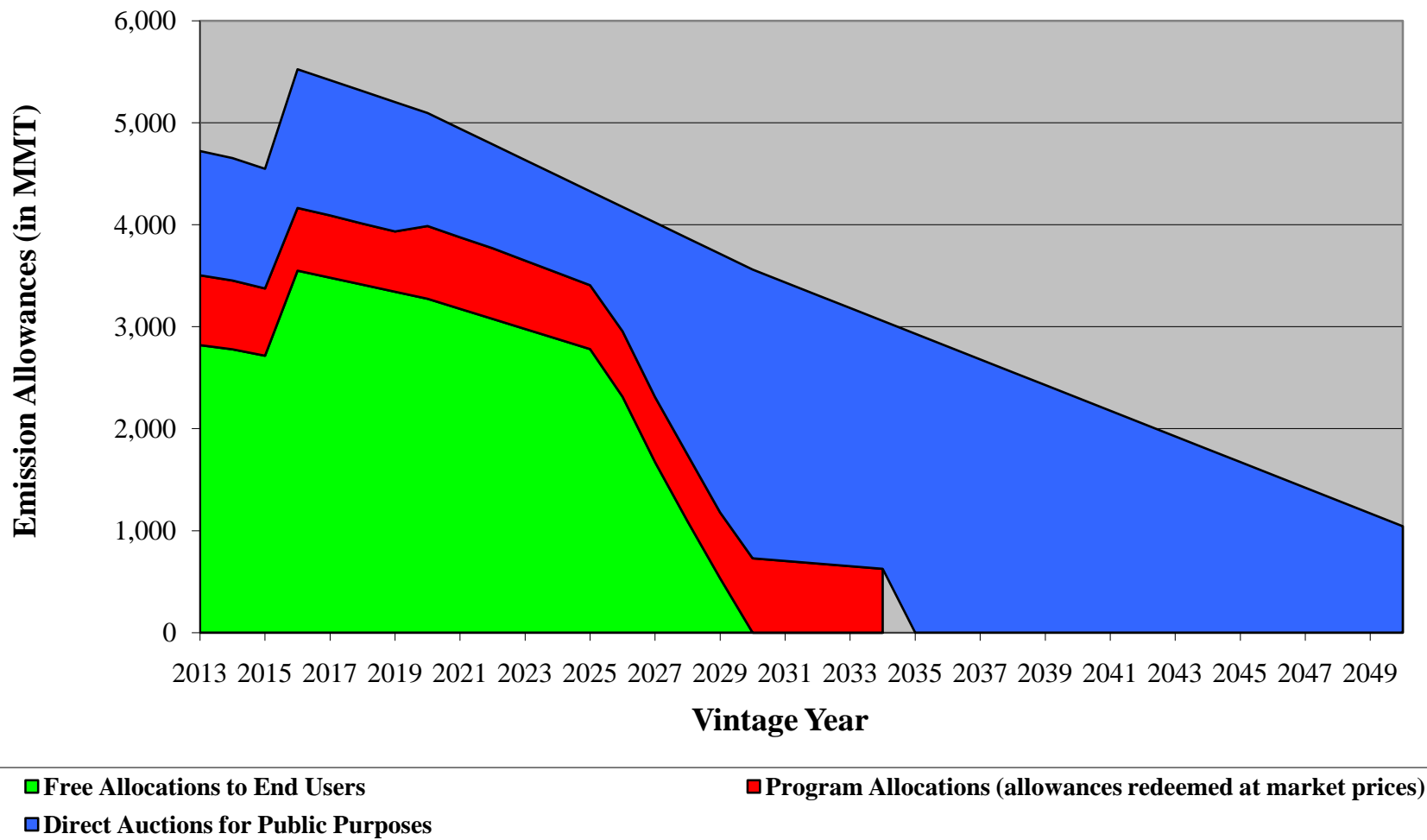
(reduction from 2005 emissions by 2020)

– Pres. Obama	14% ⁽¹⁾
– Waxman-Markey	17%
– Cantwell-Collins	20%
– Kerry-Boxer	20%
– Kerry-Lieberman	17%

(1) 14% included in early budget reports, coupled with a 100% auction. Later Pres. Obama submitted a reduction target of 17% to the international community as part of negotiations for the Copenhagen Accord.

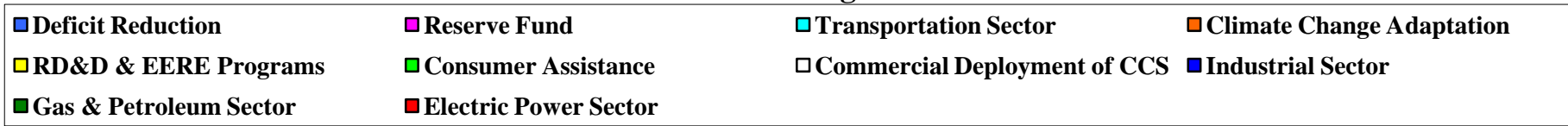
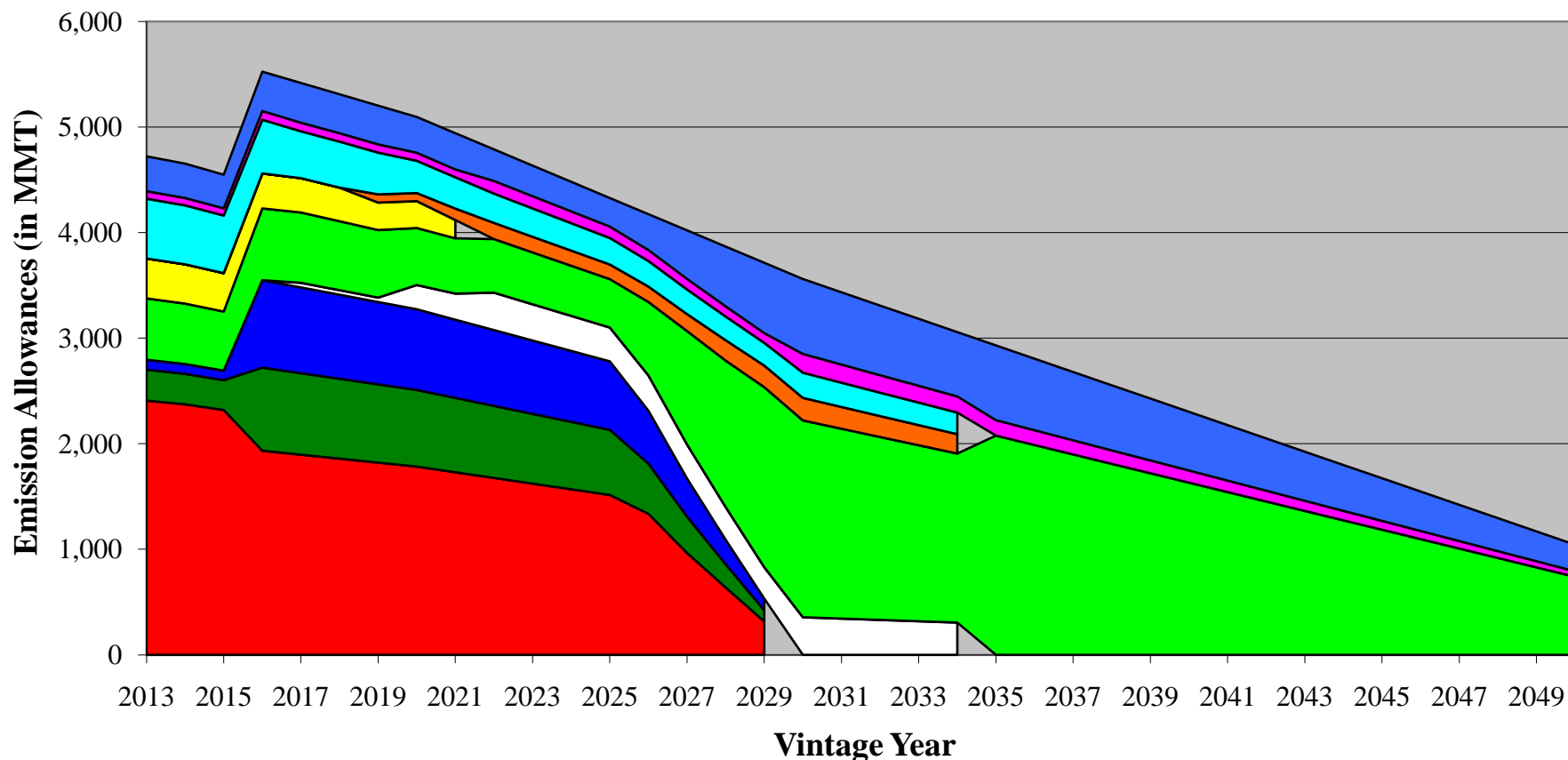
Collection and Distribution of Allowances

Kerry-Lieberman: Allowances by Method of Distribution



Collection and Distribution of Allowances

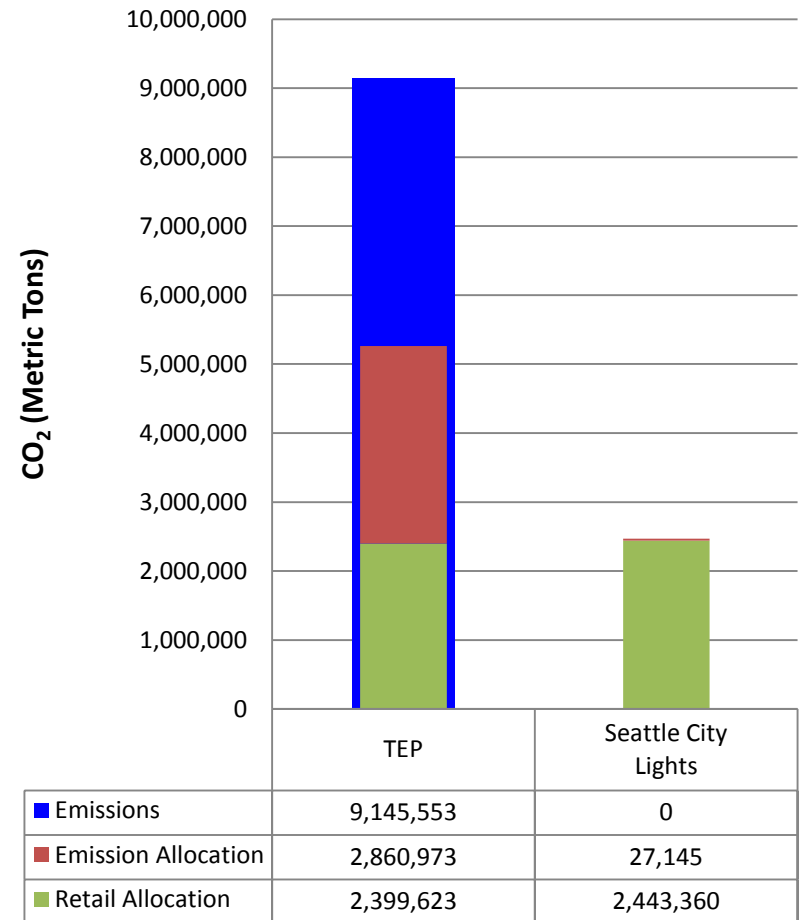
Kerry-Lieberman: Allowances by Sector / End Use



Electricity Sector Distribution of Allowances

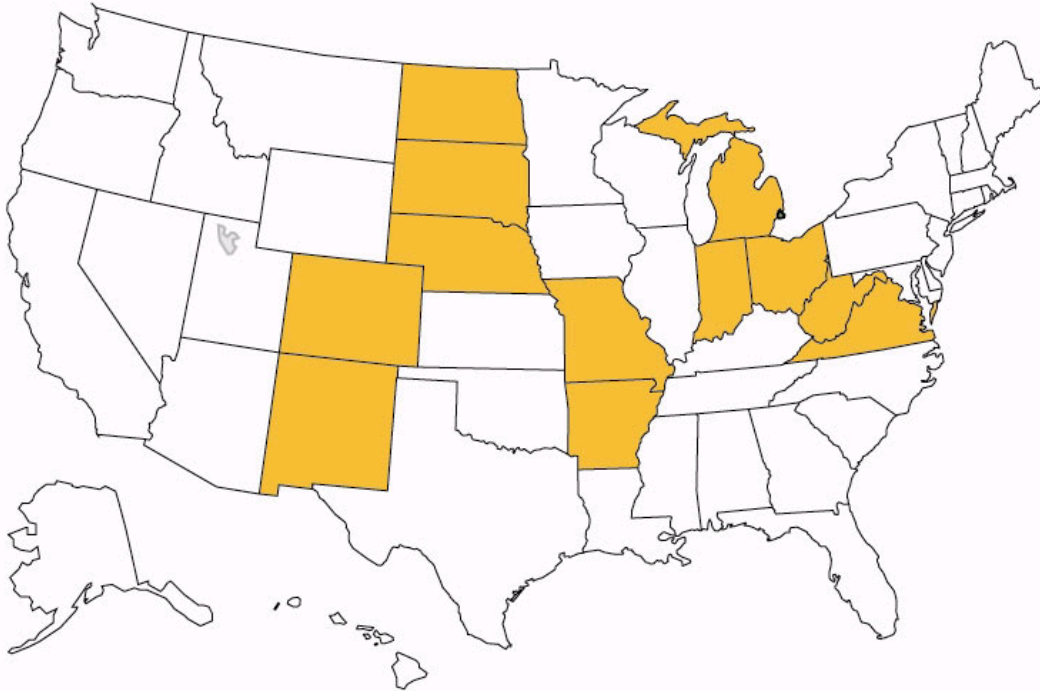
- Edison Electric Institute (EEI) -
 - Global Climate Change Points of Agreement
 - Allowances to **Local Distribution Company (LDC)**
 - Gradual transition to full auction
 - “50-50-50” proposal
 - Merchant coal receive 50% of base year emissions
 - Balance allocated to LDCs
 - 50% based on historical emissions
 - 50% based on retail sales
 - No Excess Emissions Provision

Utility Allocation Comparison



Regional Disparities

“GANG OF 16” DEMOCRATS



Kent Conrad & Byron Dorgan (ND)
Tim Johnson (SD)
Ben Nelson (NE)
Carl Levin & Debbie Stabenow (MI)
Evan Bayh (IN)
Sherrod Brown (OH)
Jim Webb (VA)
Robert Byrd & Jay Rockefeller IV (WV)
Claire McCaskill (MO)
Blanche Lincoln & Mark Pryor (AR)
Jeff Bingaman (NM)
Michael Bennet (CO)

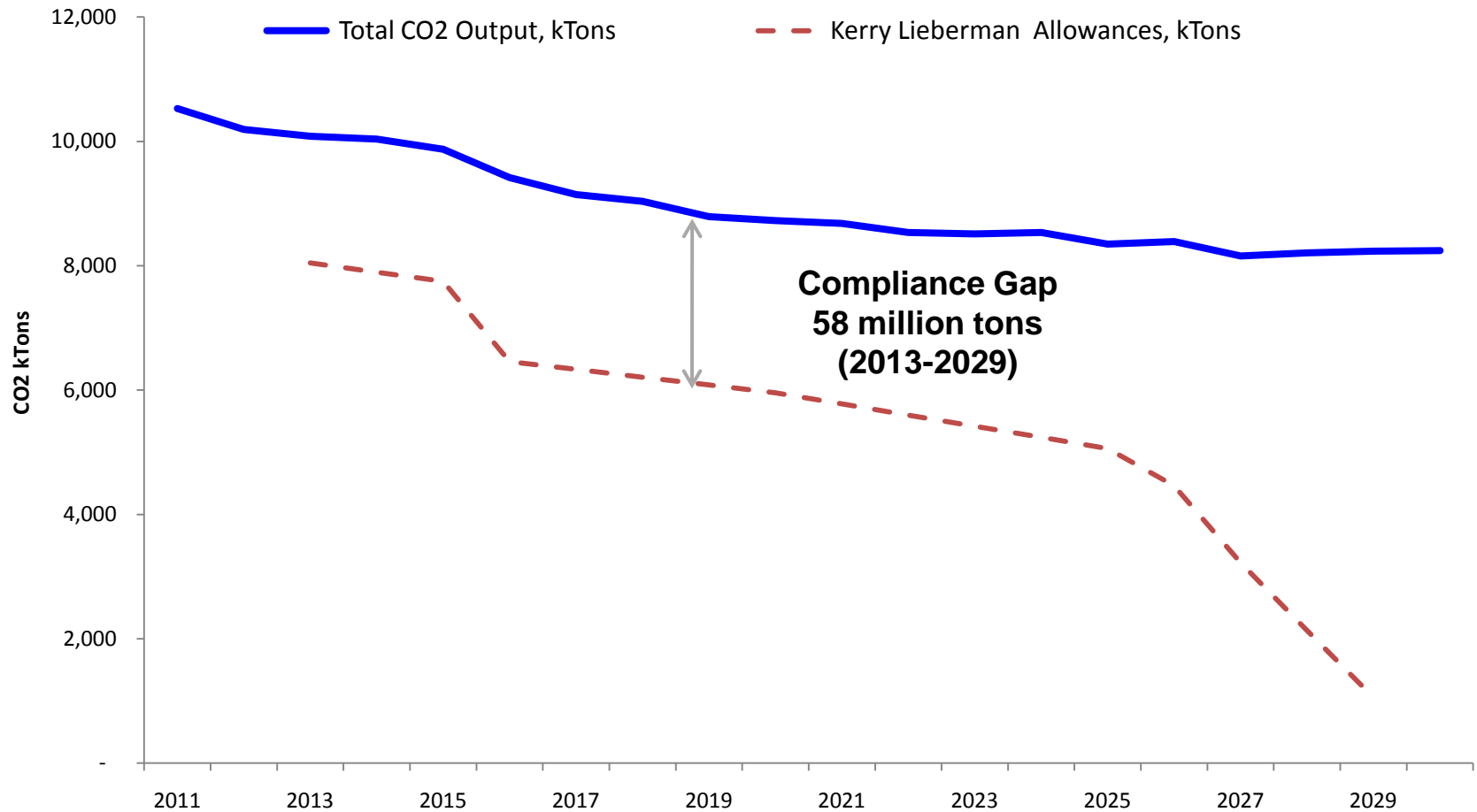
Other Key Provisions

- Who is Covered and When
- Price Collar
 - Soft collar – borrowing from future years
 - Hard collar – could “bust” the cap
- Preemption
 - Clean Air Act Provisions
 - State and Regional GHG Programs
- Technology Incentives
 - Carbon Capture and Sequestration
 - Nuclear Power
 - Offshore Drilling
- Offsets

Status and Trends of Climate Legislation

- NO further action this year
- Cap and Trade – from panacea to taboo
- Elections
- Shift to Regulation and Litigation
- Congressional efforts to repeal or limit EPA authority of GHG emissions
- Next “big event”
 - Katrina II
 - IPCC 5th Assessment Report (2013 – 2014)

TEP CO₂ Emissions versus Allocations

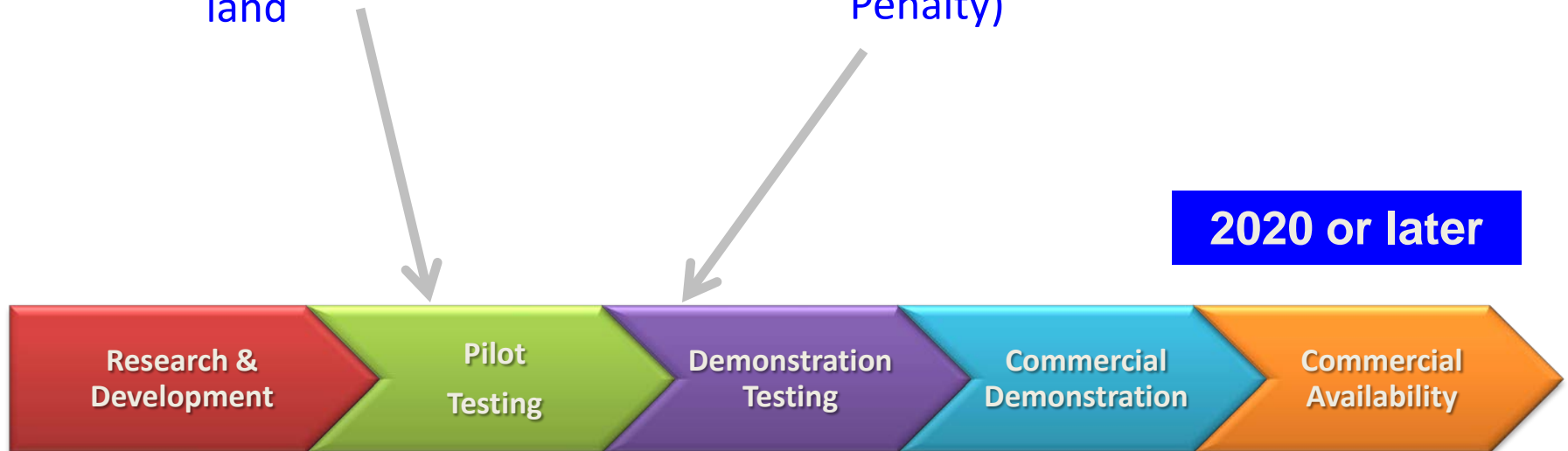


Carbon Compliance Strategies

- Reduce Emissions
 - Decarbonize the Generation Fleet
 - Reduce Demand
 - Carbon Capture and Sequestration
- Carbon Offsets
- Purchase Allowances

CO₂ Separation and Capture

- Algae
 - Some commercial applications
 - Unproven at power plant scale
 - Requires vast areas of land
- Solvent Extraction – Amines or Chilled Ammonia
 - Some used widely in other industries
 - Unproven at power plant scale
 - Significant increase in cost (Energy Penalty)

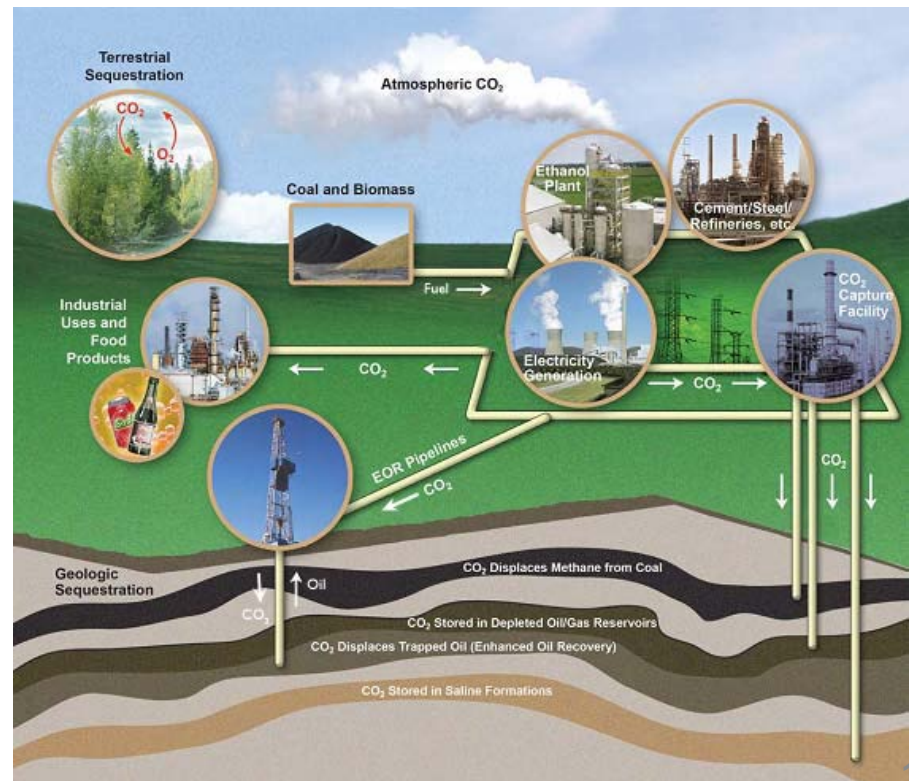


Carbon Sequestration

- WESTCARB Project
 - Collaborative process with Department of Energy, States, Universities, National Labs, and Industry
 - Arizona test program at Cholla Power Plant - Unsuccessful
 - Considering other sites

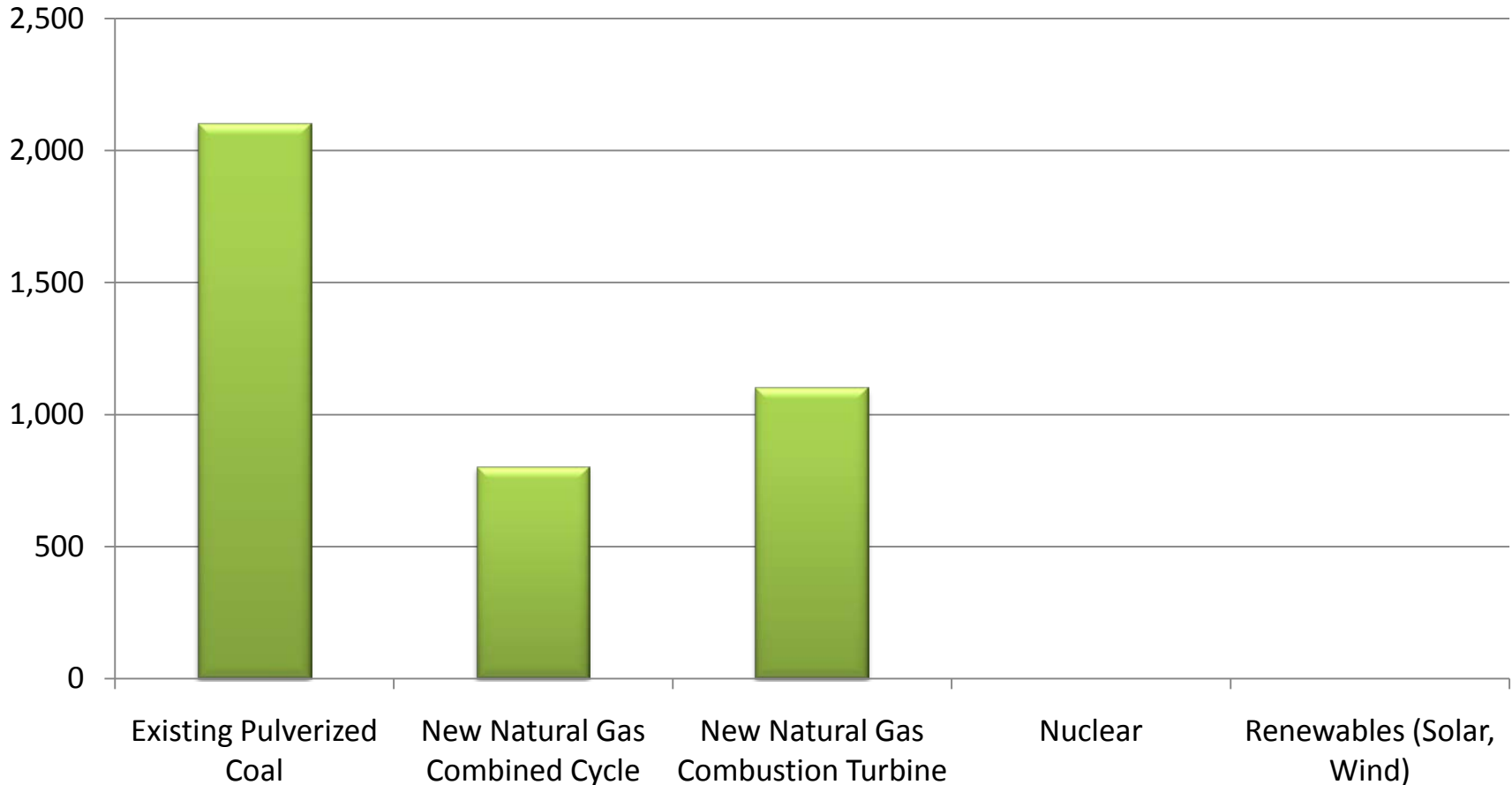
- 4 Key Issues

- Storage capacity
- Characterization
- Permanence
- Permitting
- Siting
- Pore space ownership
- Long-term liability
- Transportation



System Decarbonization

CO₂ Emission Rates of Various Generation Technologies
(lbs/ MWh)



Carbon Offsets

- Definition
 - Greenhouse gas emissions avoided or reduced from sectors or regions outside of regulatory boundaries
- Qualifications
 - real
 - additional
 - permanent
 - measureable
 - verifiable
- Offsets expected to be a cost effective transition tool

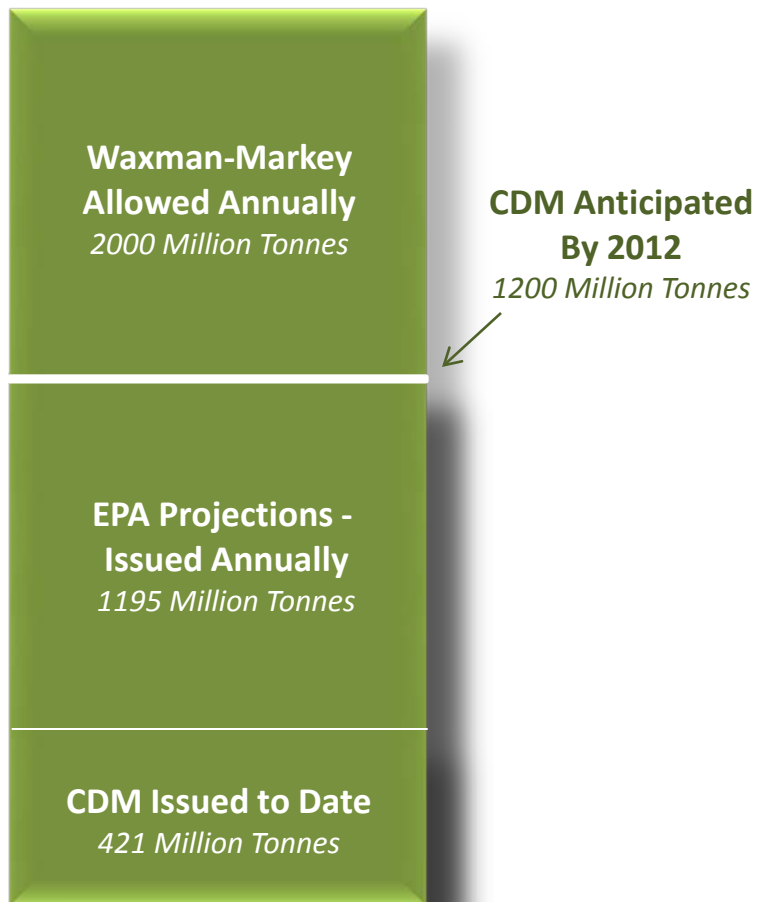


Carbon Offset Examples

- Forestry
 - Afforestation / Reforestation
 - Forest Management
 - Reduced Emissions for Deforestation and Degradation (REDD)
- Agriculture
 - Conservation tillage
 - Nitrogen fertilizer reduction
- Methane Capture
 - Landfills
 - Coal mines

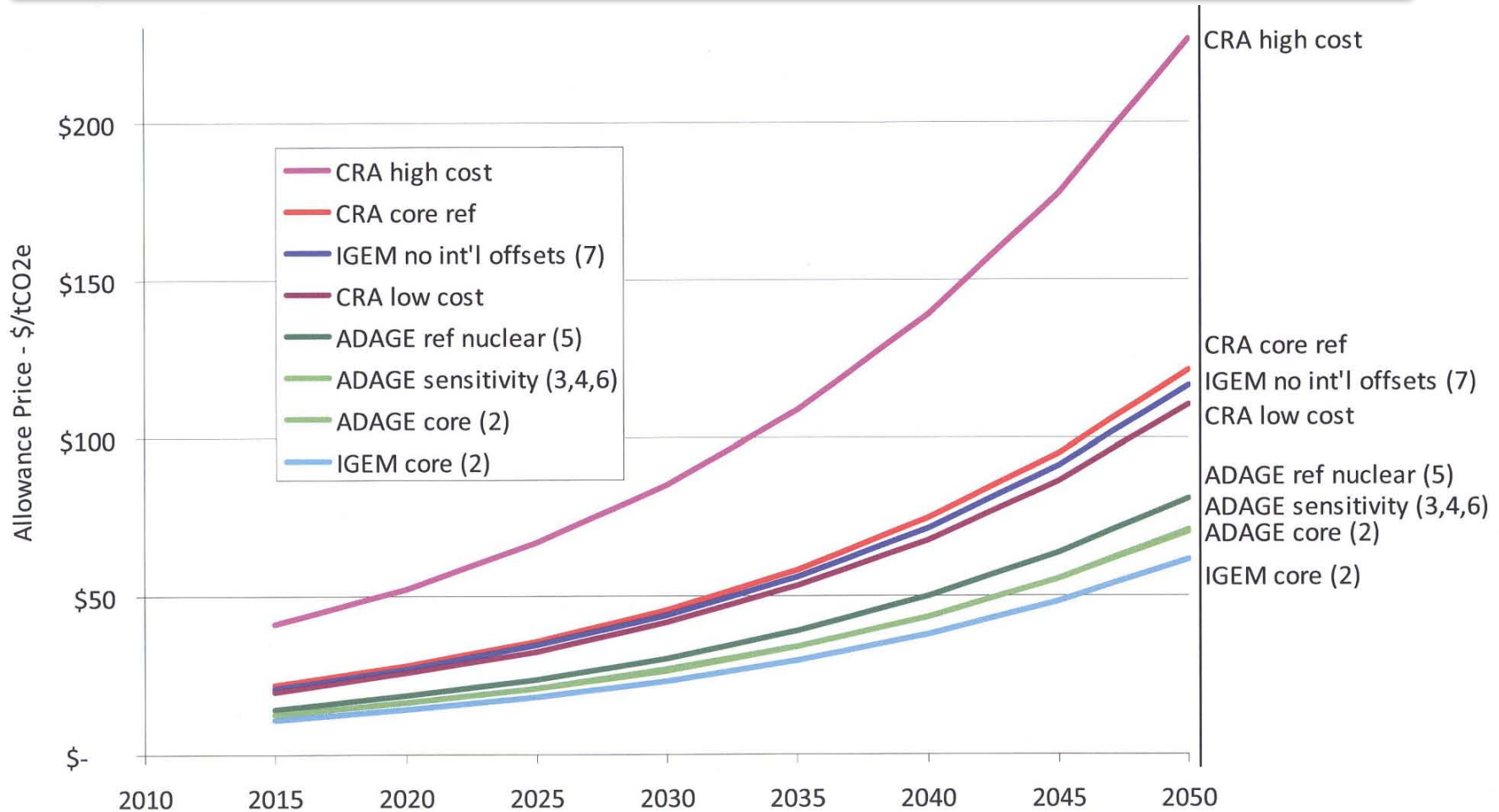


Carbon Offsets Potential



- Institutional Capacity
- Methodology Development
- Market Development
- Project Approval
- Project Implementation
- Project Verification and Crediting

Projected CO₂ Prices



**Public Estimates for Waxman-Markey compiled
by Electric Power Research Institute**

Conclusions

- Reducing carbon emissions is part of TEP's long-term planning process
- Sufficient time is needed
- It will cost money



BRIGHT SOLUTIONSSM

