

From the MIT IGSM to U.S. Climate-Energy Policy

Henry D. Jacoby

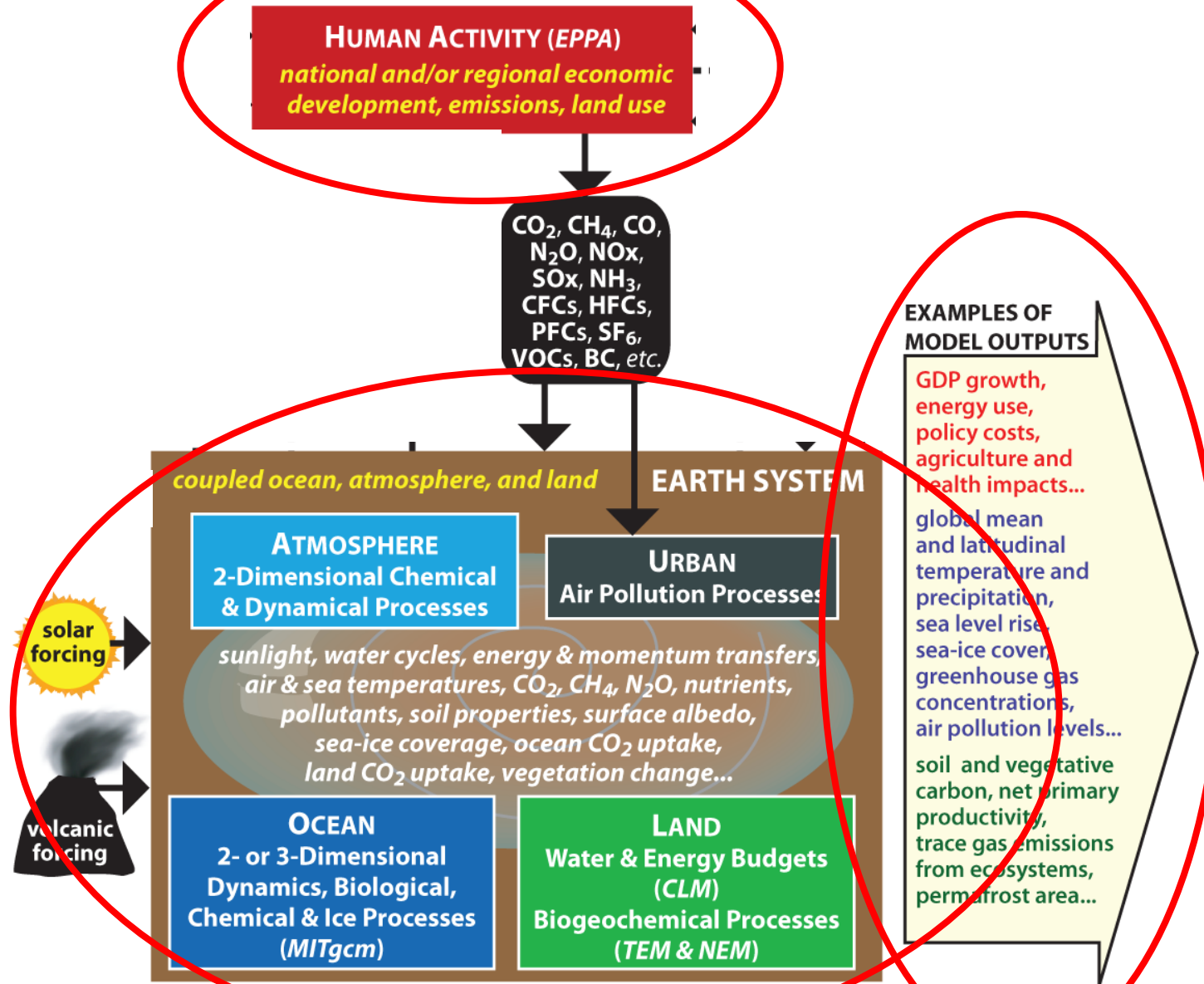
Joint Program on the Science and Policy of Global Change
Massachusetts Institute of Technology

universitéTOTAL

18 February 2010



MIT Integrated Global System Model



U.S. Policies, Existing & Proposed

To date:

Voluntary programs

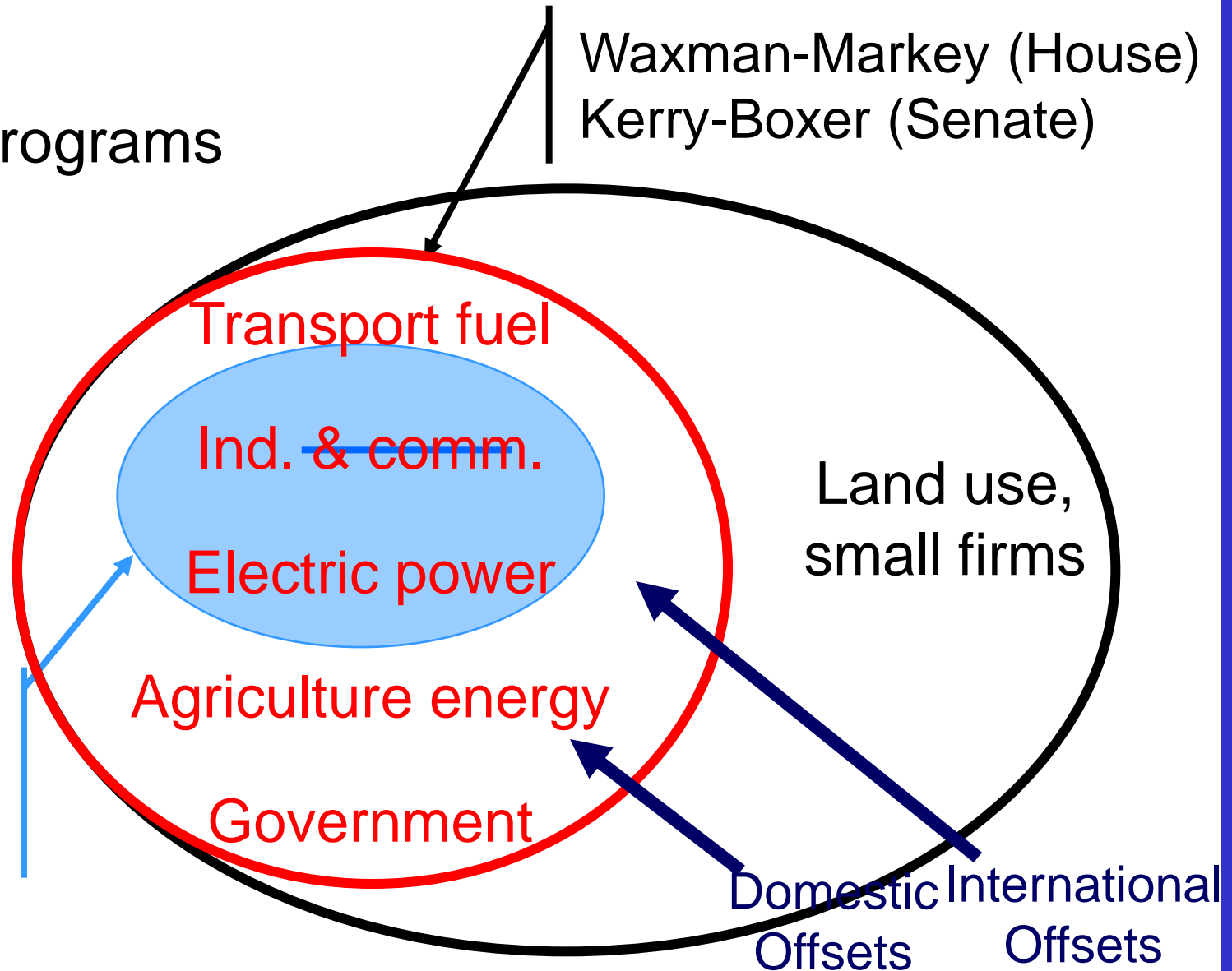
Regulation

Subsidies

R&D

Waxman-Markey (House)
Kerry-Boxer (Senate)

European
Trading
System

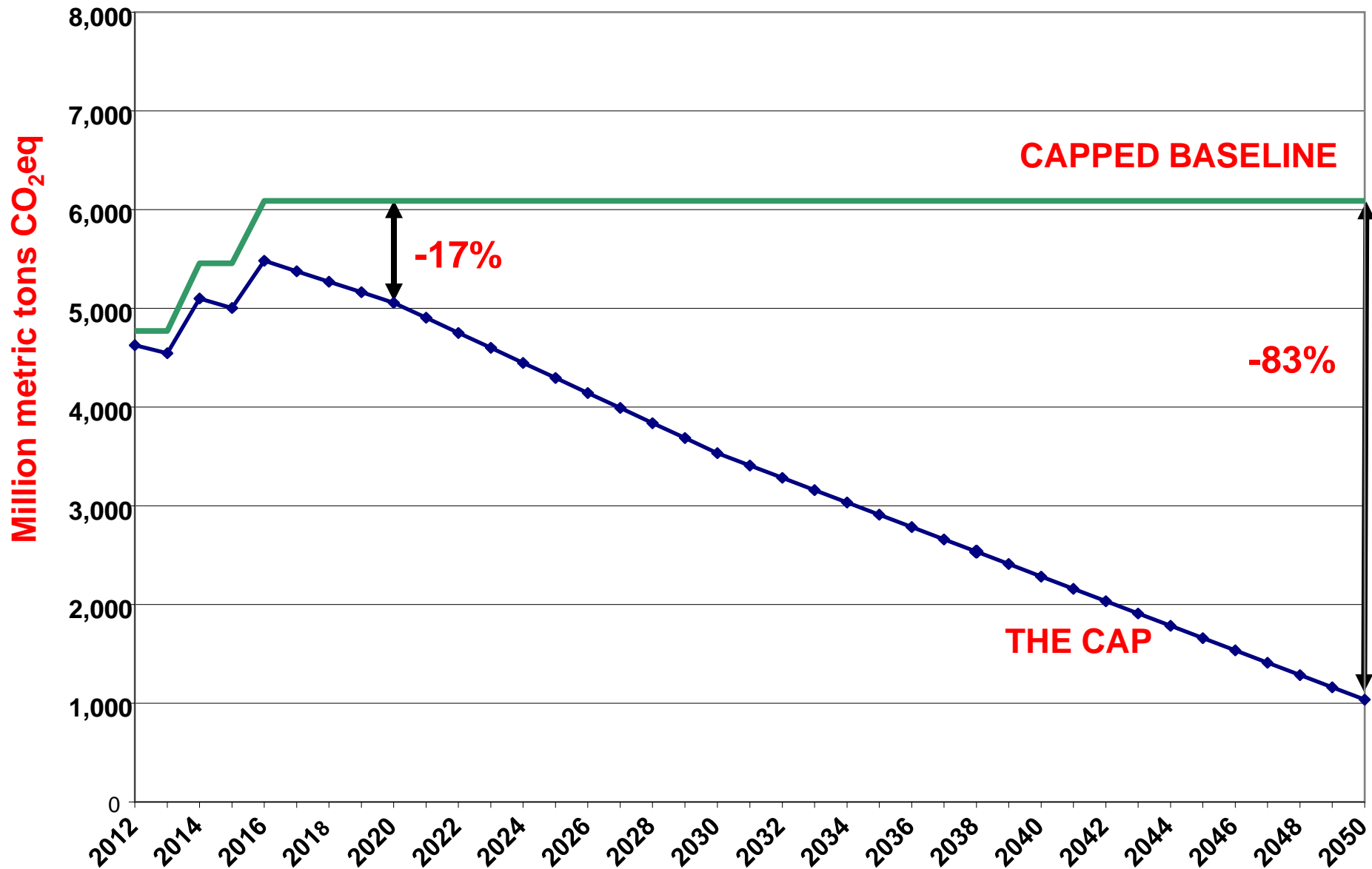


History of U.S. Cap & Trade

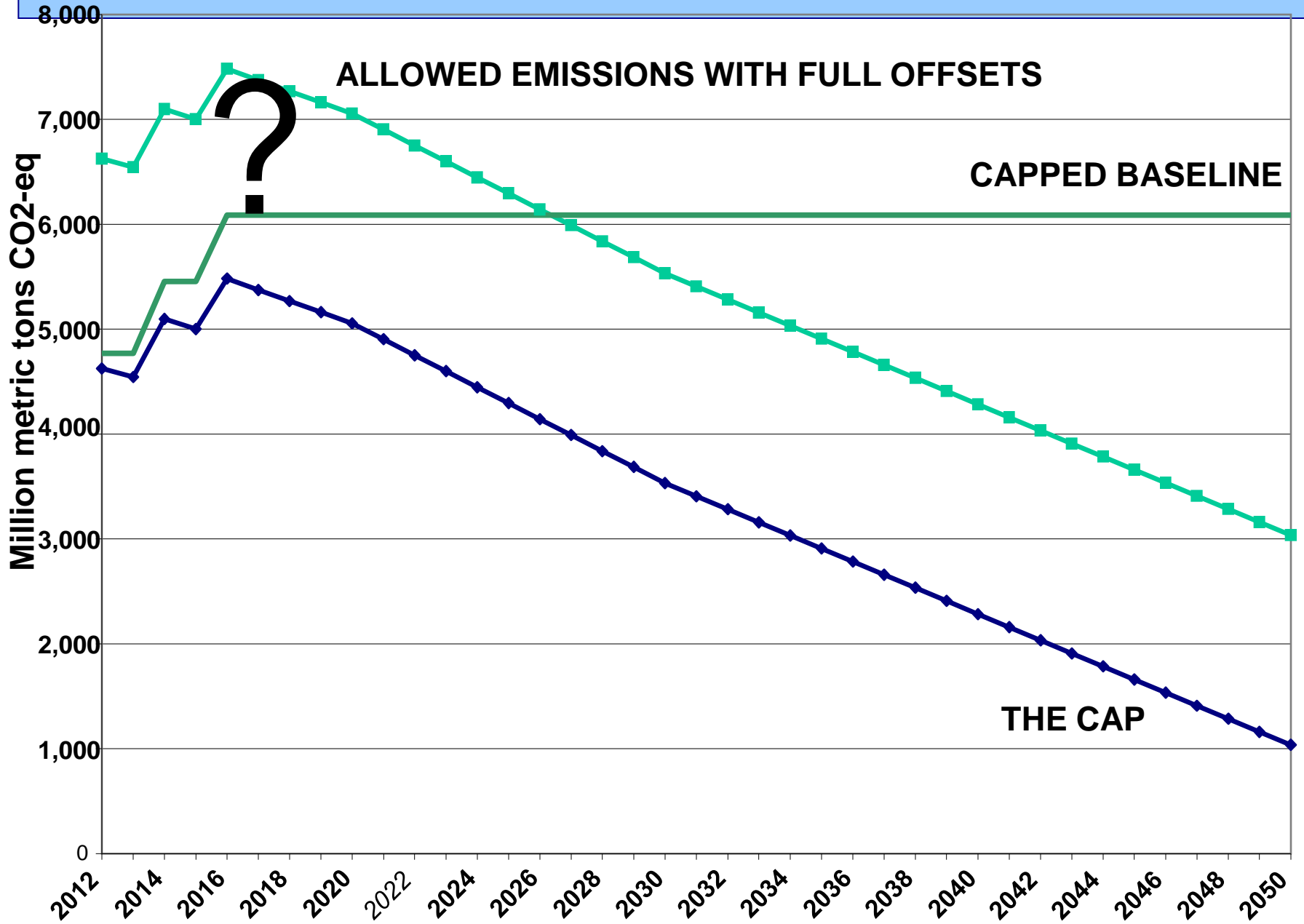
- House: Waxman-Markey (H.2454)
 - Cap & trade **and** regulatory/subsidy features
 - Passes by narrow margin
- Senate: Kerry-Boxer (similar to H.2454)
 - Release by Environment Committee
 - Question if over 50 votes (need 60/100)
- Other proposals (little prospect)
 - Cap and dividend
 - Utility sector only
 - Carbon tax

Role of the EU ETS as a model

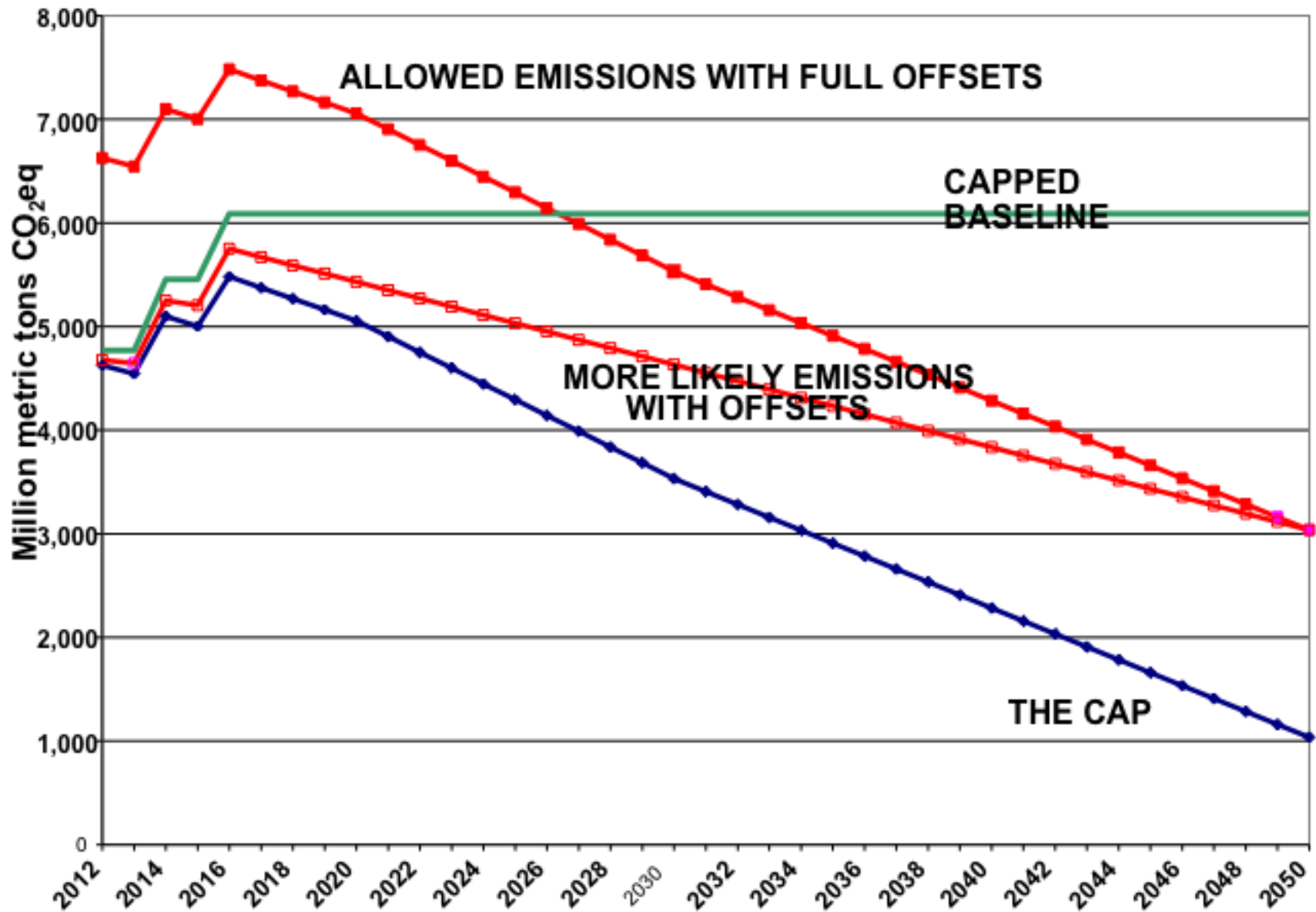
Waxman-Markey Target



Offsets Allowed



Offsets: Allowed and Practical



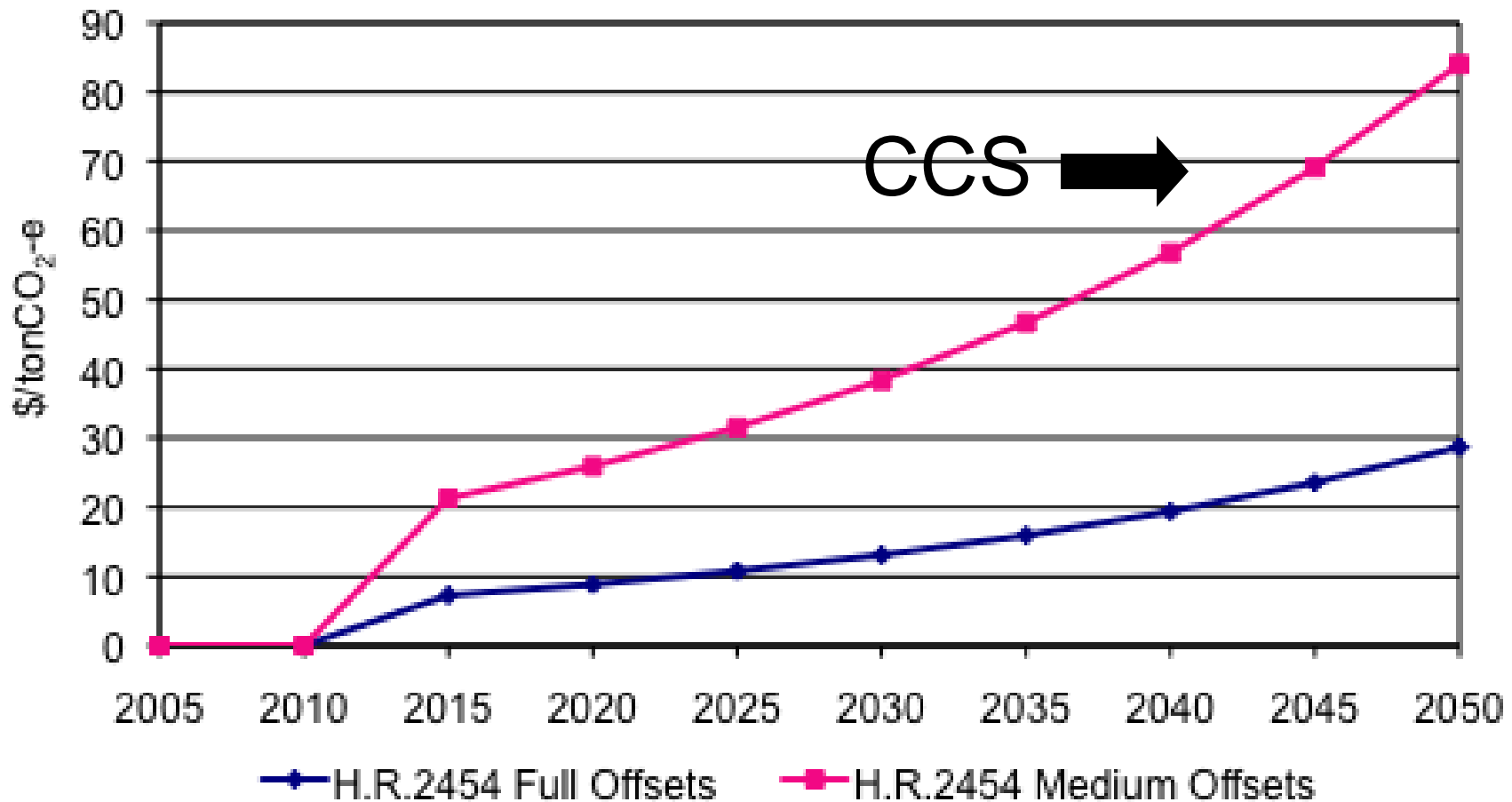
Allowance Allocations 2016-2025

(Resolving distributional issues)

- 45% Consumer Price Protection
 - Regulated electric & gas distribution companies
- 15% Low Income & Worker Assistance
- 25% New Expenditure Programs, e.g.,
 - CO₂ capture & storage, auto technology, efficiency, renewables
 - Tropical deforestation, international tech transfer
 - International & domestic adaptation
- 15% Free, to Industry
 - Trade exposed, energy intensive
 - Refinery processing energy
 - Merchant coal generators

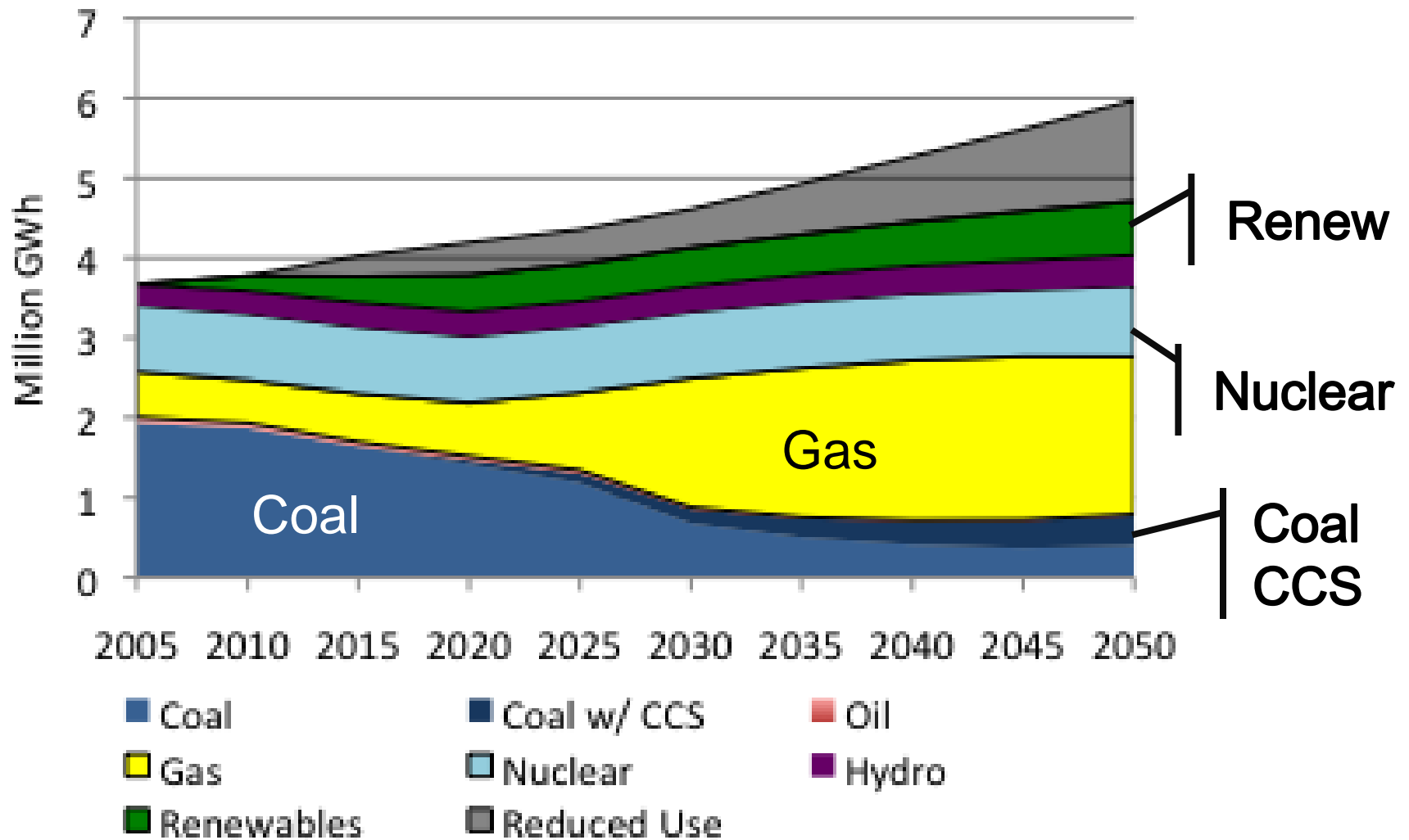
CO₂-equivalent Prices

Waxman-Markey - Full & Medium Offsets



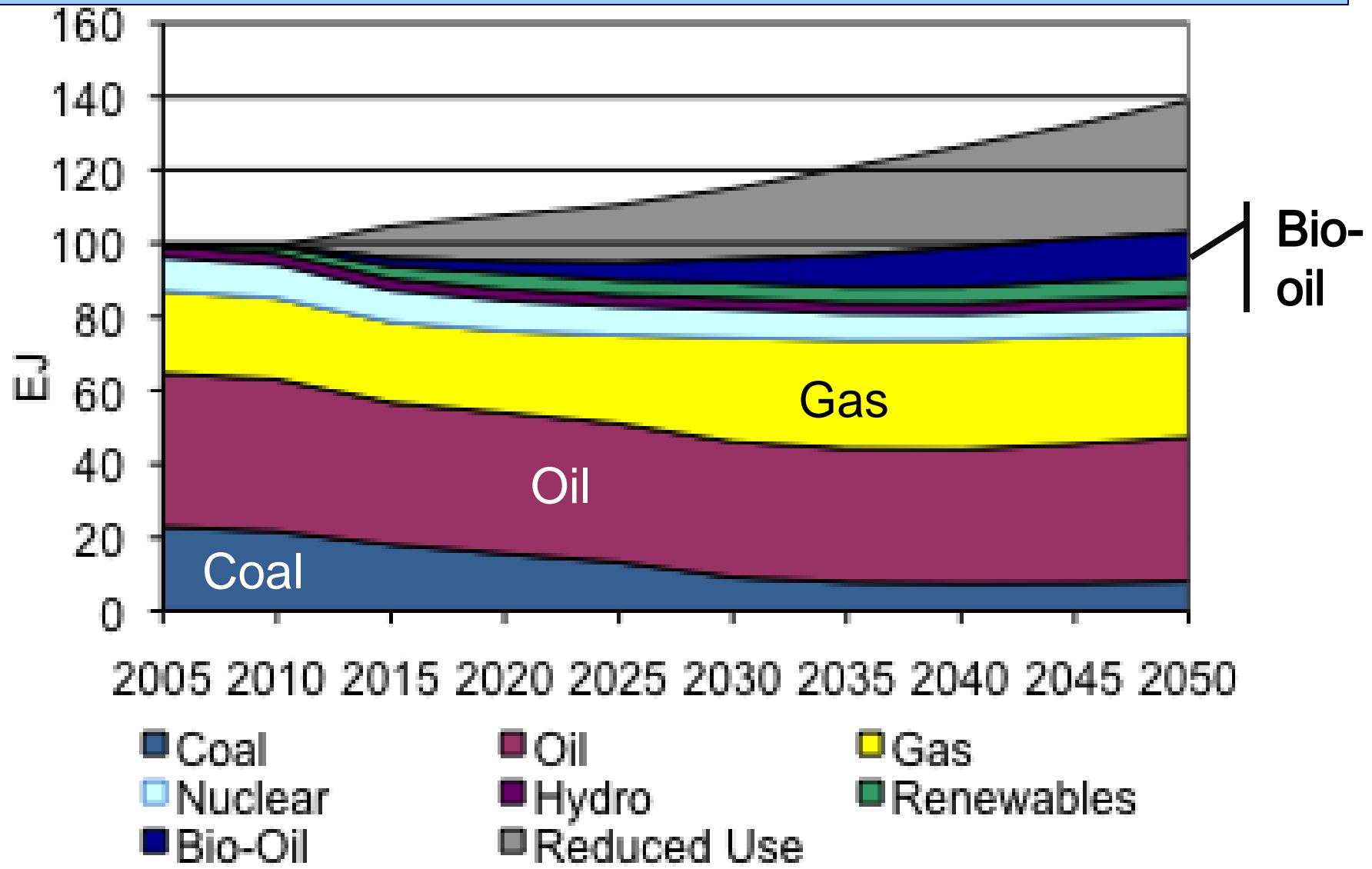
Electric Generation

Medium Offsets



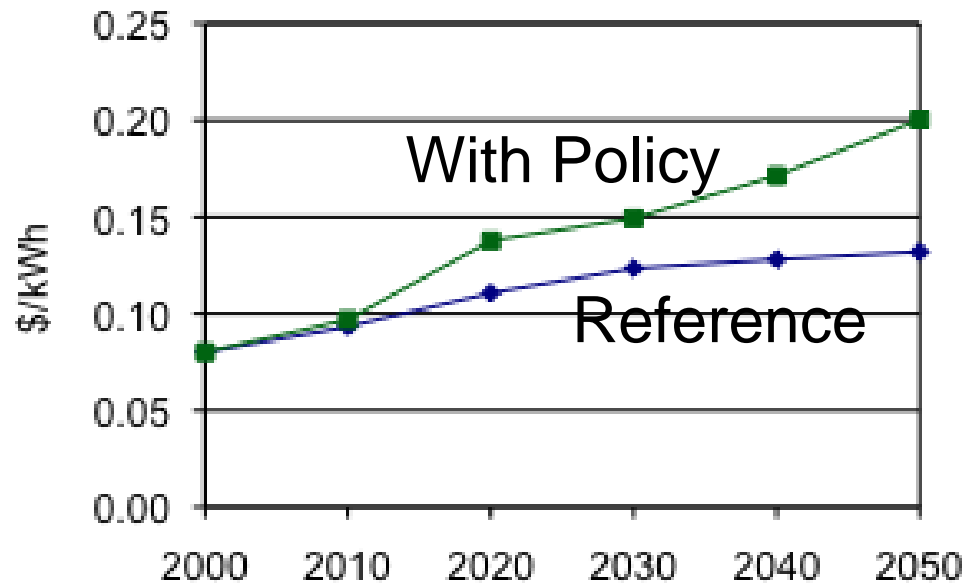
Primary Energy Use

Medium Offsets



Models in the Policy Process

- Controversies
 - Consumer price of electricity
 - Tax cost vs. the net cost to consumers
 - Effects on the coal industry
 - Effects of the offsets
 - Effects of regulatory provisions (lowering cost?)



Events along the Way

- Not helpful
 - Financial crisis and recession
 - Attempted health care reform
 - Massachusetts senate election
 - Supreme Court frees up corporate electoral contributions
- But, other paths are opened
 - Supreme Court declares CO₂ is a pollutant under the Clean Air Act
 - A state is granted the right to sue a powerplant for climate-related damages
 - State/regional actions

U.S. Prospects

- Congressional bills

- Cap-&-trade → 5% prob.
- Subsidies → Budget
- Regulations →

- Efficiency stds.
- Renewable portfolio stds.
- Fuel stds.

- EPA/Clean Air Act

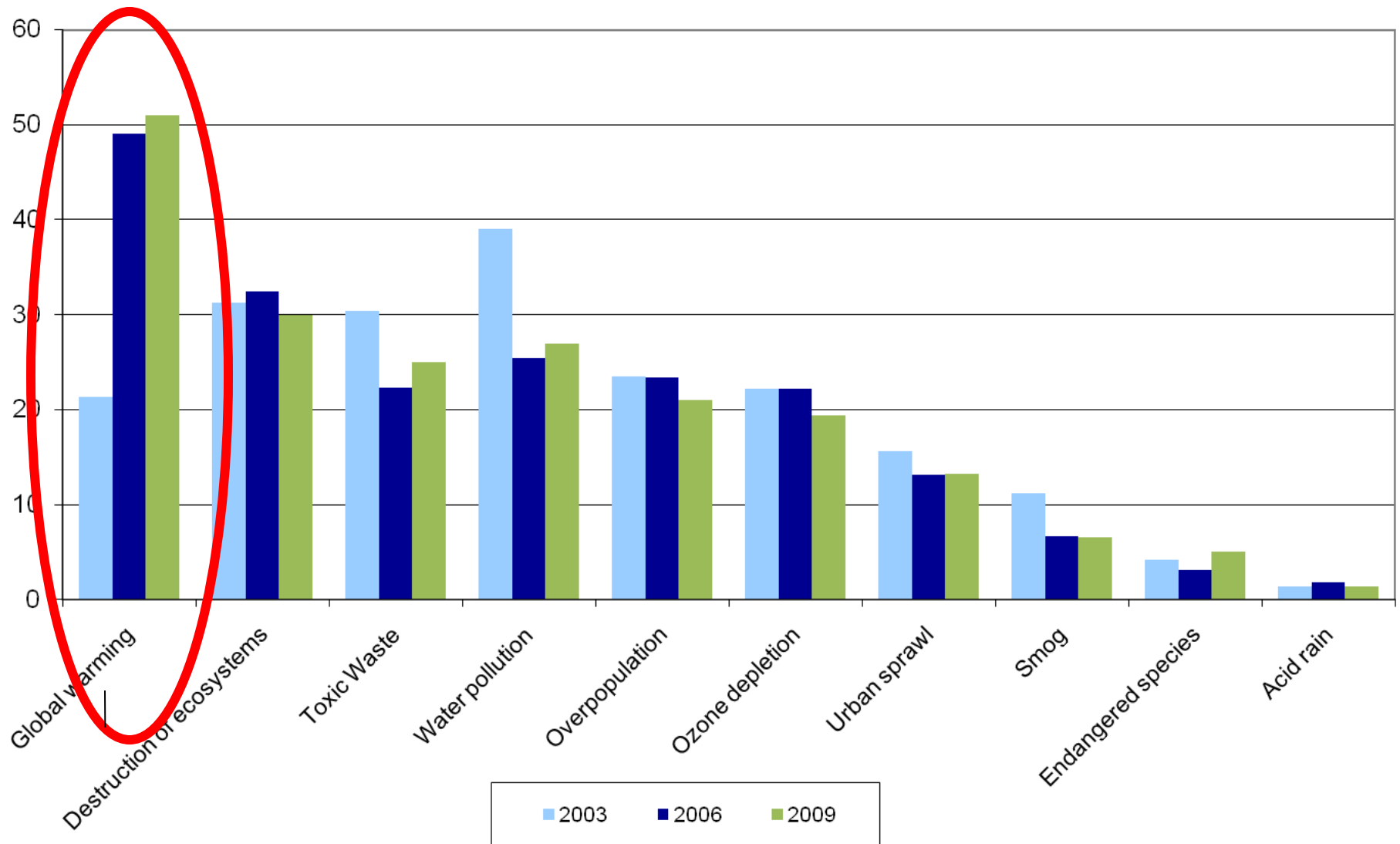
- Auto design (CAFE) → Under way
- Technology stds]
- Fuel stds] →

- Timing
- Procedures
- Legal blocks
- Congressional resistance

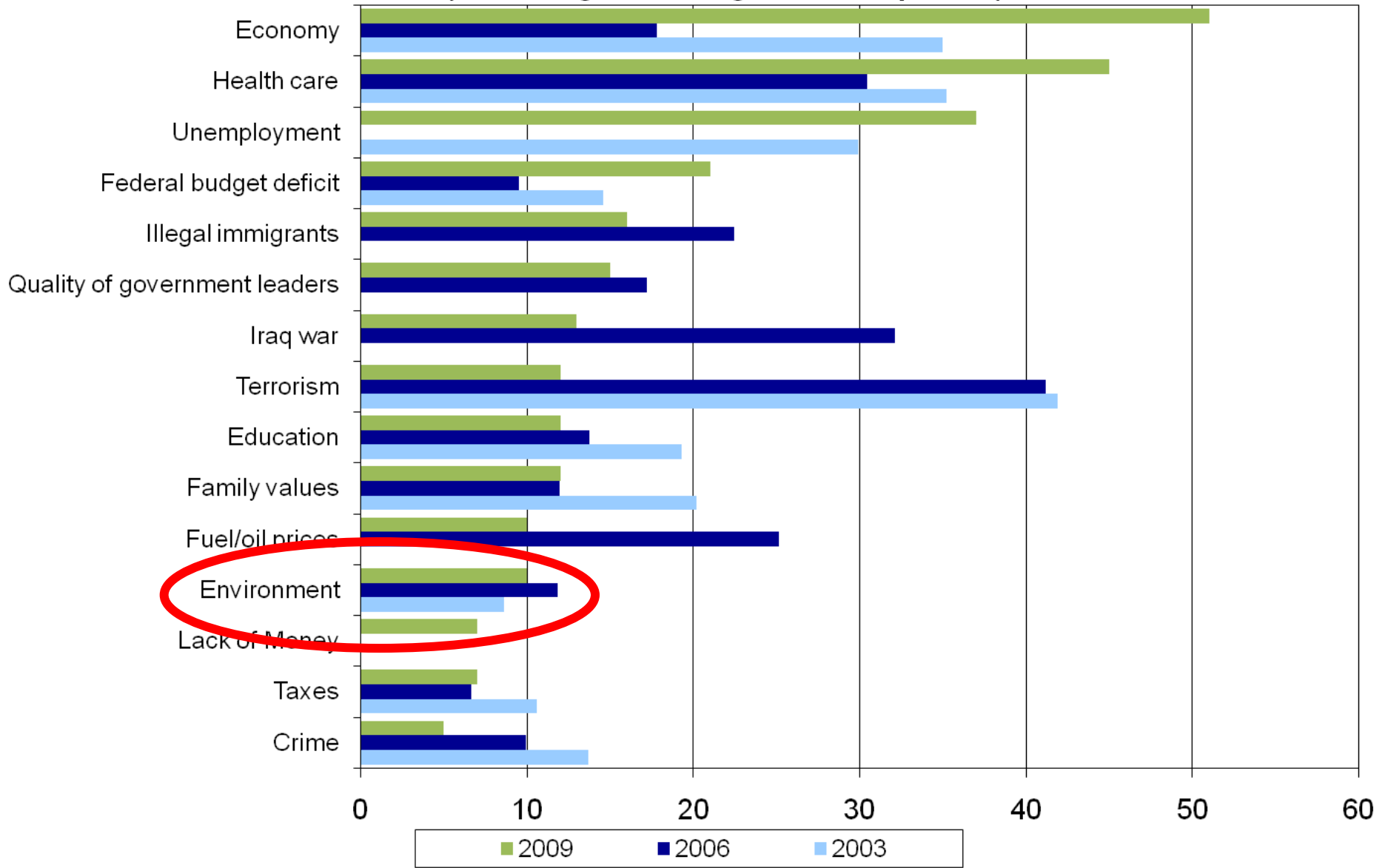
- State and City

- Federal RD&D

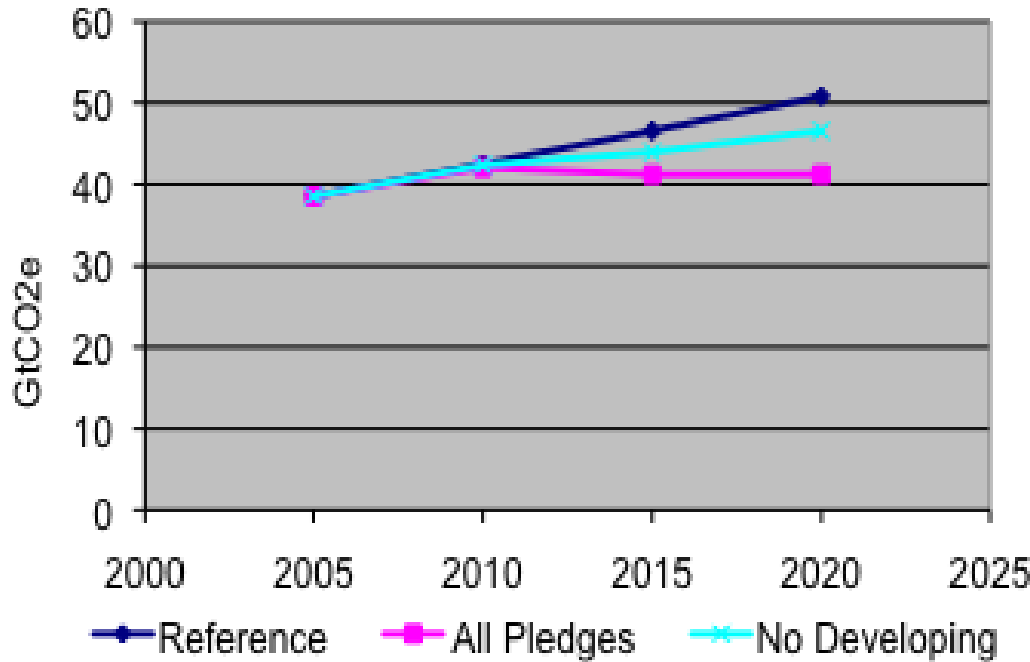
Consider the following environmental problems. Which is the most important problem facing the US today? (Percentage choosing problem in top two)



What are the three most important issues facing the US today? (Percentage choosing issue in top three)*

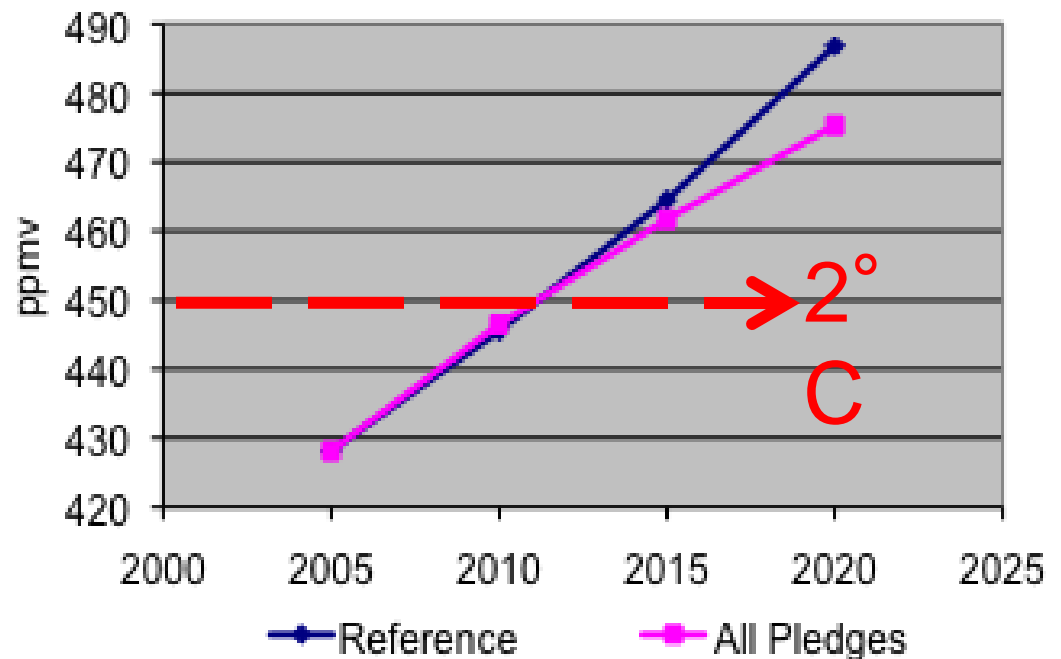


Copenhagen Accord Pledges



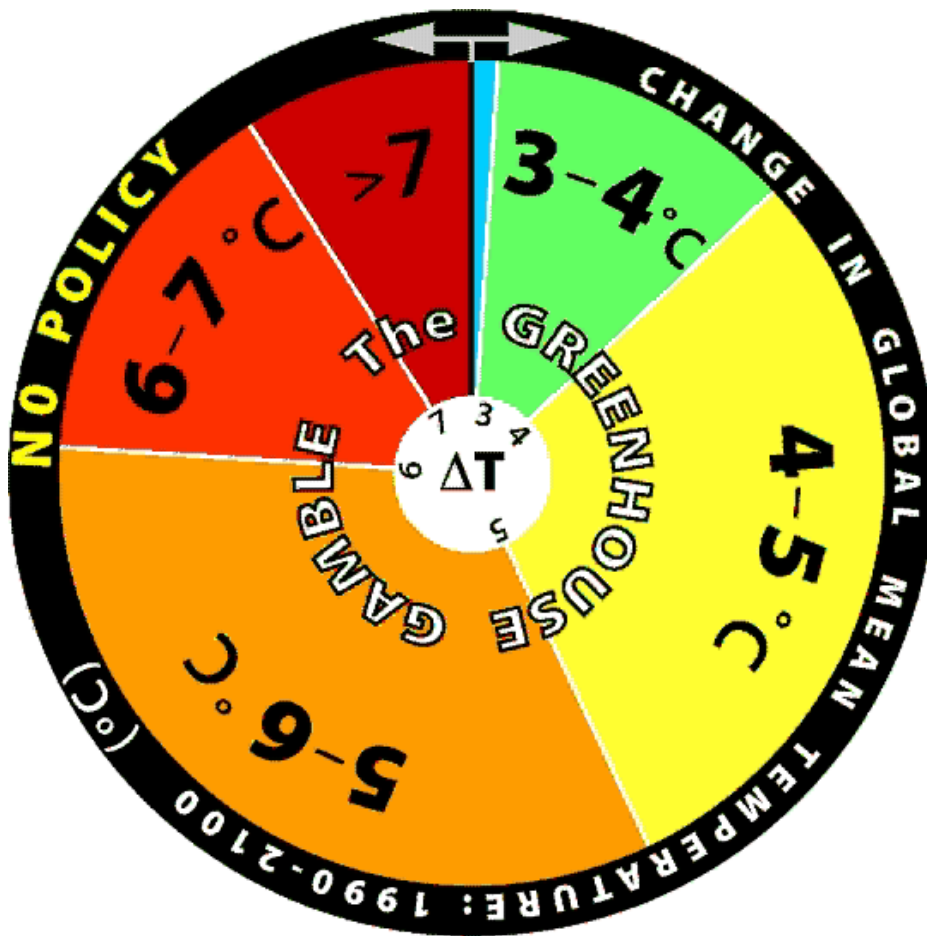
Emissions

Atmospheric Concentrations (Kyoto gases)

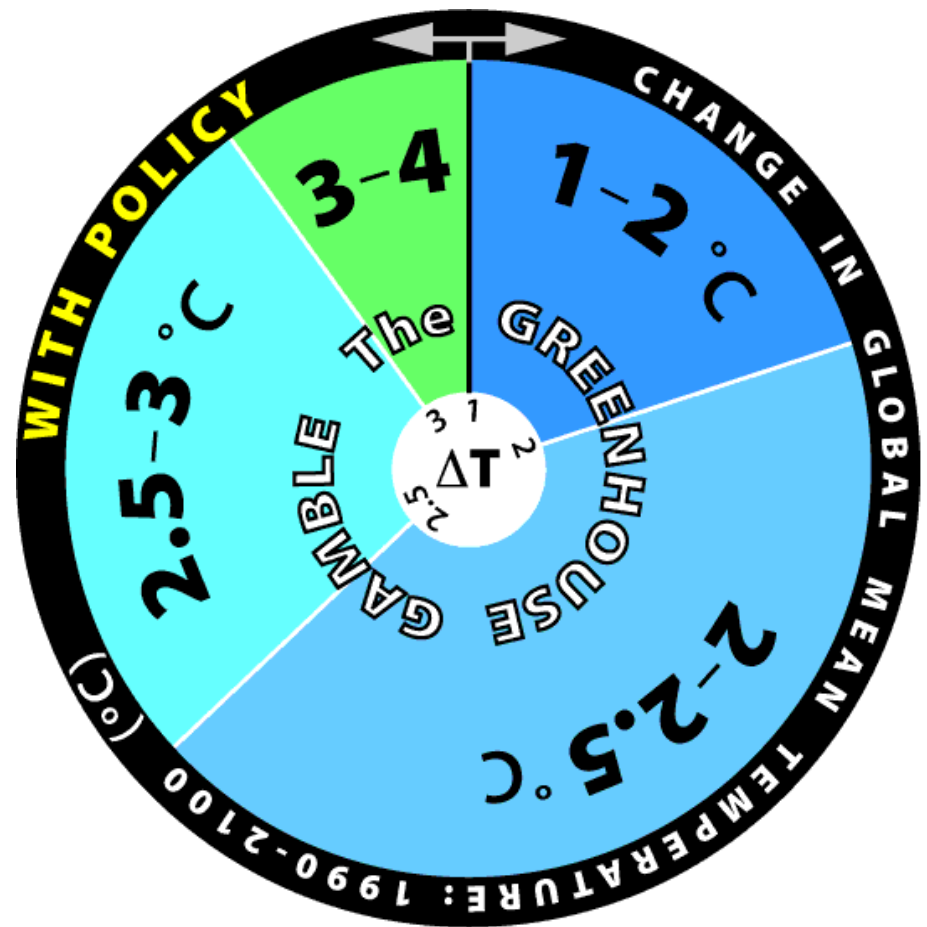


Biggest Policy Effect is on the Tails

**Thought
experiment:
NO POLICY**



**Even at 650 ppmv:
lower odds
of EXTREMES**



Thank You!

For more see
www.globalchange.mit.edu