

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

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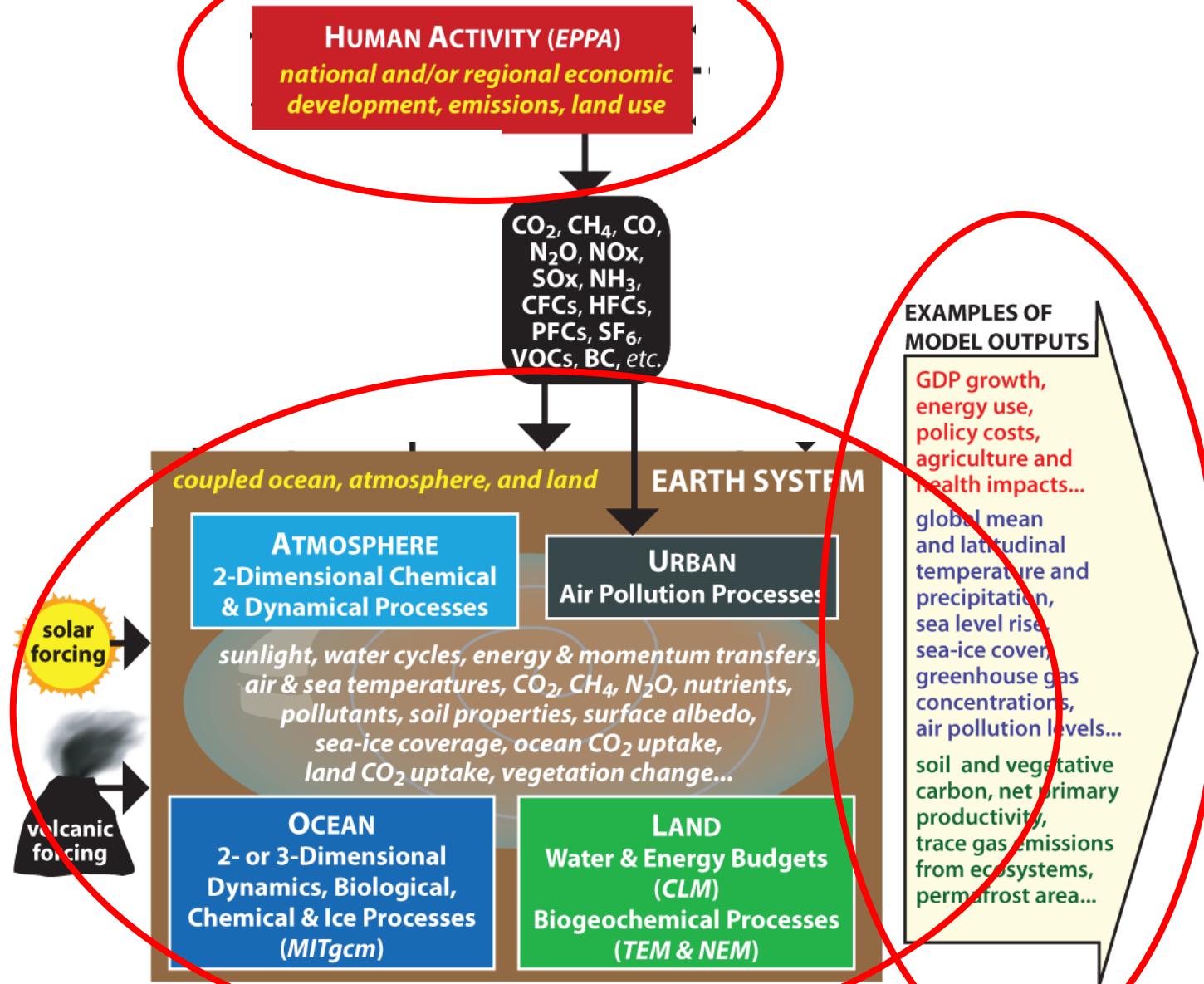
Joint Program on the Science and Policy of Global Change  
Massachusetts Institute of Technology

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# MIT Integrated Global System Model



# U.S. Policies, Existing & Proposed

To date:

Voluntary programs

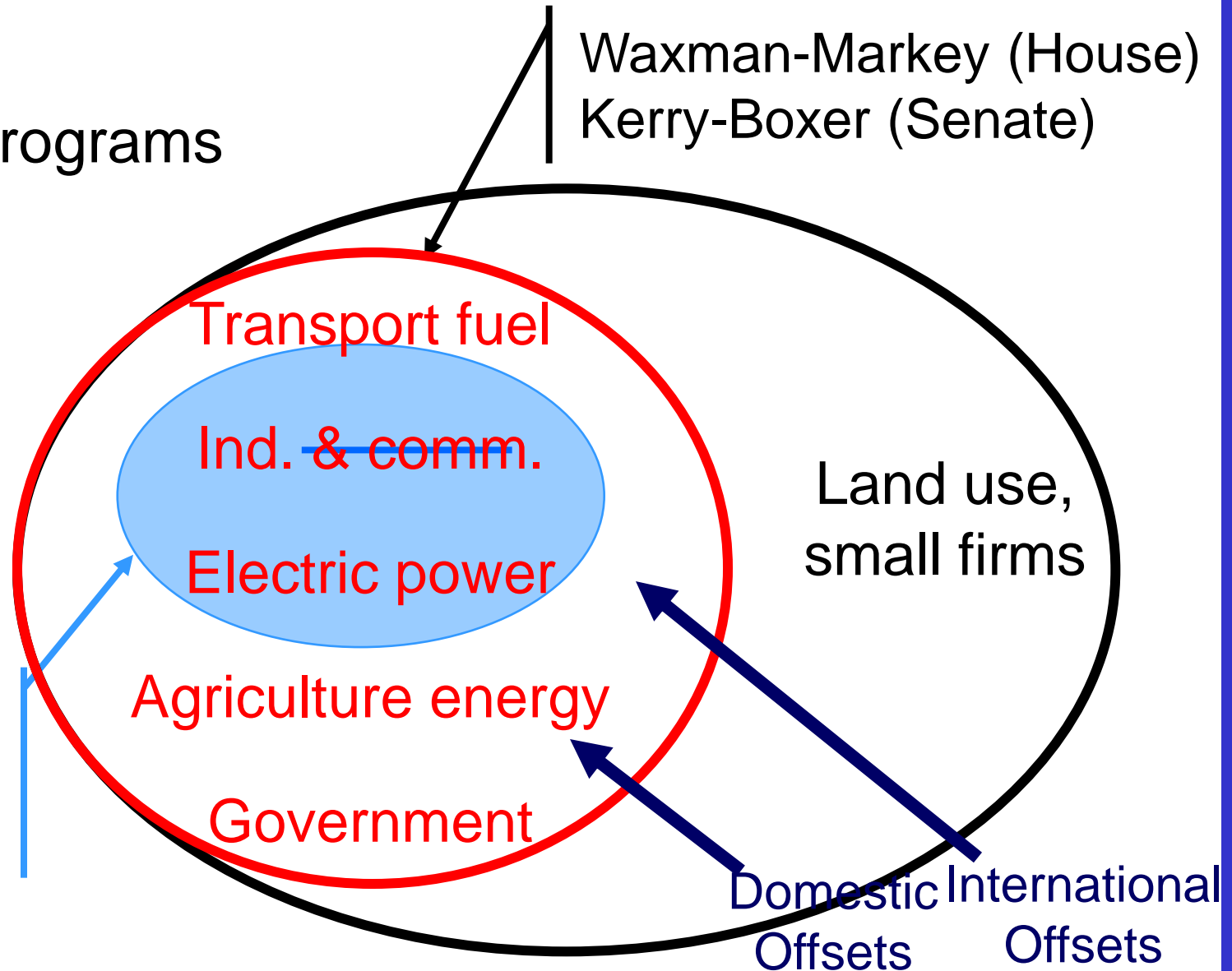
Regulation

Subsidies

R&D

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

European  
Trading  
System

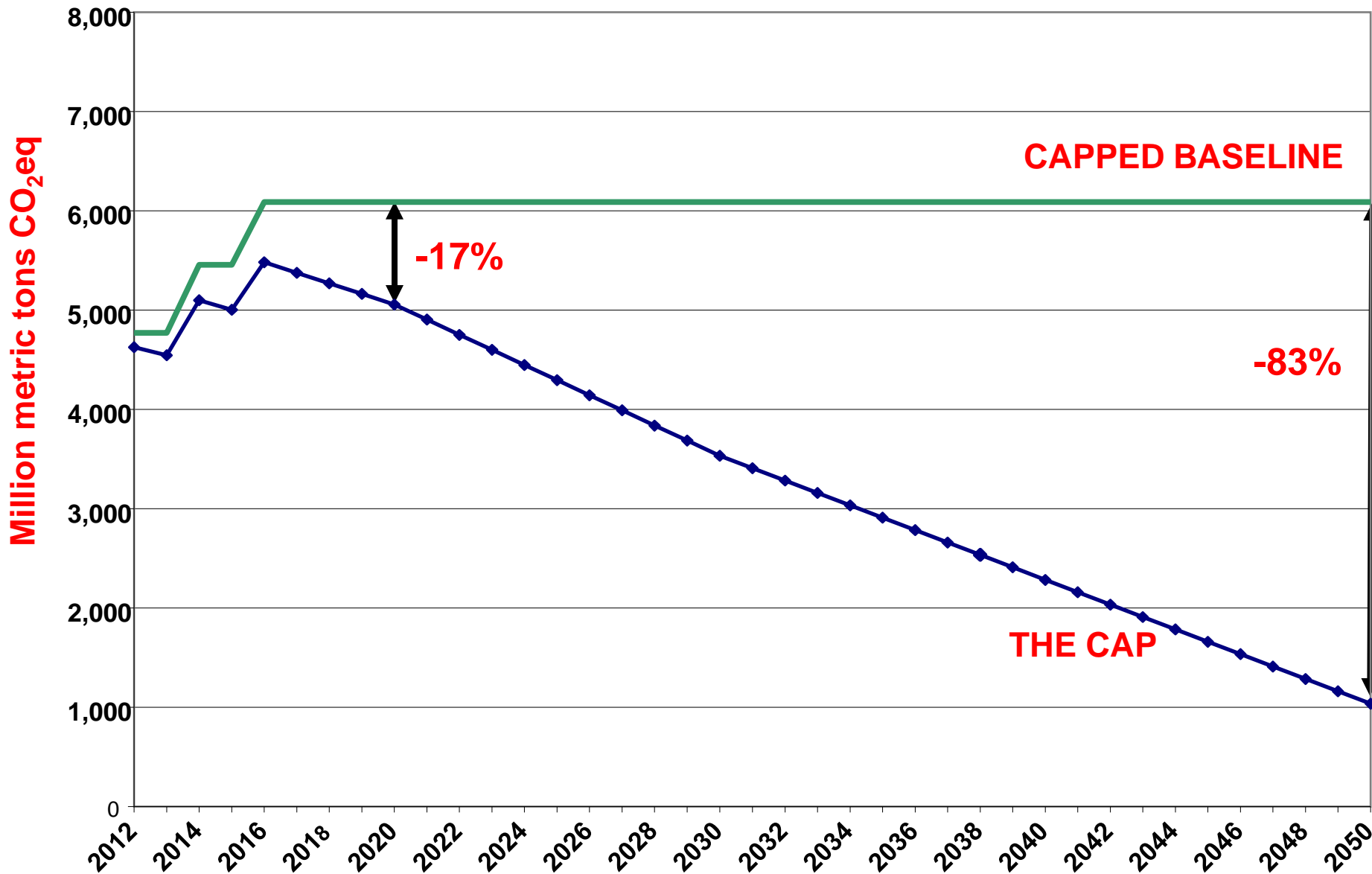


# History of U.S. Cap & Trade

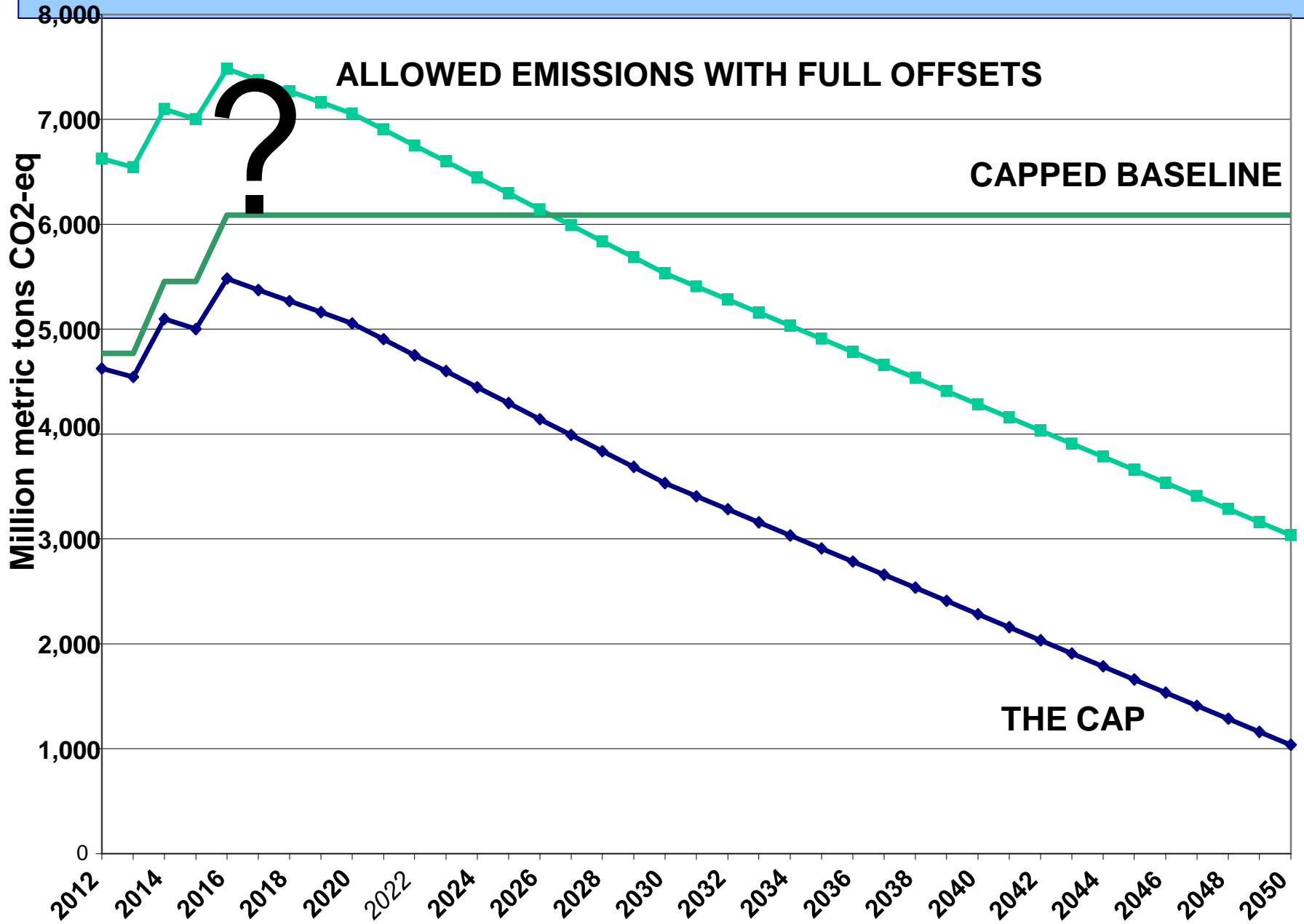
- House: Waxman-Markey (H.2454)
  - Cap & trade **and** regulatory/subsidy features
  - Passes by narrow margin
- Senate: Kerry-Boxer (similar to H.2454)
  - Release by Environment Committee
  - Question if over 50 votes (need 60/100)
- Other proposals (little prospect)
  - Cap and dividend
  - Utility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

Role of the EU ETS as a model

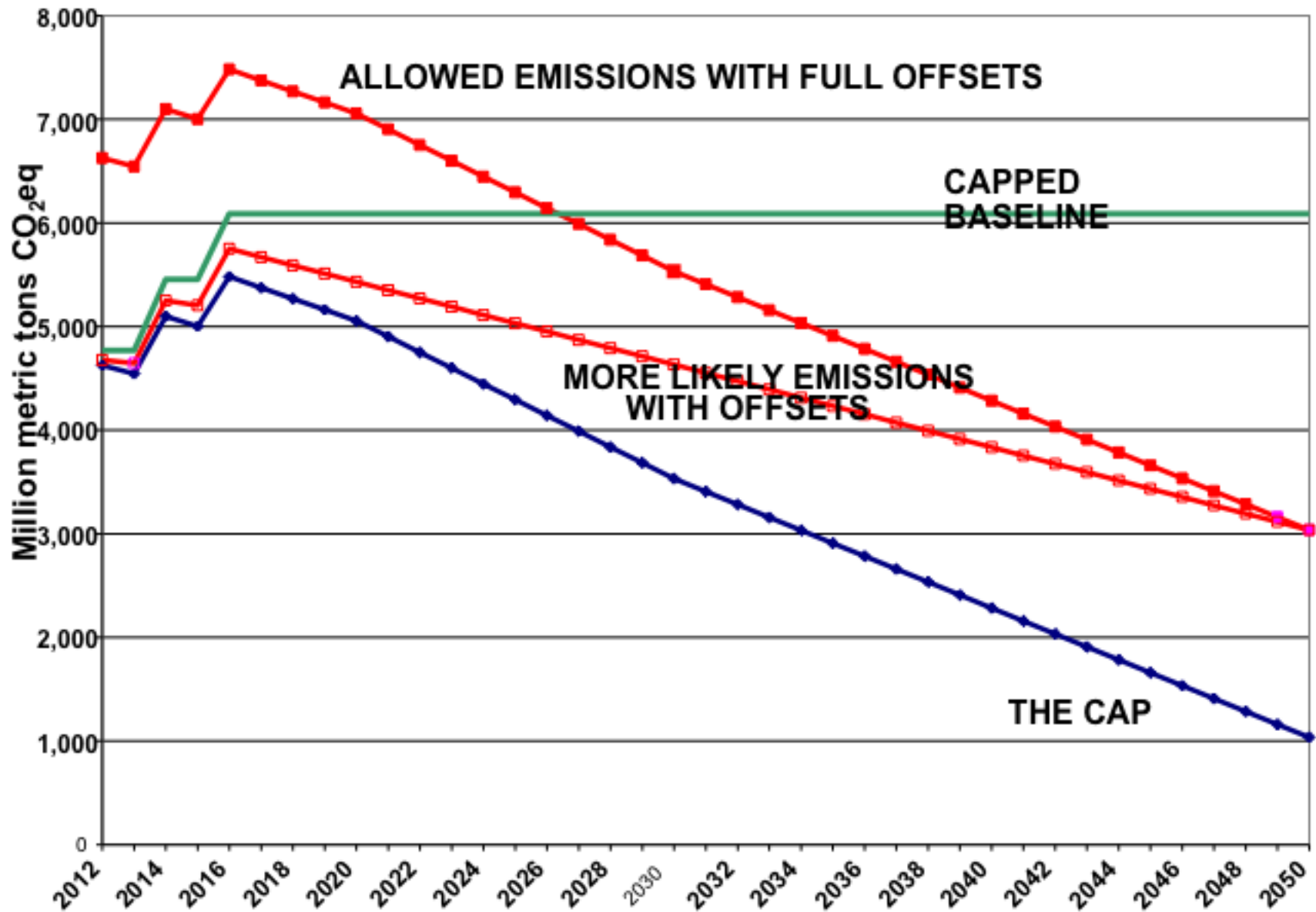
# Waxman-Markey Target



# Offsets Allowed



# Offsets: Allowed and Practical



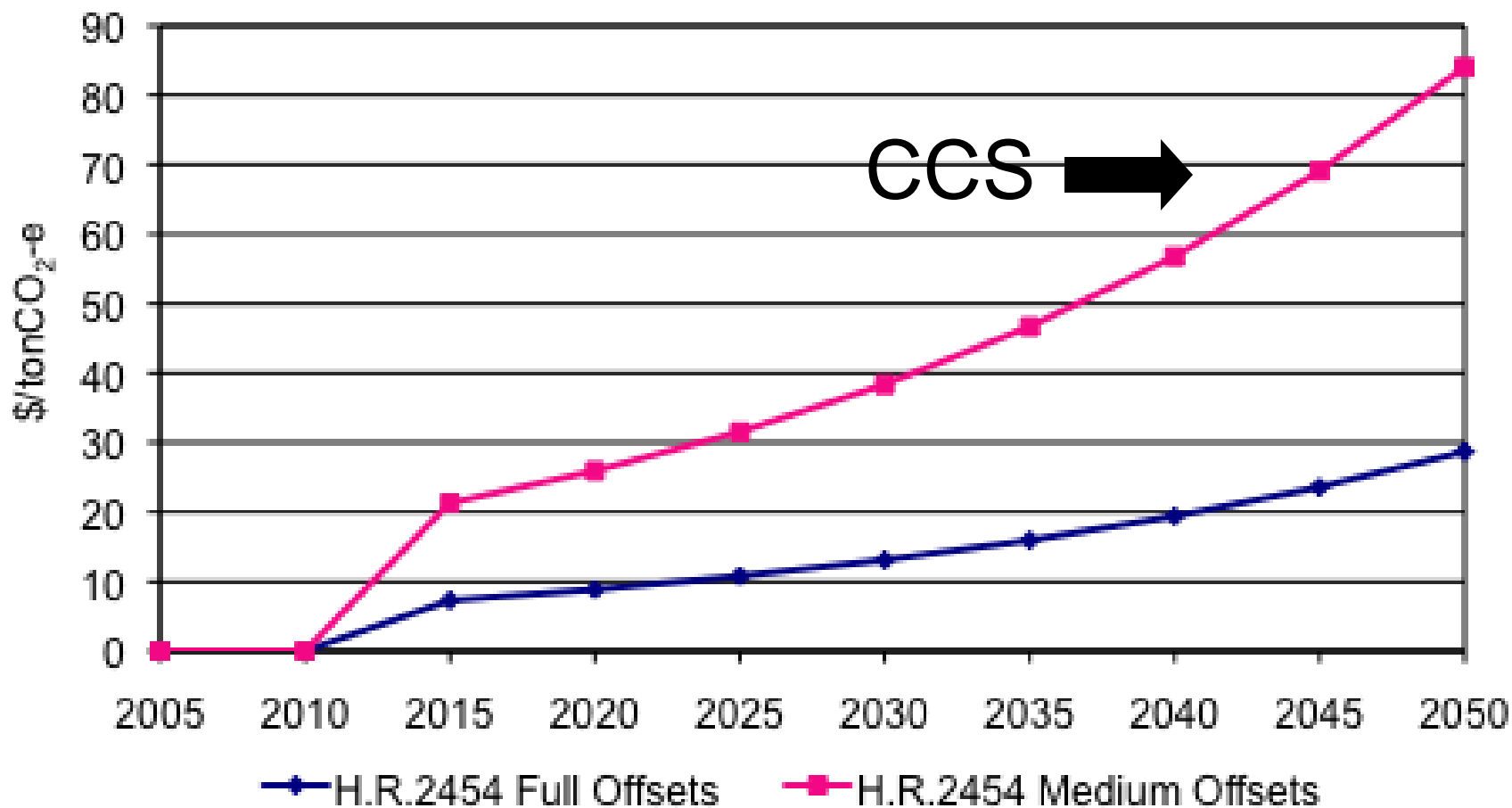
# Allowance Allocations 2016-2025

(Resolving distributional issues)

- 45% Consumer Price Protection
  - Regulated electric & gas distribution companies
- 15% Low Income & Worker Assistance
- 25% New Expenditure Programs, e.g.,
  - CO<sub>2</sub> 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

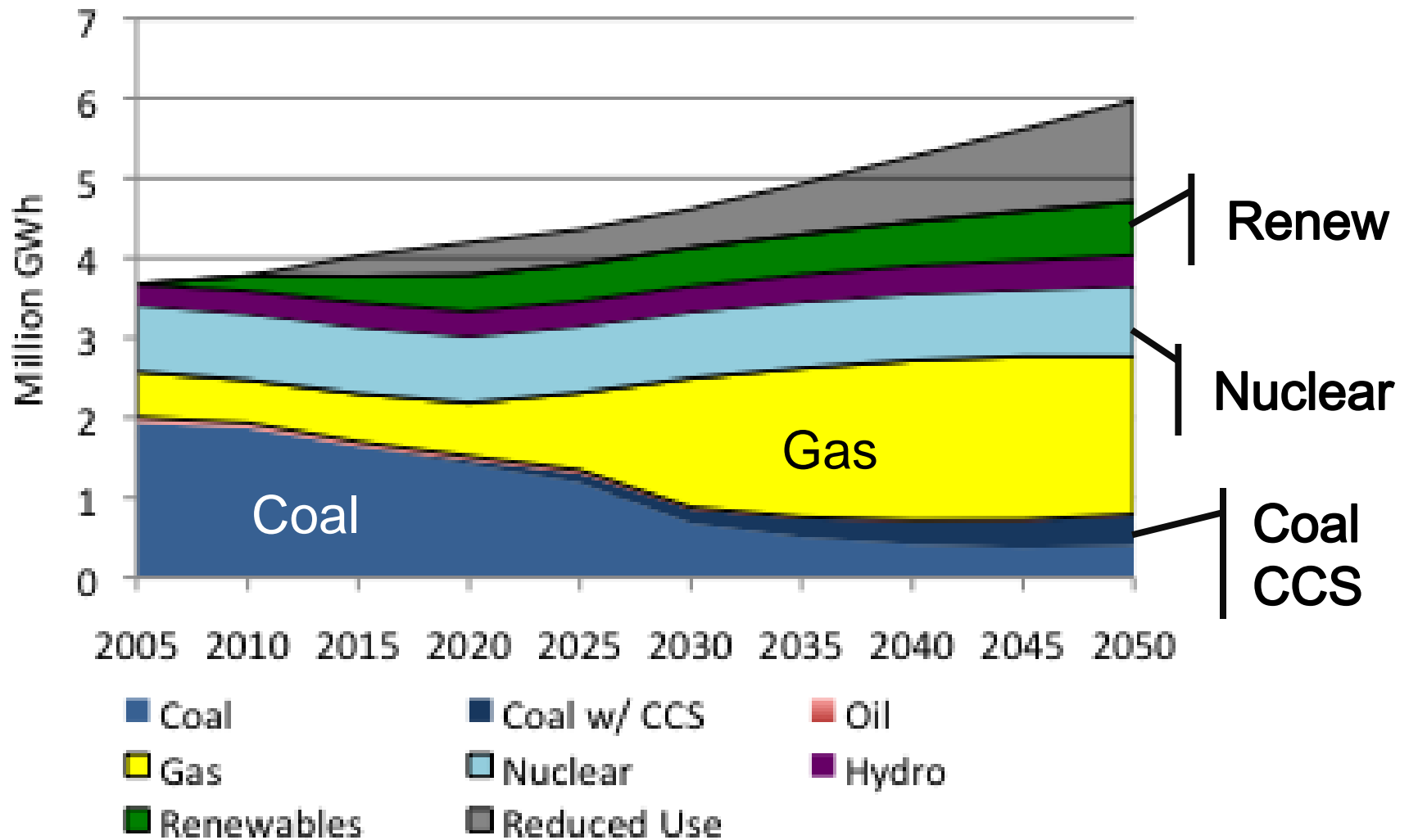
# CO<sub>2</sub>-equivalent Prices

Waxman-Markey - Full & Medium Offsets



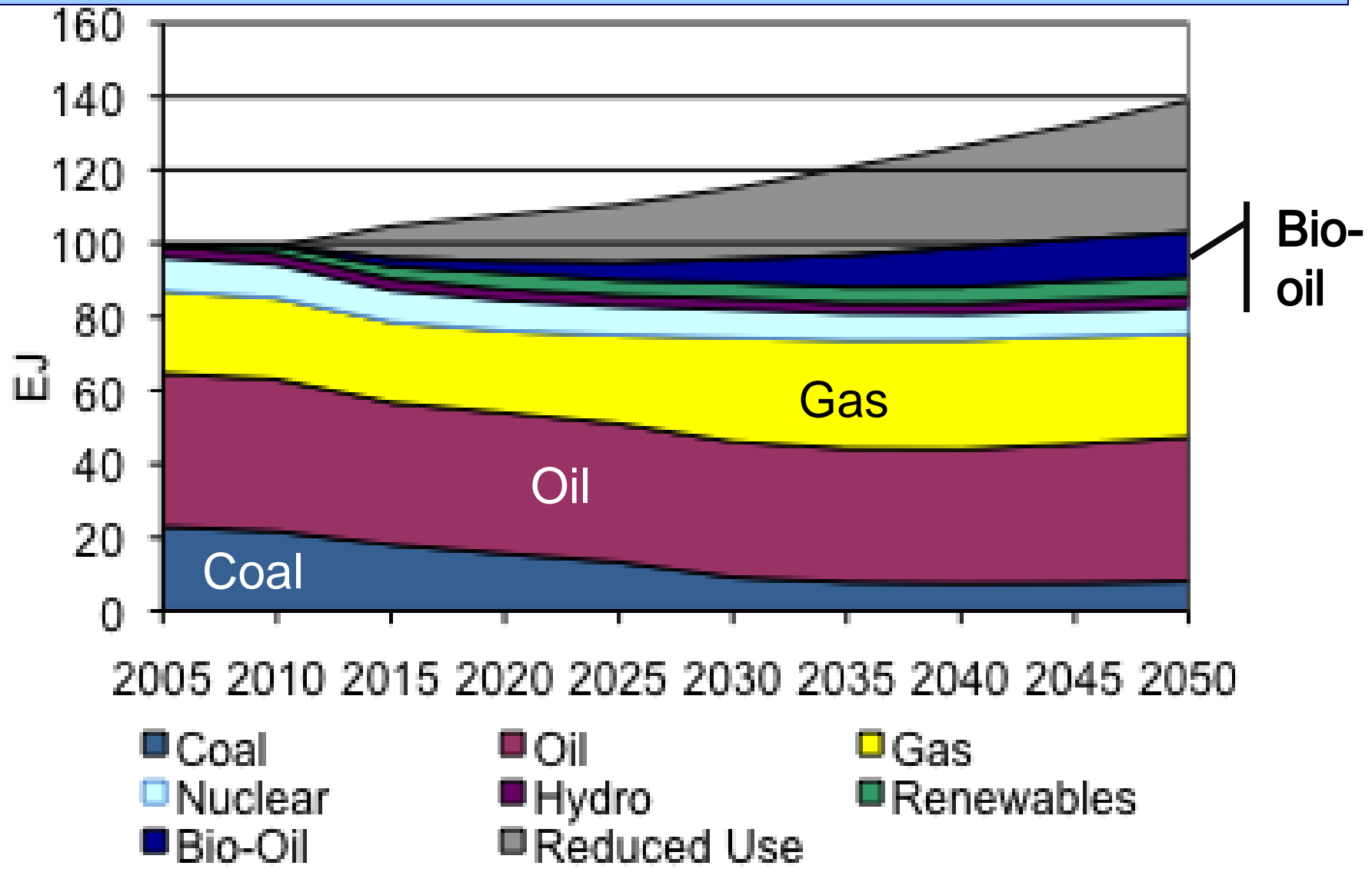
# Electric Generation

## Medium Offsets



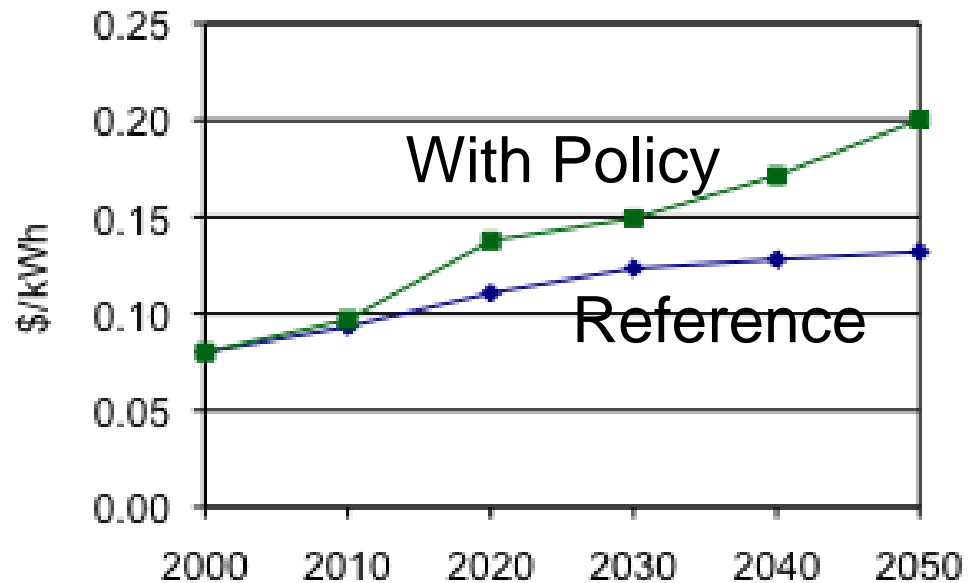
# Primary Energy Use

## 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 CO<sub>2</sub> 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

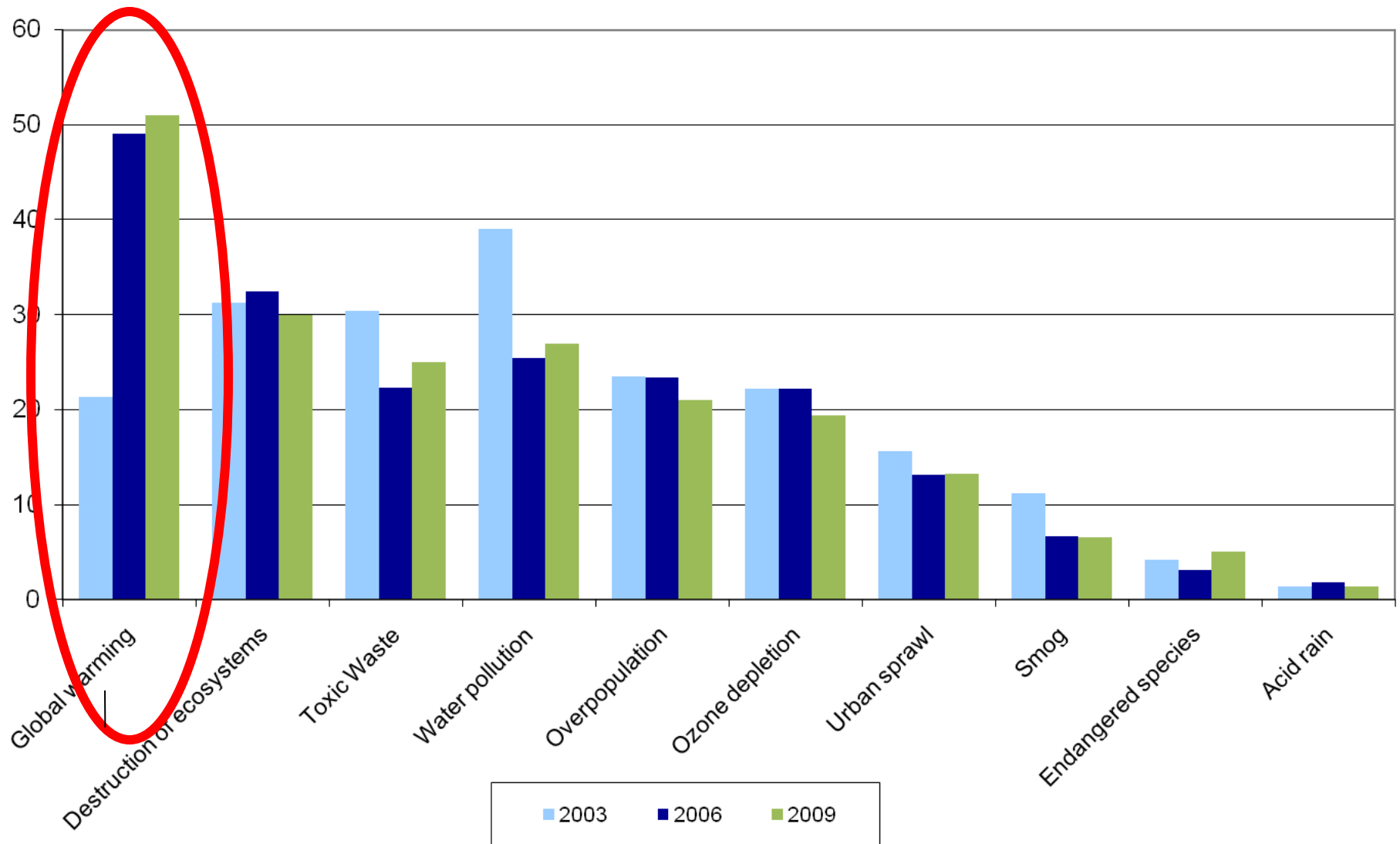
- Auto design (CAFE) → Under way
- Technology stds ]
- Fuel stds ]

- Timing
- Procedures
- Legal blocks
- Congressional resistance

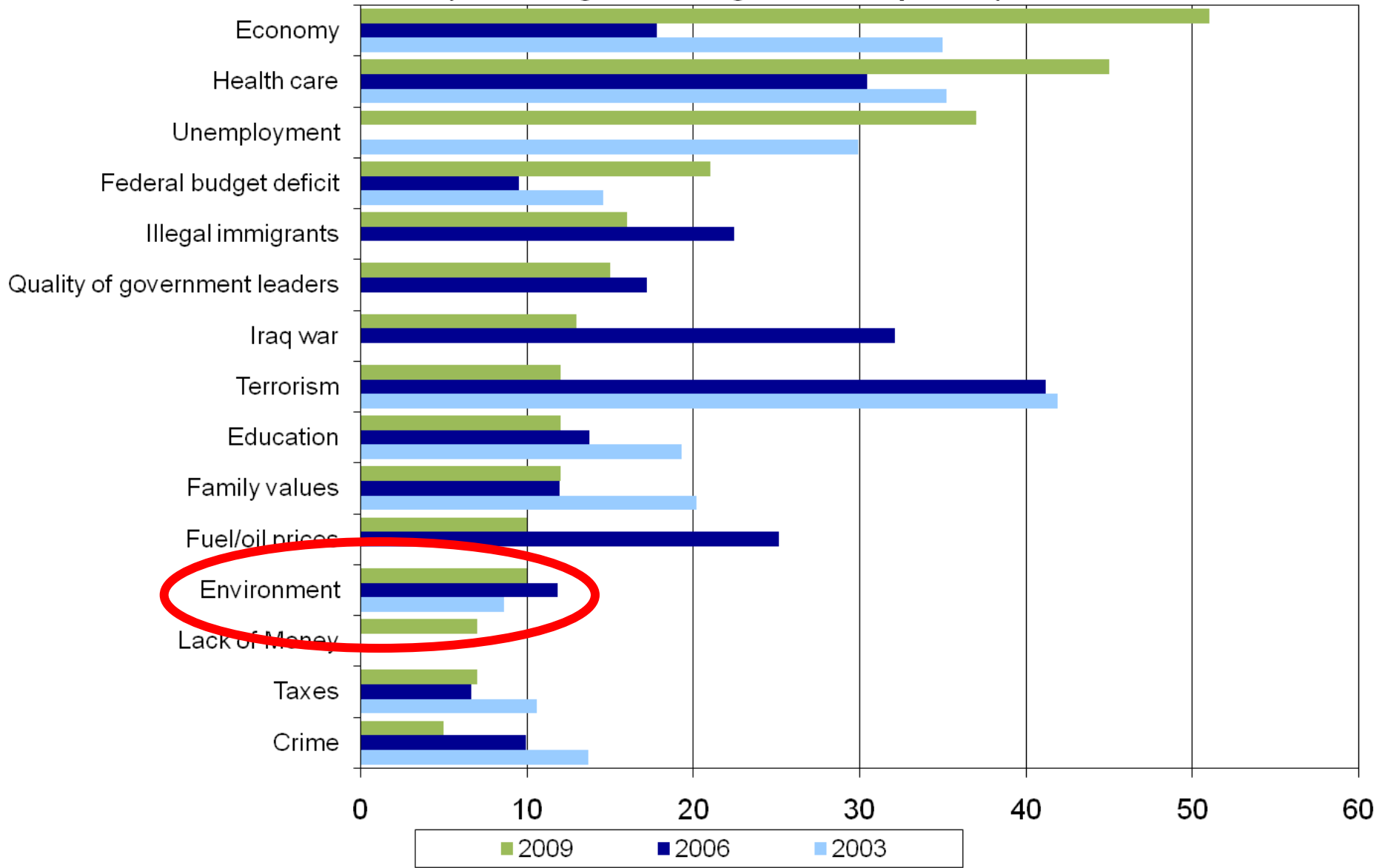
- State and City

- Federal RD&D

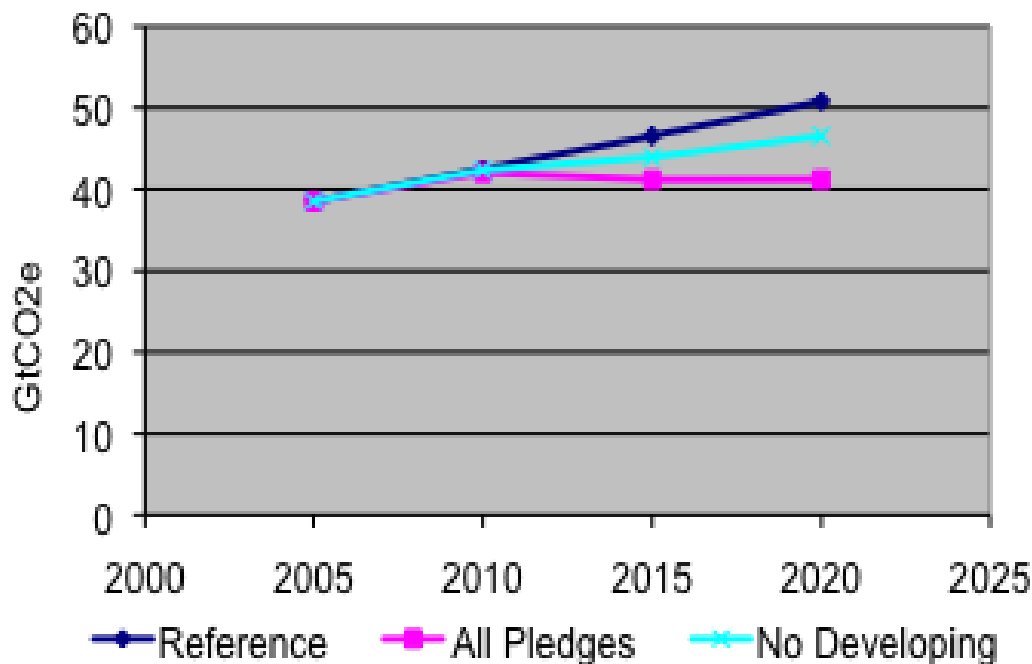
Consider the following environmental problems. Which is the most important problem facing the US today? (Percentage choosing problem in top two)



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

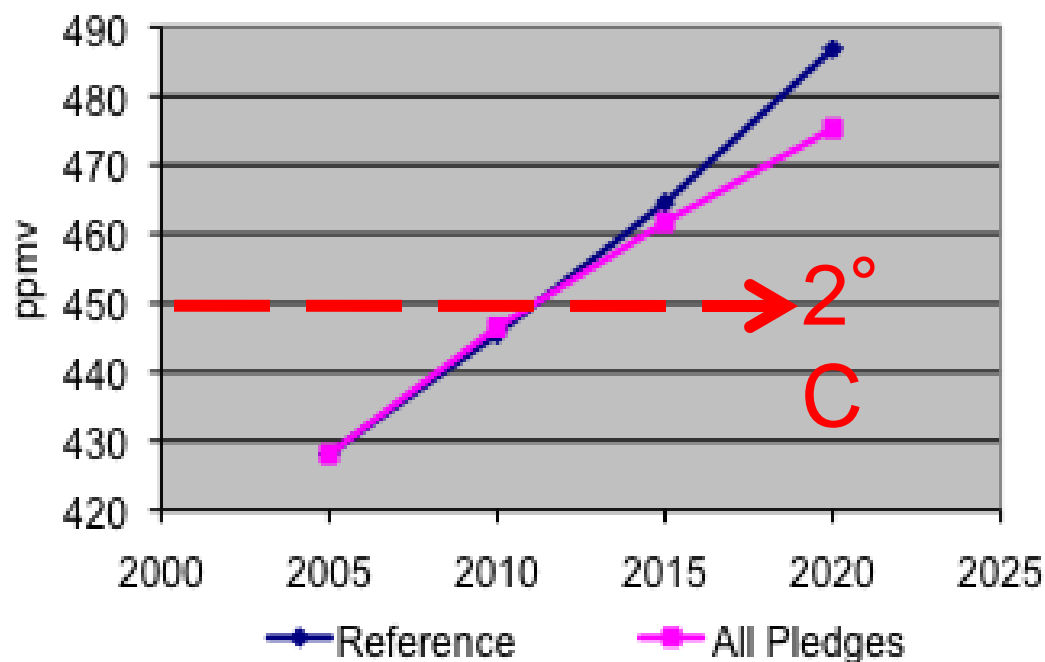


# Copenhagen Accord Pledges



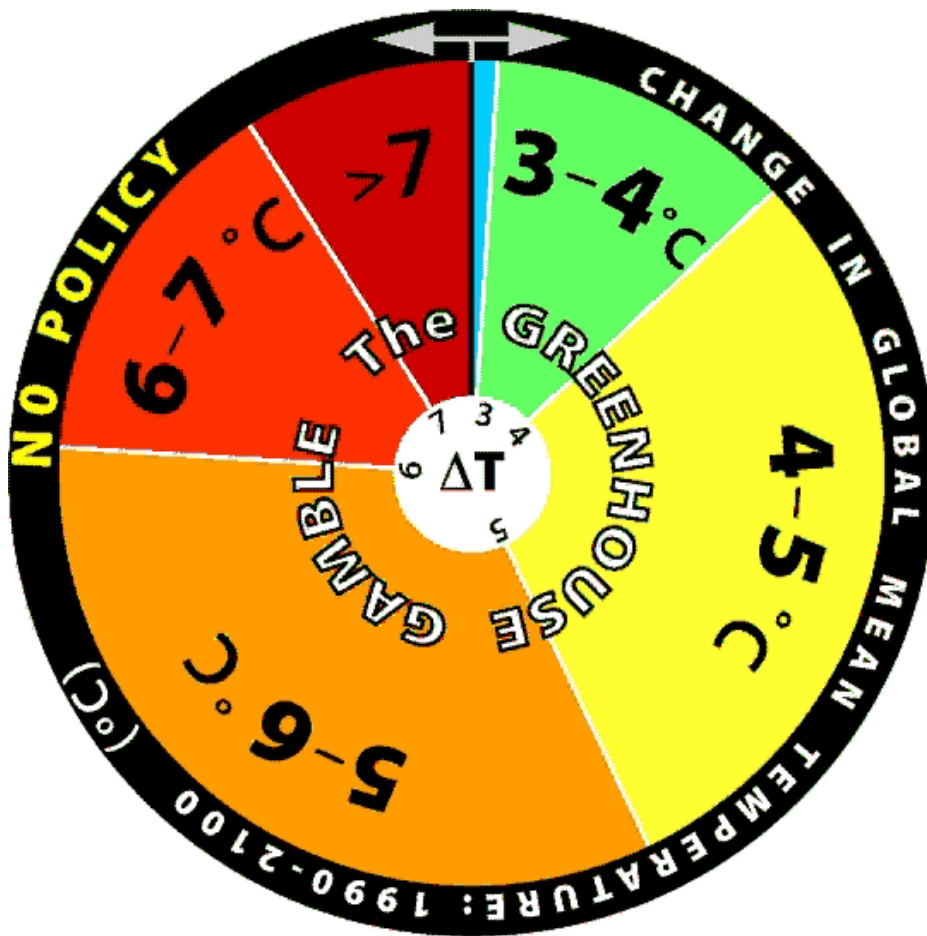
Emissions

Atmospheric Concentrations (Kyoto gases)

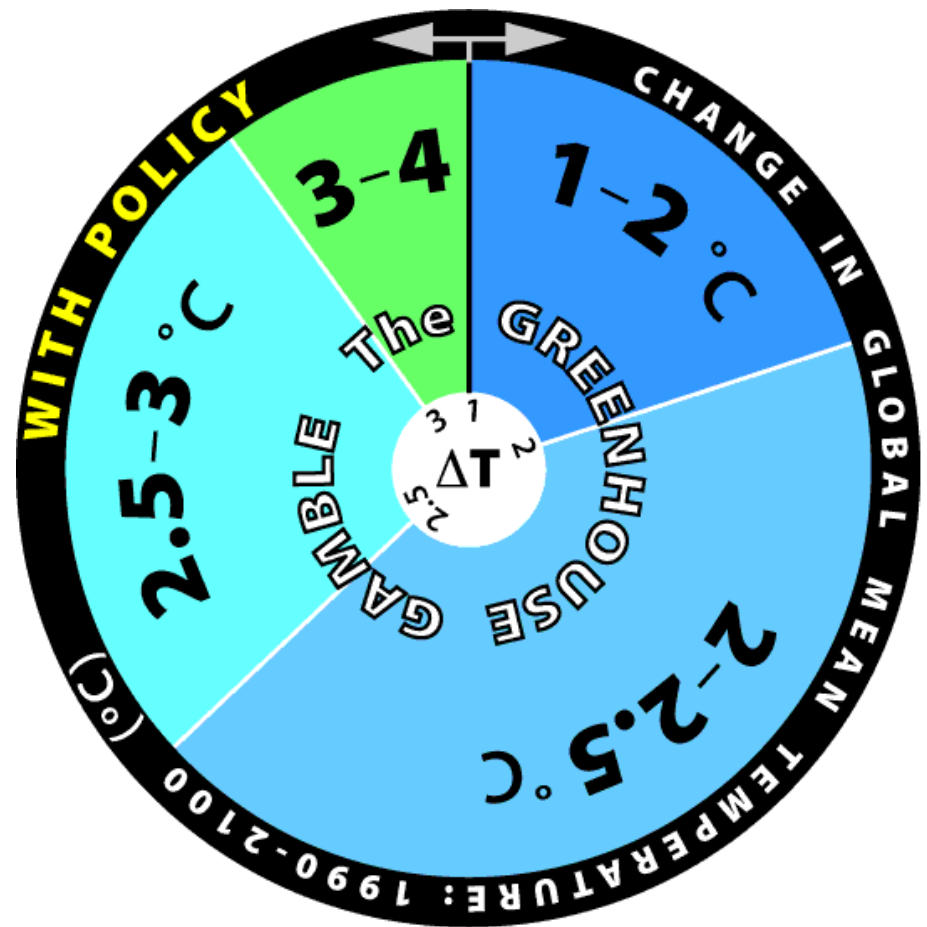


# Biggest Policy Effect is on the Tails

**Thought  
experiment:  
NO POLICY**



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



# Thank You!

For more see  
[www.globalchange.mit.edu](http://www.globalchange.mit.edu)