

# Climate Change Legislation: National and Regional Activities

C.V. Mathai, Ph. D.  
Manager for Environmental Policy

APS Resource Alternatives  
Stakeholder Meeting April 11, 2008



# Overview

- Background, UNFCCC, and the Kyoto Protocol
- Global and U.S. Greenhouse Gas Emissions
- Climate Legislation: The National Scene
- Bush Administration Initiatives
- State and Regional Climate Change Activities
- APS Policy on Climate Change Legislation
- Summary



# 1992 UNFCCC (Rio Convention)

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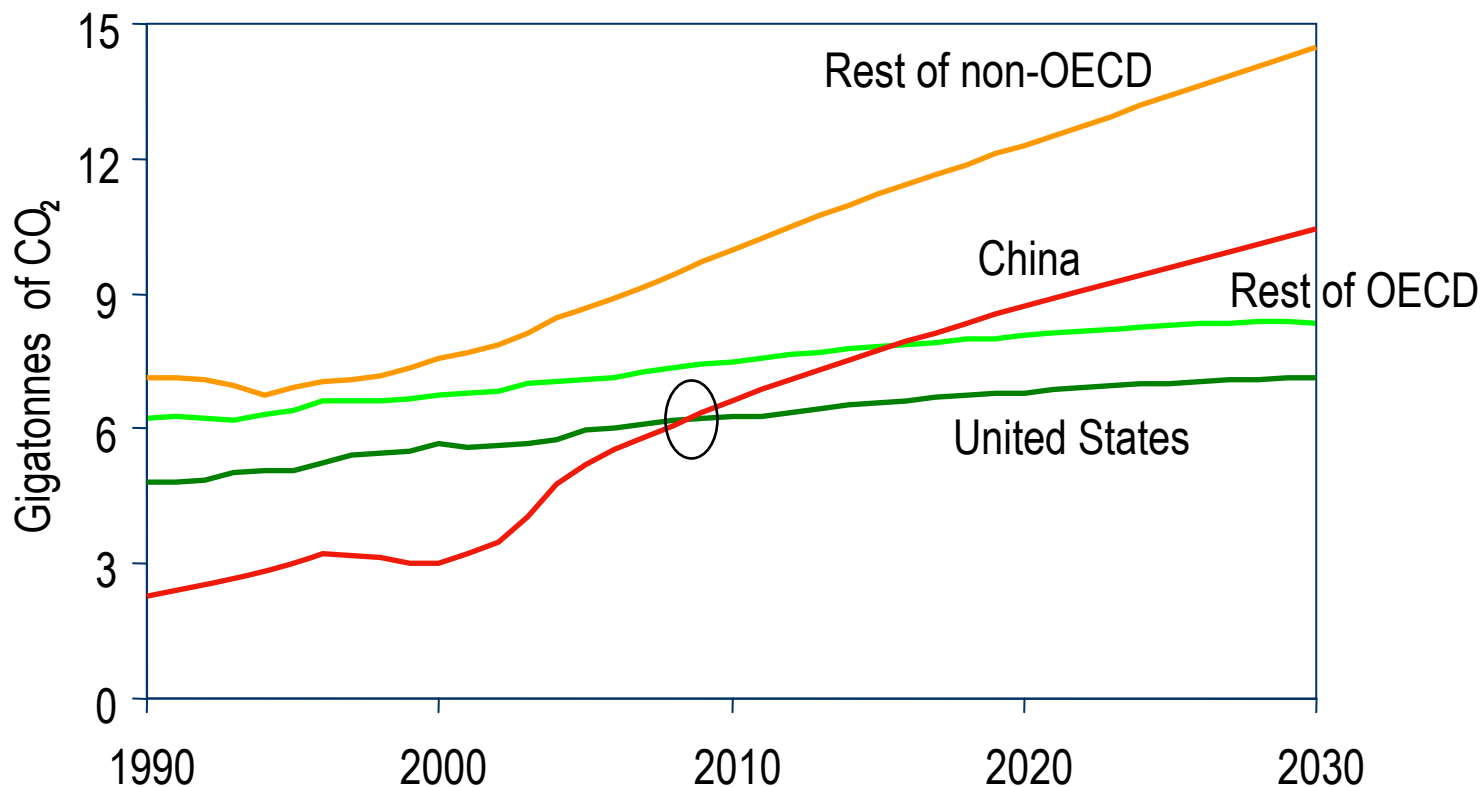
- Based on the conclusions of the Intergovernmental Panel on Climate Change (IPCC), the United Nations Framework Convention on Climate Change (UNFCCC) was adopted in 1992
- The objective of the UNFCCC was:  
  
“.... stabilization of greenhouse gas concentrations in the atmosphere at a level that would prevent dangerous anthropogenic interference with the climate system”
- U.S. Senate ratified the UNFCCC

# THE KYOTO PROTOCOL

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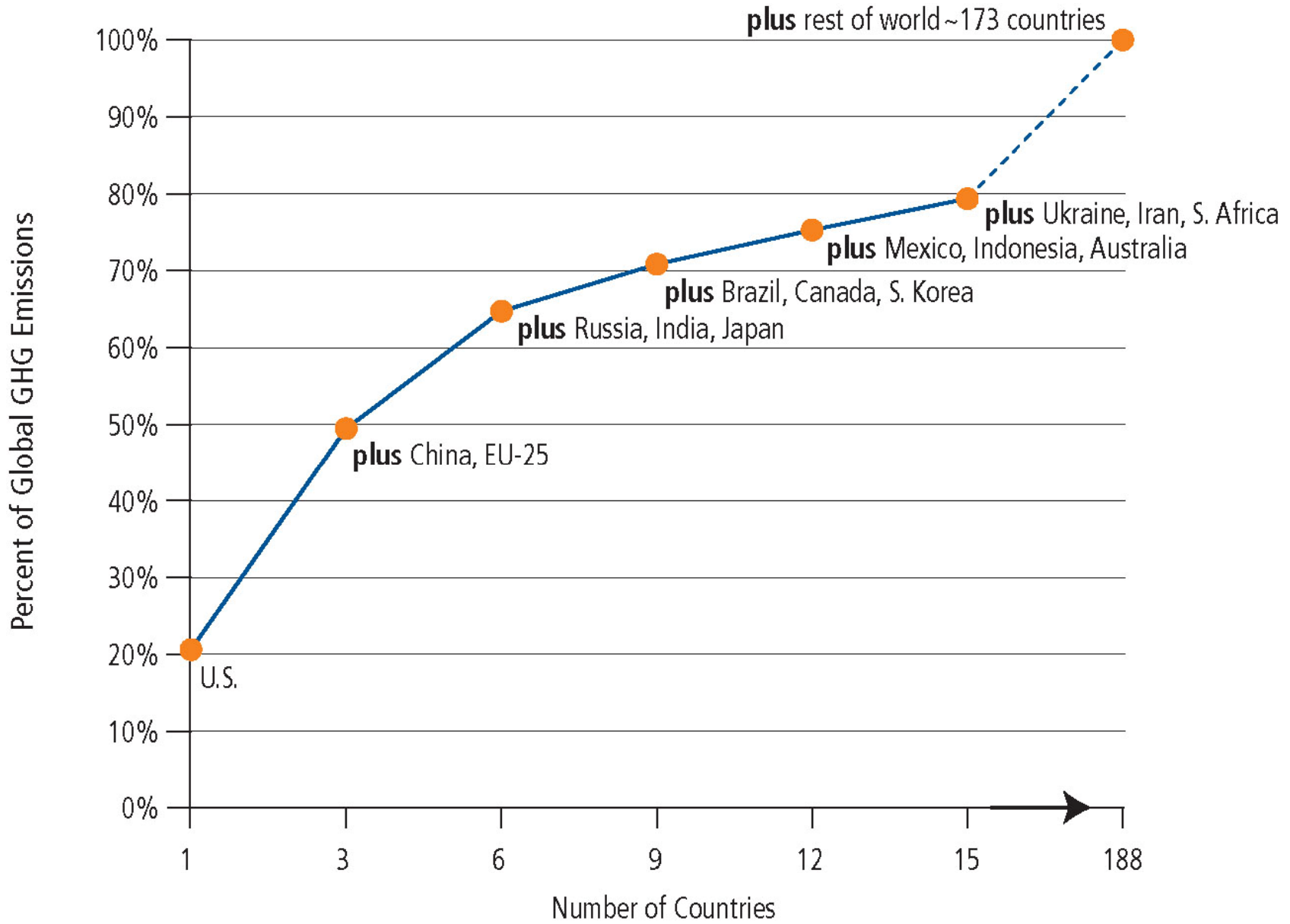
- UNFCCC's third meeting in 1997 adopted the "Kyoto Protocol" requiring industrialized countries to reduce their global average GHG emissions by 5.2% below 1990 level during 2008-2012
- The Kyoto Protocol established legally binding, "differentiated" emission limits for 38 countries
- The Kyoto Protocol is in effect, and the U.S. is the only major developed country not honoring it

# Energy-Related CO<sub>2</sub> emissions by Region

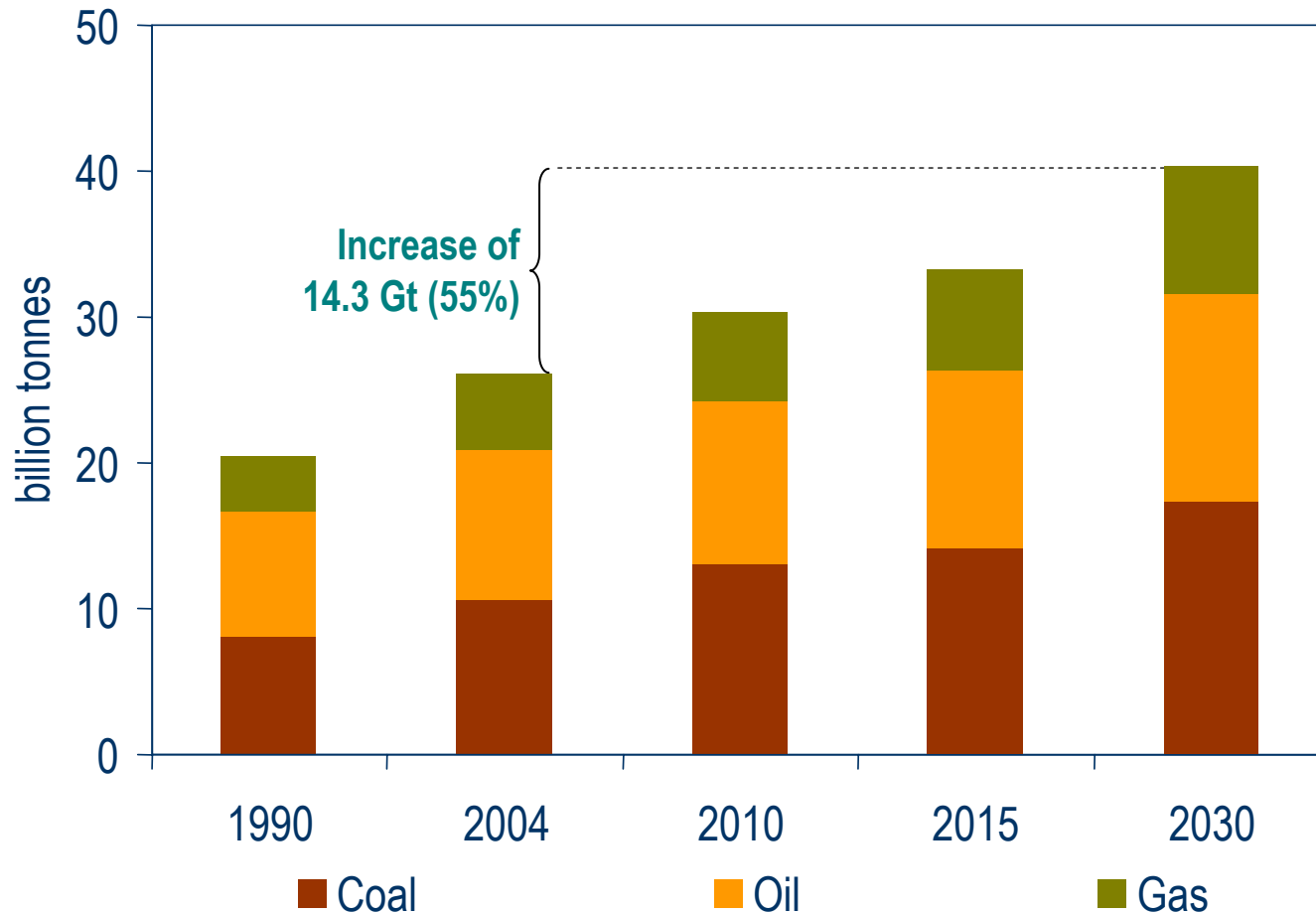


***China overtakes the US as the world's biggest emitter before 2010, though its per capita emissions reach just 60% of those of the OECD in 2030***

# Largest Emitters: Developed and Developing

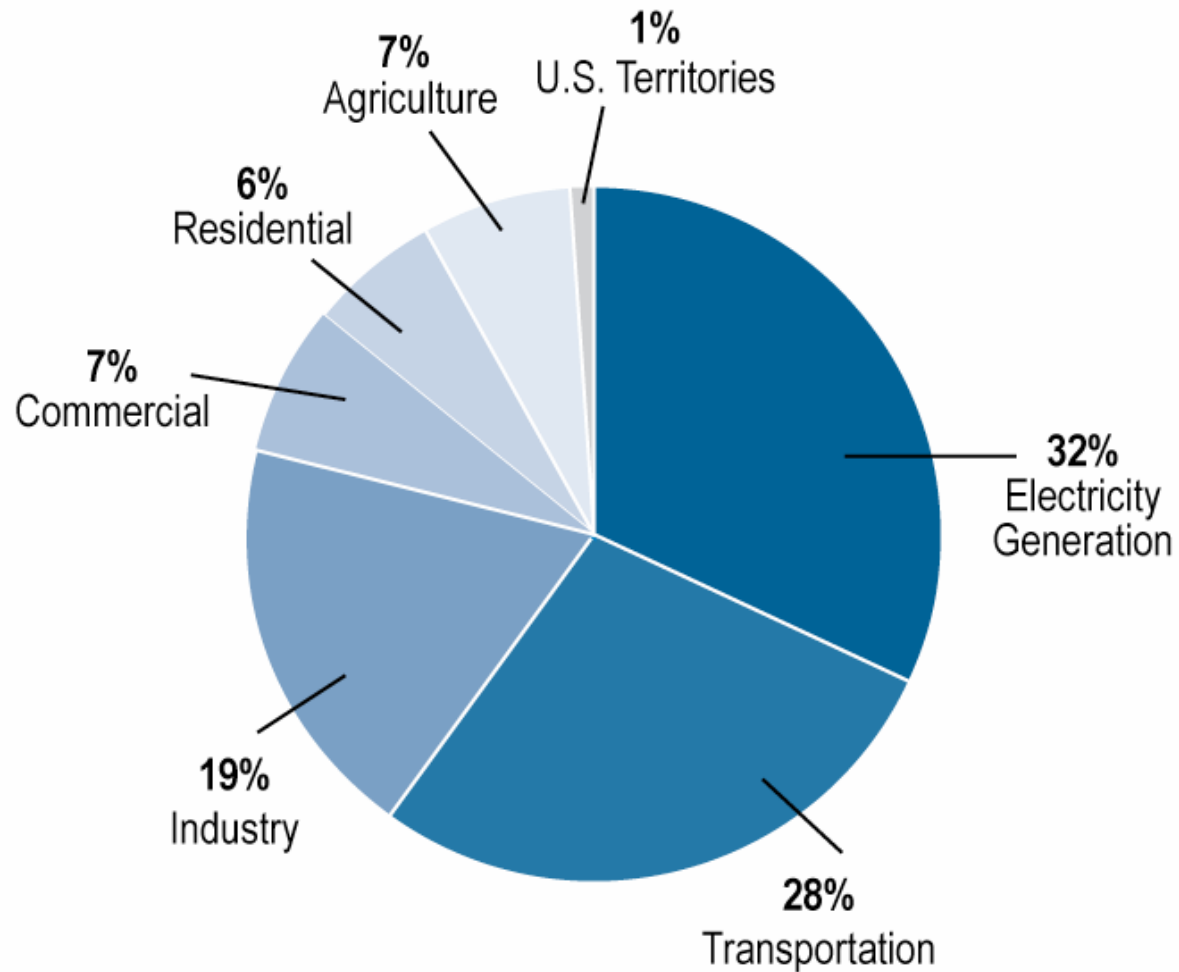


# Energy-Related CO<sub>2</sub> Emissions by Fuel



***Half of the projected increase in emissions comes from new power stations, mainly using coal & mainly located in China & India***

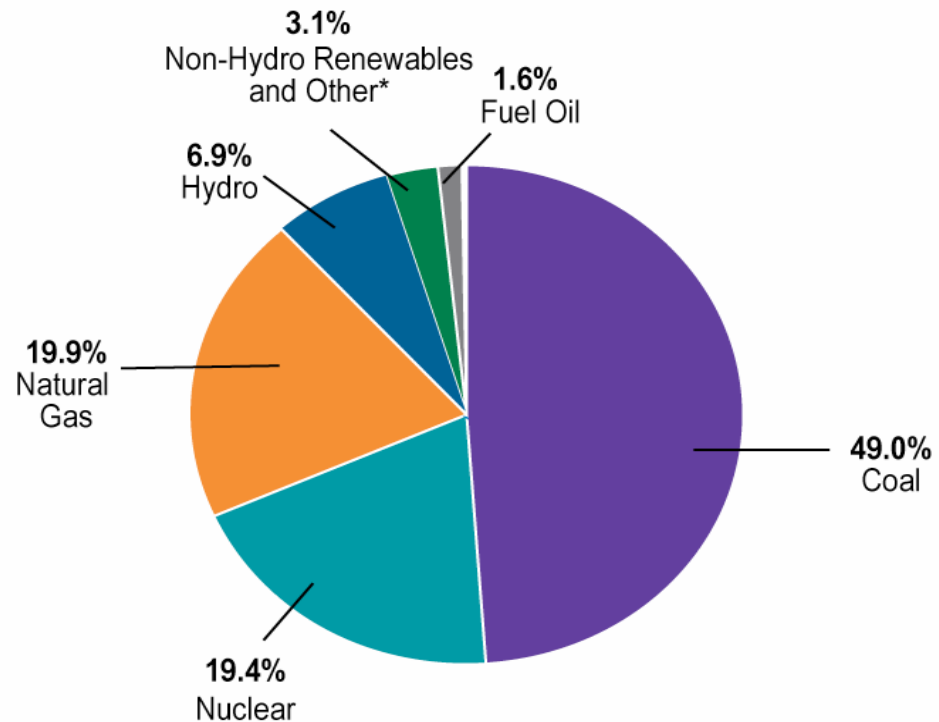
# U.S. GHG Emissions by Sector



Source: U.S. Environmental Protection Agency, *Inventory of U.S. Greenhouse Gas Emissions and Sinks: 1990-2004*.

# Electric Companies Use A Diverse Mix of Fuels to Generate Electricity

## National Fuel Mix

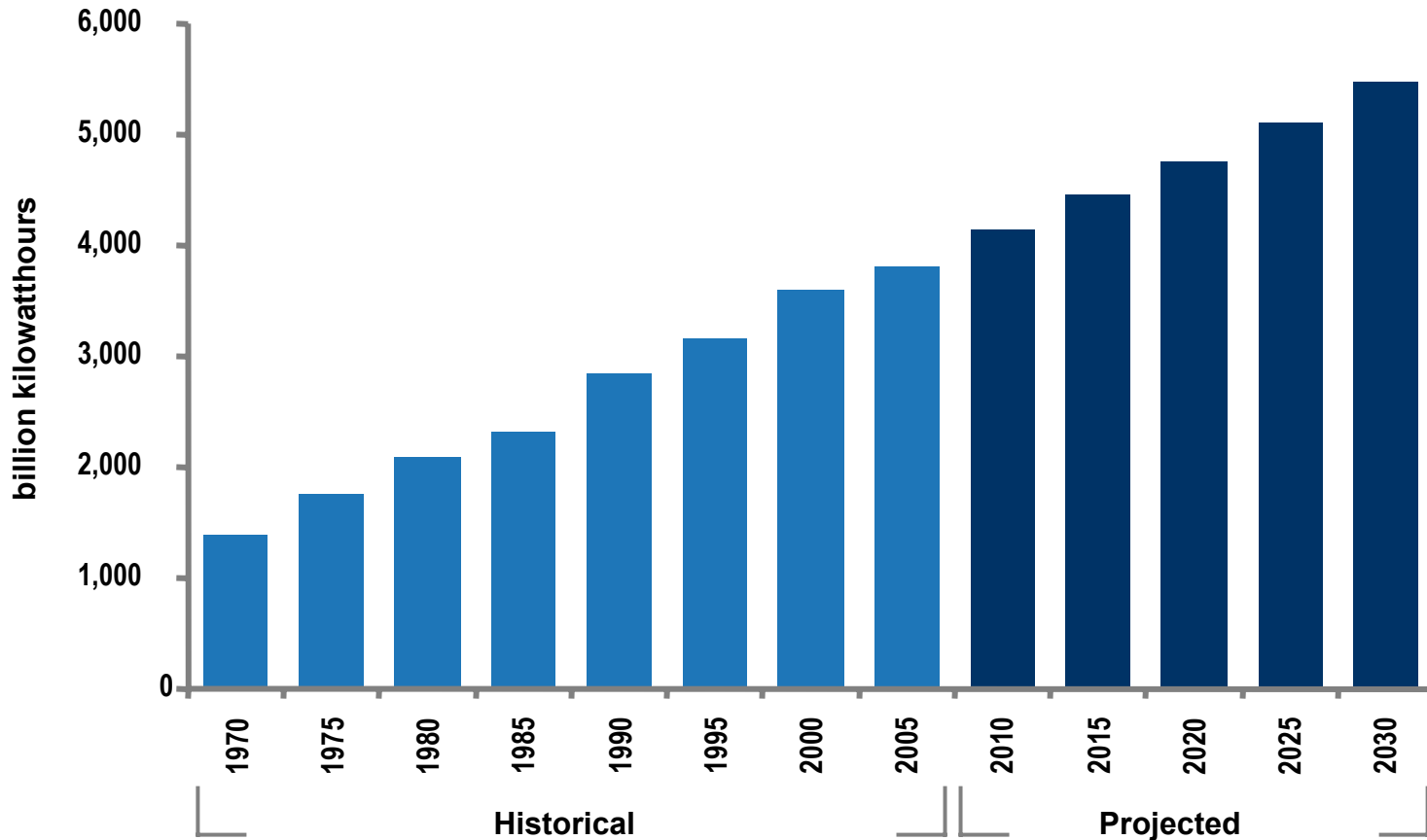


Note: Sum of components do not add to 100.0% due to independent rounding.

\*\*Non-Hydro Renewables and Other\* includes generation from solar, wind, geothermal, biomass (agricultural waste, municipal solid waste, landfill gas recovery, wood, pitch), hydrogen, batteries, chemicals, non-wood waste, purchased steam, sulfur and miscellaneous technologies.

Source: U.S. Department of Energy, Energy Information Administration, Power Plant Report (EIA-920), Combined Heat and Power Plant Report (EIA-920), and Electric Power Monthly (2006 Preliminary).

# U.S. Demand for Electricity Is Projected to Increase 30% by 2030



\* Electricity demand projections based on expected growth between 2005 and 2030.

Sources: U.S. Department of Energy, Energy Information Administration, *Annual Energy Review 2005* and *Annual Energy Outlook 2007*

# Congressional Action?

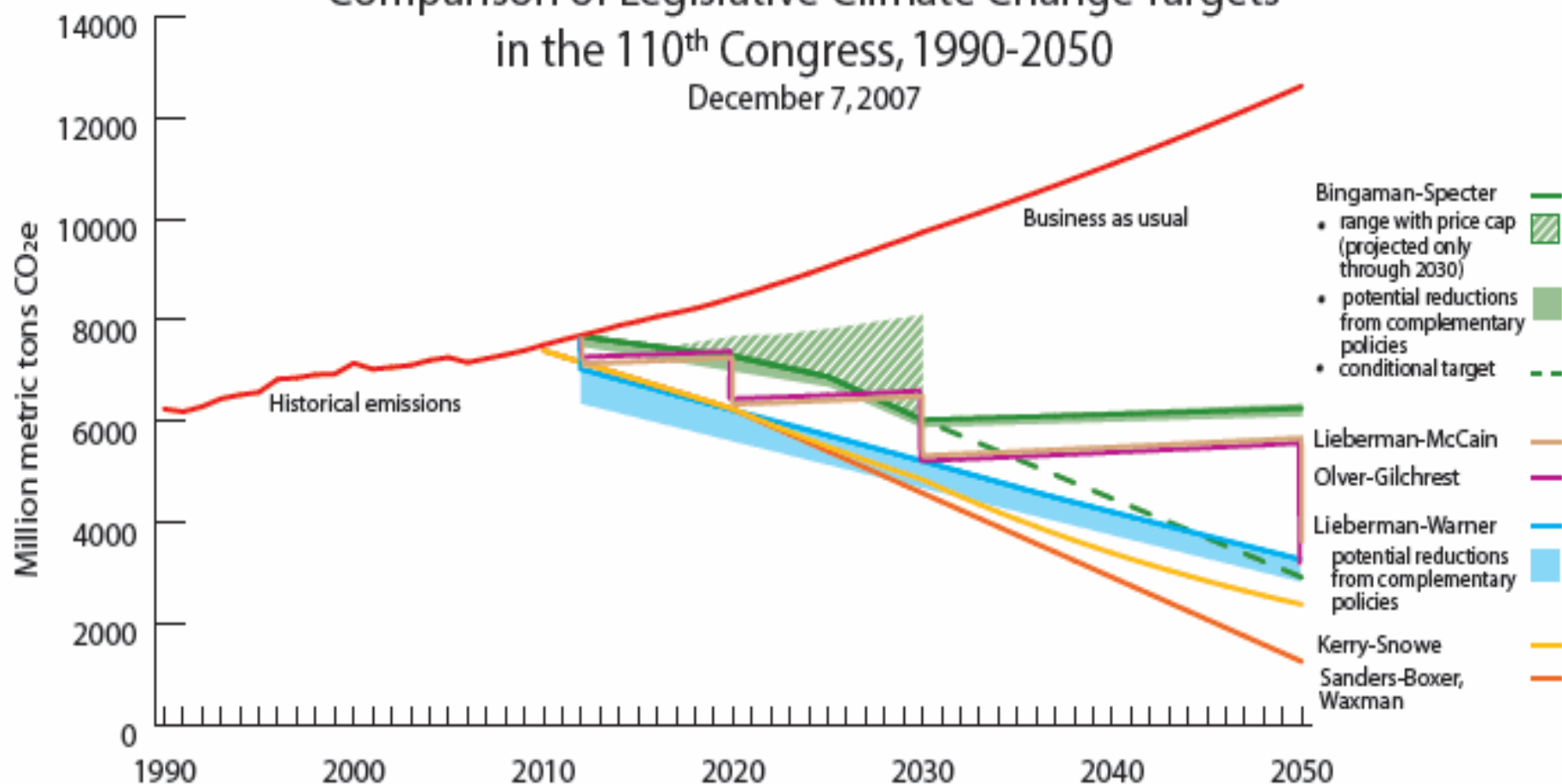


# Legislative Proposals

- A number of bills have been introduced with varying levels of emission reduction targets and schedules
- Most bills would cover the whole economy while some would cover only the electric power generation sector
- Most bills would establish a “cap & trade” system similar to the Acid Rain Control Program
- Numerous hearings were held by a number of Senate and House Committees and Subcommittees

# Comparison of Legislative Climate Change Targets in the 110<sup>th</sup> Congress, 1990-2050

December 7, 2007



# Lieberman-Warner S.2191

- Economy-wide (82%), hybrid cap & trade program (upstream for petroleum & gas; downstream for coal)
- Emission targets and timelines
  - 2012: 5,775 MMT; 2020: 4,924 MMT
  - 2030: 3,860 MMT; 2050: 2,050 MMT
- Emissions certainty -- No “safety valve” for cost certainty
- Allowance auctions; declining levels of free allocations
- Auction proceeds for transition assistance and R & D
- Offsets: Domestic, 15%; International (restricted), 15%
- Carbon Market Efficiency Board (to minimize allowance price volatility)
- New entrants receive allowances
- Allows banking and borrowing of allowances
- Bonus allowances for Carbon Capture and Storage

# Allocations & Auctions

- Allowance allocated to covered sectors based on historic emissions
- Initial allocations (68%)
  - Energy Intensive industry: 10%
  - Electric power sector: 19%
  - Rural electric cooperatives: 1%
  - Electric and gas distribution entitles: 9%
  - Domestic agriculture and forestry: 5%
  - States: 5%
  - Carbon capture and sequestration: 4%
  - International forest protection: 2.5%
- Initial auctions (22.5%)
  - Increased to 70.5% by 2031 (free allocations end)

# Economic Analysis of S. 2191

- Six research groups analyzed the bill under varying levels of assumptions
- Projected Allowance Price Comparison:

	<b>CRAI</b>	<b>MIT</b>	<b>NI</b>	<b>CAT</b>	<b>EPA</b>	<b>SAIC</b>
2015	<b>\$48</b>	48	18	18	29-40	55-64
2030	<b>\$76</b>	86	38	50	61-83	227+

- EPA estimated electricity prices will go up by 44% in 2030

# Senate Action on S. 2191

- Voted out by the Senate Environment & Public Works Committee on Dec 5, 2007
- Full Senate consideration expected in June
- “No weakening of emission reductions”
- Potential Amendments:
  - Cost containment provisions (“safety valve”)
  - Proportion of allowance allocation vs auction
  - Timing of emission reductions and availability of technologies to reduce emissions (e.g., CCS)
  - Harmonization of federal/state programs -- preemption issue
  - Roles of offsets, domestic and international
  - International participation and global competitiveness
  - Role of nuclear

# Climate Legislation in the House

- Speaker Pelosi appointed a select committee on Energy Independence and Global Warming, but legislative authority resides with the Energy & Commerce Committee
- A number of hearings were conducted
- Several “White Papers” were released addressing various aspects of cap & trade programs
- E & C Committee Chairman John Dingell and Subcommittee Chairman Rick Boucher are developing a bill to reduce economy-wide GHG emissions by 60-80% by 2050; bill expected in Spring
- They have expressed a desire to defer significant GHG reductions until CCS becomes commercially available
- Dingell has also introduced a “carbon tax” bill

# U.S. Supreme Court Decision

- Last April, Supreme Court agreed that GHGs are “air pollutants” and that EPA can regulate them under the Clean Air Act, provided EPA first makes a “regulatory finding” that such gases are endangering public health and welfare
- In March, EPA Administrator notified Congress that EPA will soon initiate a “rulemaking process” (ANPR) toward a final endangerment decision
- A decision is not expected to occur until next year, giving Congress an opportunity to regulate GHGs under new climate legislation, instead of triggering CAA provisions

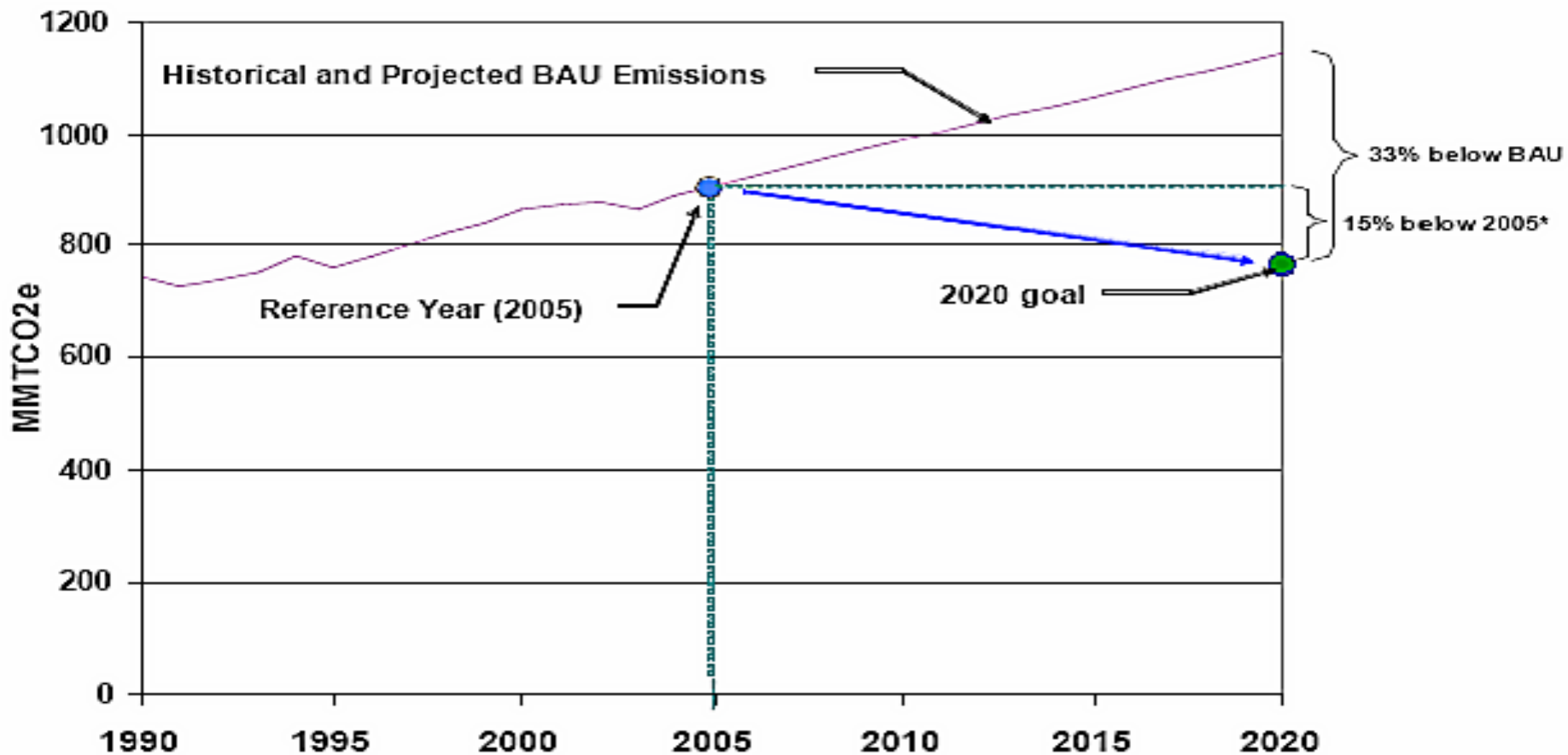
# State/Regional Climate Activities

- In the absence of federal legislation numerous states have initiated climate action plans
  - California Legislation (AB 32)
  - Ten Northeastern States (RGGI)
  - Western Regional Climate Initiative (WCI)
  - Midwestern Governors GHG Accord
- Many major U.S. corporations have joined others (e.g., USCAP) in calling for federal climate legislation

# Western Climate Initiative (WCI)

- Seven states and two Canadian provinces are “Partners” in WCI with others as “Observers”
- WCI agreed to collectively cut GHG emissions to 15% below 2005 levels by 2020
- WCI is designing a cap & trade program, to be unveiled by August 2008
- WCI issued 5 “Option Papers” (Scope, Allowances, Offsets, Electricity, and Emissions Reporting) describing the elements of a cap & trade program
- Regional and state-by-state “stakeholder meetings” are being held regularly to seek public input
- A Memorandum of Agreement (and the “design elements of a cap & trade” program) to be signed by the Partners by August 2008
- The cap & trade program to be implemented under the authority of each participating State/Province

# WCI Partner GHG Emissions and Regional Goal<sup>3</sup>



BAU = Business-as-usual (projections).

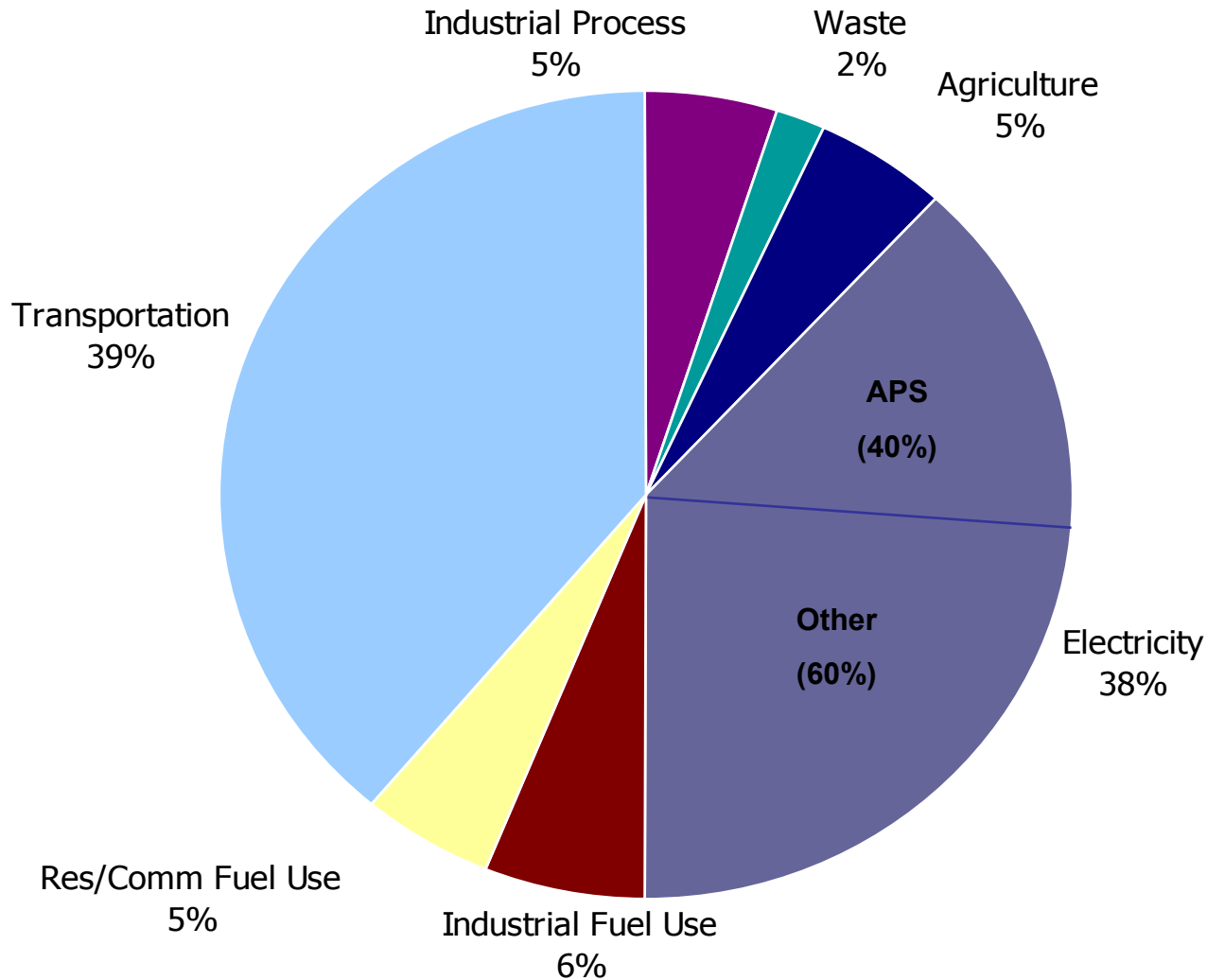
The arrow shown is purely directional: it illustrates the where regional emissions will need to be by 2020 rather than the specific path emissions are expected to follow during the 2007-2020 period.

\* See footnote c in the Table 2 below.

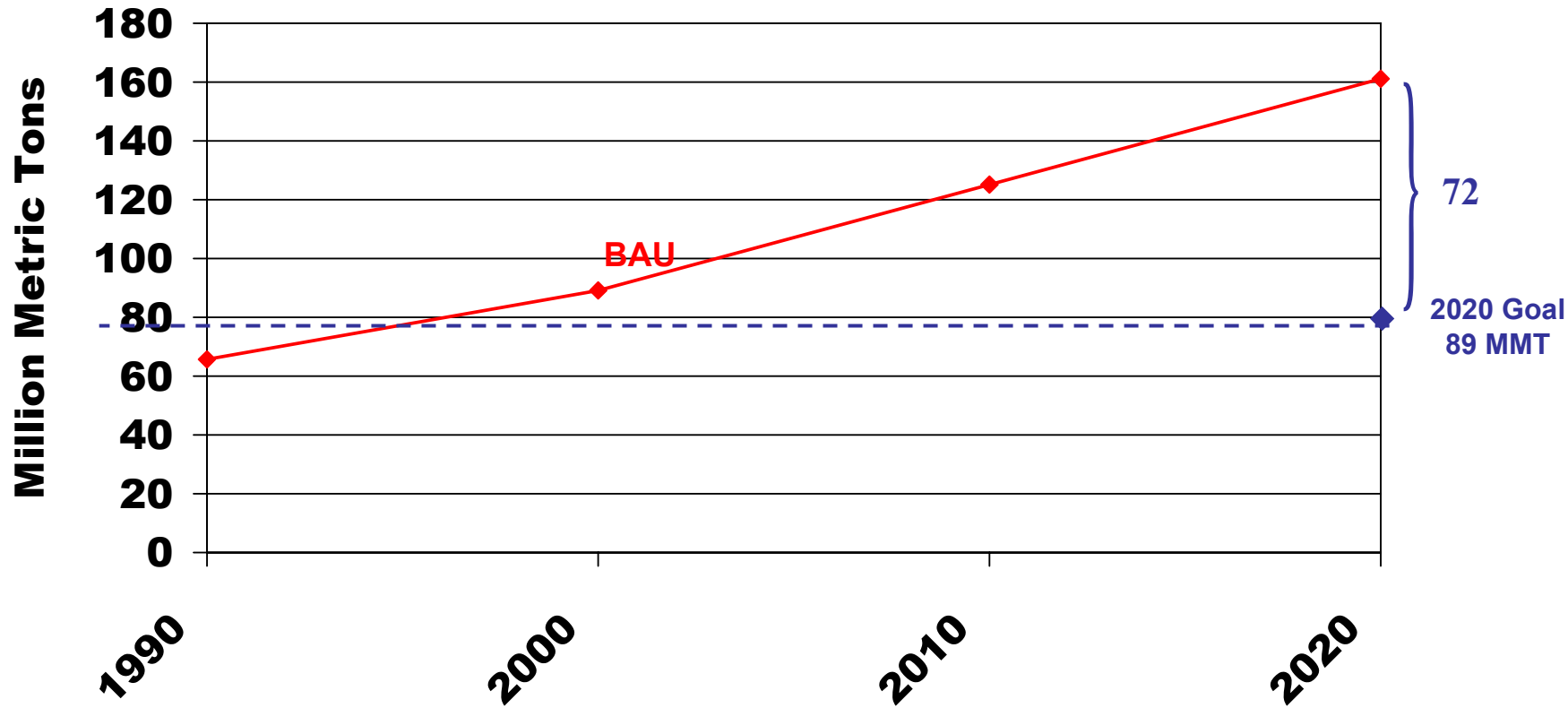
# Arizona Climate Initiative

- Governor's Climate Advisory Committee recommended 49 programs in 2006
- Arizona is playing a lead role in the design of the WCI cap & trade program
- Arizona joined "The Climate Registry" – APS is a charter member of TCR
- As a WCI Partner, Arizona has agreed to reduce its GHG emissions by 72 MMT below its 2005 level by 2020

# Arizona GHG Emissions by Sector, 2000



# Arizona Emissions Goal



# APS Climate Policy Positions

- Climate legislation must harmonize emission reduction targets and timelines with commercial availability of technologies to meet system-load requirements at affordable costs
- Any GHG emission reduction program must recognize regional differences in population growth and existing infrastructure for power generation
- Climate legislation must be applied economy-wide to maximize economic efficiency to benefit the entire society, and should not penalize one sector of the economy
- Any market-based programs to reduce GHG emissions (e.g., cap & trade) must include cost containment provisions such as a “safety valve” mechanism to ensure economic certainty during the initial stages of the program and until new technologies are commercially available
- Legislation must provide for research, development, and deployment of low- and no carbon emitting technologies and carbon sequestration and storage technologies
- National and state programs to deal with climate change should be harmonized to avoid conflicts and inconsistencies

**THANK YOU**