



# **Mexico-U.S. Economic and Environmental Modeling Workshop**

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# Why We Are Here?



- ⌘ Climate change could be a serious worldwide problem over the next century...solutions to climate change will involve a worldwide response
- ⌘ Both Mexico and the U.S. have roles to play in solving problem
  - ☒ U.S. with 25% of greenhouse emissions today will be involved in initial and continuing efforts to solve the problem
  - ☒ Mexico as a leader of the developing countries will be involved in any global solution as well

# Why Are We Here?



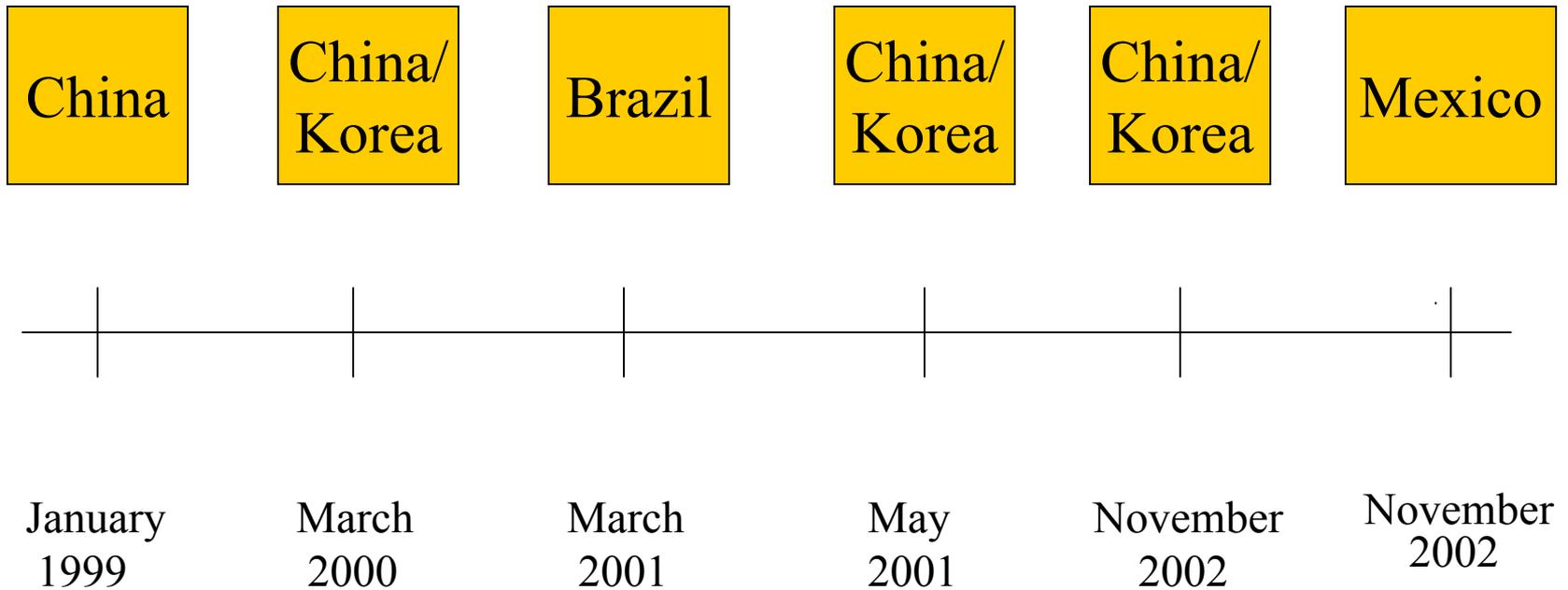
- ⌘ Solutions to the climate problem are complex compared to many other environmental problems
  - ☑ global in nature
- ⌘ Since many gases contribute to climate change, a multi-gas abatement strategy will be required
- ⌘ Both mitigation of greenhouse gases and increasing carbon sequestration will likely be important components of any international strategy
- ⌘ Changes in behavior and new technologies will be required
  - ☑ low/no emitting technologies will be needed in long run

# Goals of Workshop



- ⌘ Enhance cooperation among U.S.-Mexico technical experts on climate economic issues
- ⌘ Exchange information and improve understanding of analytical tools and results
- ⌘ Encourage cooperation to improve methods of economic analysis
- ⌘ Provide an informal opportunity to compare modeling results and discuss implications...
- ⌘ ....ultimately, this should lead to improved modeling to better inform policymakers

# Workshops to Date



## U.S. Views in Brief



- ⌘ U.S. is not ratifying Kyoto Protocol
- ⌘ U.S. remains an active party to the Framework Convention process
- ⌘ U.S. has domestic program to control climate-related emissions and has set a goal of 18% reductions in emissions intensity of GDP by 2012
- ⌘ Purpose of this workshop is not a forum for debating climate change policy positions
- ⌘ For more information
  - ⌘ <http://www.state.gov/g/oes/rls/fs/2002/14576.htm>
  - ⌘ <http://www.state.gov/g/oes/rls/fs/2002/14577.htm>

# Role of Economic Modeling...



- ⌘ Make significant contributions to design of climate solutions
- ⌘ Look at the feasibility and likelihood of achieving a policy goal
- ⌘ Point out ways to achieving a climate objective at least cost
- ⌘ Identify promising, cost effective technologies
- ⌘ Can address the question of “who pays?” for various policy options...so that policies can be designed to achieve an equitable solution

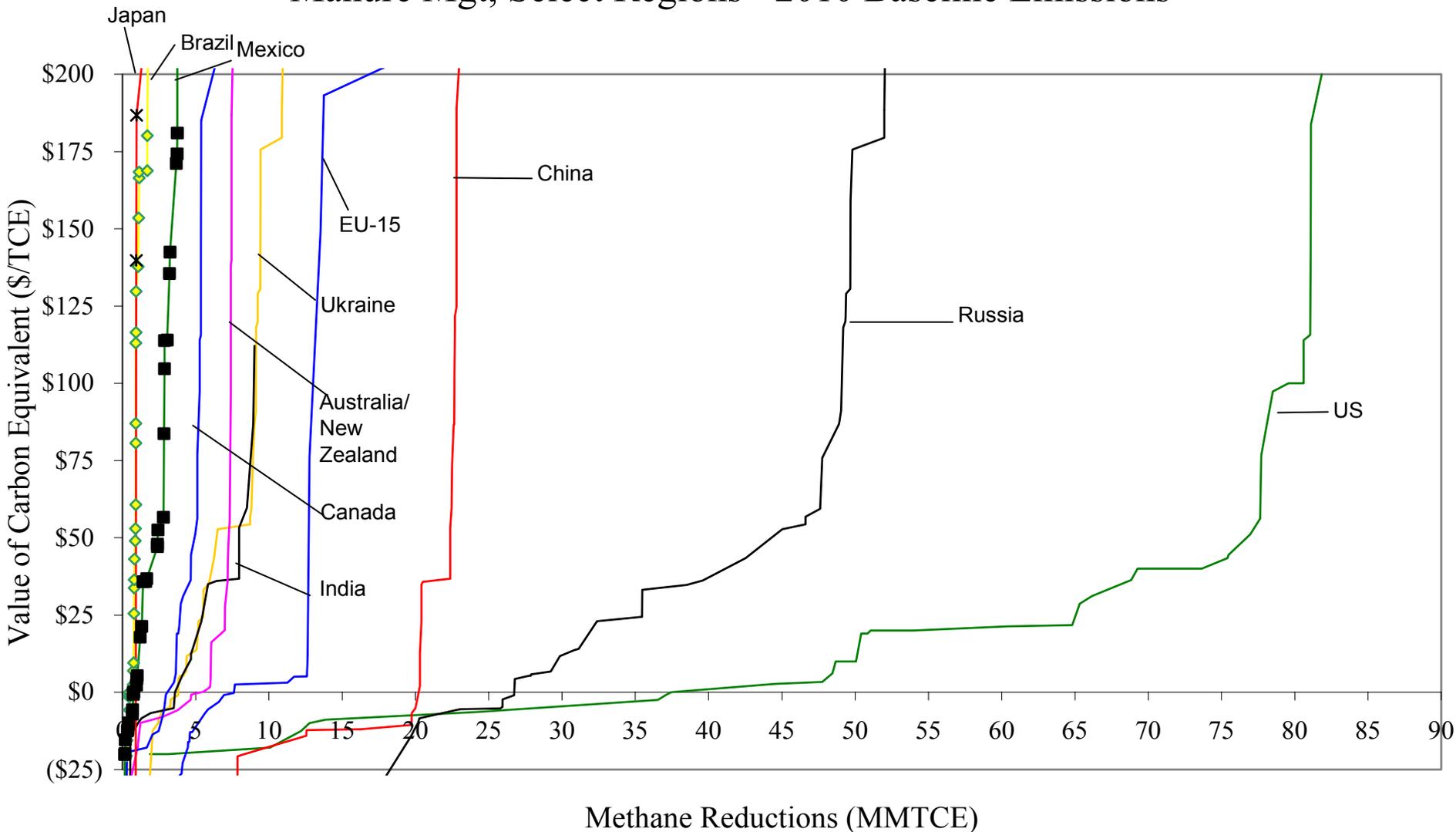
# Many Climate Economic Questions Need to be Addressed...



- ⌘ What are the global and economy-wide ramifications of alternative approaches to reducing greenhouse gas emissions?
- ⌘ How feasible is it to accelerate the deployment of technologies that encourage energy efficiency and no/low greenhouse gas emitting technologies?
- ⌘ How do biological carbon sequestration strategies (e.g., tree-planting, avoiding deforestation and sequestration of carbon in soils) work and what do they cost?
- ⌘ What are potential research and development strategies?
- ⌘ How will international trading of emissions credits work?
- ⌘ What are the “co-control” benefits (e.g., reduced air pollution) from climate policies?



# Methane Marginal Abatement Curves for Coal, Natural Gas, Landfills, & Manure Mgt, Select Regions - 2010 Baseline Emissions



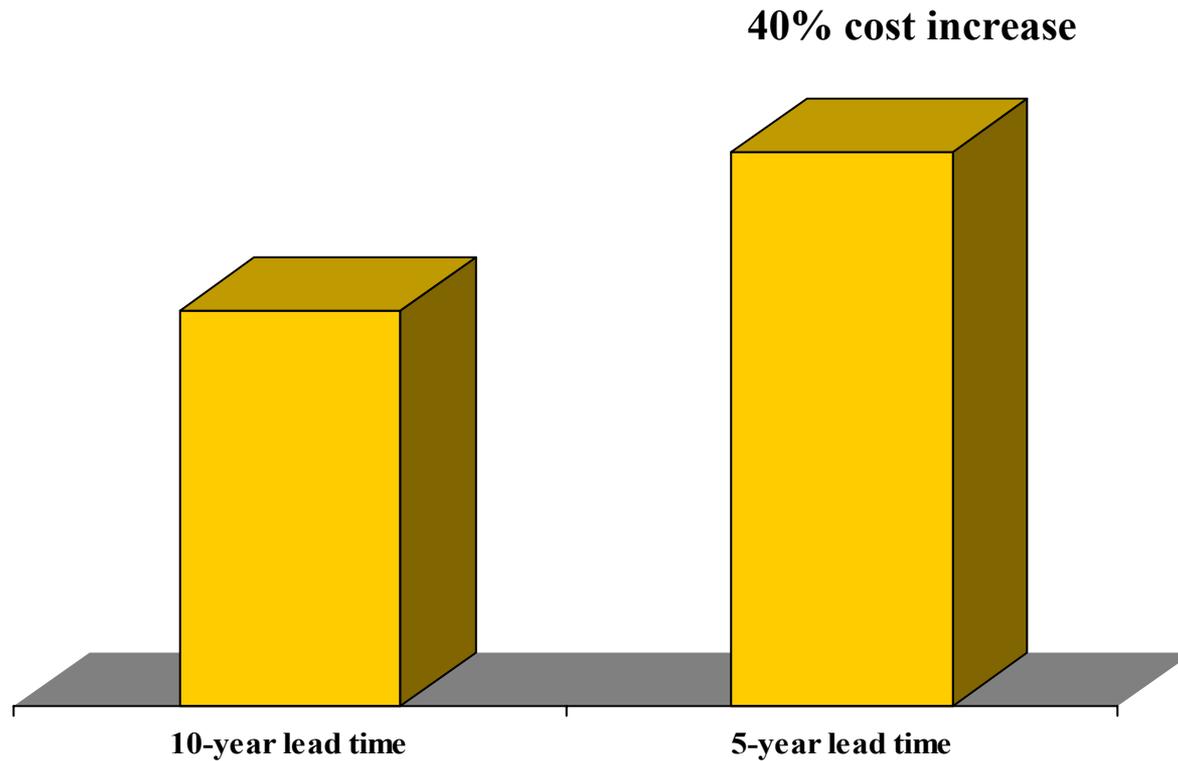
Source: EPA Reports.

# Common Insights from Economic Modeling



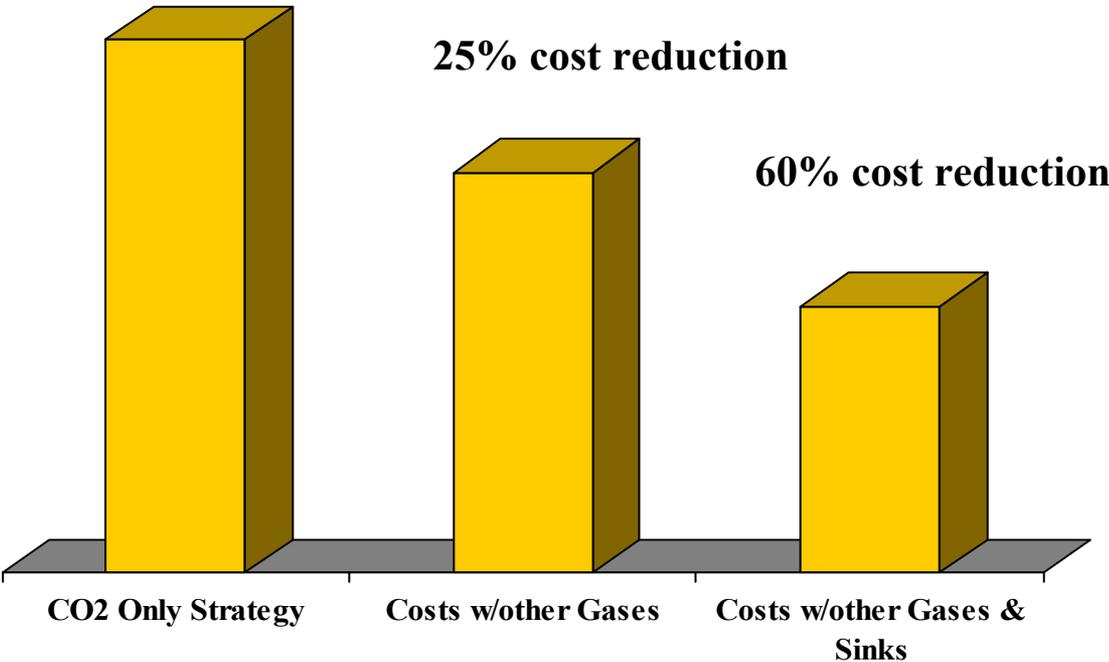
- ⌘ Flexibility in the design of greenhouse gas mitigation strategies can significantly lower costs
  - ☒ “when”: when to time the abatement program
  - ☒ “what” : what to target when designing a strategy
  - ☒ “where”: where to achieve emissions reductions
- ⌘ To the extent that new technologies can be deployed more rapidly than abate greenhouse gas emissions, costs will be lower as well
- ⌘ Co-control (e.g., air pollution benefits) of climate policies can lower climate mitigation costs, sometimes substantially

# “When” Flexibility



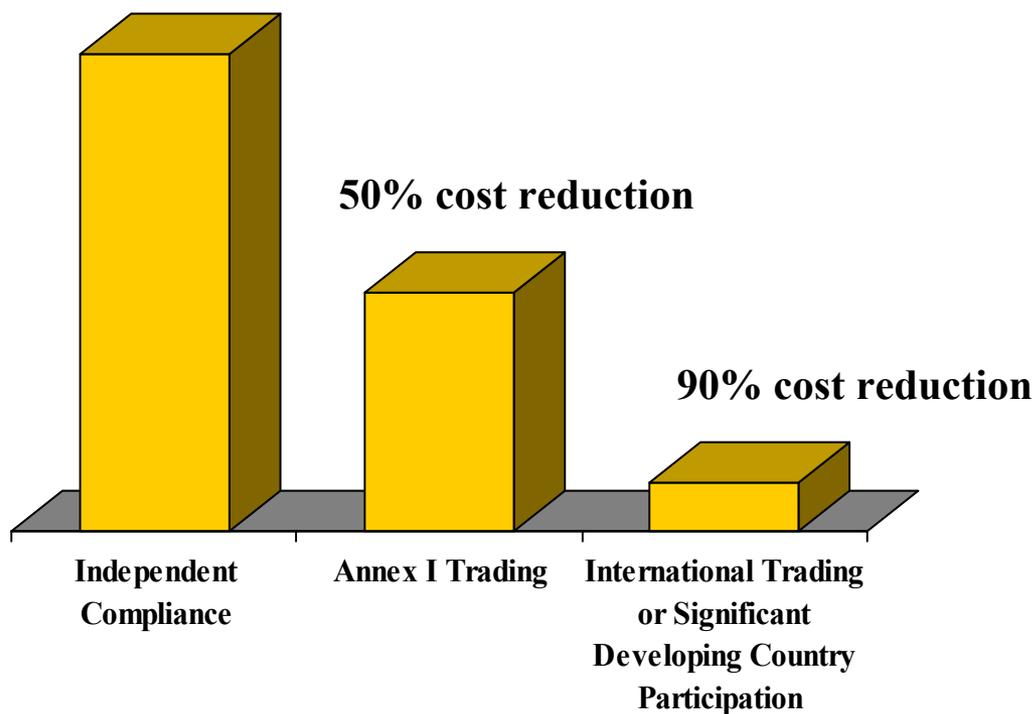
**Costs of Achieving a Climate Goal**

# “What” Flexibility



**Costs of Achieving a Climate Goal**

# “Where” Flexibility



**Costs of Achieving a Climate Goal**

# Cooperation with Mexico is Important for the U.S.



- ⌘ In order for the U.S. to better analyze climate options, need to understand worldwide trends and options to mitigate emissions
  - ☒ for example, one model (of many) used in the U.S. to assess climate strategies is the Second Generation Model
  - ☒ being a global model, we currently have very crude approximations of how the Mexican economy works and how it fits into the global picture
  - ☒ we want to work with Mexican experts to incorporate a detailed Mexican “module” into the Second Generation Model
- ⌘ collaboration should have numerous advantages for Mexico and the U.S.