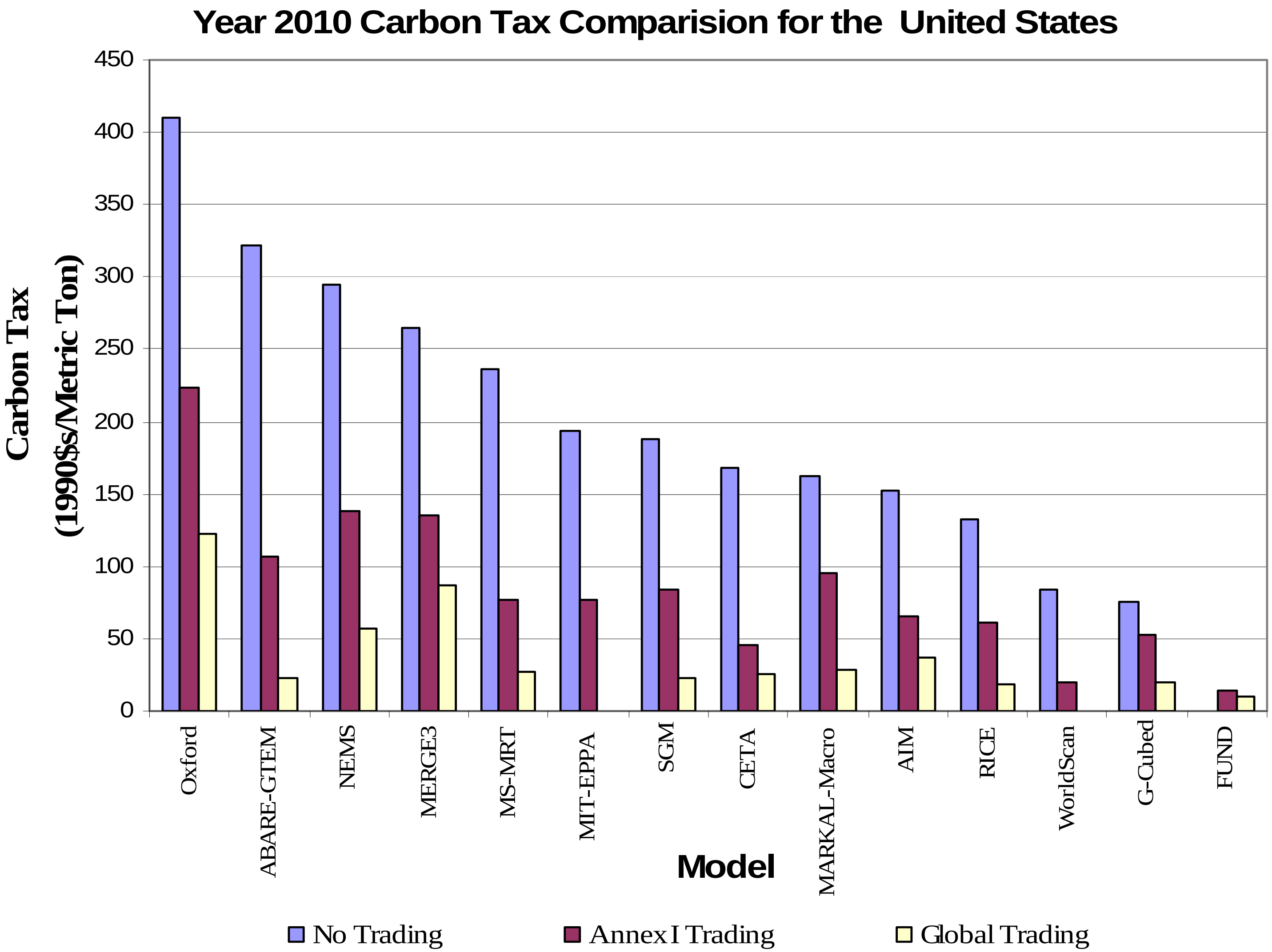
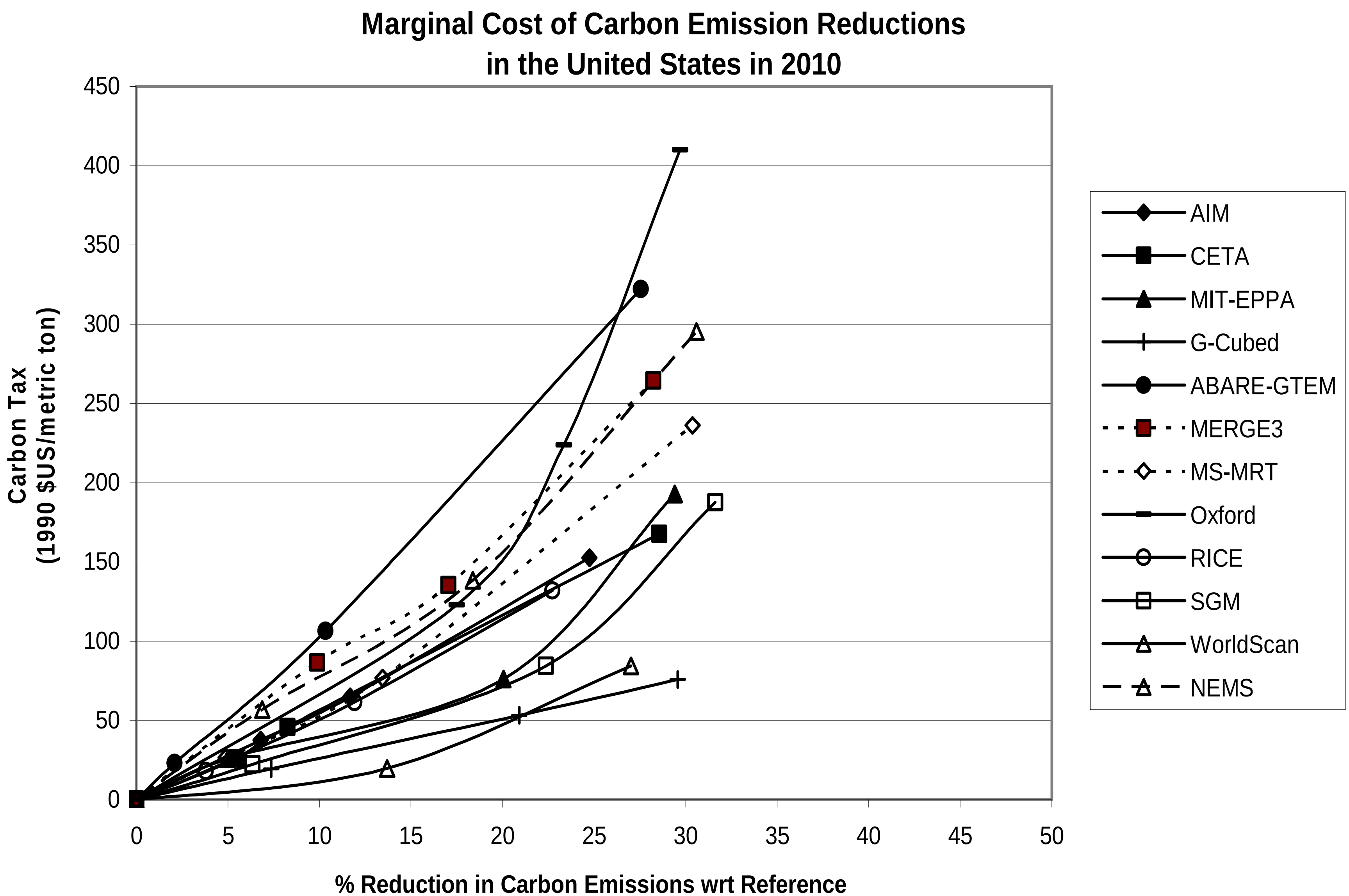
# Uncertainty and Policy Dependence

## The Cost of Kyoto



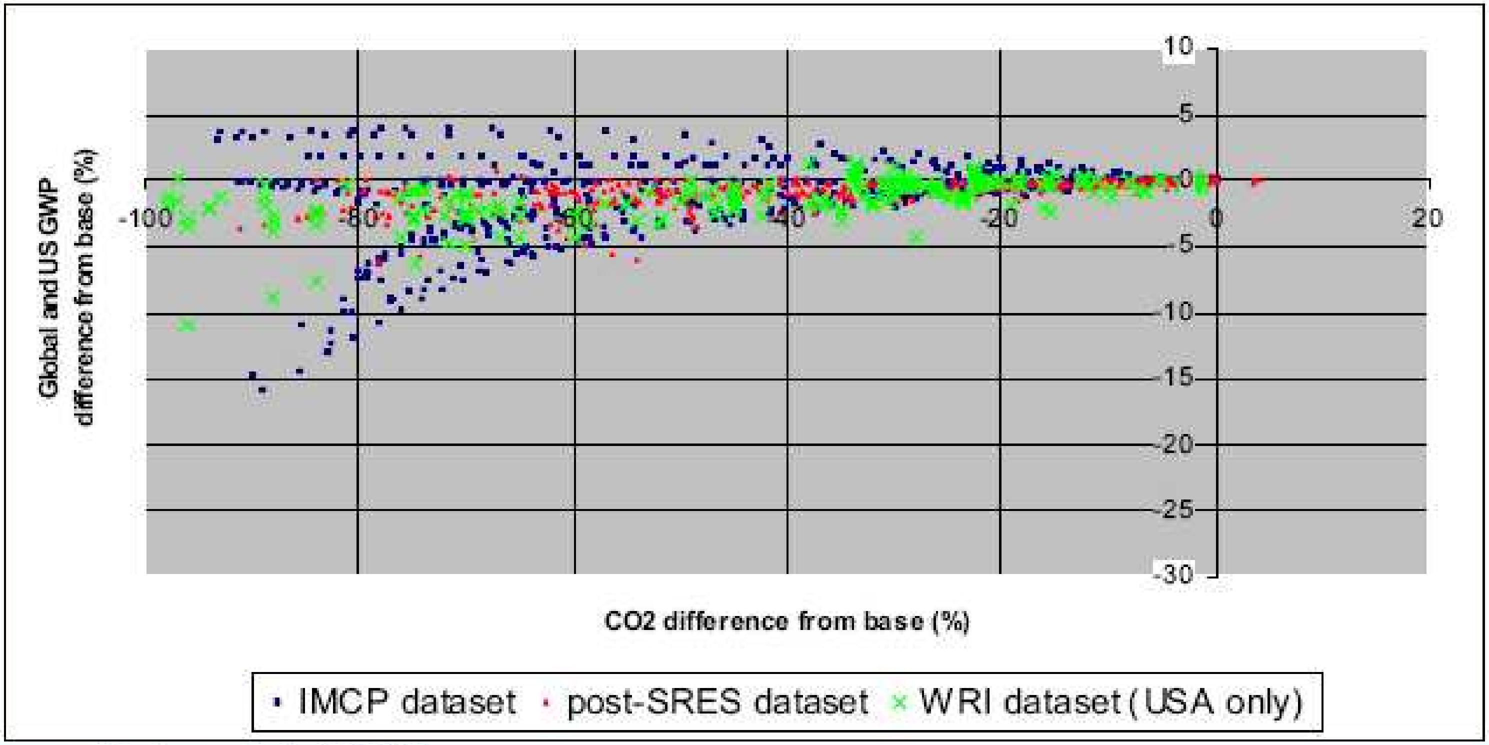
# The Substitution in the Models



# Bounding Mitigation Costs: Stern Review Mitigation Cost Range

**Figure 10.1 Scatter plot of model cost projections**

**Costs of $CO_2$ reductions as a fraction of world GDP against level of reduction**

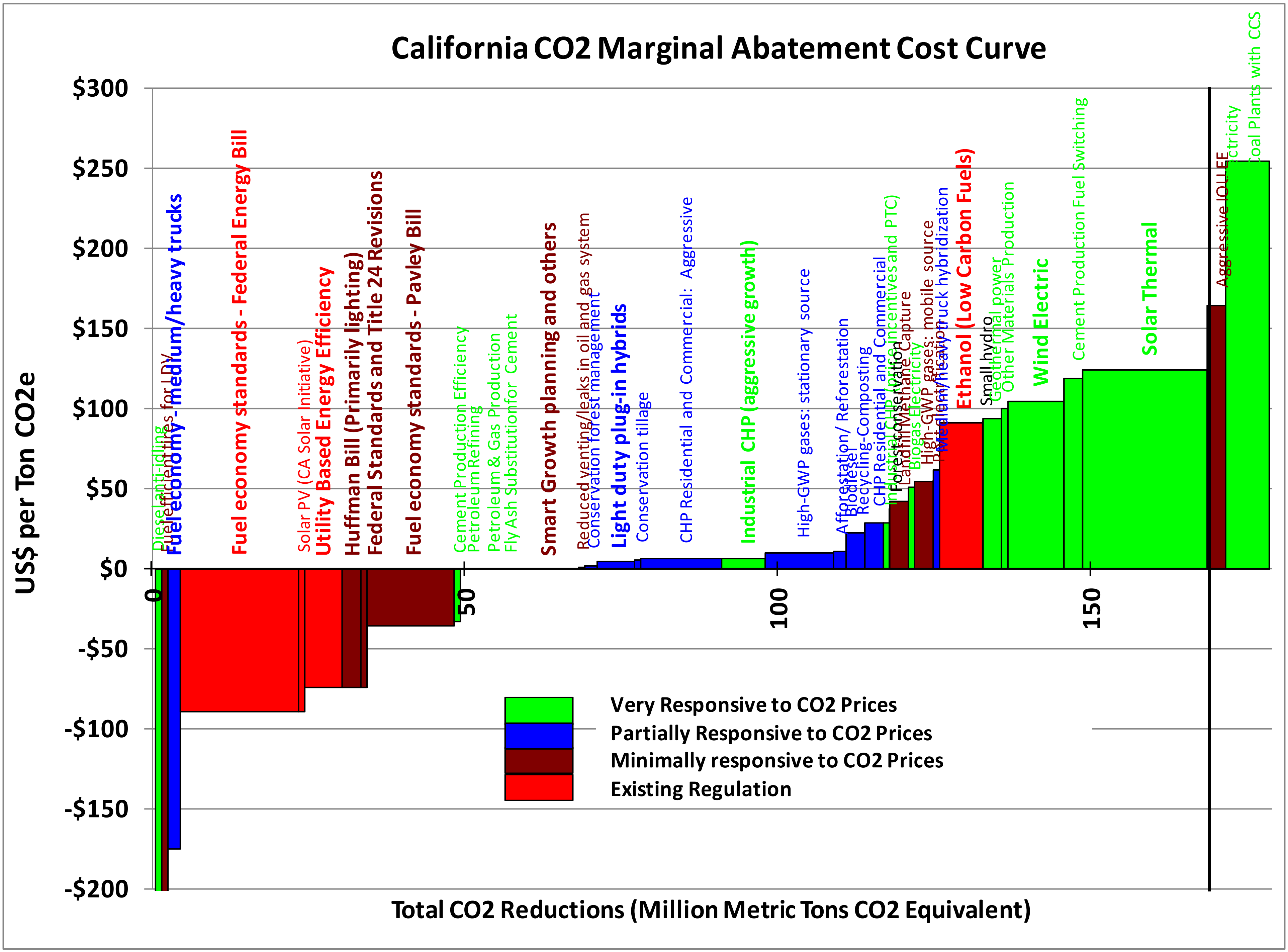



Source: Barker et al. (2006)

Source: The Stern Review, 2007

# The Most Important Caveat?

These cost estimates are overly optimistic because the scenario Implementations assume perfect global GHG emissions trading starting immediately (in some cases in 2000) and continuing for the rest of the century which is very unrealistic. The result of this assumption is to produce a global, least-cost estimate where there is an equal marginal cost across all regions and countries. Any restriction in the number of countries or regions participating this system would increase both the carbon permit price and the GDP costs. (EMF 21: Weyant,  de la Chesnaye, and  Blanford, 2006).



California CO2 Marginal Abatement Cost Curve
US$ per Ton CO2e
$300
$250
$200
$150
$100
$50
$0
-$50
-$100
-$150
-$200
0
50
100
150
Total CO2 Reductions (Million Metric Tons CO2 Equivalent)
Very Responsive to CO2 Prices
Partially Responsive to CO2 Prices
Minimally responsive to CO2 Prices
Existing Regulation
Fuel economy - medium/heavy trucks
Fuel economy standards - Federal Energy Bill
Solar PV (CA Solar Initiative)
Utility Based Energy Efficiency
Huffman Bill (Primarily lighting)
Federal Standards and Title 24 Revisions
Fuel economy standards - Pavley Bill
Cement Production Efficiency
Petroleum Refining
Petroleum & Gas Production
Fly Ash Substitution for Cement
Smart Growth planning and others
Reduced venting/leaks in oil and gas system
Conservation forest management
Light duty plug-in hybrids
Conservation tillage
CHP Residential and Commercial: Aggressive
Industrial CHP (aggressive growth)
High-GWP gases: stationary source
Afforestation/ Reforestation
Recycling-Composting
CHP Residential and Commercial
Biogas Electricity
High-GWP gases: mobile source
Ethanol (Low Carbon Fuels)
Small hydro
Geothermal power
Other Materials Production
Wind Electric
Cement Production Fuel Switching
Solar Thermal
Aggressive IOU EE
Coal Plants with CCS