

# State of the Environment and Natural Resources

Presentation to the  
Senate Committee on Agriculture,  
Conservation & Natural Resources  
and  
House Committee on Agriculture,  
Chesapeake & Natural Resources  
October 1, 2008

Nikki Rovner, Deputy Secretary of Natural Resources



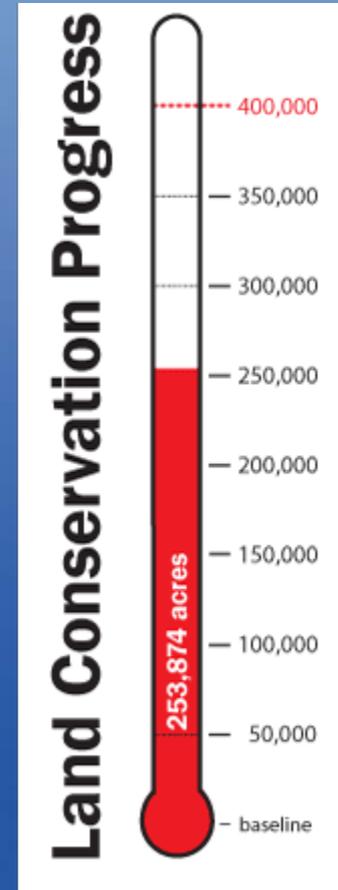
# Overview

- Land Conservation
- Water Quality
- Fisheries
- Fort Monroe
- Governor's Commission on Climate Change



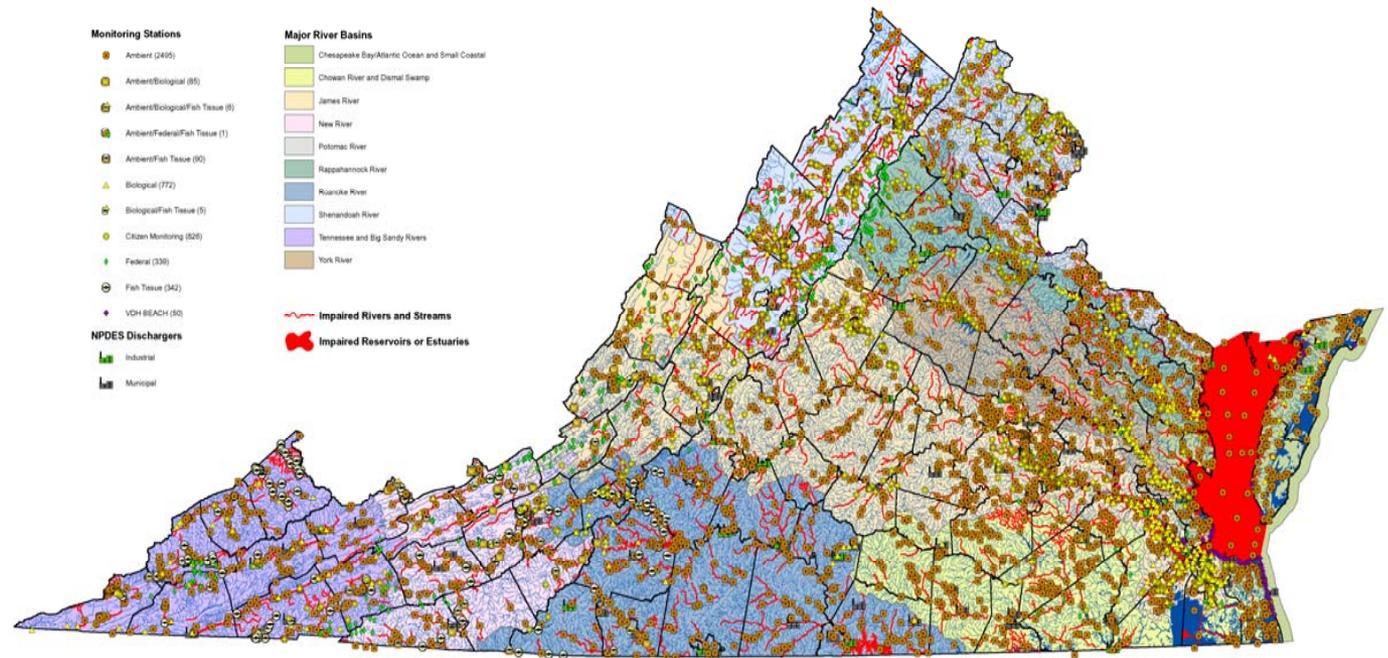
# Land Conservation

- VPBA bonds – more public lands
- Land preservation tax credit – more easements



# Water Quality

## 2006 Section 303(d) Waters In Virginia



Sources: Virginia Department of Environmental Quality  
Virginia Department of Conservation and Recreation  
United States Geological Survey



# Water Quality

## Virginia's Rivers & Chesapeake Bay

### Chesapeake Bay and Virginia waters Clean-Up Plan (HB1150 – 2006)

- First Edition (Jan. 2007) of the Plan addresses:
  - Wastewater
  - Agriculture and Forestry
  - Developed and Developing Lands
  - Air
- Second 6 month progress report to be issued October 2008
  - Progress reported where possible on each of the Plan's components
  - <http://www.naturalresources.virginia.gov>
  - Comments welcomed



# Meeting Our Point Source Pollution Reduction Goal

- Aggressive state cost-share funding
  - WQIF - \$380 million for grants since 1997
  - \$250 million in bonds Authorized
  - VRA issued more than \$240 million in bonds this year
- Innovative legislative tools
  - Nutrient Trading
- Efficient local government planning
  - “Compliance Plan” as authorized by VA Nutrient Trading Program



# Agriculture and Water Quality

## 2007 Chesapeake Bay Program Executive Council Meeting

- Critical that we keep VA farmers farming
- #1 Sector of VA Economy - \$79 Billion/yr
- Must farm in a way that is healthy for our waters
- Focus on programs/practices that produce the greatest results
- \$20 million in FY09 for Ag BMPs



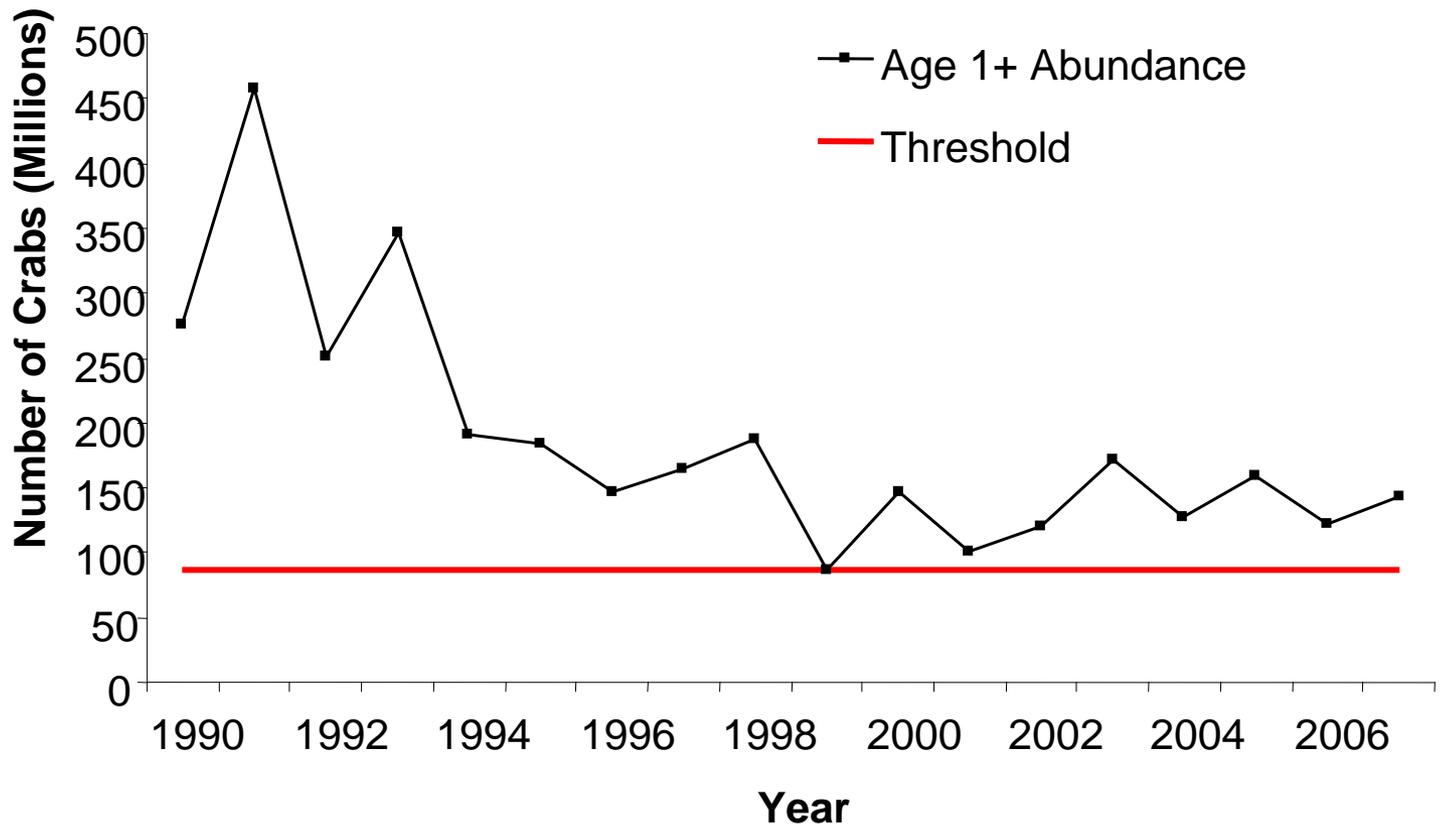
# Fisheries – Hot Topics



# Our Beloved Blue Crab

Crab Abundance is Down – Way Down

70 percent less than levels present in the 1990's



# Federal Financial Assistance for VA Crabbers?

- May 2, 2008 - Governors Kaine and O'Malley petitioned U.S. Secretary Gutierrez for a Fishery Disaster Declaration
- September 23, 2008 – Secretary Gutierrez concluded that a “Commercial Fishery Failure” has occurred for the Bay Peeler Crab and Soft Crab fisheries. This is a critical step in seeking federal financial assistance for Bay fishermen.

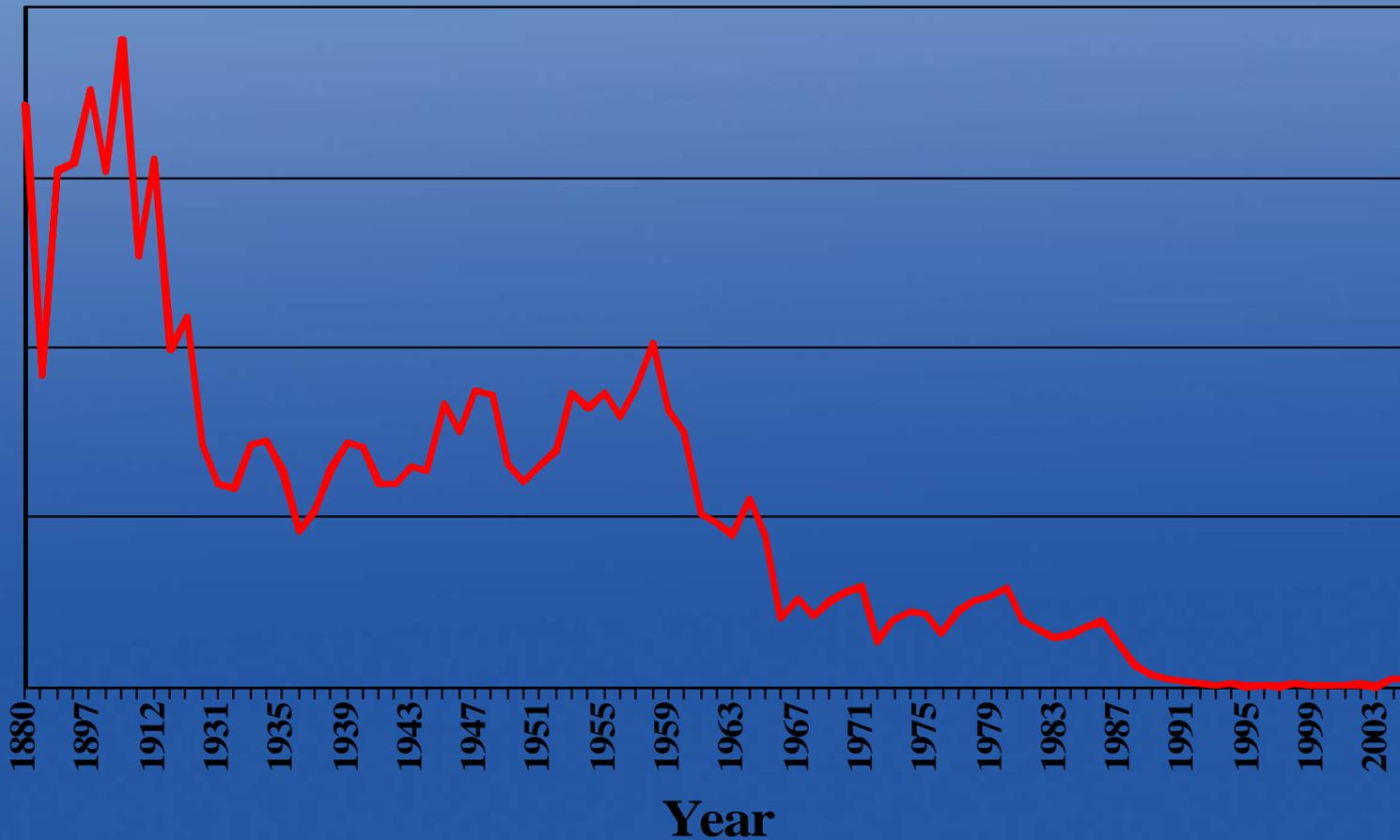


# Our Beleaguered Native Oyster

## Oyster Landings (1880 - 2005)

Landings  
(Millions of Bushels)

8  
6  
4  
2



# Oyster Environmental Impact Statement (EIS)

- U.S. Army Corps is the lead
- VA-MD State Lead Partners
- NOAA/EPA/FWS Fed Partners
- 4 years in the making
- 8 Alternatives Under Consideration (native oyster, non-native oyster, or a mix)
- Draft EIS slated for October 17

“The purpose of this EIS is to identify a preferred alternative(s) for establishing an oyster population that reaches a level of abundance in Chesapeake Bay comparable to levels seen between 1920-1970.”



# Fort Monroe

- Ownership will transfer to the Commonwealth in 2011
- National Historic Landmark
- DEQ overseeing environmental clean-up
- Secretary Bryant Chairs Fort Monroe Federal Area Development Authority
- Reuse plan submitted to DOD September 2008



# Governor's Commission on Climate Change

- Established by Executive Order 59
- Chaired by Secretary of Natural Resources Preston Bryant
- 1 year to complete work
- Report due December 15, 2008
- Membership
  - Ex officio: Secretaries of Commerce and Trade, Transportation, and Energy Policy Advisor
  - 7 legislators
  - 32 citizens



# Intergovernmental Panel on Climate Change

A Few Observations  
from the  
IPCC Reports



# Observations from IPCC

- Warming of the climate is unequivocal.
  - increasing global average air and ocean temperatures
  - widespread melting of snow and ice
  - rising global average sea level



# Observations from IPCC

- Global average warming in the past century – 0.74°C (1.3°F).
- Most observed increases in globally averaged temperatures since the mid-20th century are very likely due to man-made GHG concentrations.
- Continued GHG emissions at or above the current rates would cause climate changes in the 21st century that very likely will be larger than those observed in the 20th century.



# Observations from IPCC

- All of the U.S. is very likely to warm during this century, and most areas of the U.S. are expected to warm by more than the global average.
- Average warming in U.S. is projected to exceed 2°C (3.6°F) by the end of this century.
  - 5 of 21 models from IPCC project average warming in excess of 4°C (7.2°F)



# Governor's Commission on Climate Change: Work Plan

- 10 meetings held in Richmond and at universities around the Commonwealth
  - 7 held to date
  - Presentations from nearly 40 state and national experts
- Each meeting includes
  - a commission roundtable
  - a public comment period



# E.O. 59: Charge to Commission

Prepare a Climate Change Action Plan that will:

1. Inventory the amount of and contributors to Virginia's greenhouse gas emissions, and projections through 2025,
2. Evaluate expected impacts of climate change on Virginia's natural resources, the health of its citizens, and the economy, including the industries of agriculture, forestry, tourism, and insurance,



# E.O. 59: Charge to Commission

3. Identify what Virginia needs to do to prepare for the likely consequences of climate change,
4. Identify the actions (beyond those identified in the Energy Plan) that need to be taken to achieve the 30% reduction goal, and
5. Identify climate change approaches being pursued by other states, regions and the federal government.

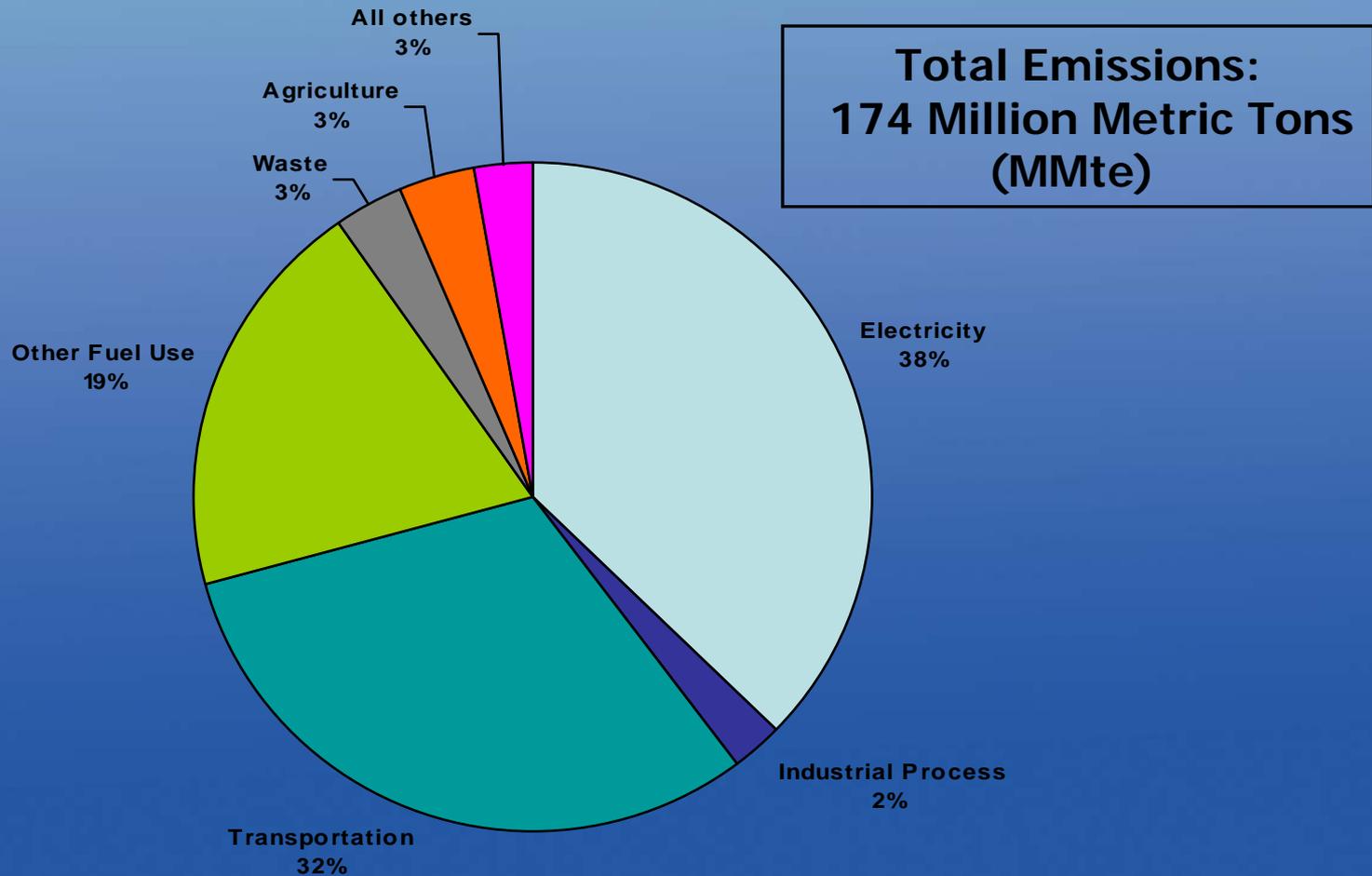


# Inventory

What are the sources for  
Virginia's greenhouse gases?



# 2005 GHG Inventory by Sector



# GHG Inventory: Energy Use

Largest emission sector by far – 89%

- Power generation & use (38%)
  - In-state power plant emissions
  - Electricity imports
- Transportation (32%)
  - Motor vehicle emissions
  - Non-road equipment
- Other fossil fuel use (19%)
  - Total fuel use by all other sources



# Other Emissions Sources

- All other GHG sources - 11%
  - Industrial processes
  - Solid waste management
  - Coal Mining
  - Natural gas/oil production
  - Agriculture
  - Wastewater Management



# Impacts

How is climate change likely to affect Virginia?



# Climate Change Impacts on Virginia – Environmental

- Ecosystems – terrestrial, aquatic and marine – will be altered by climate change.
- Vegetation will move from current locations to higher altitudes and higher latitudes. Suitable habitat for some species will decline, other species may become extirpated in Virginia but survive elsewhere, and other species may become extinct altogether.



# Climate Change Impacts on Virginia – Environmental

- The Chesapeake Bay’s “foundation species,” such as blue crabs, eel grasses, and oysters could decline or disappear over time from increased water temperatures and salinity.
- Coastal wetlands will be lost to sea level rise.



# Climate Change Impacts on Virginia - Economic

- Forestry sector significantly changed; more research on this and effects on agriculture needed.
- Infrastructure and military installations at risk due to sea level rise and storm surge.
- Availability and affordability of insurance affected by uncertainty and higher risk of catastrophic losses from storms.

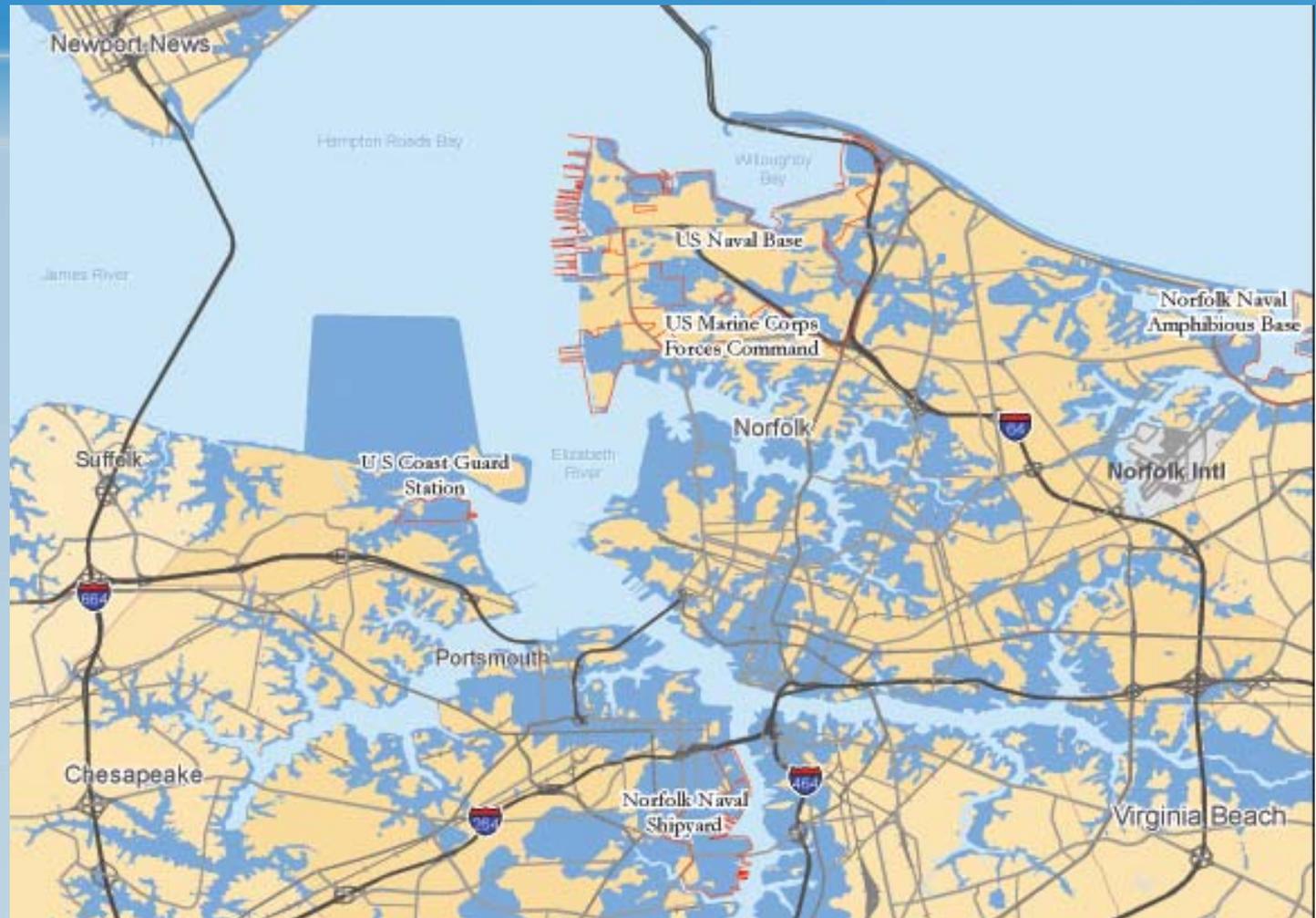


# Climate Change Impacts on Virginia - Economic

- Hampton Roads - vulnerability
  - Sea level rise in Virginia over the next hundred years is likely to be 2.3 ft. to 5.2 ft. (0.7-1.6m)
  - Based on a computer catastrophe model, the Hampton Roads area is the 10th largest coastal city in the world in terms of assets exposed to increased flooding from sea level rise and storm surges.



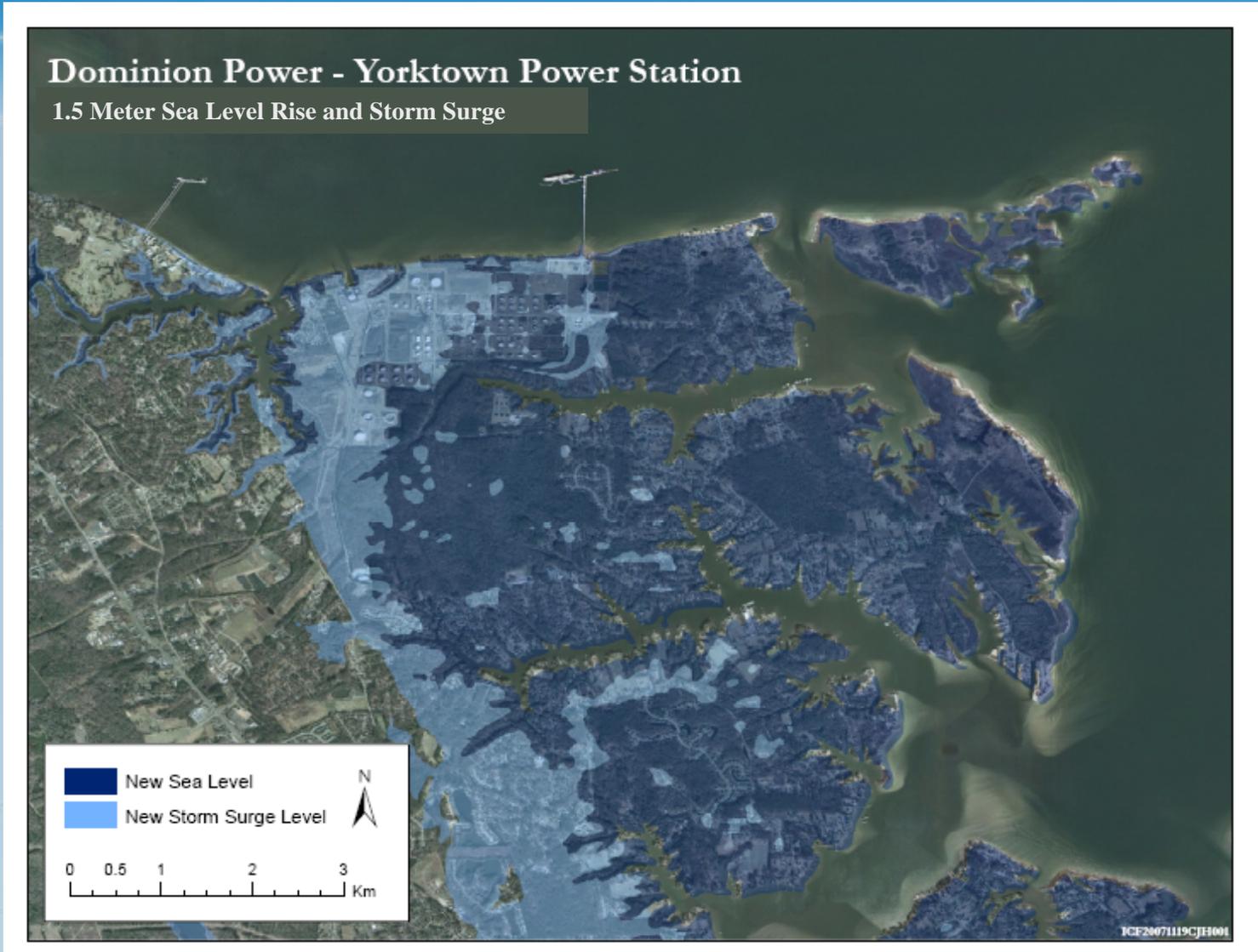
# Norfolk Navy Facilities at Risk



1. Charts do not include periodic hurricane storm surge, e.g., Isabel 10+ feet.
2. Reference: DOT The Potential Impacts of Global Sea Level Rise on Transportation Infrastructure, Federal Research Partnership Workshop, October 1-2, 2002, plus ICF follow-on East Coast study

**Passion. Expertise. Results.**

# Infrastructure Risk Assessment



# Climate Change Impacts on Virginia – Economic

- Military Installations
  - CNA report holds climate change to be a threat to national security



# **Military Advisory Board**

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**GEN Gordon R. Sullivan (Ret.), MAB Chairman**

**ADM Frank “Skip” Bowman (Ret.)**

**Lt Gen Lawrence P. Farrell Jr. (Ret.)**

**VADM Paul G. Gaffney II (Ret.)**

**GEN Paul Kern (Ret.)**

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**ADM Donald “Don” L. Pilling (Ret.)**

**ADM Joseph W. Prueher (Ret.)**

**VADM Richard H. Truly (Ret.)**

**Gen Charles “Chuck” Wald (Ret.)**

**Gen Anthony C. “Tony” Zinni (Ret.)**

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**Sherri Goodman, Executive Director**

# CNA Report: Conclusions

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- **Climate change acts as a threat multiplier for instability in some of the most volatile regions of the world**
- **Projected climate change will add to tensions even in stable regions of the world**
- **Climate change, national security, and energy dependence are a related set of challenges**
- **Projected climate change poses a serious threat to America's national security**

# Climate Change Impacts on Virginia – Economic

- Insurance
  - Ernst & Young – 2008 survey of global leaders on business risk found climate change to be the top insurance risk.
  - 2005 – hurricanes cost private insurers \$60-70 billion
  - In Virginia, homeowner premiums increased 67.2% from 2001-2006

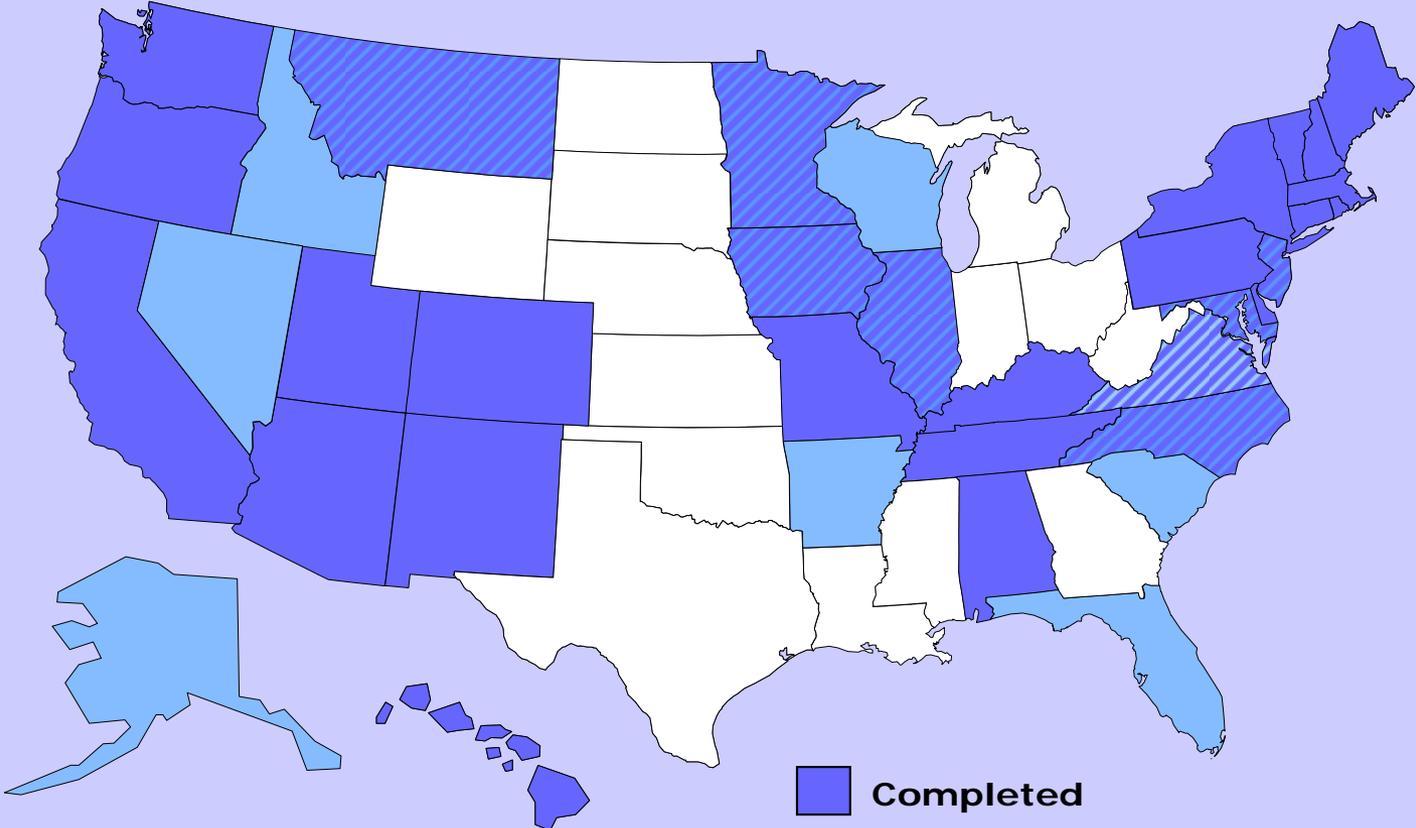


# State, Regional, & Federal (and Local) Approaches

- State Climate Action Plans
- Renewable Portfolio Standards
- Regional Cap-and-Trade Initiatives
- Vehicle Emission Standards
- U.S. Mayors Climate Protection Agreement
- Proposed Federal Legislation

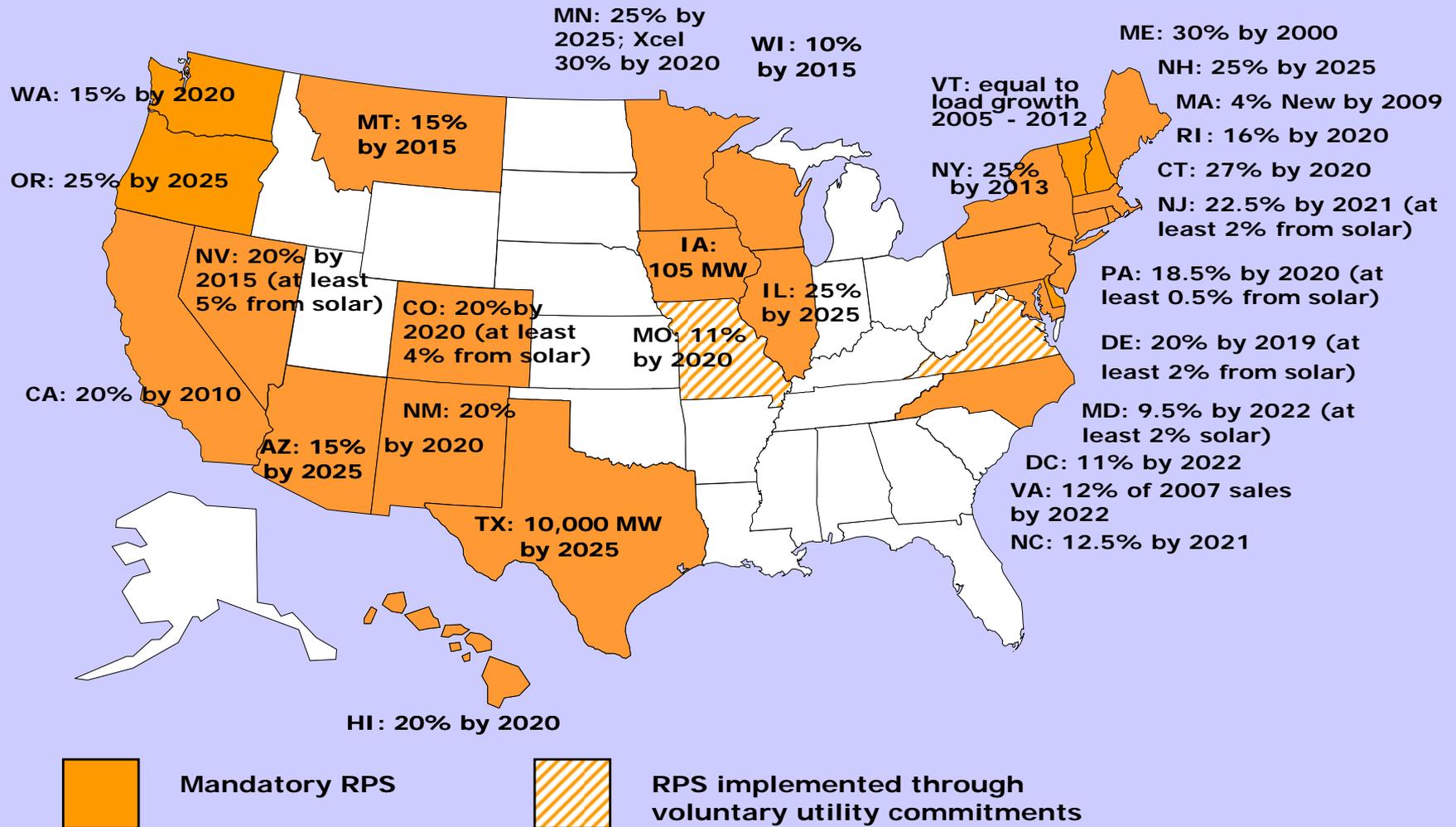


# Climate Action Plans

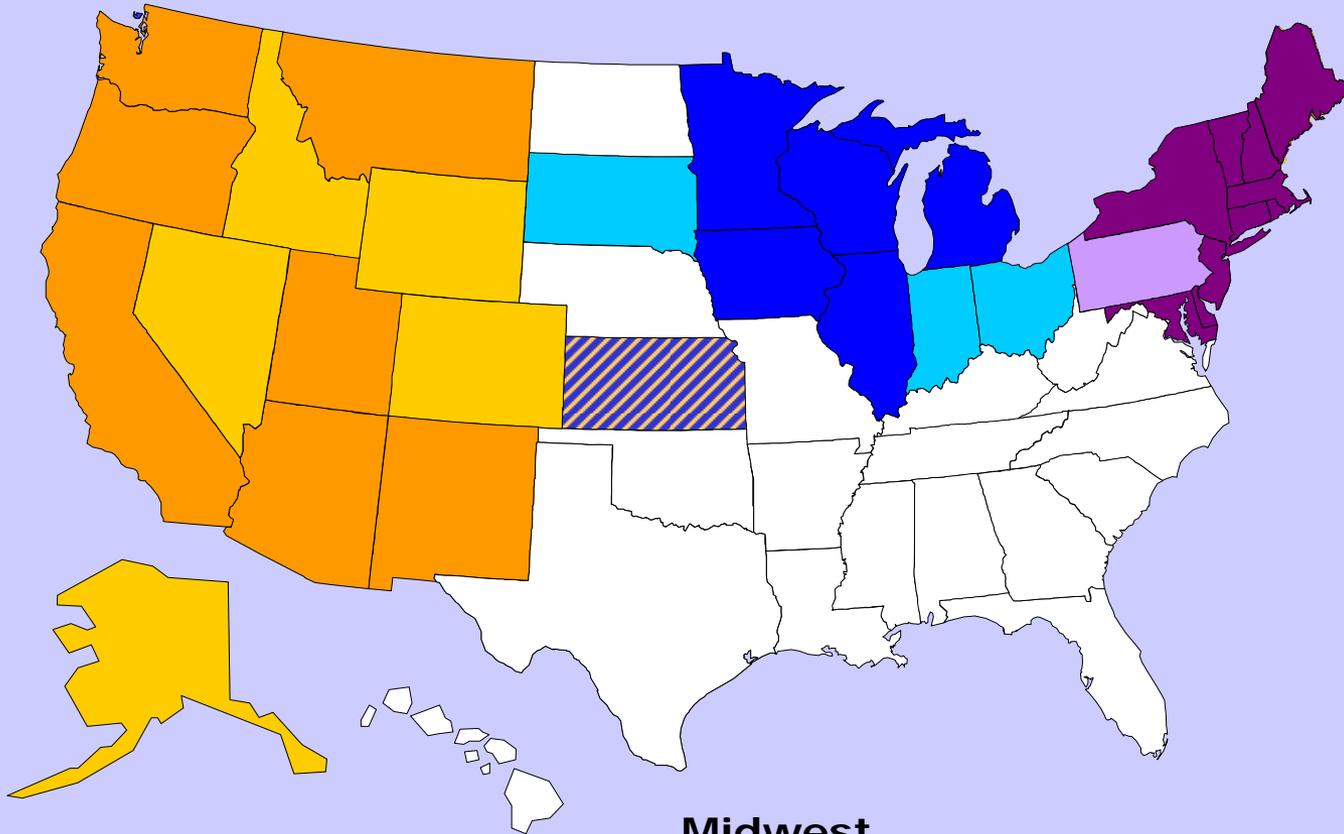


- Completed
- Revision in-progress
- In-Progress
- Not Started

# Renewable Portfolio Standards



# Regional Cap-and-Trade Initiatives

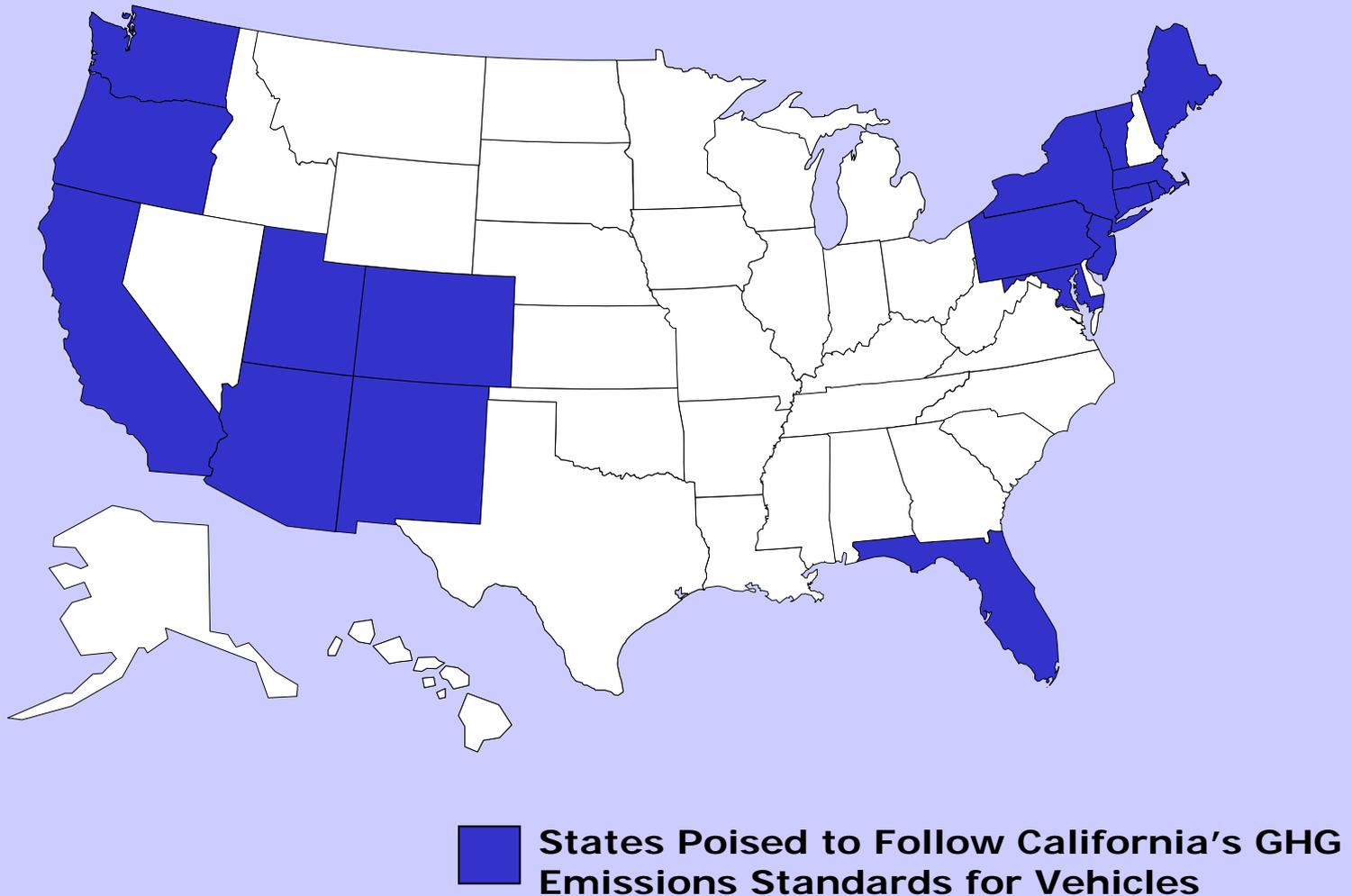


 Western Climate Initiative  
 Western Climate Initiative - Observer

**Midwest**  
 Greenhouse Gas Reduction Accord  
 Midwest Accord - Observer

 RGGI  
 RGGI - Observer

# Vehicle Emission Standards



# Local Action: U.S. Mayors Climate Protection Agreement

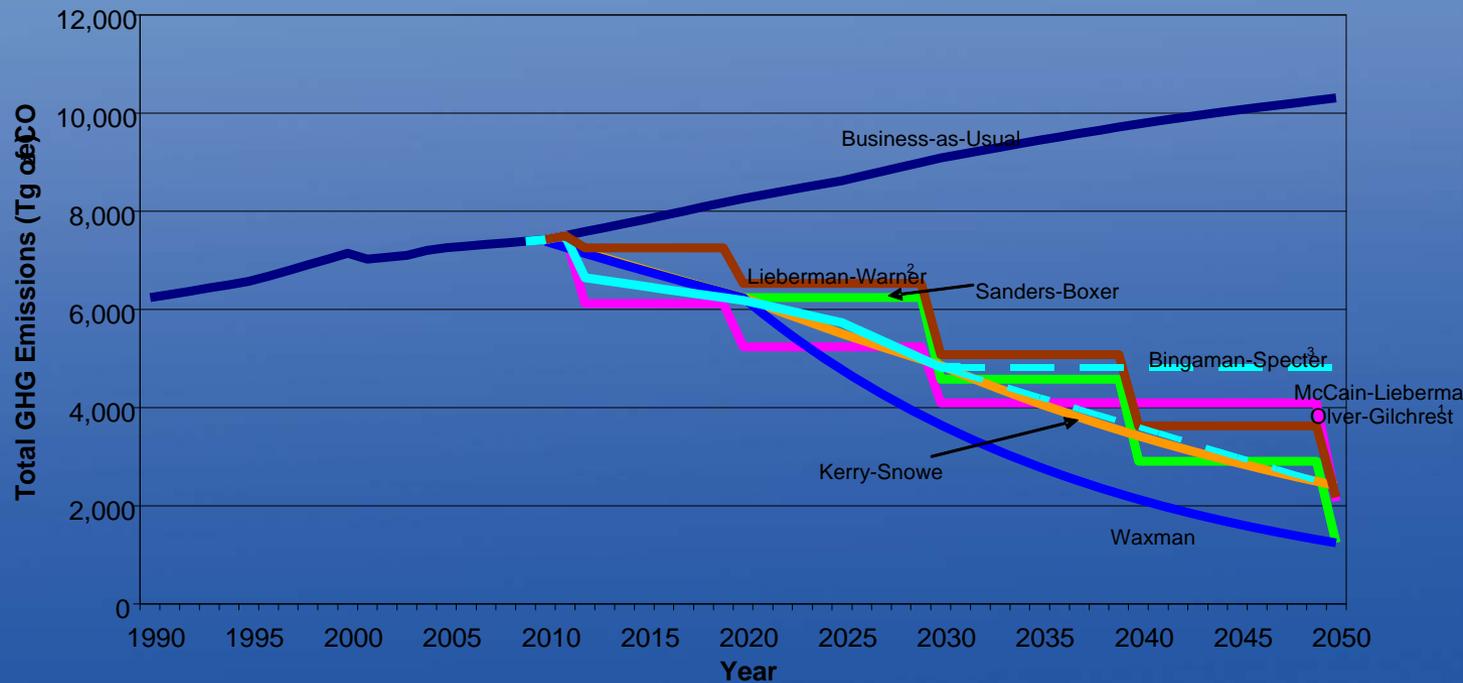
- 811 cities have signed on as of March 17, 2008 (representing more than 25% of U.S. population)
- Strive to meet or beat the Kyoto Protocol targets in their own communities (7% below 1990 levels by 2012)
- Urge higher levels of government to enact policies to meet or beat the Kyoto target
- Urge the U.S. Congress to pass bipartisan greenhouse gas reduction legislation establishing a national emission trading system



Source: <http://www.seattle.gov/mayor/climate/>

# Proposed Federal Legislation

## U.S. National Climate Change Legislative Proposals in 110th Congress (1990-2050)



# Likelihood of Federal Legislation

- Rep. Rick Boucher on federal cap-and-trade ...
  - 80% chance in the next 2 years
  - 100% chance in the next 4 years

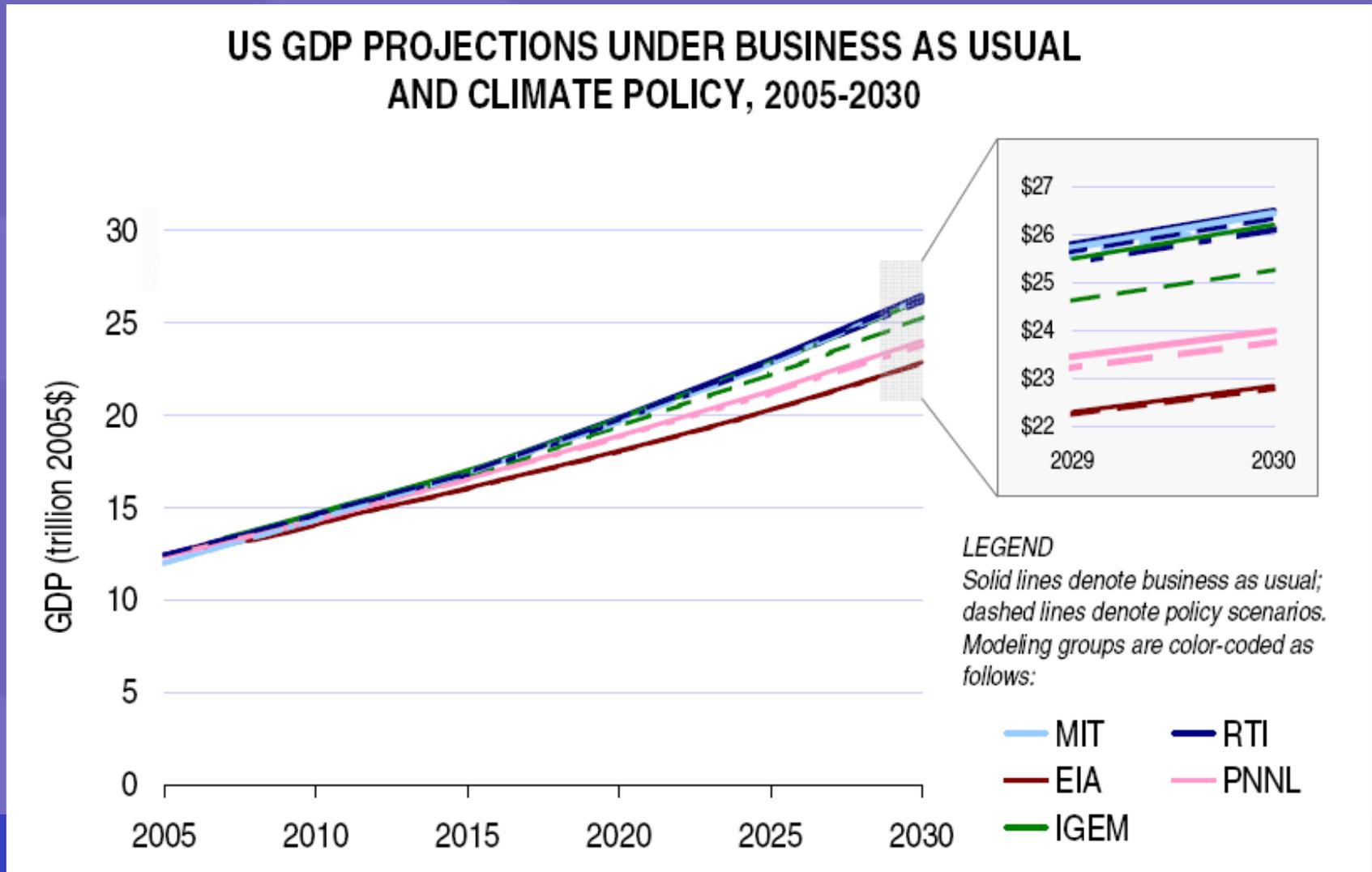


# Economic Impacts of Federal Legislation

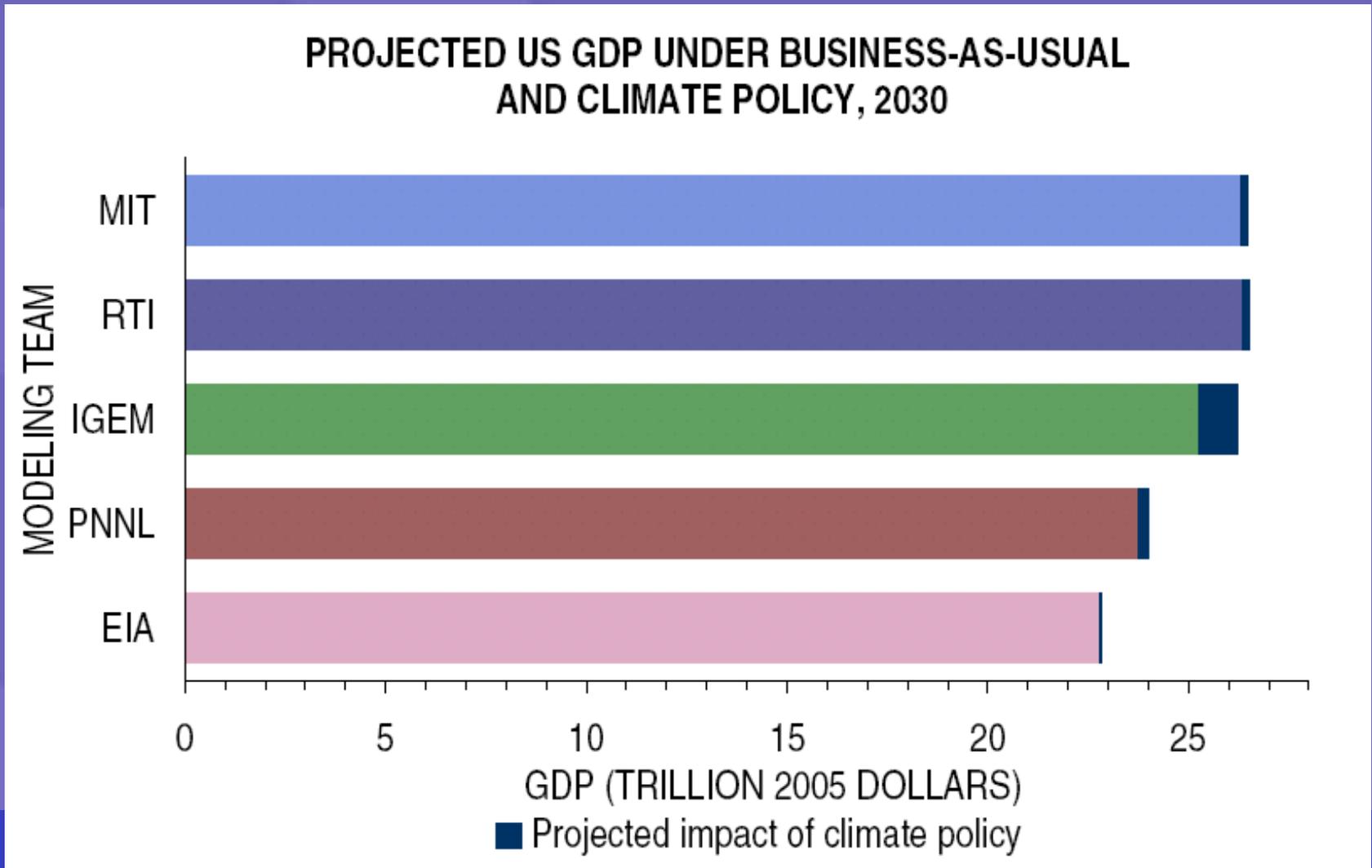
- The Commission heard widely varying views on this point.
- Industry analysis of the Warner-Lieberman proposal by the American Council for Capital Formation (ACCF) and the National Association of Manufacturers (NAM) – Gross Domestic Product will experience losses up to \$669 billion in 2030.
- The Environmental Defense Fund presented an analysis of 5 different studies, and argued that delay would drive up costs unnecessarily.



## Strong climate policy is consistent with robust U.S. economic growth.



The projected economic impact of capping carbon is dwarfed by the variation in BAU forecasts.

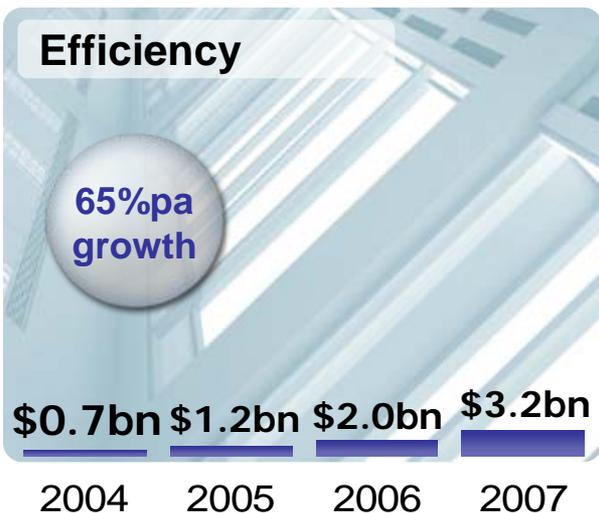
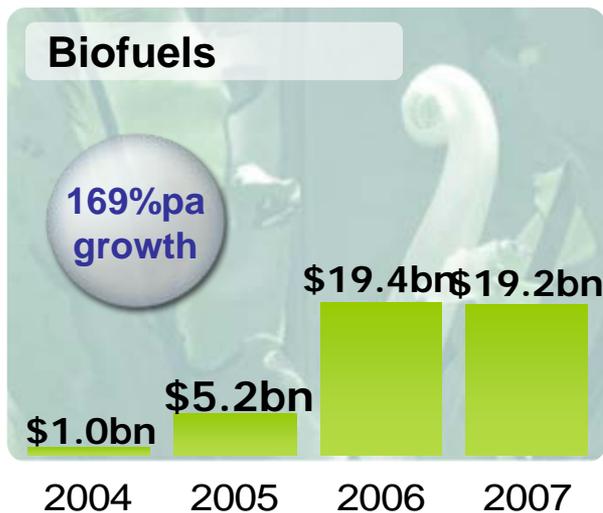
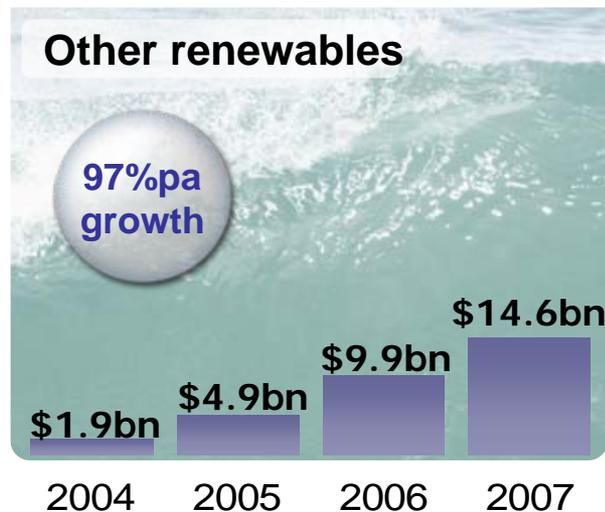
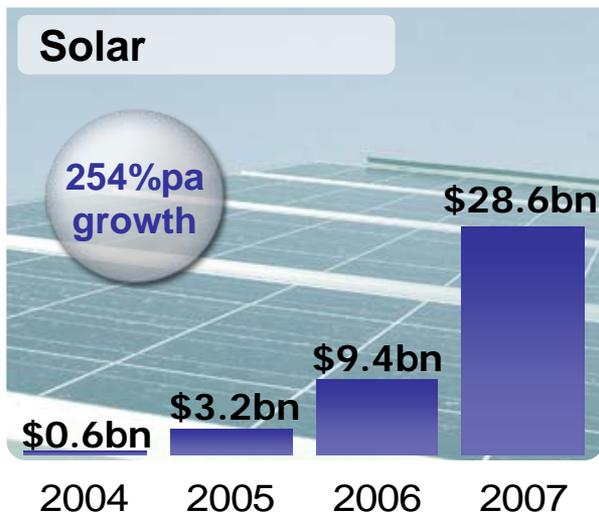
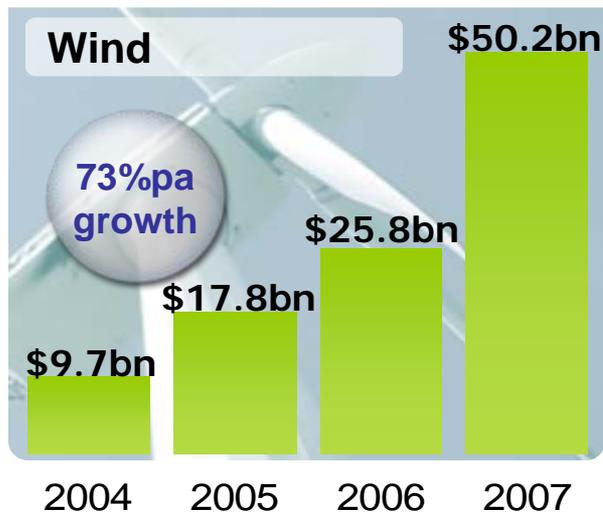


# Transition to Carbon-Constrained Economy

- Opportunities for researchers, inventors, and investors
- Accelerate and deploy new technologies
  - energy efficiency
  - indigenous renewable and low-emission energy
  - carbon capture and storage



# New Investment by Sector, 2004 - 2007



VC/PE, Public Markets and Asset Finance only. Excludes re-investment adjustment

Source: New Energy Finance

# Strategies

- Four workgroups formed in June
  - Built Environment
  - Transportation and Land Use
  - Electricity generation and other stationary sources
  - Adaptation
- Will complete their work by October 9<sup>th</sup>. Full Commission will meet 3 more times.



# Questions?



<http://www.deq.virginia.gov/info/climatechange.html>

