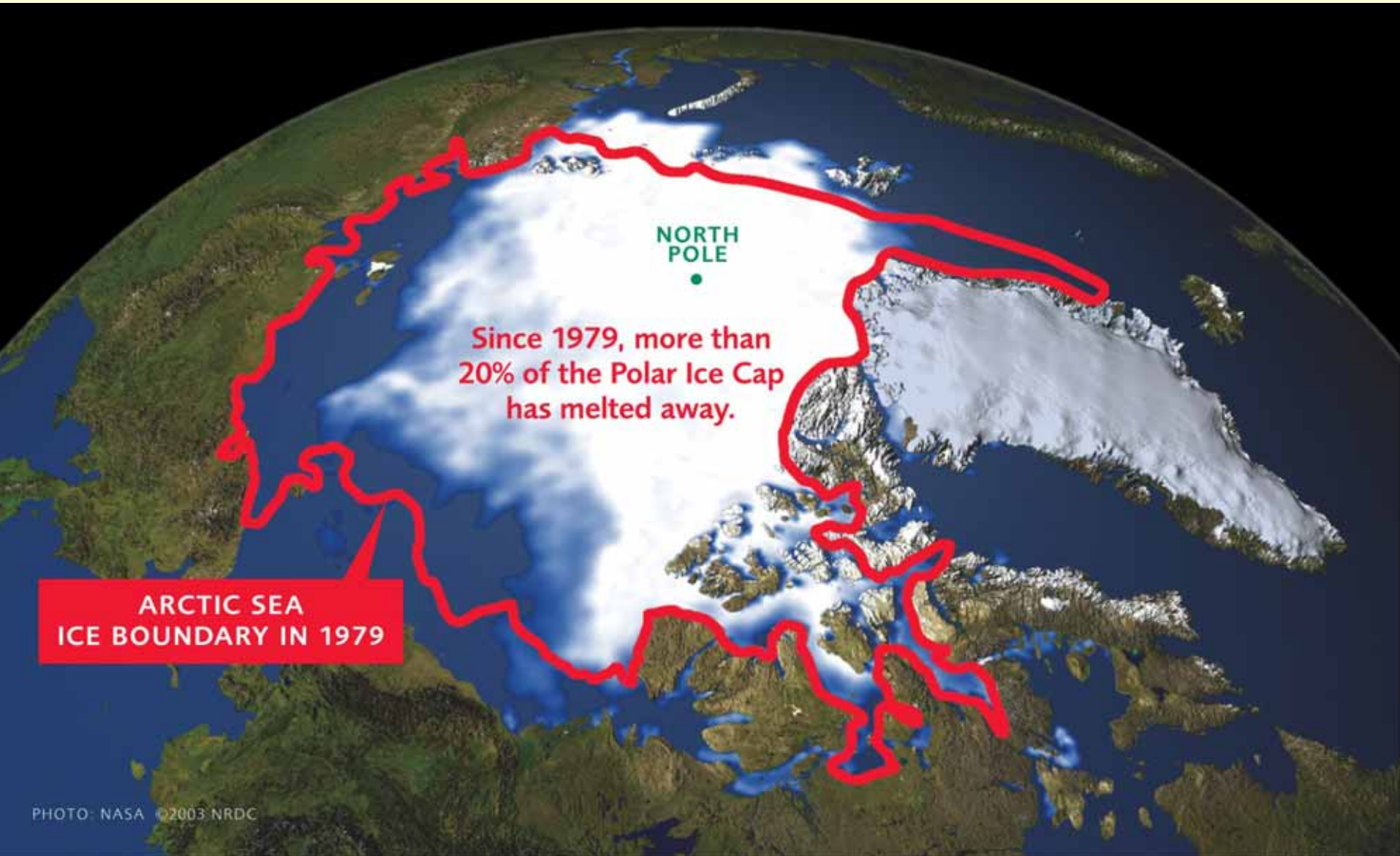


A New Climate for Climate (and for Hydro??)

Portland, February 22, 2007

Roger S. Ballentine
Green Strategies, Inc.
The Progressive Policy Institute
Harvard University



NORTH
POLE

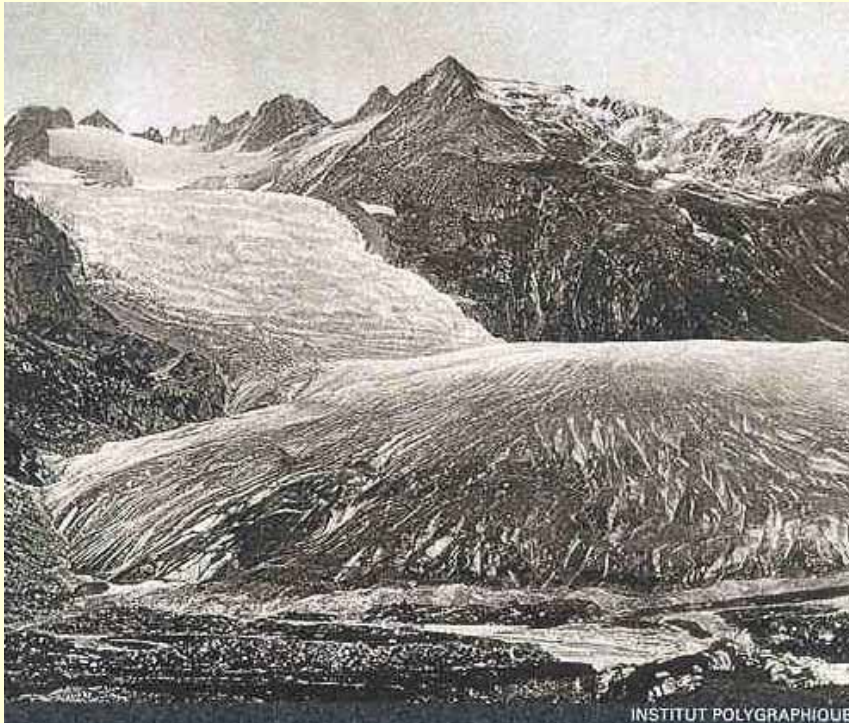
Since 1979, more than
20% of the Polar Ice Cap
has melted away.

ARCTIC SEA
ICE BOUNDARY IN 1979

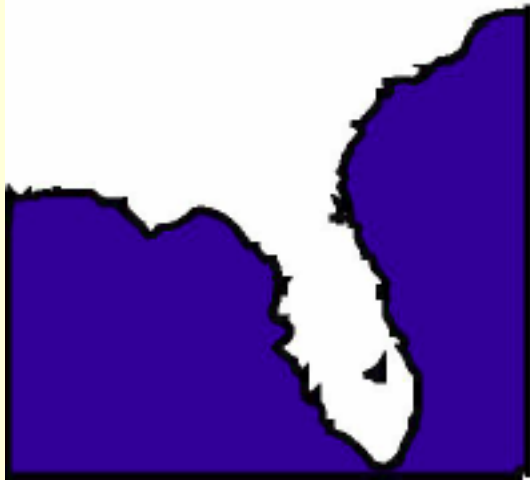
1870

Rhone Glacier, Wallis, Switzerland

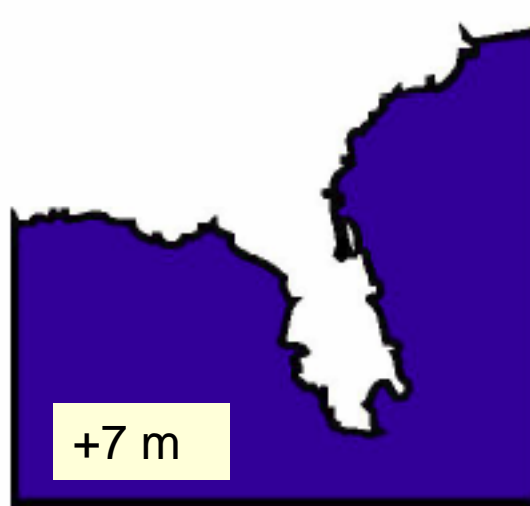
1999



Modern Florida



Florida w/o GIS

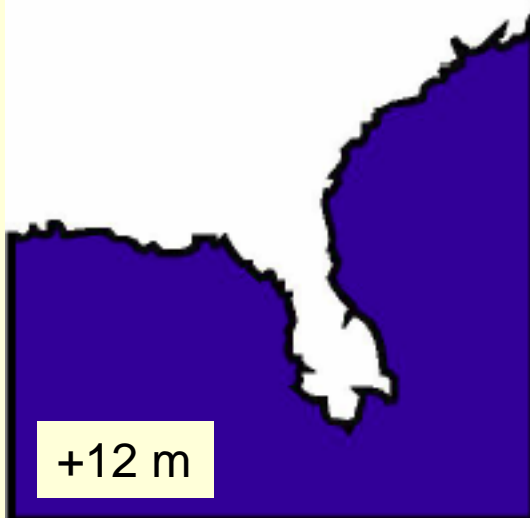


GIS = Greenland Ice Sheet

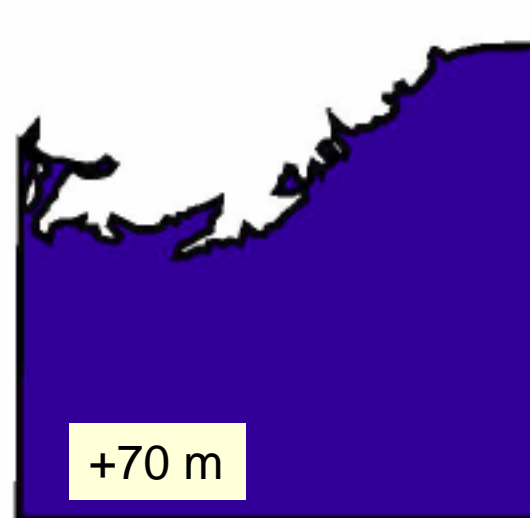
WAIS = West Antarctic Ice Sheet

EAIS = East Antarctic Ice Sheet

Florida w/o WAIS+GIS

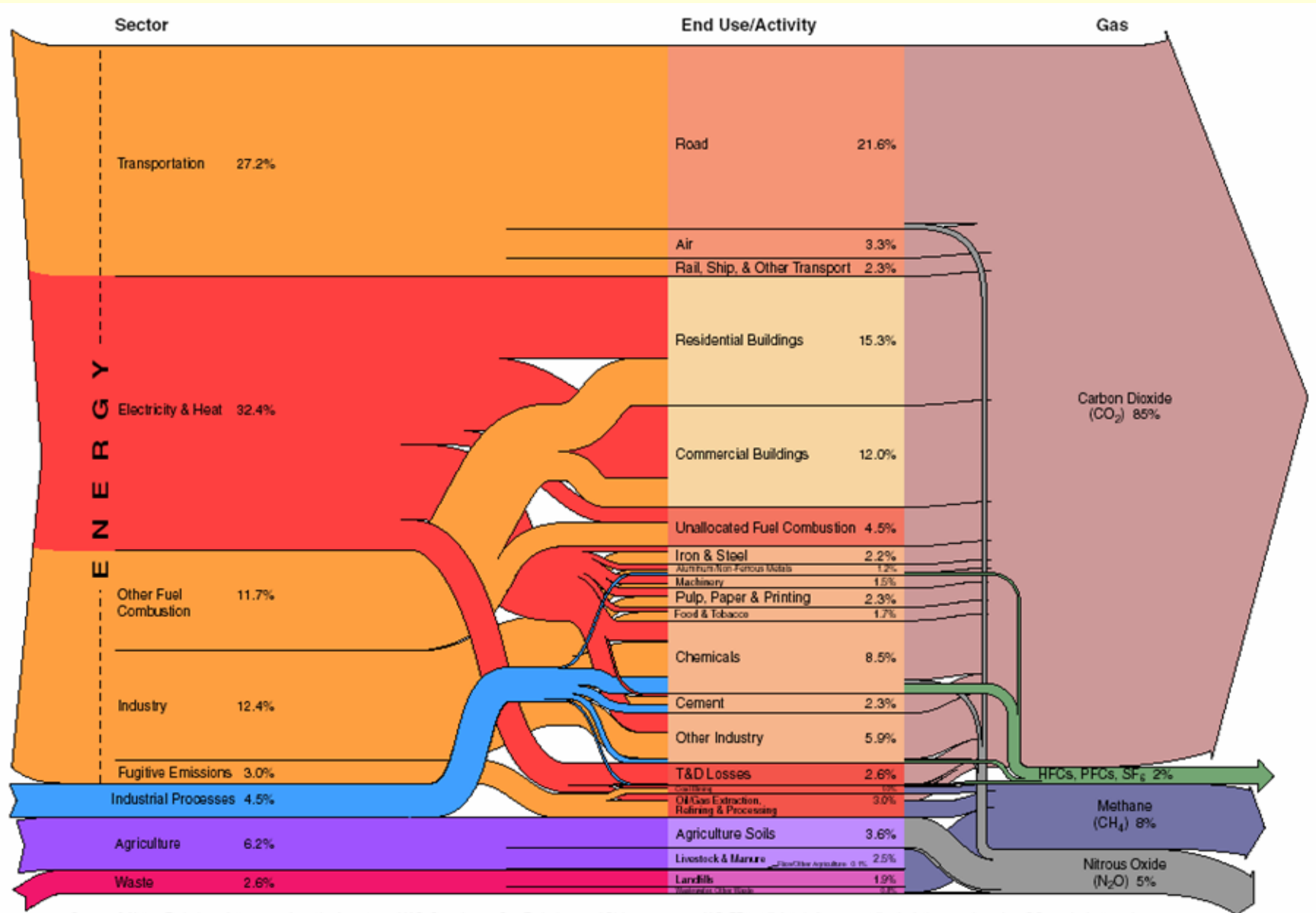


Florida w/o WAIS+GIS+EAIS



From a presentation by **Richard B. Alley, U of Pennsylvania**

US GHG Energy and Emissions by Sector



Sources & Notes: Emissions data comes from the *Inventory of U.S. Greenhouse Gas Emissions and Sinks: 1990-2003*, U.S. EPA. All data is for 2003. All calculations are based on CO₂ equivalents, using 100-year global warming potentials from the IPCC (1996), based on total U.S. emissions of 6,978 MtCO₂ equivalent. Emissions and sinks from land use change and forestry (LUCF), which account for a sink of 821.6 MtCO₂ equivalent, and flows less than 0.1 percent of total emissions are not shown.

Illustrative Trends in Electric Power Generation Sources Under 450ppm and 550ppm CO2 Targets (Quads of Power by Fuel Type)

	2000	2010			2030			2050		
	Ref.	Ref.	550	450	Ref.	550	450	Ref.	550	450
Oil	1.4	2.0	1.9	1.9	1.7	2.3	1.9	2.0	1.6	0.6
Oil: w/ CCS	0.0	0.0	0.0	0.0	0.0	0.1	0.3	0.0	0.2	1.0
Natural Gas	3.7	5.7	5.6	5.4	9.1	8.3	6.3	11.2	9.0	3.0
Natural Gas: w/ CCS	0.0	0.0	0.0	0.1	0.0	0.3	1.4	0.0	1.2	6.4
Coal	6.7	7.2	7.1	6.7	7.2	6.0	4.0	7.8	4.2	0.7
Coal: w/ CCS	0.0	0.0	0.0	0.1	0.0	0.1	1.0	0.0	0.6	3.3
Commercial Biomass	0.7	1.0	1.0	1.0	1.6	1.6	1.5	1.9	2.0	1.3
Nuclear	2.5	2.9	2.9	3.0	3.9	4.1	5.2	4.4	5.5	8.4
Non-Biomass Renewables	1.2	1.5	1.5	1.6	3.0	3.1	3.6	4.5	5.1	6.2
TOTAL	16.2	20.2	20.1	19.8	26.6	25.8	25.1	31.8	29.4	30.9

Note: This table is based on modeling by PNNL/Battelle. While this data indicates US electricity production only, it is derived from models representing global CO₂; to achieve stabilization levels of 450 or 550 ppm globally, it is assumed that all countries act immediately with least cost solutions applied world-wide.

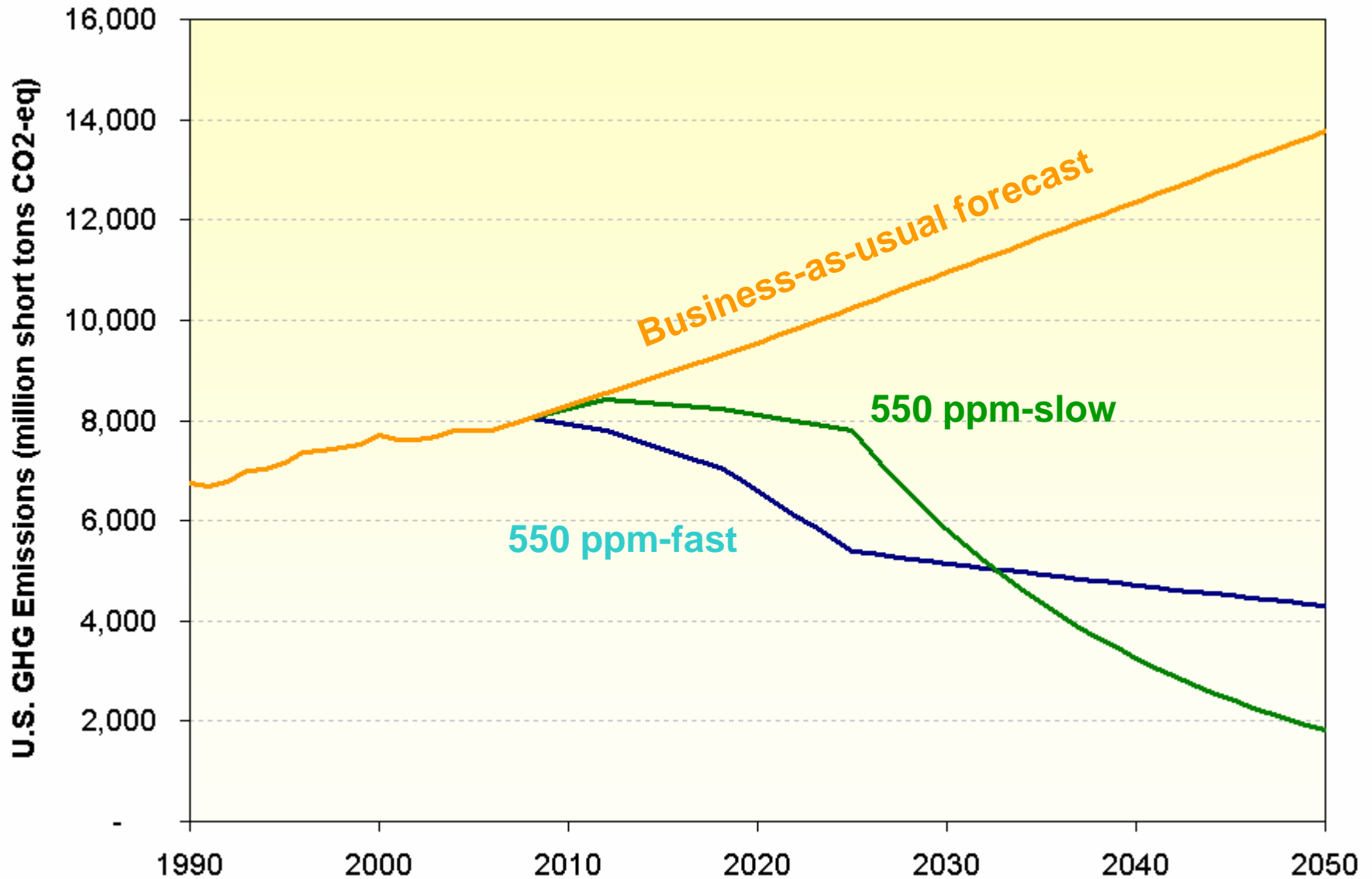
KEY:

Increase of more than 10% from forecasted reference

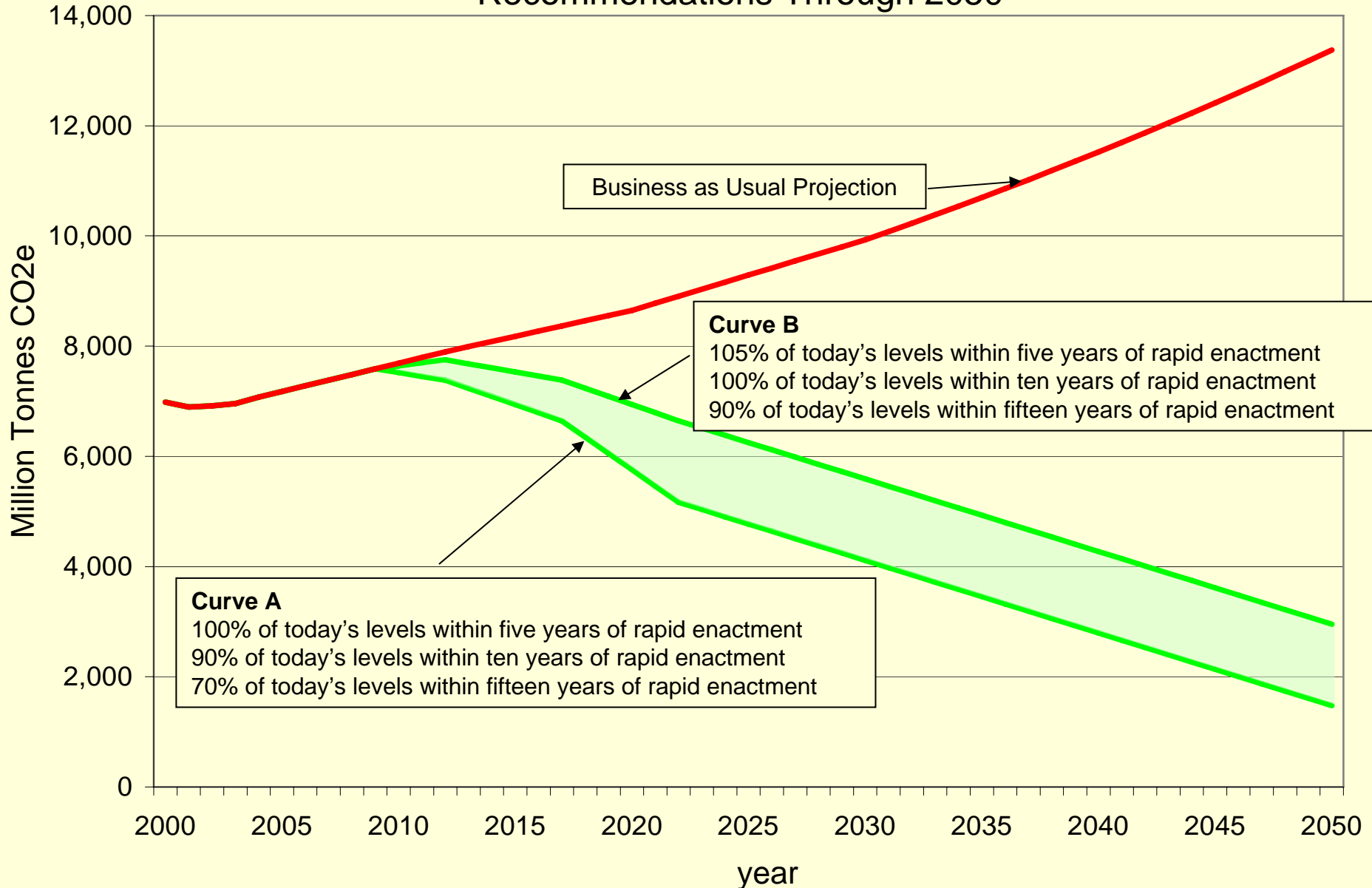
Increase or decrease of 10% or less from forecasted reference

Decrease of more than 10% from forecasted reference

Stabilization at 550 ppm

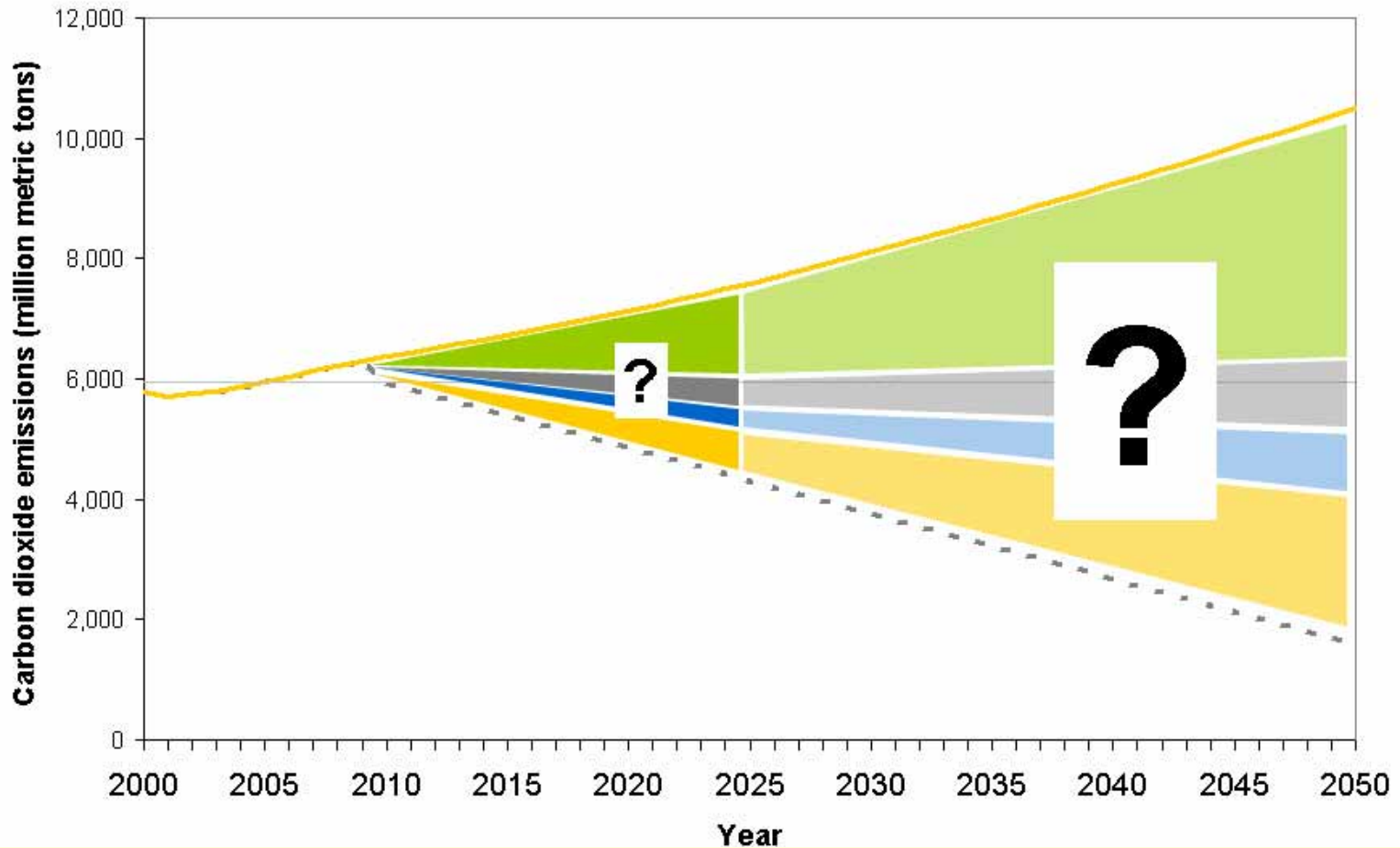


US CAP GHG Emissions Reduction Targets and Timetables Recommendations Through 2050



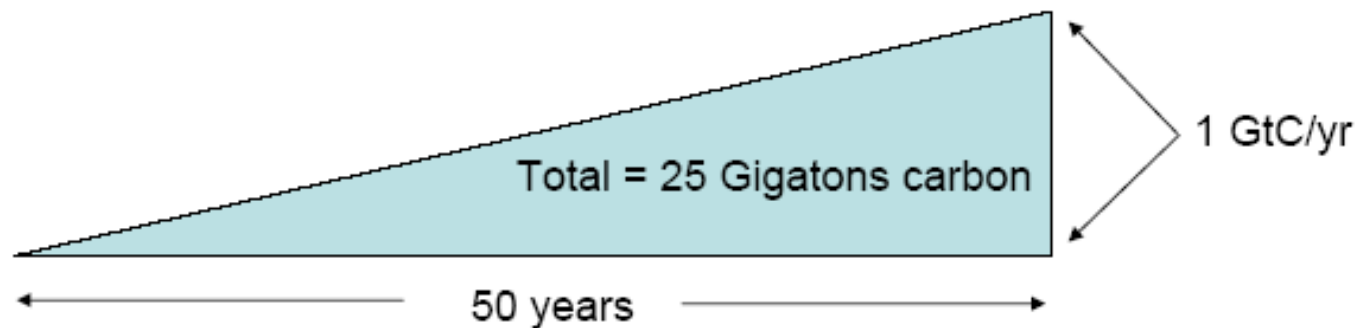
The Energy Information Administrations Annual Energy Outlook 2006 reference case scenario is used for business as usual through 2030. For years 2031 to 2050 the same annual average increase presented in the EIA reference case of 1.5% is used to extrapolate BAU.
<http://www.eia.doe.gov/oiaf/archive/aeo06/index.html>

Wedges: Many Things to Many People



What is a “wedge”?

A “wedge” is an activity reducing the rate of carbon build-up in the atmosphere that grows in 50 years from zero to 1.0 Gt(C)/yr.



Cumulatively, a wedge redirects the flow of 25 Gt(C) in its first 50 years. This is 2.5 trillion dollars at \$100/t(C).

A “solution” to the Greenhouse problem should have the potential to provide at least one wedge.



Wedge Issues: What they tell us

- “Fire up the hybrid Bentley!” – Get Rich Environmentalism
- We’ve got a long way to go so we better get started quick
- Socolow and Pacala -- We need every tool in the toolbox (and we have the tools)
 - Demand side EE
 - Supply side EE
 - CCS
 - Renewables
 - AF, RF, ADF
 - Nukes
- We’re Doomed

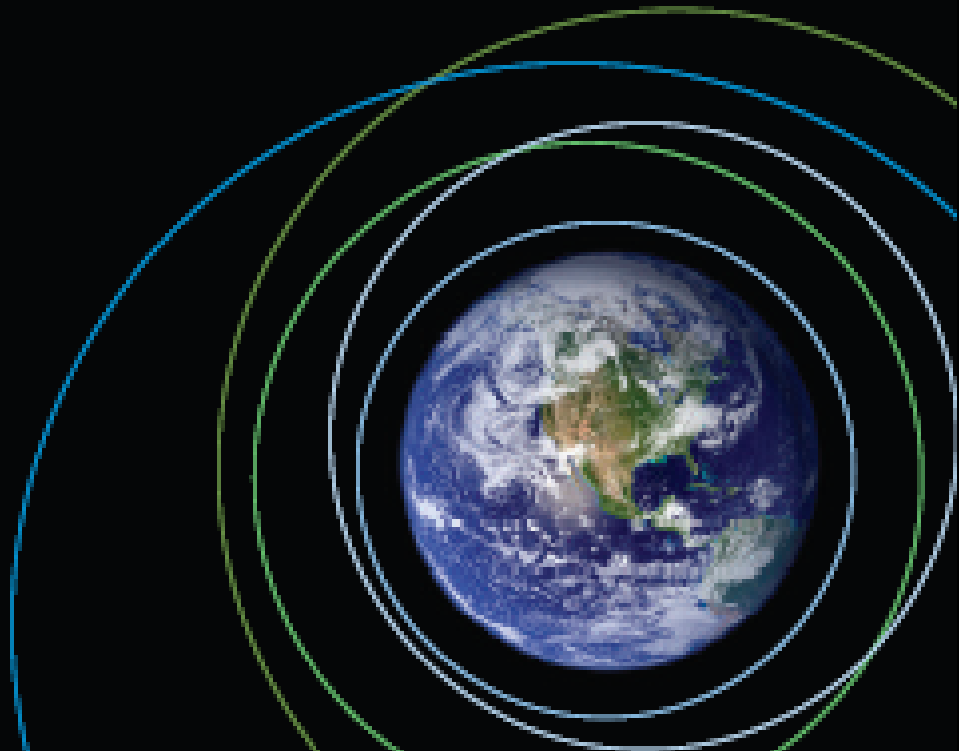


New Voices in the Debate



A CALL FOR **ACTION**

Consensus Principles and Recommendations
from the **U.S. Climate Action Partnership**:
A Business and NGO Partnership



APPENDIX

U.S. Climate Action Partnership Members

Alcoa

BP America Inc.

Caterpillar Inc.

Duke Energy

DuPont

Environmental Defense

FPL Group

General Electric

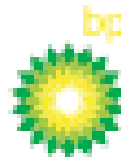
Natural Resources
Defense Council

Pew Center on Global
Climate Change

PG&E Corporation

PNM Resources

World Resources Institute



Wal-Mart



"What I thought was going to be a defensive strategy is turning out to be precisely the opposite."

Well, not quite. But CEO **LEE SCOTT**'s green campaign, which started as PR, is becoming a force of nature.



Corporate Strategy & Business Sustainability

WAL★MART®

Stores, Inc.

1-800-331-0085

www.walmartfacts.com

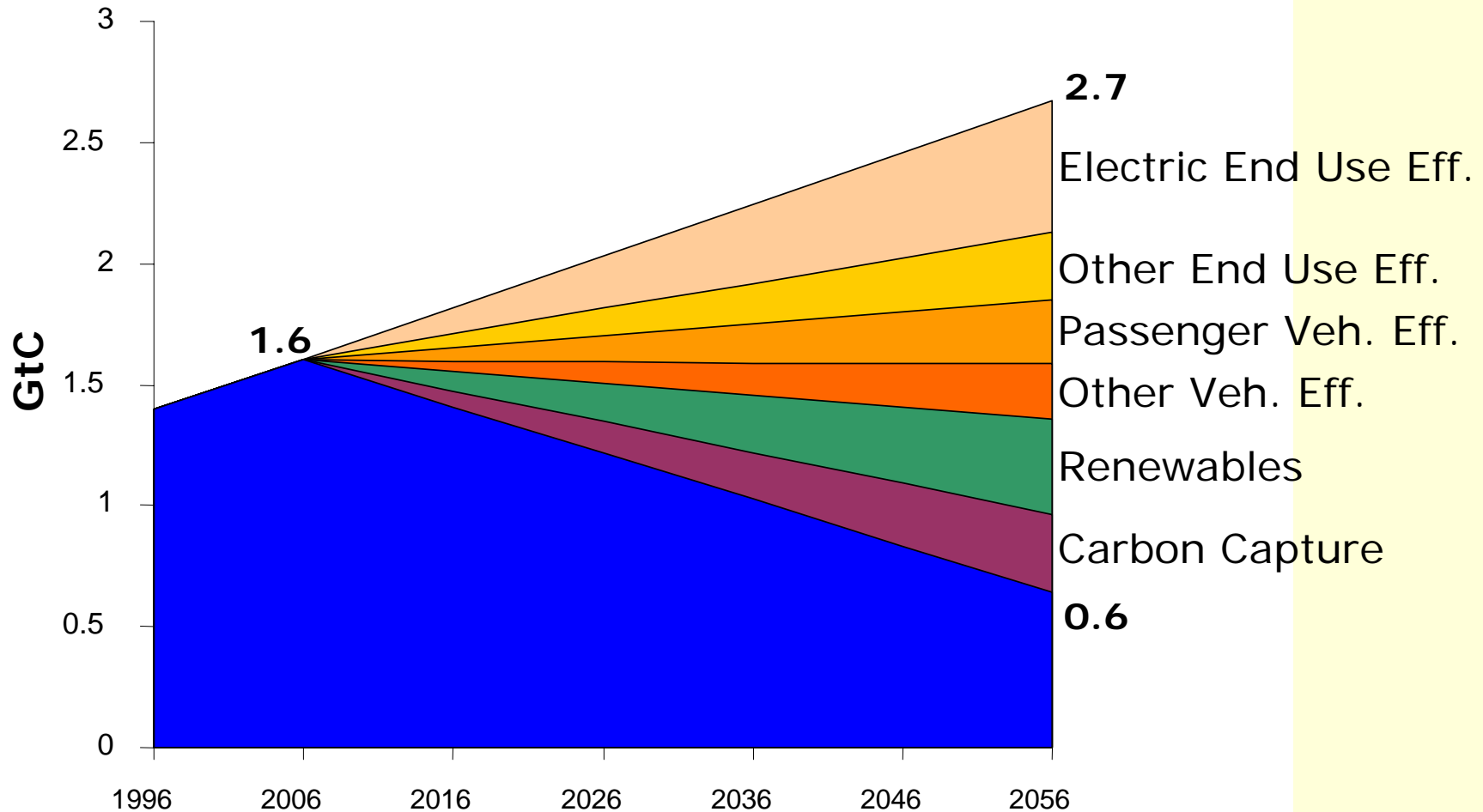
“We look forward to working with US-CAP, Congress and the White House to enact meaningful legislation to slow, stop and reverse the growth of greenhouse gas emissions”

What are the Usual Suspects Saying??

- The Environmental Community



We Can Solve Global Warming!



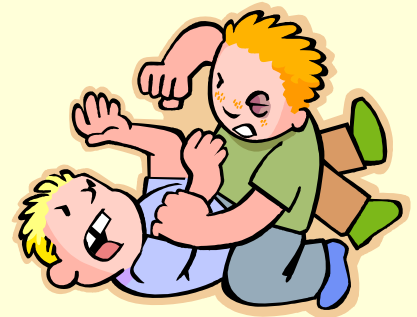
Really, it's Easy!!!
(But No [Nukes][Hydro][etc])

So, Where Does this Leave
Us?

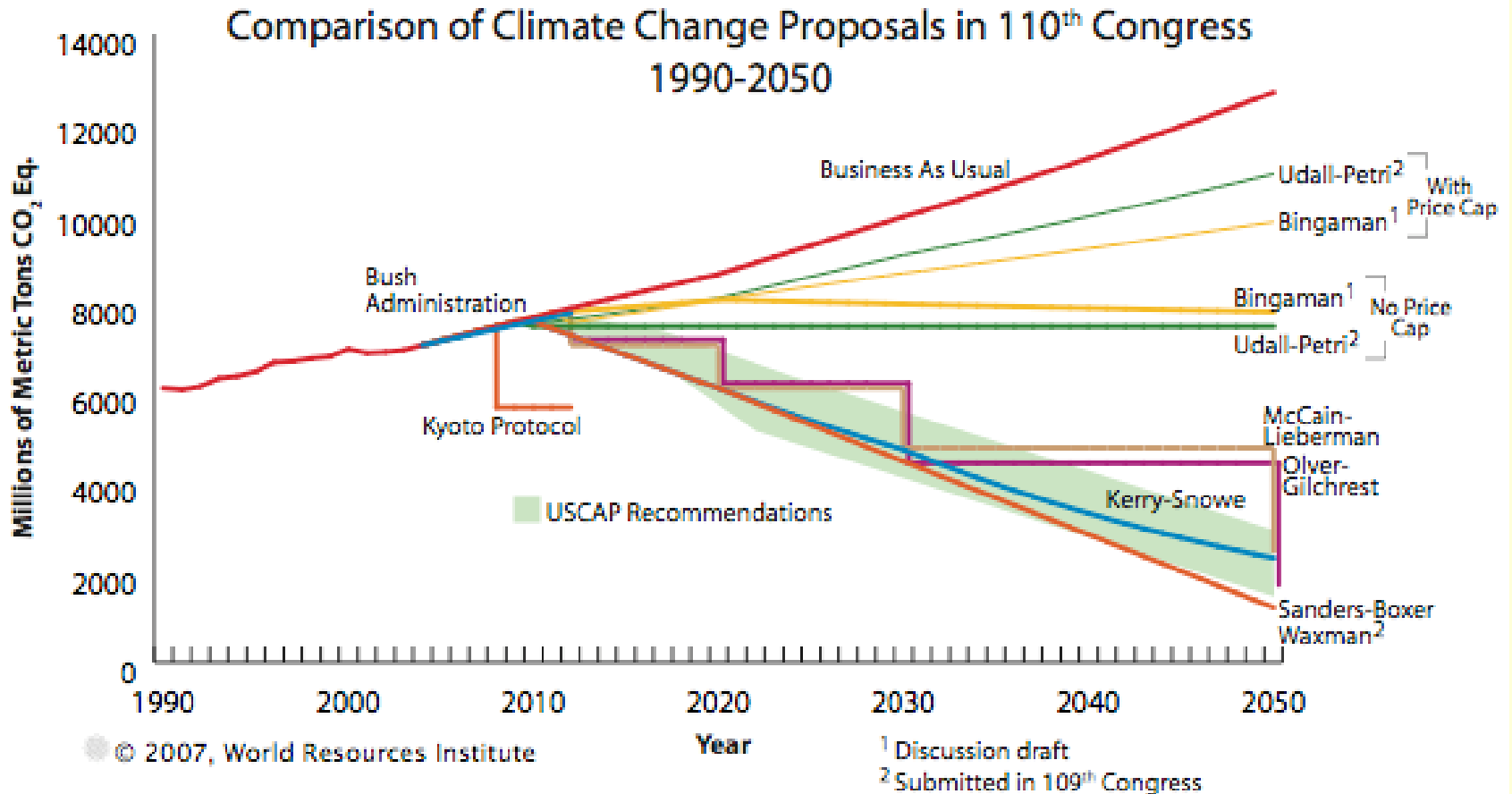
*The Ball is in the Court of the New
Congress*

Growing Political Momentum for Sure, But . . .

- Complexity and Political Vulnerability:
HillaryCare redux?
- Environmentalist's Palestine?
- \$\$
- China/Lou Dobbs Effect
- Democrats' Problems:
 - Great Issue! (too great?)
 - John Dingell



Current Federal Climate Proposals



Policy Tools Being Discussed

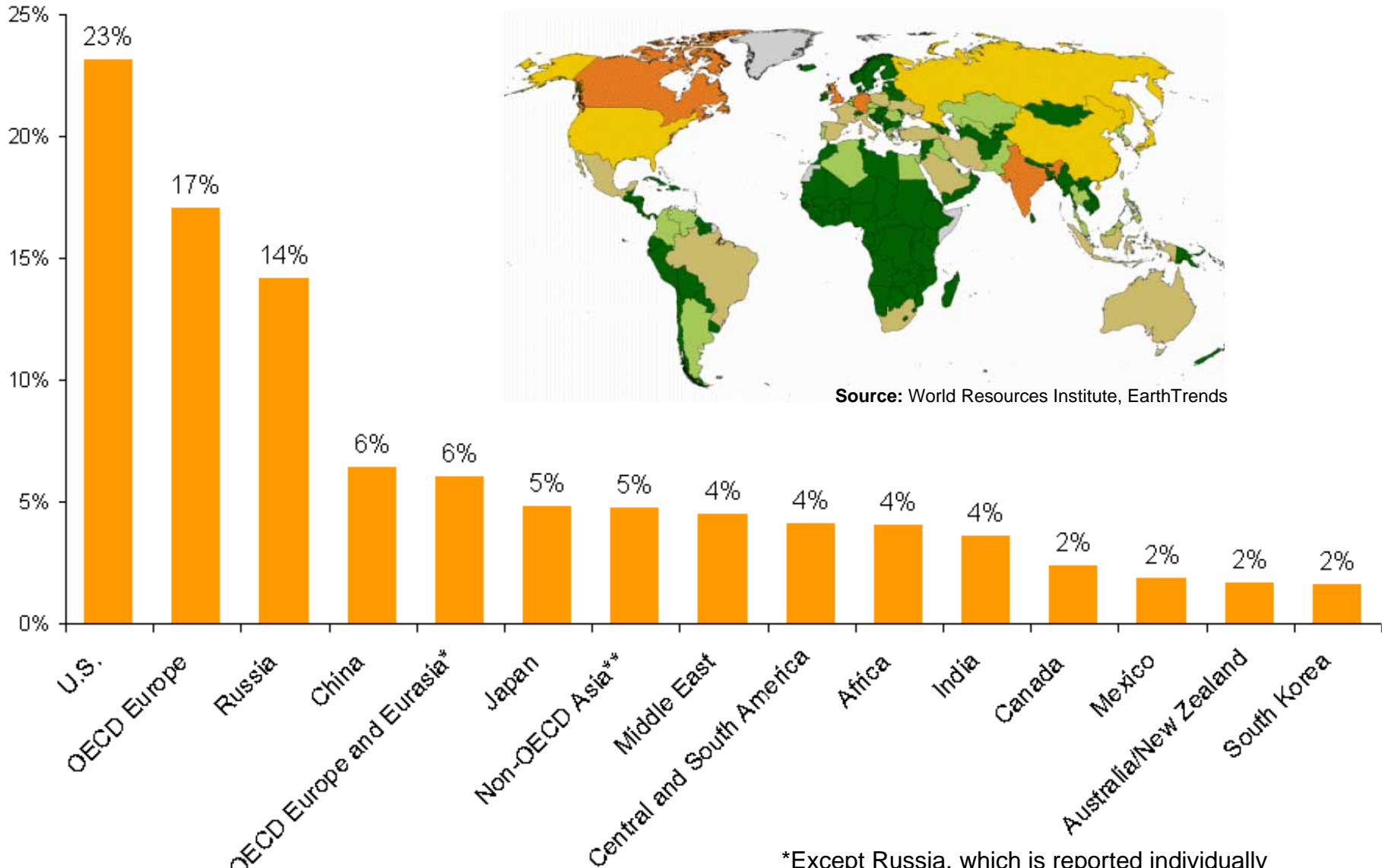
- **Cap-and-trade** (economy-wide or sectoral)
- **Taxes** (economy-wide or sectoral)
- **Technology standards for industry** (sectoral, but can be applied to each sector of the economy)
- **Performance standards for industry** (sector-specific, but can be applied economy-wide)
- **Renewable and efficiency portfolio standards** (electricity sector)
- **Carbon portfolio standards** (electricity sector, potentially transportation sector)
- **Vehicle emission standards** (transportation sector)
- **Renewable fuel standard** (transportation sector)
- **Product efficiency standards** (appliances, equipment)
- **Product labeling**
- **Building codes and standards** (buildings)
- **Agriculture and forestry sector standards** (agriculture and forestry)
- **Tax incentives, cost sharing, risk sharing, credit facilities, and other programs to advance efficiency and RD&D** (many sectors)

Policy Questions that Must be Solved

- **“Economy Wide”?**
- **Targets and Rates**
- **Point of Regulation?**
- **Auction vs. Allocation?**
- **International Tie-in?**
- **Offsets (regulated entities)**
- **Set-asides (non-regulated entities)**
- **Transportation**
- **Cost Controls? (banking, borrowing, safety valve, etc.)**
- **Baseline Protection/Credit for Early Action**

Carbon Dioxide Emissions by Region (2003)

U.S. Energy Information Administration, International Energy Outlook 2006



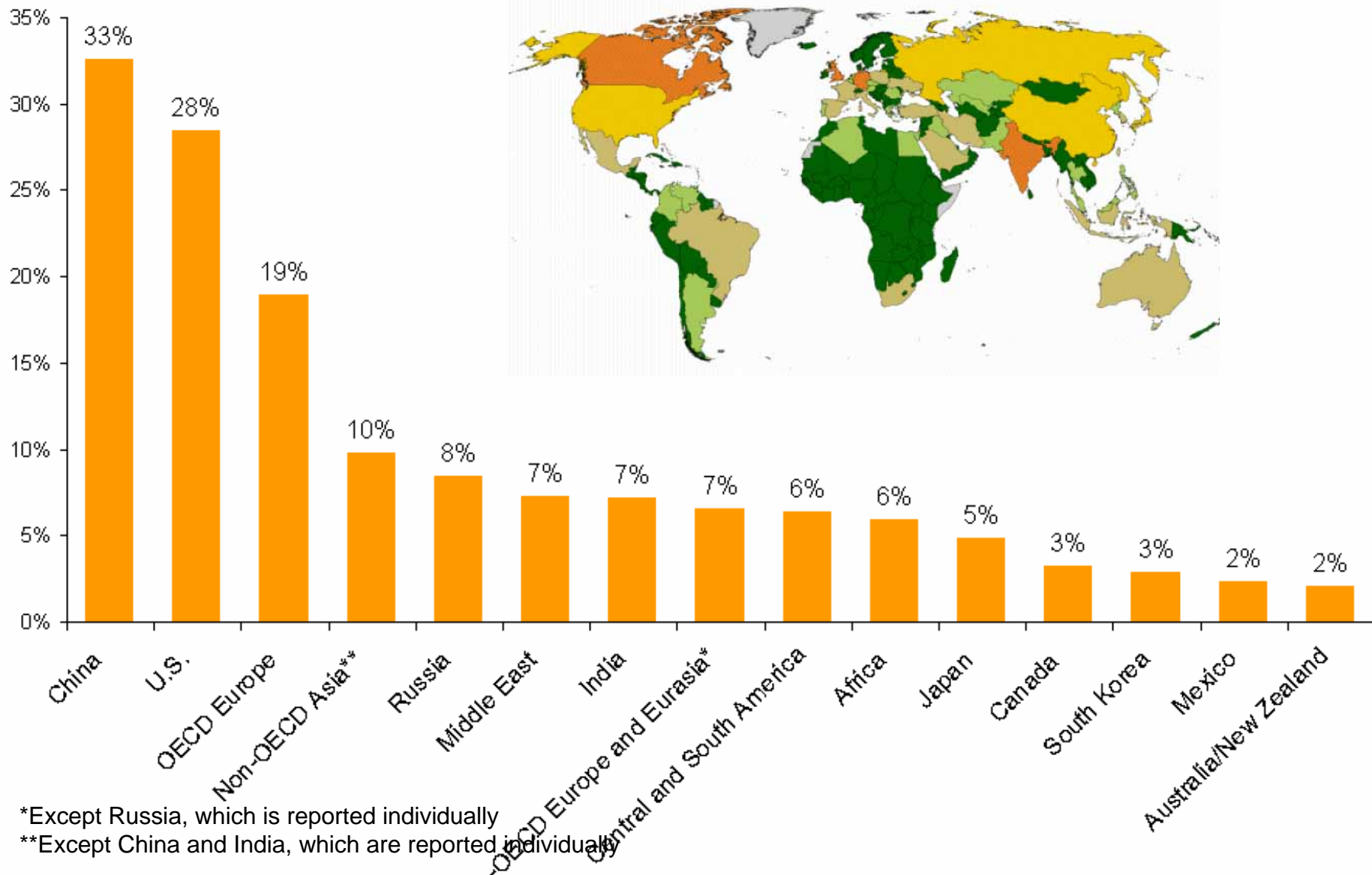
Source: World Resources Institute, EarthTrends

*Except Russia, which is reported individually

**Except China and India, which are reported individually

Projected Carbon Dioxide Emissions by Region (2020)

U.S. Energy Information Administration, International Energy Outlook 2006, Reference Case Scenario, doesn't reflect potential effect of Kyoto Protocol



Ultimately, Too Many People Wanting Action for Failure

**“America needs higher gasoline taxes
and a carbon tax”**

- Gregory Mankiw (Former Bush CEA Chair)

**“[I’m a lunatic but] there’s something to
this global warming thing”**

Pat Robertson

“Polar bears are so cute!!”

Everyone





Green Strategies, Inc.

- Green Strategies Inc. is a business and public policy consulting firm specializing in domestic and international energy and environmental matters.
- The company provides strategic advice, marketing strategies, representation, and issue monitoring services to corporations, investors, associations, and NGO's.