

Climate Change and Energy Policy Landscape: Looking Ahead: Some Discussion Points

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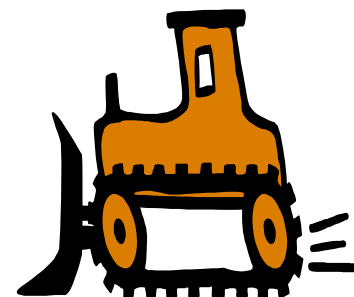
**Let's Avoid
Climate Change**



Mitigation



**Climate Change
is Happening**



Effects/Adaptation

April 2009

What have we seen?

Reid Harvey

- **Role of Forestry and Agriculture,**
 - **low cost , could flood, discount, flood, leakage**
- **Bills – offset caps**
- **How implement, ideas domestically, challenges internationally**
- **Room for improvement**
 - International land use modeling**
 - Accounting for transaction costs**
 - Incorporating climate impacts/adaptation into the baseline**

Alexandre Lefebvre

- **???**

What have we seen?

Jan Lewandrowski

- **Data needs Practice Adoption potential , state data**
- **Unlikely ag and forest will be covered – divergent views**
- **Need implications of including/omitting, plus tax effects**
- **Conservation program role**
- **Implications of baselines**
- **LCA contains indirect land use**
- **Issues**

International land-use change

REDD policy

Effort level/effects

Time path

Rob Doudrick

- **Policy Background**
- **Sequestration potential – private and National forests**
 - **Bioenergy role of forest, conflict with sequest, wood prices, conflict with environment**
 - **Risk of carbon sequest loss**

Messages, omissions and Classes

Messages/omissions can be placed into three classes

Climate change effects

Adaptation

Mitigation and emissions control

Two types of discussion

Messages to bolster

Clouds from my crystal ball

Elaborations

Omissions

Items to work on

Mitigation/ Limiting future change

Why start here

This is most of current policy concern

This is most of what speakers talked about

Mitigation/ Limiting future change

Messages to bolster

Baselines - Big changes in exports, energy prices, RFS/biofuels

Complementary policy

Env/energy/ag policy interplay

International land use, REDD

National forests

Living with Partial coverage

Bridge to future

Mitigation/ Limiting future change

Messages to bolster (continued)

Program design

Caps, taxes, cap and trade

Transactions costs

Implications of omissions/ component caps

Discounts or buffers

additivity, leakage, additionality, uncertainty

Risk liability

Auctions

Poorness of CCX rules

Mitigation/ Limiting future change

What did they miss or what do I want to say more about

Technology

Mitigation policy Jae talked about this

Reduces land pressure

Globalization

Cooperation - CDM

Competition

Leakage not only Brazil

Climate change interactions

Spatial shifts

Water and south

Mitigation/ Limiting future change

What did they miss or what do I want to say more about

Livestock

Marginal Lands

Supply curves

Capital stock turnover and mitigation investment

Logging residues

Cellulosic, pyrolysis, energy sorghum, miscanthus Competition

Innovation and markets

Co benefits/costs

Point versus non point and GEMCO revisionist

Global coverage and leakage minimization

Mitigation/ Limiting future change

What did they miss or what do I want to say more about

Rules, rules, rules

Biofuel offsets exemption

Leakage and indirect land use and livestock market displacement

Program design, discount, monitoring, modeling

REDD and other complementary policy

Climate change

Messages to bolster

Incorporating climate impacts/adaptation into the baseline

Climate change / mitigation simultaneities

Climate change

What did they miss or what do I want to say more about

Well almost everything

Technology - Climate change interaction

ln (Ag. Total Factor Productivity)	Model 2		Model 3	
	Coef	p_value	Coef	P_value
ln (Temperature) × D1 Northeast	0.1204	0.266	-0.3196	0.005
ln (Temperature) × D2 Southeast	1.4404	0.000	-0.2313	0.198
ln (Temperature) × D3 Cornbelt	-0.0063	0.975	-0.0606	0.611
ln (Temperature) × D4 North Plains	0.1664	0.499	-0.0199	0.892
ln (Temperature) × D5 South Plains	-0.9155	0.019	-0.4020	0.162
ln (Temperature) × D6 Mountains	0.1661	0.171	0.1491	0.325
ln (Temperature) × D7 Pacific	1.5448	0.000	-0.1189	0.728
Total Precipitation	0.0693	0.003	0.0868	0.000
Precipitation Intensity	-0.0459	0.001	-0.0530	0.000

Climate change

What did they miss or what do I want to say more about Water and south

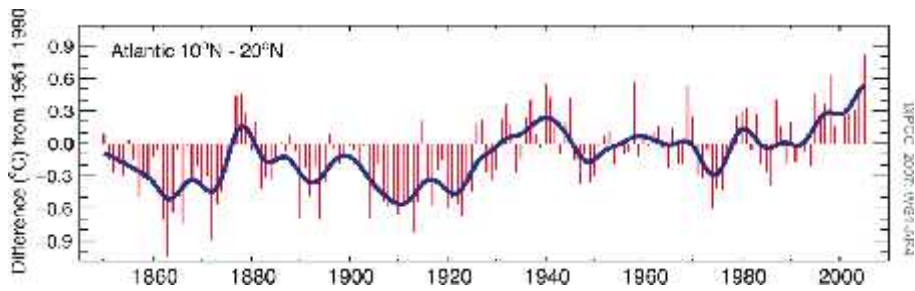
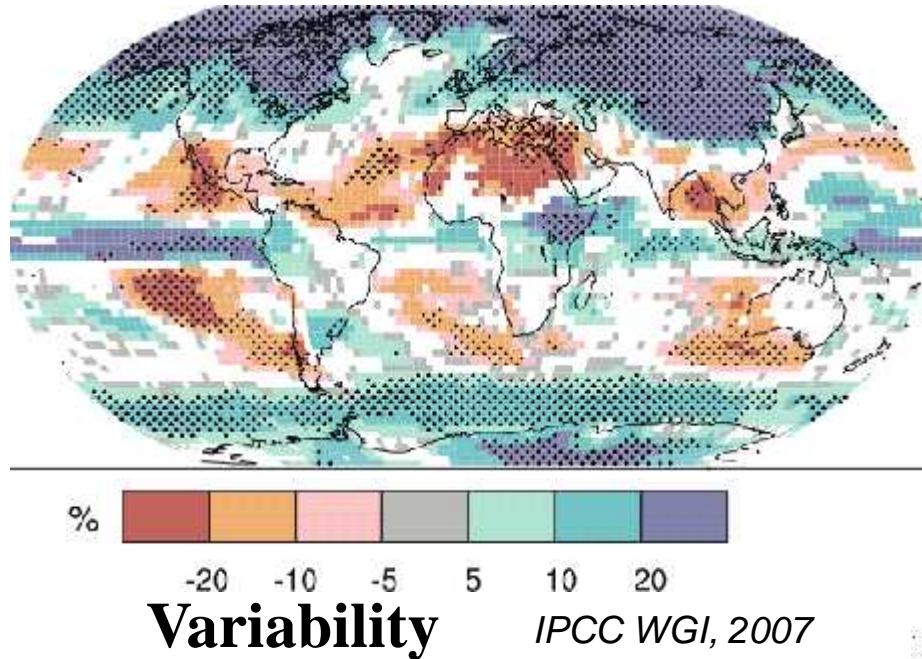
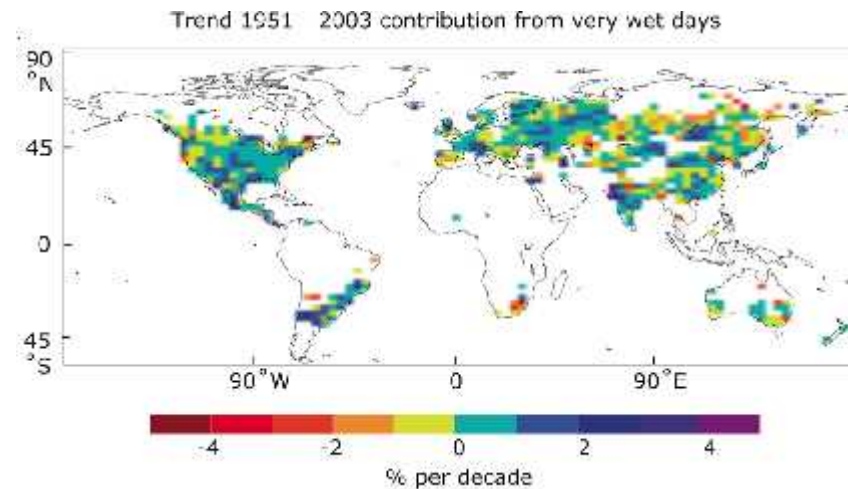
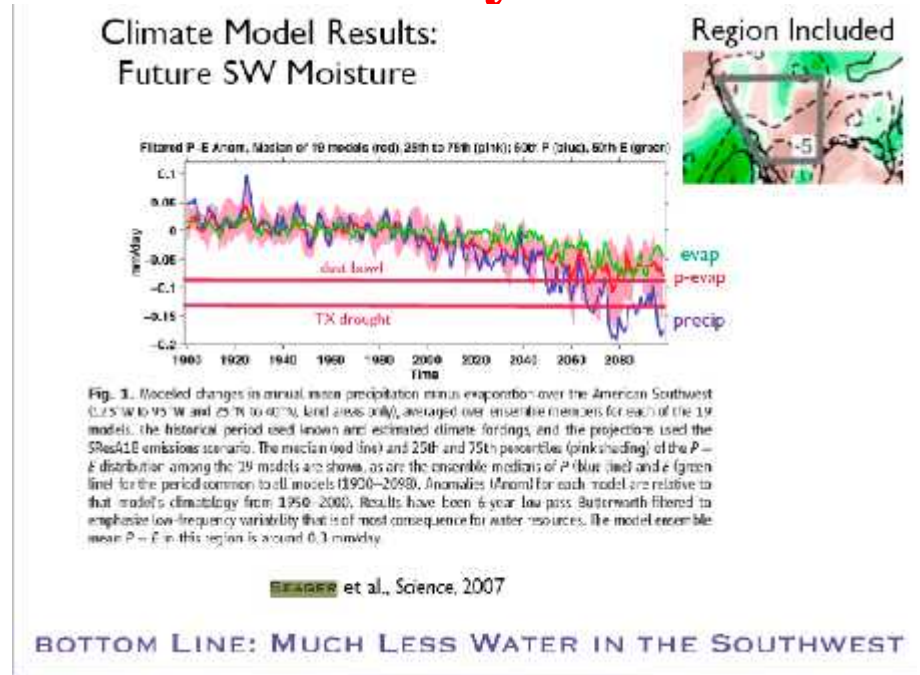
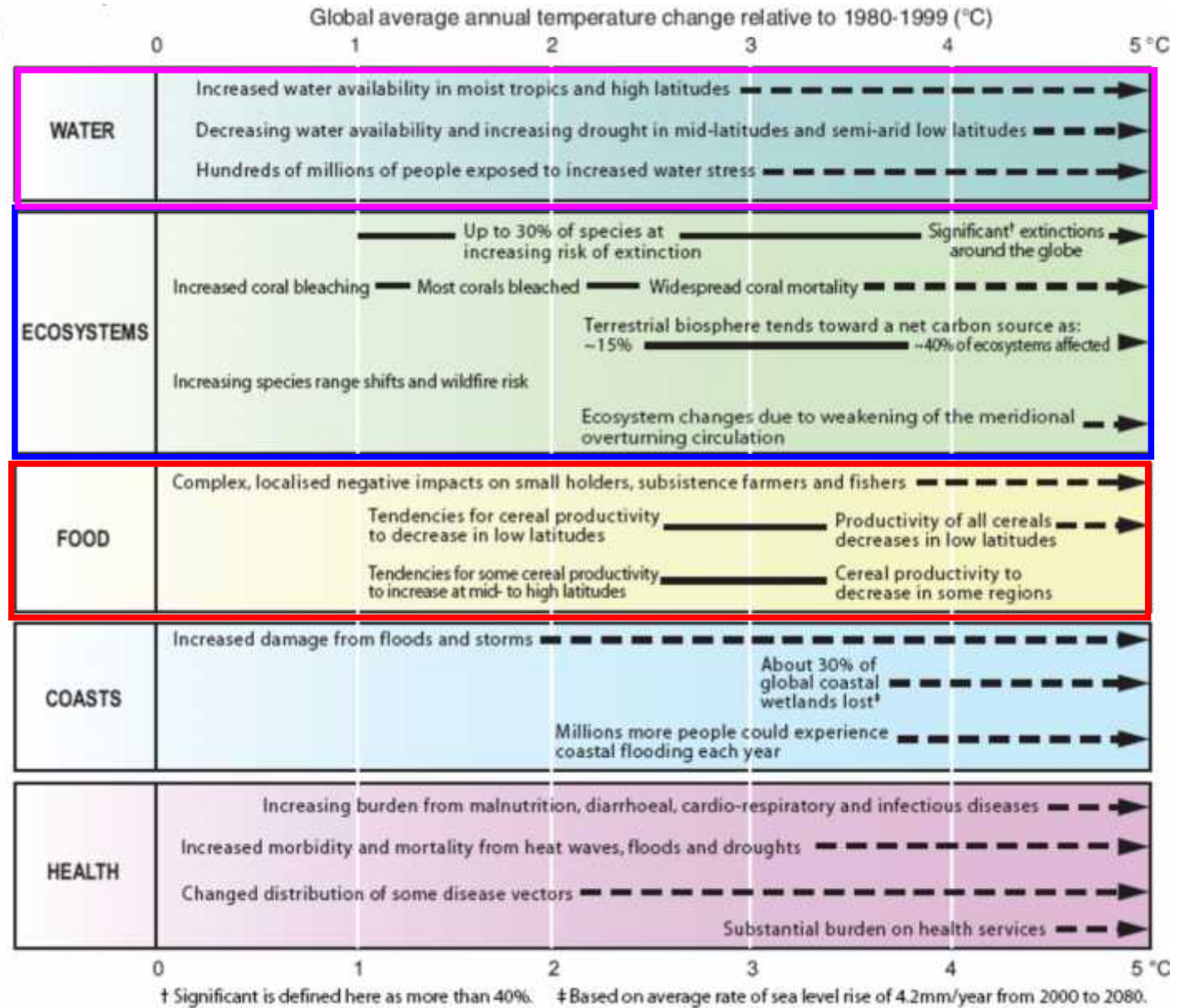


Figure TS.11. Tropical Atlantic (10°N–20°N) sea surface temperature annual anomalies (°C) in the region of Atlantic hurricane formation, relative to the 1961 to 1990 mean. {Figure 3.33}



Climate change

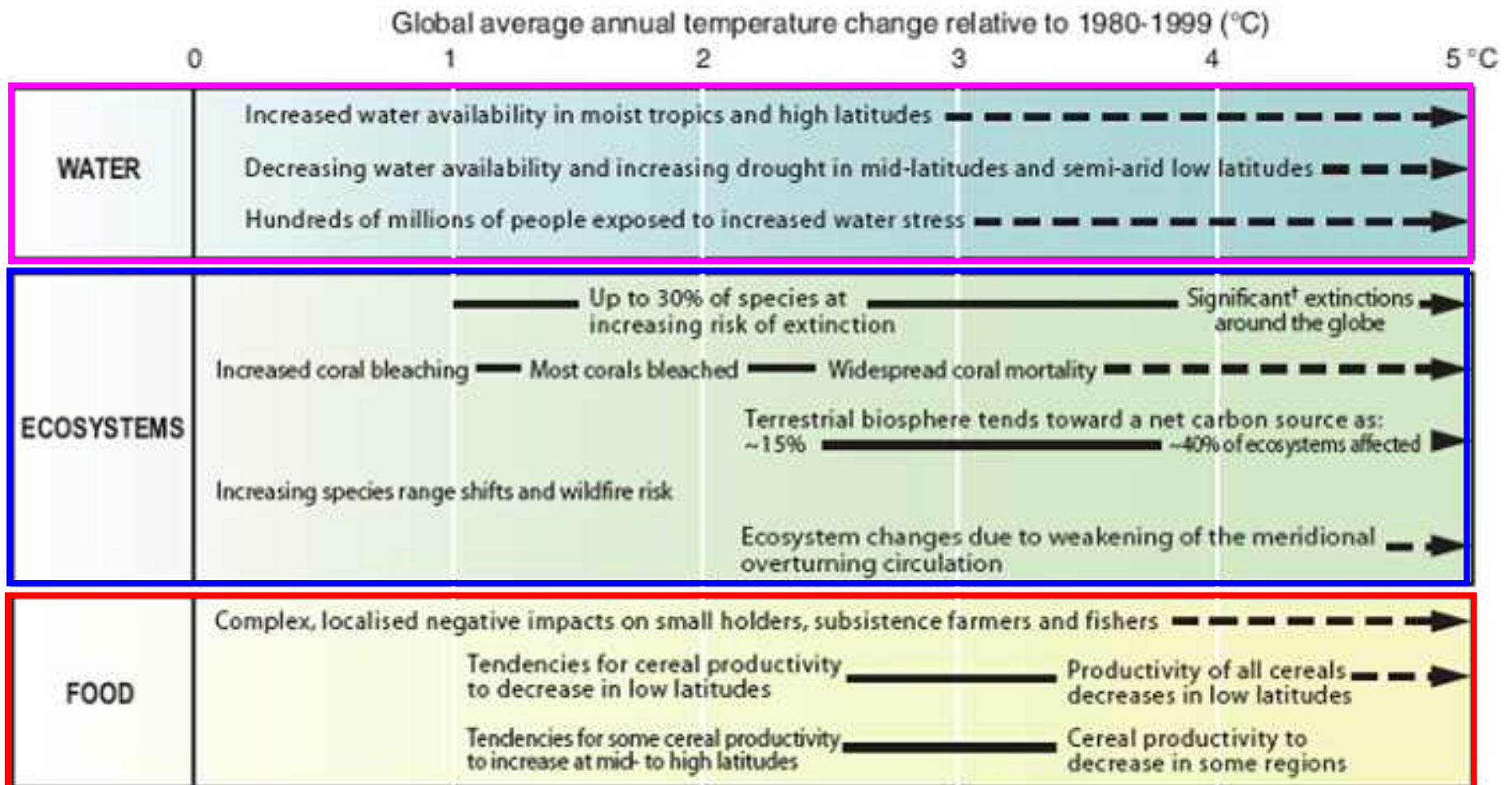
What did the Burning embers



Climate change

What did they miss or what do I want to say more about

Burning embers



Climate change

What did they miss or what do I want to say more about

Livestock

Fire and pests

Ecosystems

Global climate change effects at global scale

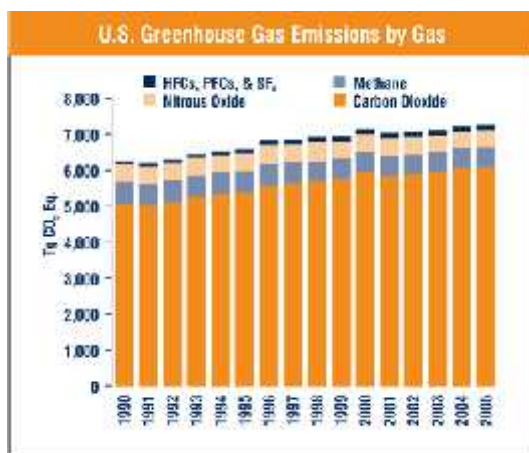
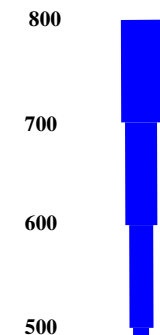
Land transfers

Sea Level

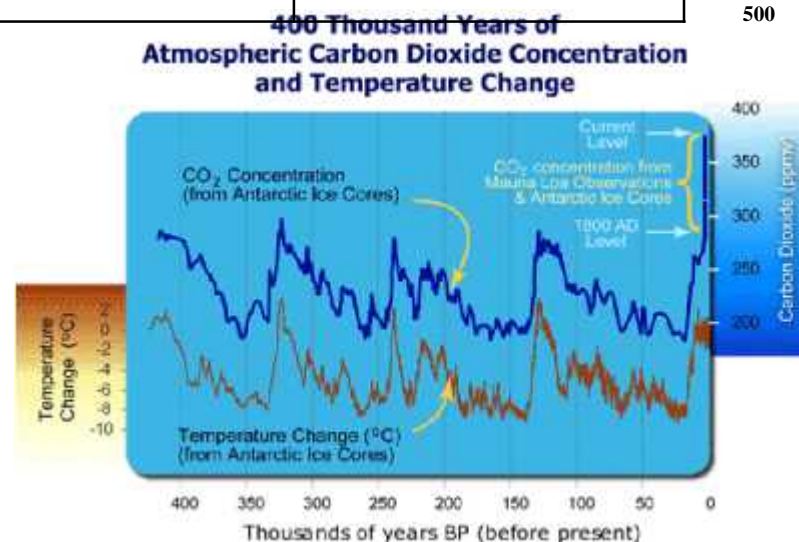
Adaptation to Climate change

What did they miss or what do I want to say more about Inevitability

Stabilization level (ppm CO ₂ -eq)	Global mean temp. increase at equilibrium (°C)	Year CO ₂ needs to peak	Year CO ₂ emissions back at 2000 level	Reduction in 2050 CO ₂ emissions compared to 2000
445 – 490	2.0 – 2.4	2000 - 2015	2000- 2030	-85 to -50
490 – 535	2.4 – 2.8	2000 - 2020	2000- 2040	-60 to -30
535 – 590	2.8 – 3.2	2010 - 2030	2020- 2060	-30 to +5
590 – 710	3.2 – 4.0	2020 - 2060	2050- 2100	+10 to +60
710 – 855	4.0 – 4.9	2050 - 2080		+25 to +85
855 – 1130	4.9 – 6.1	2060 - 2090		+90 to +140



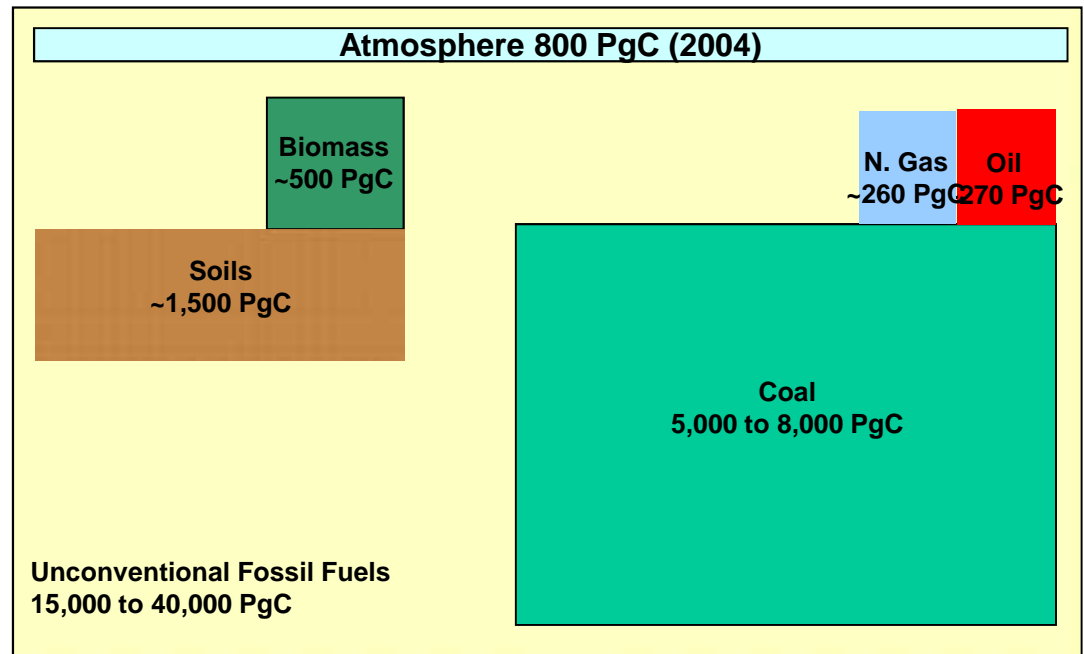
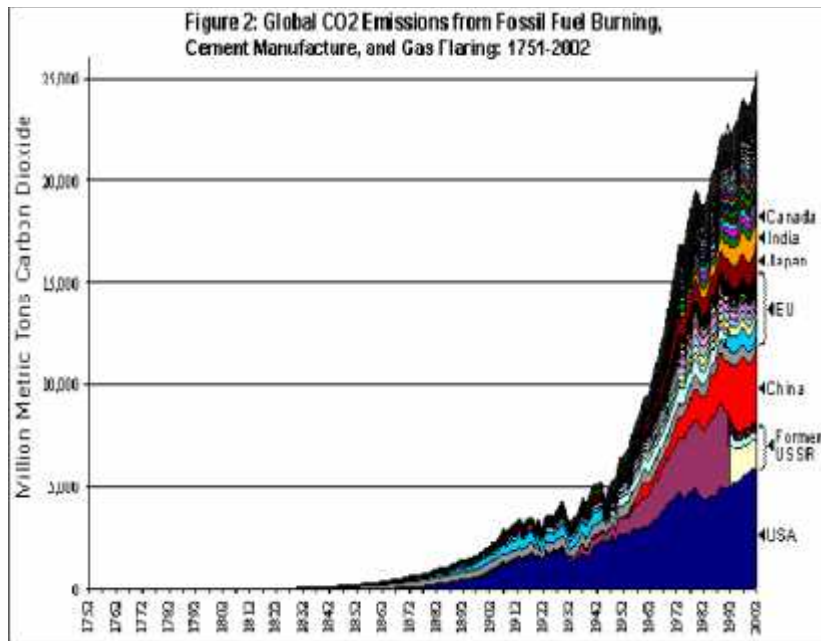
http://www.whrc.org/resources/online_publications/warming_earth/scientific_evidence.htm



Adaptation to Climate change

What did they miss or what do I want to say more about

Inevitability



Source Jae Edmonds, Joint Global Change Research Institute at the University of Maryland

<http://www.epa.gov/climatechange/emissions/globalghg.html>

Adaptation

Messages to bolster

Incorporating climate impacts/adaptation into the baseline

Adaptation to Climate change

What did they miss or what do I want to say more about

Adaptation investment/ strategies

Managing the unmanaged Ecosystems

Shifts to poles

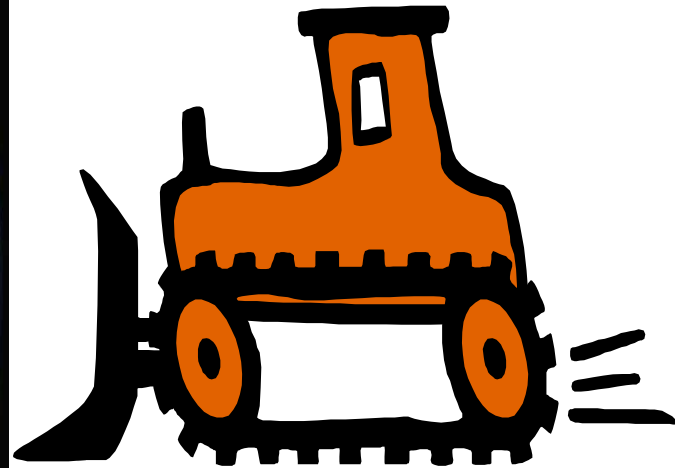
Transport

Sea level

The onset and exact effects of climate change
are uncertain



Mitigation



Effects/Adaptation

We are Vulnerable
We will be squeezed

Basic Resources

Intergovernmental Panel on Climate Change. IPCC Fourth Assessment Report - Climate Change 2007: Impacts, Adaptation and Vulnerability, <http://www.ipcc.ch/>.

Intergovernmental Panel on Climate Change. IPCC Fourth Assessment Report - Climate Change 2007: Mitigation, <http://www.ipcc.ch/>.

Intergovernmental Panel on Climate Change. IPCC Fourth Assessment Report - The Scientific Basis, <http://www.ipcc.ch/>.

Intergovernmental Panel on Climate Change. IPCC Fourth Assessment Report – Synthesis Report, <http://www.ipcc.ch/>.

National Assessment Synthesis Team, US Global Change Research Program , Climate Change Impacts on the United States:*The Potential Consequences of Climate Variability and Change Overview: 2000* <http://www.usgcrp.gov/usgcrp/Library/nationalassessment/overview.htm>

National Assessment Synthesis Team, US Global Change Research Program , Climate Change Impacts on the United States:*The Potential Consequences of Climate Variability and Change Foundation: 2000* <http://www.usgcrp.gov/usgcrp/Library/nationalassessment/foundation.htm>

<http://agecon.tamu.edu/faculty/mccarl/papers.htm>