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# EUROPEAN UNION: PERSPECTIVES ON CLIMATE CHANGE



# Outline

1. What is the European Union?
  2. Environmental Awareness in the European Union
  3. European Union GHG Emissions
  4. The European Union and Climate Change
  5. The U.S. in the View of Europe
  6. Taking Sustainability Seriously
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# PART 1

## WHAT IS THE EUROPEAN UNION?

# What is the European Union?

A unique economic and political partnership between 27 democratic European countries with 495 million citizens.



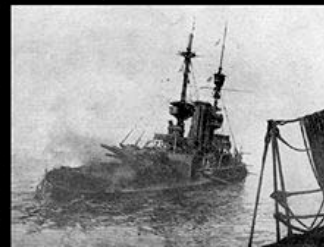


# EU Legislation

- the **European Parliament**  
(representing the people of Europe)
  - the **Council of the European Union**  
(representing national governments)
  - the **European Commission**  
(representing the common EU interest).
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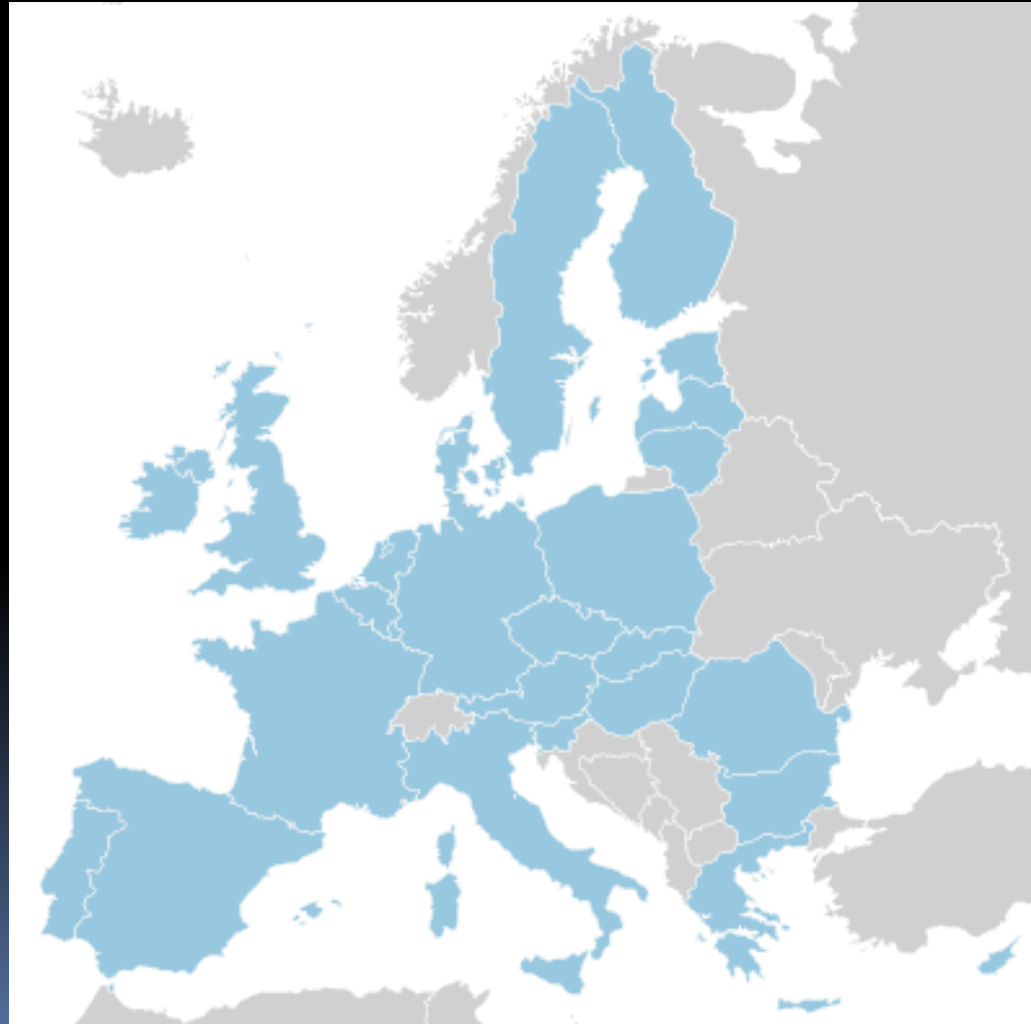
# Enough!

## The “Pre-History” of the European Union



# History of the European Union

From 6 to 27





# History of the European Union

1945-1959: **A peaceful Europe** – the beginnings of cooperation

1960-1969: **The “Swinging Sixties”** – a period of economic growth

1970-1979: **A growing community** – the first enlargement

1980-1989: **The changing face of Europe** – the fall of the Berlin Wall



1990-1999: **A Europe without frontiers**

2000-today: **A decade of further expansion**





## **PART 2**

# **ENVIRONMENTAL AWARENESS IN THE EUROPEAN UNION**

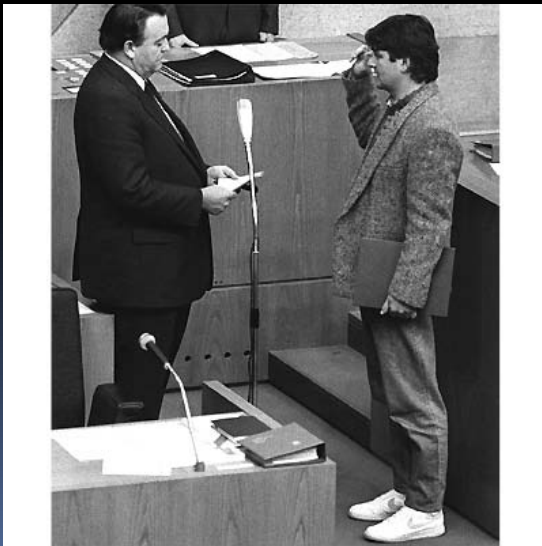
# History in Europe

1970-1979: Oil Crisis; "Acid Rain"; Greenpeace



# History in Europe

1980-1989: "The Greens"



**1980:** Foundation

**Since 1983:** Part of German Parliament

**1998-2005:** Part of German Government

# History in Europe

1990-1999: "The Green Point"



**1990:** Introduction of Dual Waste Management System in Germany.

**Today:** Introduced in 23 other European countries.

# History in Europe

2000-today: Phasing out of Nuclear Power



- 1978: Austria
- 1980: Sweden
- 1987: Italy
- 1999: Belgium
- 2000: Germany



# PART 3

## EUROPEAN UNION GHG EMISSIONS

# Global GHG Emissions

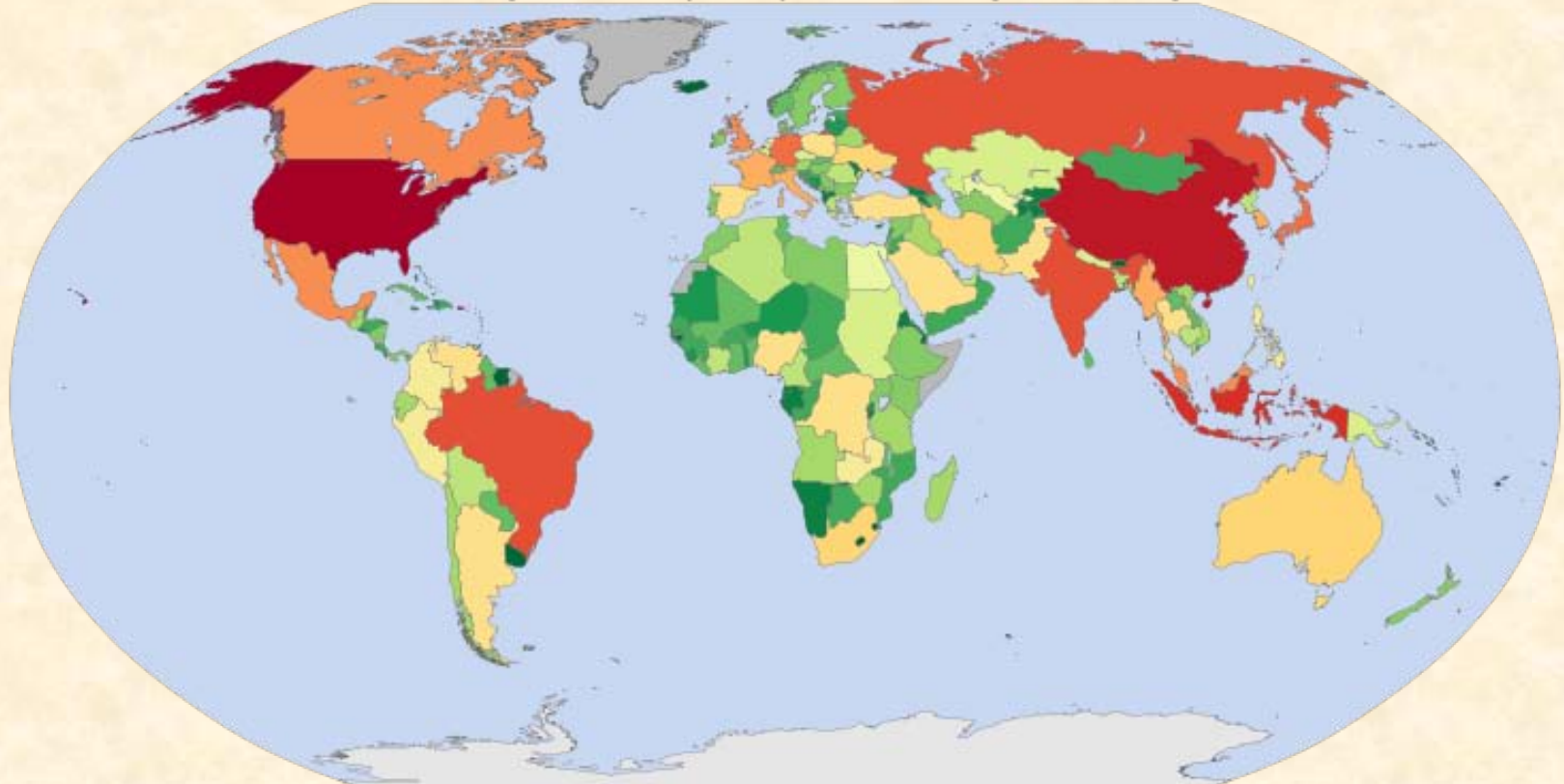
Seven largest emitters:

- U.S., EU, China, Russia, Japan, India, Canada.
- Account for >70% of energy-related CO<sub>2</sub> in 2004.

# Global CO<sub>2</sub> Emissions

Megatonnes by country

Greenhouse gas emissions by country in 2000 (including land-use change)



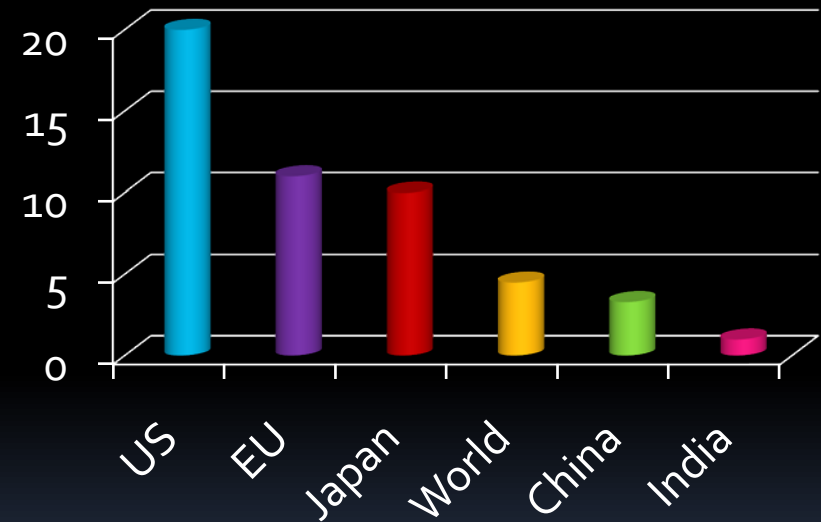
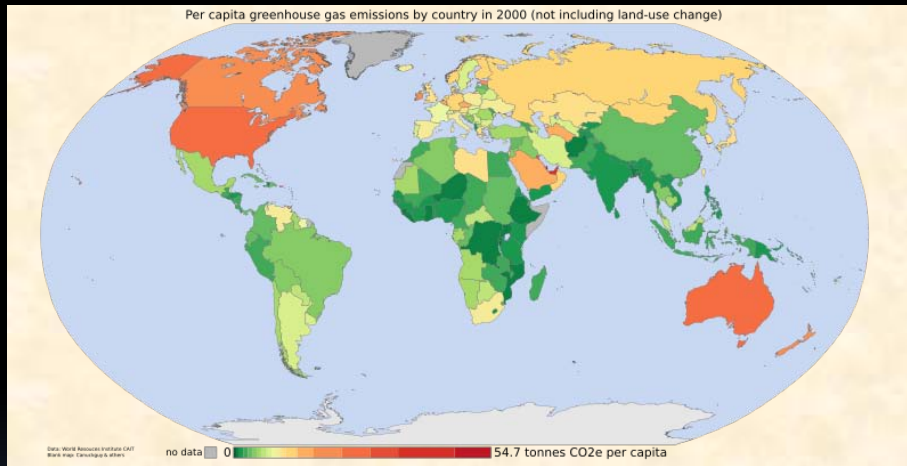
Data: World Resources Institute GMT  
Blank map: Canuckip & others

no data 0 6,469 megatonnes CO<sub>2</sub>e

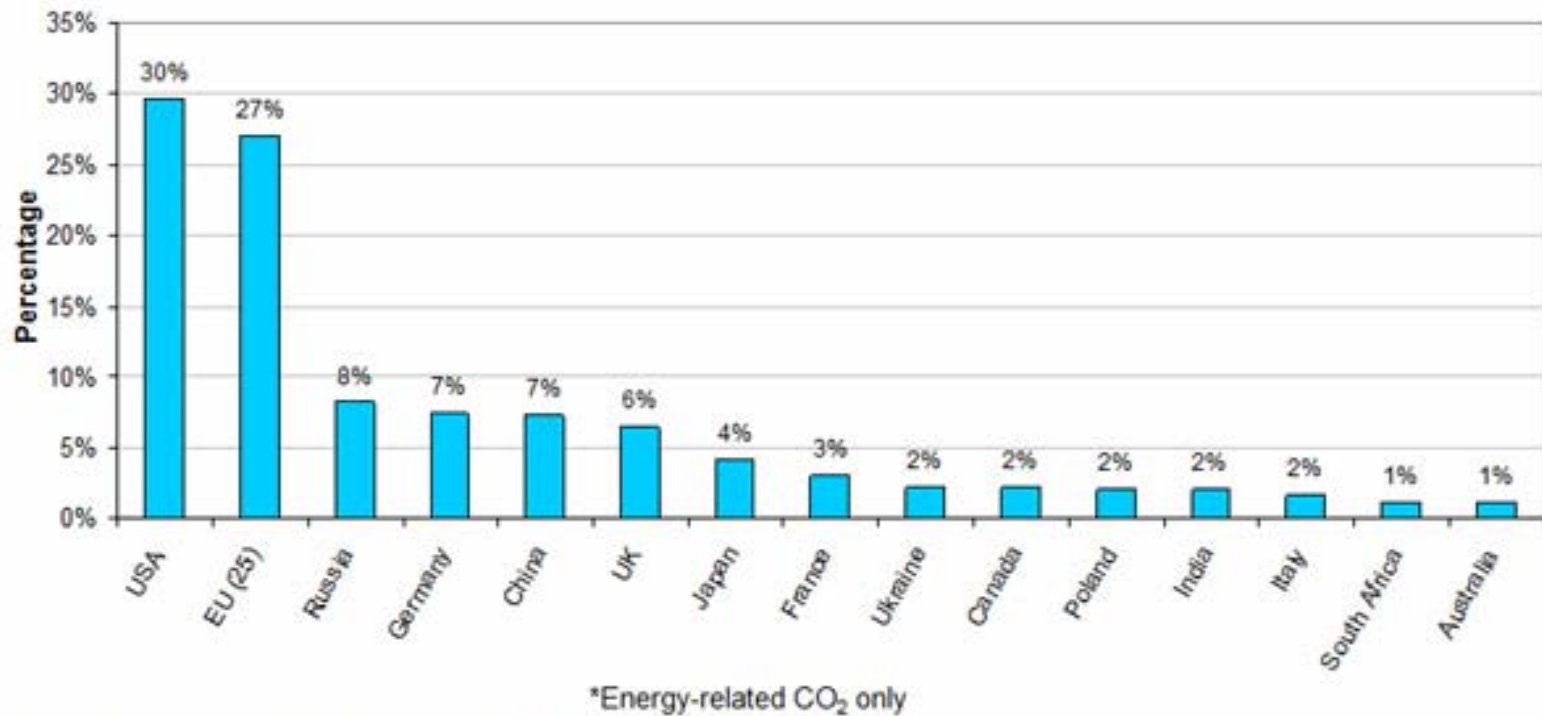


# Global CO<sub>2</sub> Emissions

Tons of CO<sub>2</sub> per capita



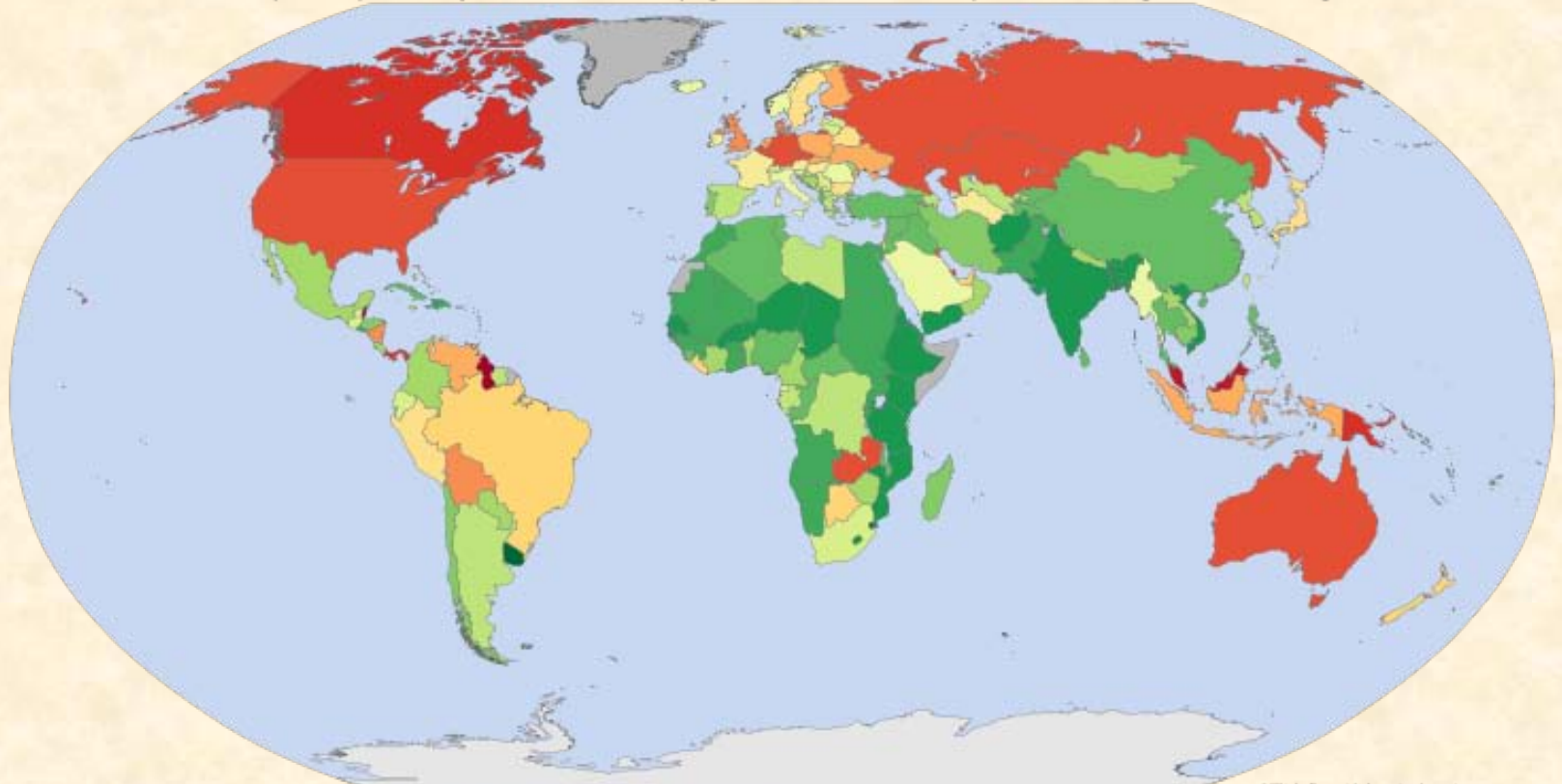
# Cumulative CO<sub>2</sub> Emissions 1850-2000 (Energy-related)



Source: Climate Analysis Indicators Tool (CAIT) version 5.0. (Washington, DC: World Resources Institute, 2008).

# Cumulative CO<sub>2</sub> Emissions 1950-2000, per capita responsibility

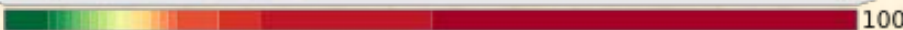
Per capita responsibility for current anthropogenic CO<sub>2</sub> in the atmosphere (including land-use change)



Data: World Resources Institute CMT  
Blank maps: Canisius & others

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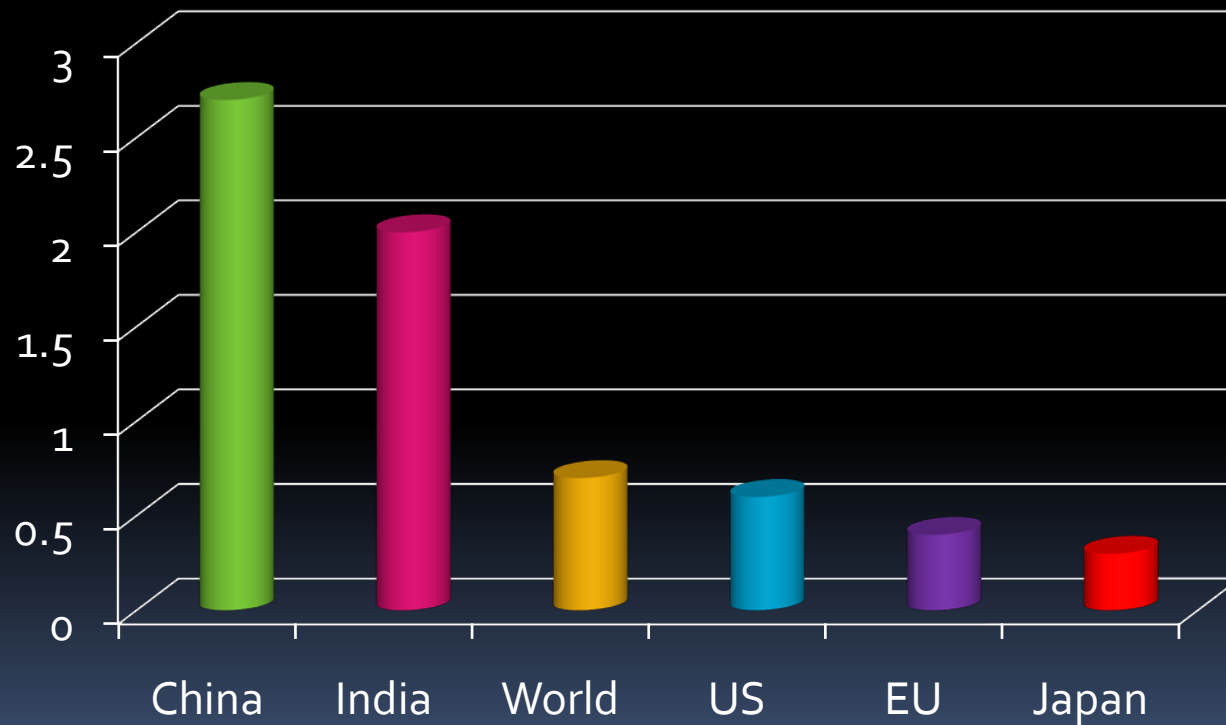


100

0-100 index: Decap-weighted per capita anthropogenic  
CO<sub>2</sub> emissions to 2000 including land-use change  
but not CDM, MDG, JIPIC, JIPIC, JIPIC or Indian India

# Global CO<sub>2</sub> Intensity

2002, (Tons of CO<sub>2</sub> per \$1,000 of GDP)






# PART 4

## EUROPEAN UNION AND CLIMATE CHANGE



# The EU and Climate Change


Official European Commission Website



“Climate change is **already happening** and represents **one of the greatest environmental, social and economic threats facing the planet**. The European Union is committed to working constructively for a global agreement to **control climate change**, and is leading the way by taking ambitious action of its own. The **warming of the climate system is unequivocal**, as is now evident from observations of increases in global average air and ocean temperatures, widespread melting of snow and ice, and rising global mean sea level. The Earth's average surface temperature has risen by 0.76° C since 1850. **Most of the warming that has occurred over the last 50 years is very likely to have been caused by human activities.**”



# Climate Change Impacts in EU

- Many mountain plant species may face **extinction**.
  - Increasing **water** demand for agriculture.
  - **Glacier** retreat.
  - Extreme **weather** events are projected to increase.
  - Human **health** is also significantly affected.
- 

# Impacts in Germany by 2100

**Increase of temperature** of  $0.9^{\circ}\text{C}$  in last 100 years ( $0.7^{\circ}\text{C}$  globally);  $1.5^{\circ}\text{C}$  in the Alps.

**Increase of temperature** of up to  $4^{\circ}\text{C}$ .

Up to 30% **less summer precipitation** → more and stronger heat waves and droughts.

Up to 30% **more winter precipitation** → more and higher floods in spring.

Total **melting of all Alps glaciers** possible → flooding and water scarcity.



# Climate Change and the Economy

By Sir Nicholas Stern, former chief economist of the World Bank

“Stern Review on the Economics of Climate Change”, 2006

- One percent of global gross domestic product (GDP) *per annum*.
- Greatest and widest-ranging market failure ever seen.
- Environmental taxes.

# Climate Change Initiatives

1979: Geneva Convention

1987: Montreal Protocol

1991: First strategy to limit CO<sub>2</sub> and improve energy efficiency

1992: 'Earth Summit', Rio

1997: Kyoto Protocol.

1998: EU-15 signs Kyoto Protocol.

2000: European Climate Change Program (ECCP I)

2001: EU-15 ratifies Kyoto Protocol.

2001: Clean Air For Europe (CAFE) programme

2005: European Climate Change Program (ECCP II)

2005: Clean Air Strategy

# The EU and the Kyoto Protocol


2008-2012

EU-15 must reduce emissions by 8% compared to base year 1990. Some member states defined domestic targets beyond the Kyoto target in addition. No collective target for EU-27. Ten out of twelve new member states have individual commitments to reduce emissions to 6-8% below base level.

- Buy credits from emission-saving projects carried out in third countries.
- Afforestation and reforestation activities.
- Additional policies and measures.
- EU Emissions Trading System.



# Solutions

- EU Greenhouse Gas Emission Trading Scheme (EU ETS).
  - Greenhouse Gas Emissions Allowance Trading Scheme.
  - Landfill of Waste Directive.
  - Intelligent Energy for Europe Program.
  - Renewable Electricity Directive.
  - Biofuels Directive.
  - Agreement with Automakers.
  - “Carbon tax”.
- 

# Emission Trading Scheme (ETS)

Limitation of emissions from ~ 10,500 industrial facilities across Europe that together produce ~ 50% of EU's CO<sub>2</sub> emissions.

Large CO<sub>2</sub> emitters must monitor and annually report their emissions; obliged every year to return an amount of emission allowances to the government that is equivalent to their CO<sub>2</sub> emissions in that year. Emission allowance prices between 7 and 30 Euros (per ton CO<sub>2</sub>).

Excess emissions in 2008-2012 incur penalty (100 Euro per ton CO<sub>2</sub>) and must be made up in next phase.

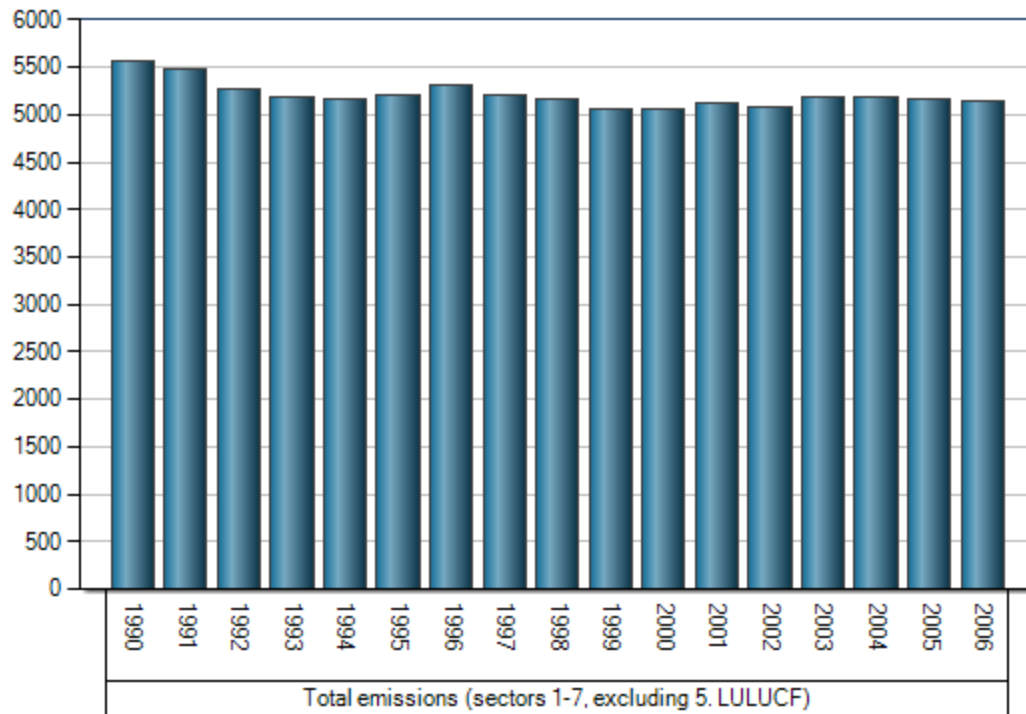
Will continue beyond 2012 with or without new international climate agreements.

# Emission Trading Scheme (ETS)

Operators may **reassign or trade allowances** by several means:

- privately, moving allowances between operators within a company and across national borders.
- over the counter, using a broker to privately match buyers and sellers.
- trading on the spot market of one of Europe's climate exchanges (the most liquid being the European Climate Exchange).

# Total GHG Emissions 1990-2006 (CO<sub>2</sub> Equivalent)

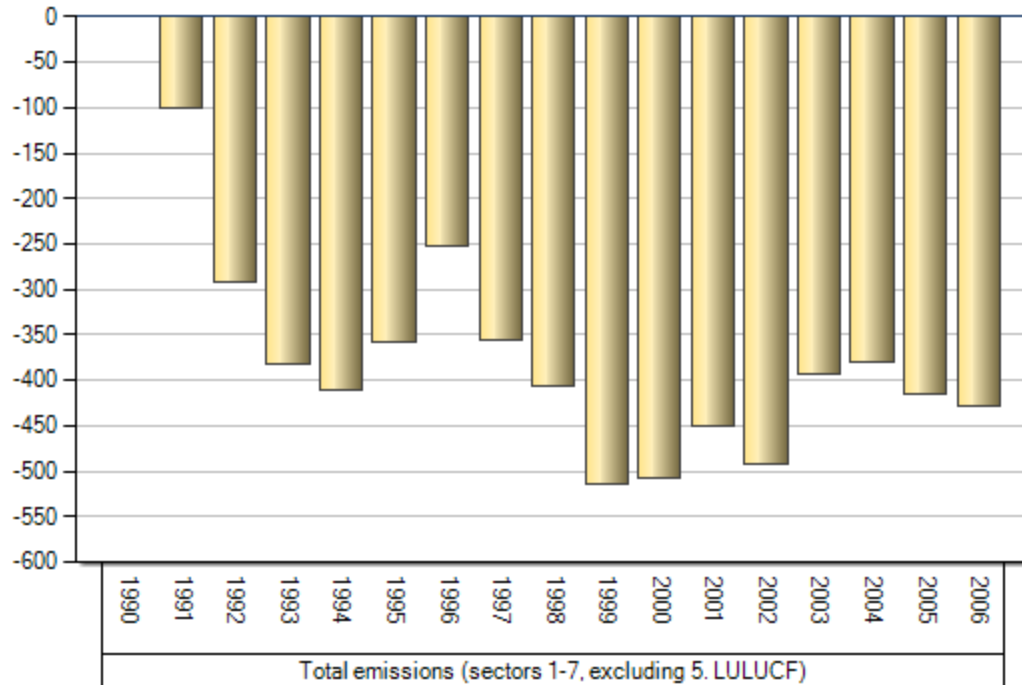


■ Emissions - Tg (million tonnes)  
- EU27

~ 14% of global GHG emissions; 20% from transport sector

# Total GHG Emissions 1990-2006

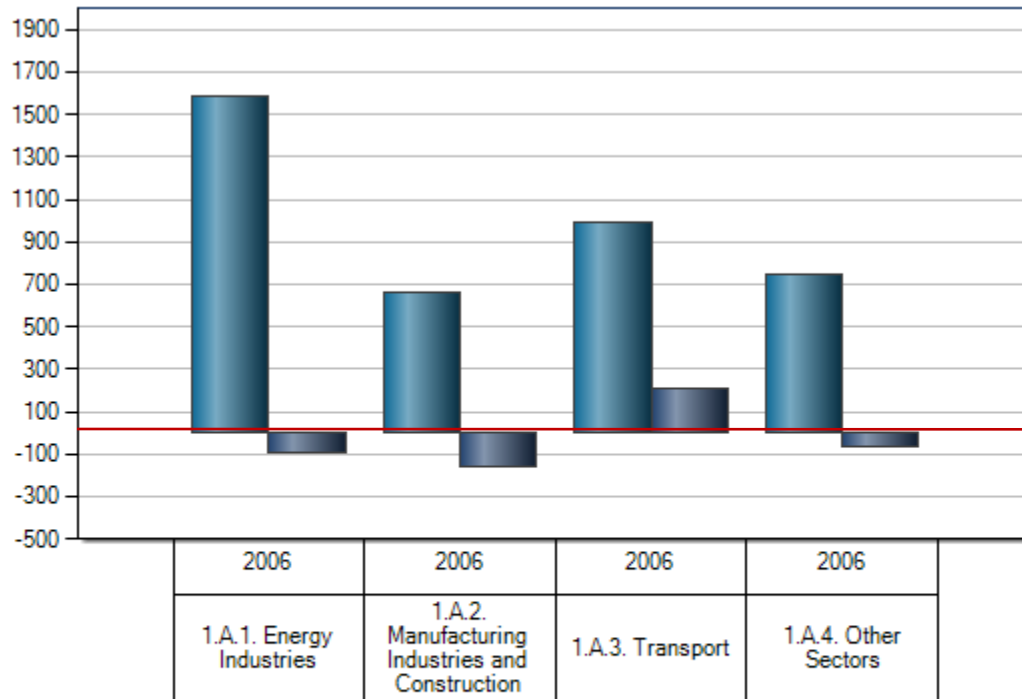
Change compared to 1990 (CO<sub>2</sub> Equivalent)



Absolute change compared to 1990 - Tg (million tonnes) - EU27



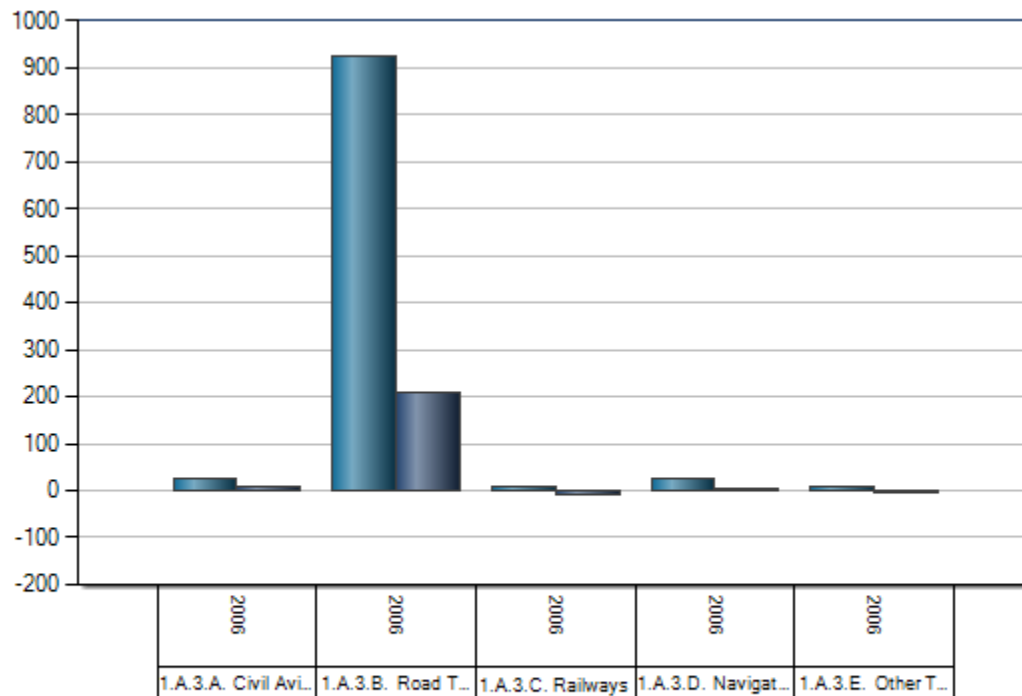
# GHG Emissions 2006 vs. 1990 by sector (CO<sub>2</sub> Equivalent)



■ Emissions - Tg (million tonnes) - EU27
 ■ Absolute change compared to 1990 - Tg (million tonnes) - EU27

# GHG Emissions 2006 vs. 1990

## Transportation (CO<sub>2</sub> Equivalent)



■ Emissions - Tg (million tonnes) - EU27
 ■ Absolute change compared to 1990 - Tg (million tonnes) - EU27

# Global GHG Emissions Trends


1990-2005/06

- EU-15 -2.7%
- EU-27 -10.8%
- Germany -18%
- U.S. +16%



# Global GHG Emissions Trends

Projections against 2004


- Japan -5% by 2010.
  - EU steady by 2010.
  - U.S. +8% by 2010 and +25% by 2025.
  - China +50% by 2025.
  - India +80% by 2025.
- 



# The EU and Post-Kyoto

after 2012

With the Kyoto Protocol targets due to expire in 2012, the EU is pressing for a new international agreement to ensure that global warming is stopped before it exceeds the temperature in pre-industrial times by more than 2°C. Scientists view a 2°C rise as the threshold beyond which climate change could trigger irreversible and possibly catastrophic planetary changes.



# The EU and Post-Kyoto

after 2012

**2006:** “**Bali Roadmap**” describes activities for implementation of a post-Kyoto agreement.

**2007:** “**Energy Policy for Europe**”; EU will cut its greenhouse gas emissions to **at least 20%** below 1990 levels by **2020**, and will increase this reduction to **30%** if the other industrialized countries (**particularly, the U.S.A.**) agree to do likewise and developing countries also take action. EU agreed on reduction by **60-80% until 2050**.

# The EU and Post-Kyoto

## after 2012

To achieve this **cut of at least 20%**, existing measures such as the EU ETS will be supplemented by

- new measures aimed in particular at **boosting energy efficiency 20% by 2020**,
- **increasing the share of renewable energy sources to 20% by 2020**,
- and **equipping new power stations with carbon capture and storage technology**.

# The EU and Post-Kyoto

after 2012

**2007:** G8 meeting in Heiligendamm; **global goal:** reduction by **50% until 2050** “should be seriously discussed”; **China and India** should be included; **acceptance of all three IPCC reports.**

**2008:** **Negotiations about post-Kyoto agreement** in Poznan.

**2009:** Planned **adoption of post-Kyoto agreement** in Copenhagen.



# The EU and Post-Kyoto

after 2012 - **Reactions**

Many EU member states expressed **concerns** about EU Parliament 's vote for using profits from emission trade exclusively for climate protection activities/initiatives.

**Italy** against stricter conditions.


**Germany** against stricter CO<sub>2</sub> emission limit (120 g/km) for new cars in 2012 (Germany: 2015). (Audi; BMW; Mercedes; Porsche; VW).



# Taking Sustainability Seriously

Press Release, 13 March 2008

## “Europeans put the environment centre stage”

- protect the environment.
  - quality of life.
  - climate change.
  - priority over economic competitiveness.
  - decisions at European Union level.
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**PART 5**

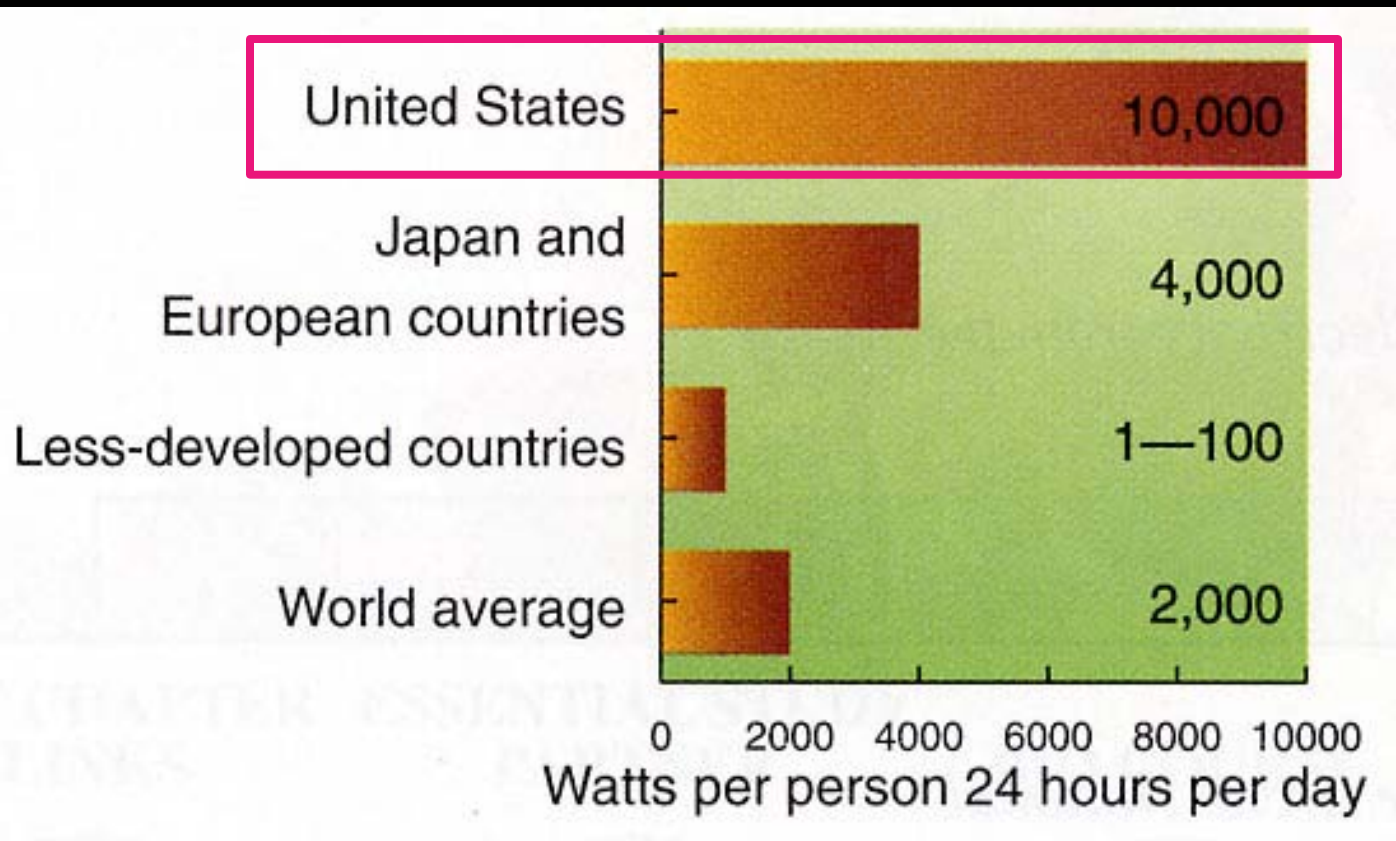
**U.S. IN THE VIEW OF EUROPE**



# Facts

- 4% of the world's population count for 25% of energy consumption.
  - The US is the world's single-largest source of CO<sub>2</sub> emissions, accounting for 36% in 1990.
  - Under the Kyoto Protocol, the US would have to cut its carbon dioxide emissions 7% below 1990 levels between 2008 and 2012.
- 

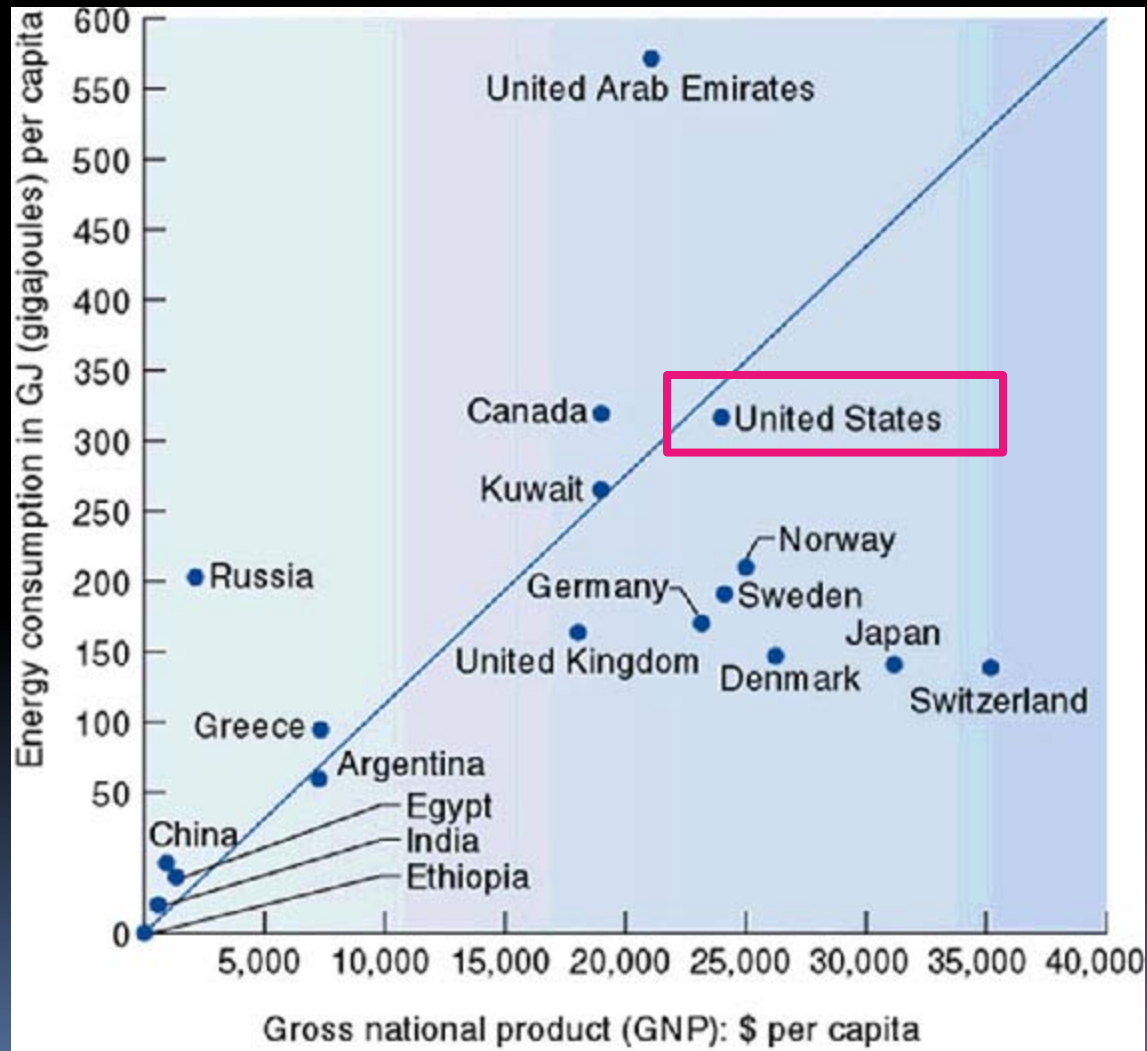
# Energy Consumption per capita per day



# Energy Use for Transportation in gigajoules per capita

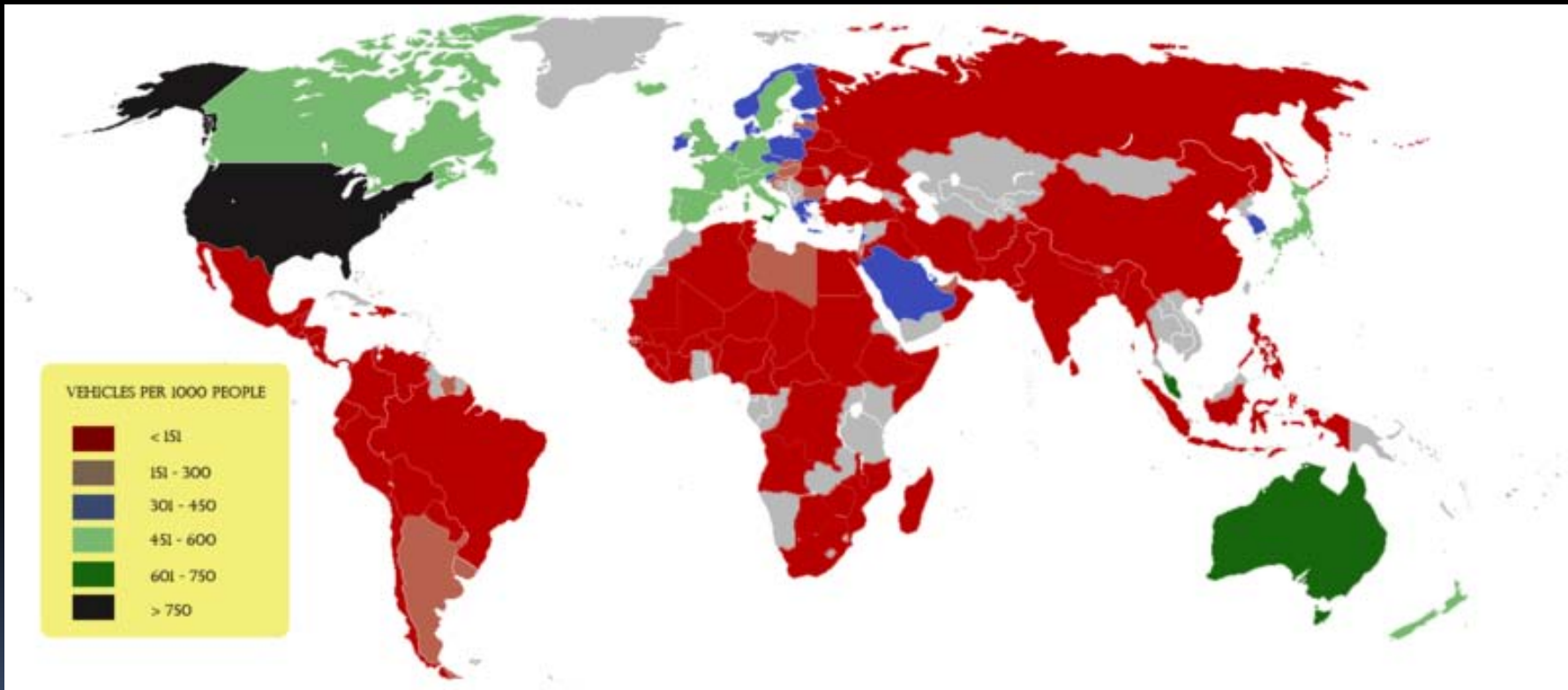
Country	Energy Use in Gigajoules/Capita
India	2
Zimbabwe	4
Mexico	17
Argentina	18
Russia	26
Japan	28
Netherlands	41
Denmark	43
Australia	86
United States	105

# Energy Consumption and GDP



# Passenger Cars and Population

Vehicles per 1,000 people





# US-Americans and Their Cars

- 35 % of all cars and trucks in the world in 1999 (= 212 million vehicles).
- 2 trillion miles per year – as much as the rest of the world combined.
- until 2008, California used more gasoline than any other sovereign nation (other than the U.S.)

# Transportation Mode for Land-based Trips

	Europe	U.S.A.	World
Walking/Bicycling	40-50 %	2 %	
Mass Transit	10 %	3 %	
Automobile	40-50 %	95 %	10 %



# U.S. Environmentalism

20<sup>th</sup> century

**First Wave (1901-1909):** T. Roosevelt; National Conservation Commission

**Second Wave (1930s):** F. Roosevelt; "Dust Bowl"; Alice Hamilton; Aldo Leopold

**Third Wave (1960-1980):** Nixon, Ford, Carter; Rachel Carson; Paul Ehrlich; "Earth Day"; Clean Air Act; Environmental Protection Agency (EPA)

**Fourth Wave (1980-2000):** Clinton and Gore; Sustainable Revolution?; Lester Brown; Worldwatch Institute; "Earth Summit" in Rio de Janeiro; "Agenda 21"

# U.S. Environmentalism?

20<sup>th</sup> century

**Bush (sen.) Administration:** President Bush attends Rio, but is against any deadlines.

**Clinton Administration:** Vice-President Gore attends Kyoto and signs the willingness for ratification, but is against any deadlines.

**Bush (jun.) Administration:** Leaves Kyoto Protocol. Secretary of State attends Johannesburg.

**Obama Administration:** ???

# U.S. Clear Sky Initiative

- Presented as the **Bush administration's climate change plan** in Feb 2002.
- Reducing its "**greenhouse gas (GHG) intensity**" 18% over the next 10 years. GHG intensity is the ratio of greenhouse gas emissions to economic output.
- The goal is to lower the rate of emissions from an estimated 183 mt per million dollars of GDP in 2002 to 151 mt in 2012. In other words, **emissions would continue to increase** as the economy grows, but at a slower rate than would be the case in a "business-as-usual" scenario.



# U.S. Clear Sky Initiative

## White House:

"By significantly slowing the growth of greenhouse gases, this policy will put America on a path toward stabilizing GHG concentrations in the atmosphere in the long run, while sustaining economic growth."



## House Democratic Leader Richard Gephardt (Missouri):

"Simply translated, its goal is to slow the growth in greenhouse gas emissions. I remind the administration that the global objective is to cut greenhouse gas emissions."

# Clear Sky Initiative

## Reactions from Europe

EU Environment Commissioner Margot Wallstrom said Bush's policy could lead the United States to break a long-standing commitment to stabilize greenhouse emissions. "It seems that President Bush's proposals will not lead to a reduction of greenhouse gas emissions but allow a significant increase. This raises the question whether the U.S. will be able to meet its commitments under the U.N. Framework Convention on Climate Change," Wallstrom said.

German Environment Minister Juergen Trittin echoed the sentiment of many pro-Kyoto countries by welcoming the long-awaited announcement of a U.S. policy on global warming, but decrying its content. "I welcome the fact that with this program President Bush has recognized the need for measures to tackle climate change; however at first glance the contents look disappointing," he said.

# Clear Sky Initiative

## Reactions from Europe

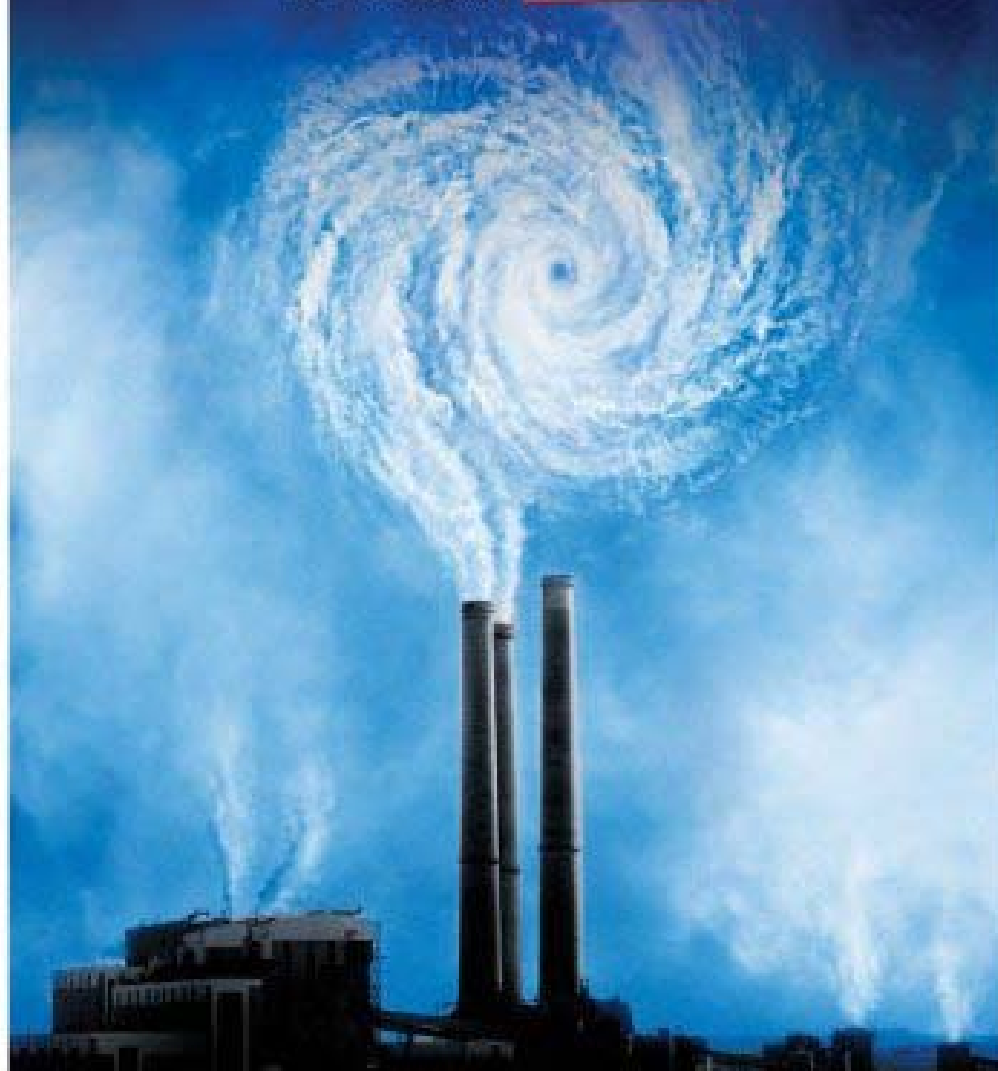
Chris Hewett, of Britain's Institute for Public Policy Research, said: "In climate change terms (...) it is nonsense, it won't help at all. The science is absolutely clear that we have to reduce emissions (...) Britain has proved that you can cut emissions and still have a very healthy economy. There is no inextricable link between CO<sub>2</sub> emissions and economic growth."

"It's really shocking...it's a bit like saying: 'wealth is for us today in 2002 and we will leave the problems for our children or for people in Africa or Asia'," said Belgium's Green Party Energy Minister Olivier Deleuze. Deleuze led the European Union delegation at talks last year which secured support from most of the rest of the world to push on with Kyoto without the United States. "It's a policy that's not very moral, I feel," he said.



# an inconvenient truth

A GLOBAL WARNING



"It doesn't matter whether you're a Republican or Democrat, liberal or conservative... your mind will be changed in a nanosecond."

- Roger Friedman, FOXNEWS.com

# Kyoto Protocol in 2009






# PART 6

## TAKING SUSTAINABILITY SERIOUSLY




# Taking Sustainability Seriously

- physical environment *and* the people
  - social issues
  - function of civil society
  - character of the civil society
  - sustainability initiatives
  - communitarian principles
  - political process
  - changing the fabric of civil society
- 



# Taking Sustainability Seriously

- political will
  - greater public involvement
  - participatory processes
  - shared community values
- 

# The “Three Deadly Sins”

- Tragedy of the commons.
- Not-in-my-backyard (NIMBY) syndrome.
- Transboundary shifting of environmental impacts.
  
- “Rampant individualism”.
- “Rational consumers”.
  
- BUT:
- “You can’t always get what you want”.




# U.S. and Communitarian Values

U.S. history does not **provide an unfettered tradition of libertarian values**, but rather it provides an understanding of individual freedoms as being constraint by community concerns.

**Liberalism** has fostered the evolution of communities without shared values.

(from K.E. Portney, 2003, "Taking Sustainable Cities Seriously")





America –  
where did all your  
values go?