



# Sustainable Development at the Tipping Point: The Energy & Climate Challenge

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World Business Council for  
Sustainable Development



# Agenda

- WBCSD
- The Context
- The Intergovernmental Processes
- Areas for Actions
- WBCSD Work
- Cooperation Academia and Business



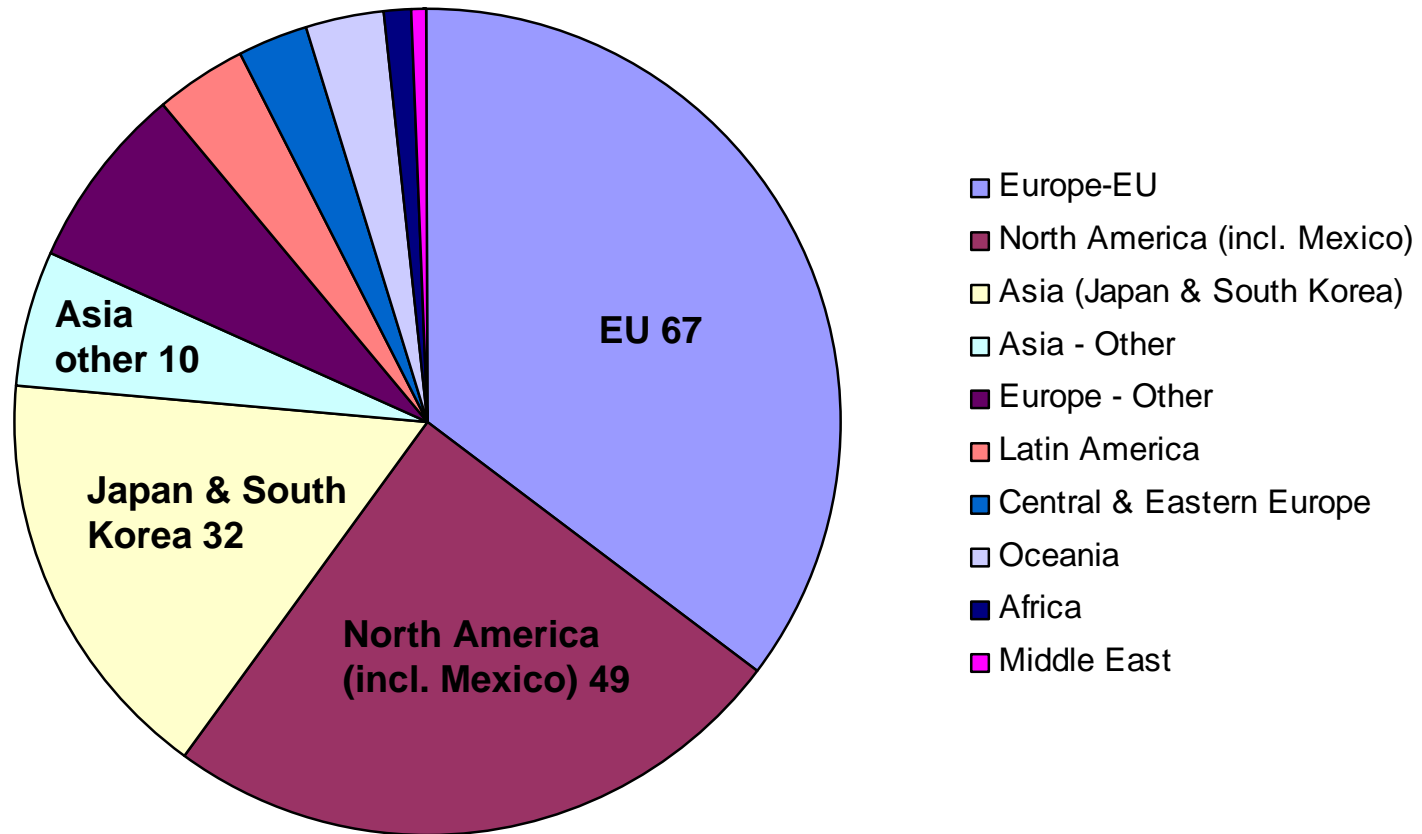
# WBCSD Members, Scale – Statistics

## Coalition of 200 leading companies

- Market capitalization: USD 6 trillion
- Total turnover: USD 5,2 trillion
- Total member company employees: 12 million
- Global outreach
  - ✓ *3 billion consumers **per day** buy a product or service from a WBCSD member company*



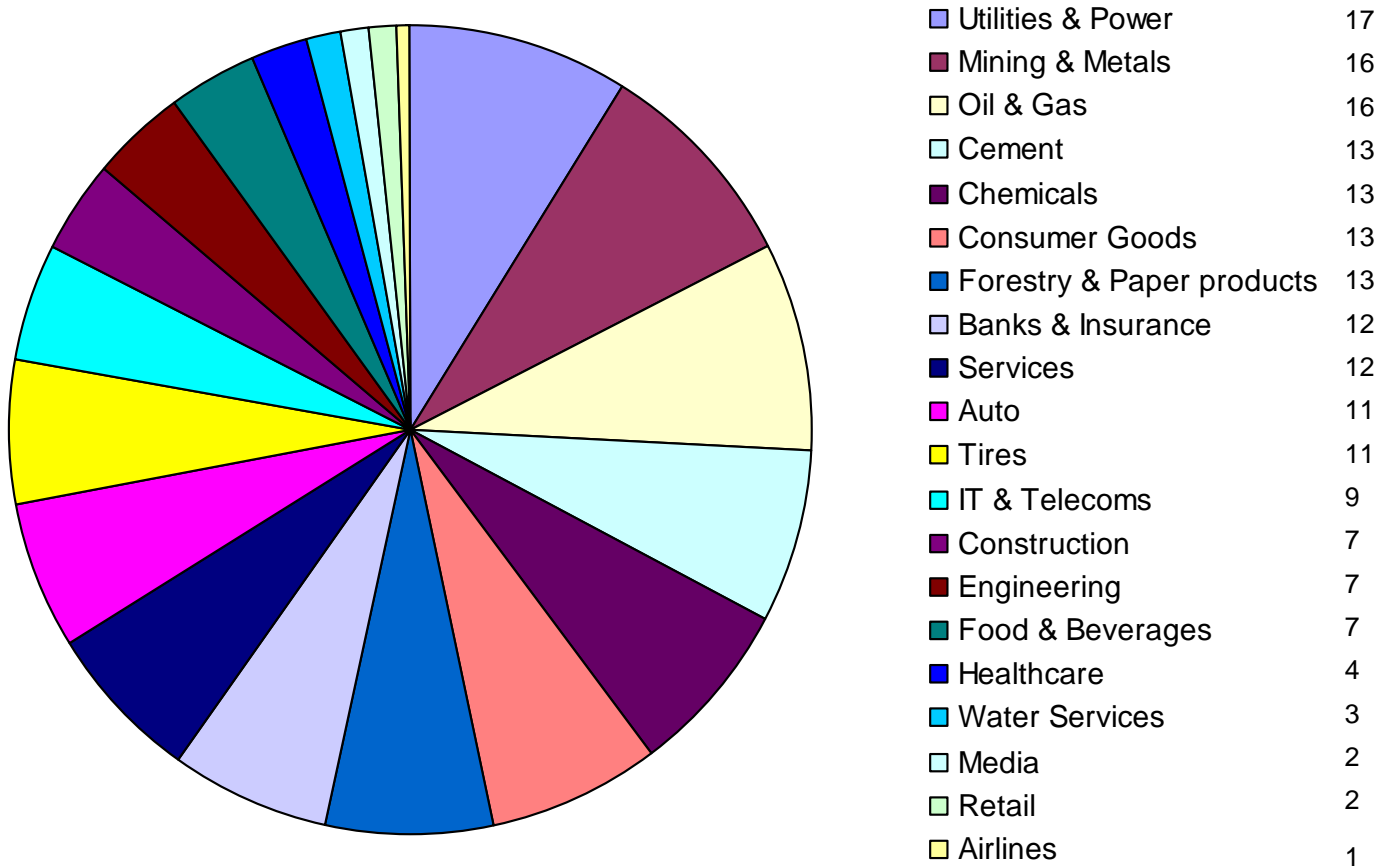
# Geographic Overview of WBCSD Members



EU, NA and Japan & Korea : 77%  
Regional Network: a counterbalance



# Member Companies by Sector



No sector represents more than 17 members



# Energy Companies



BP

AEP

Fortum



Chevron

Areva

Kepeco

Conoco Phillips

BC Hydro

Statkraft

Royal Dutch/Shell

Chubo

Suez

Sinopec

CLP Holdings

Tepco

Suncor

Duke Power

Vattenfall

Statoil

E.On

Petrobras

EDF

ENI

Entergy

Eskom

Exelon





# WBCSD Regional Network



59 Regional Partners

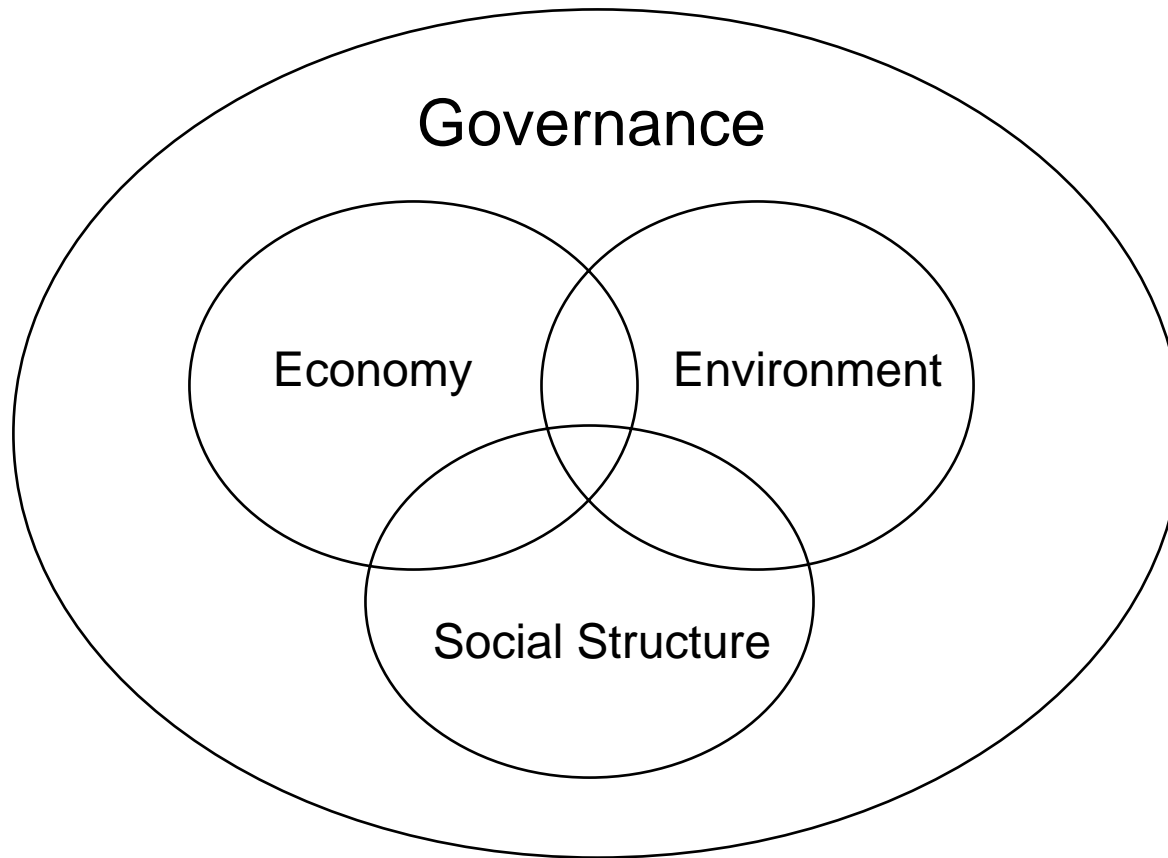


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# A World Increasingly Shaped by SD Issues





# What are the Drivers / Forces behind SD?

## « The Top 4 »

- Globalization
- China and India
- Energy & Climate
- Water

## « Others »

- Ecosystems
- Demographics
- Urbanization
- Poverty alleviation, especially in Africa
- Trust and transparency
- Media
- Financial Markets



# Energy & Climate



April 2006



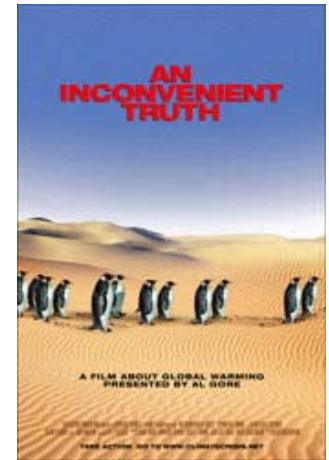
September 2006



June 2007



# Energy & Climate





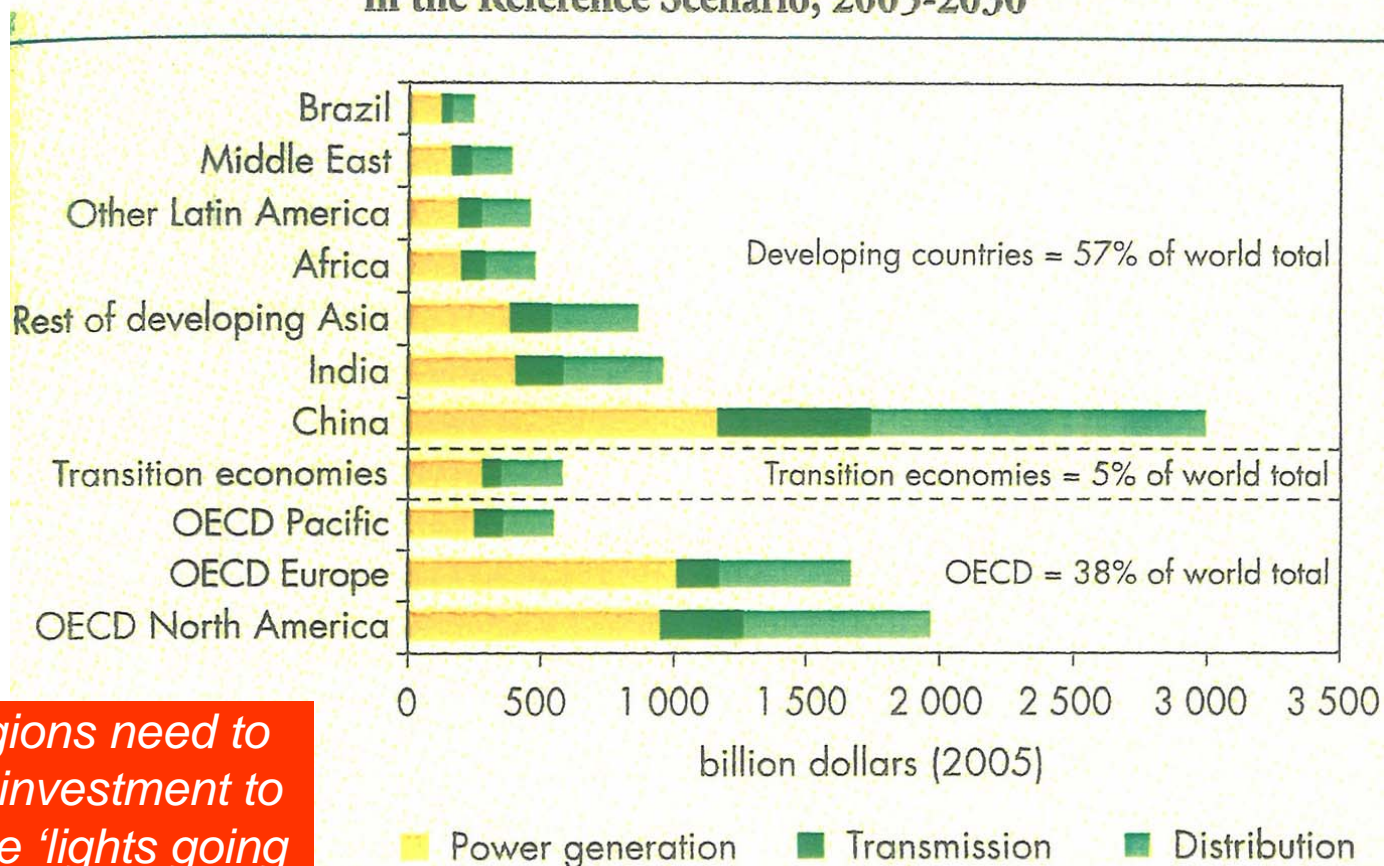
# Energy & Climate Change

- Public opinion is at « a tipping point »
- A growing sense of urgency in society
- Consequence:
  - ✓ Push on governments to show leadership and take actions



# Energy & Climate - Dilemmas

Cumulative Power-Sector Investment by Region  
in the Reference Scenario, 2005-2030



Source: IEA,  
WEO 2006

*Some regions need to speed up investment to prevent the 'lights going out'*



# Energy & Climate - Dilemmas

## Total Primary Energy Demand in %

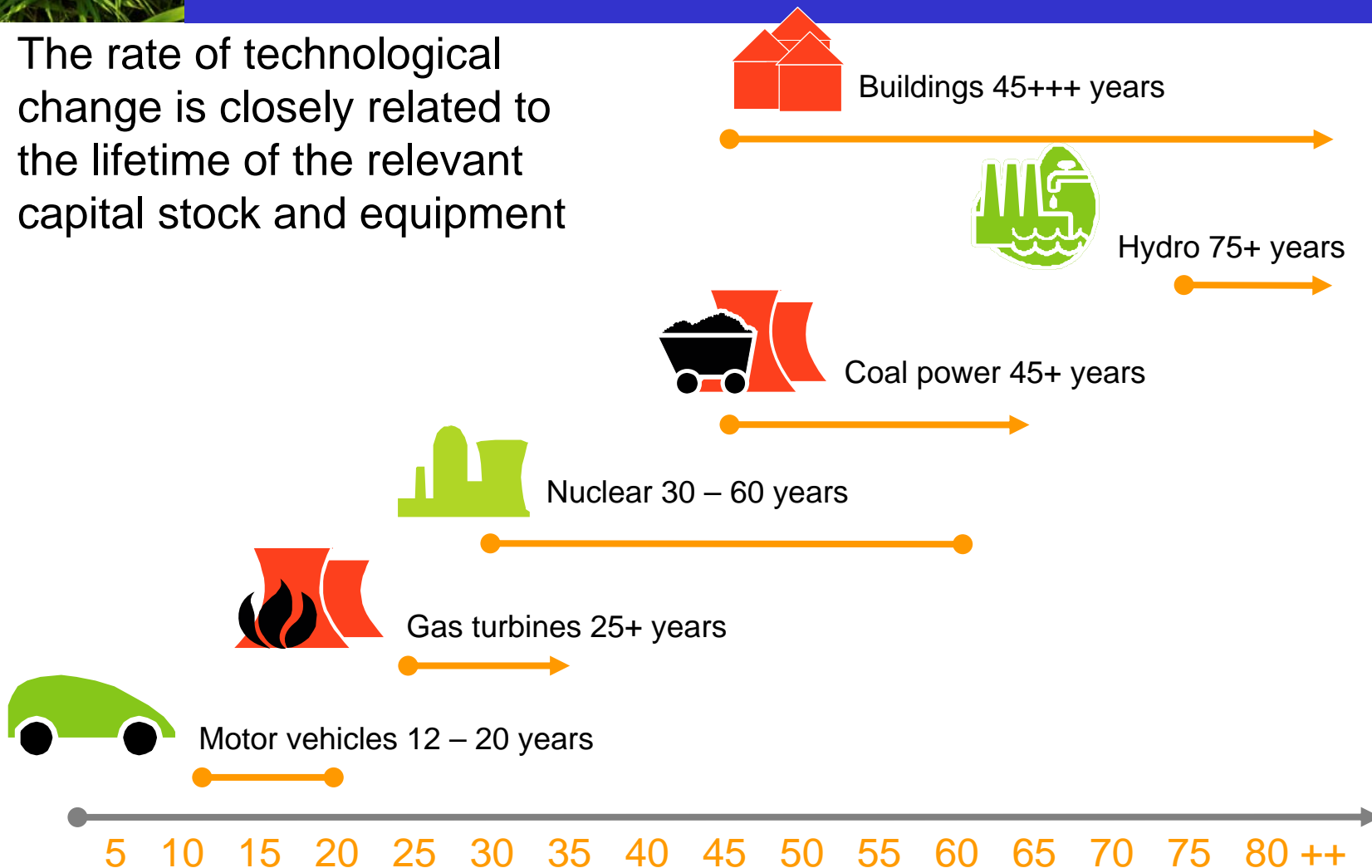
	2004	2030
Coal	81	81
Gas		
Oil		
Nuclear	6	5
Hydro	2	2
Biomass & Waste	10.5	10
Other Renewables	0.5	2

Source: IEA



# Size and lifetime matter !!

The rate of technological change is closely related to the lifetime of the relevant capital stock and equipment





# The Context

- Gleneagles Plan of Action 2005  
« Climate change, clean energy and sustainable development » 2005
- World Energy Outlook 2006 (IEA) 2006
- Stern Review 2006
- IPCC 4th Assessment Report 2007



# Agenda Influencing Reports / Events

## Key Messages

- Climate change via human influence is happening. The consequences will require adaptation by society
- Need to stabilize carbon concentration at 450-550 ppm, i.e. not go above + 2°- 3° .  
Still 50/50 chance of going above
- This means
  - 30% emission reductions globally by 2050
  - 60 - 80% for industrialized countries
- Urgent actions are needed.  
We are at 430 ppm today in CO2 equivalents



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# Two Key Intergovernmental Processes

- Formal climate negotiations / UNFCCC
  - ✓ Stalled at present
- G8
  - ✓ Can help bring the UNFCCC negotiations “back to life”



# EU (I)

## Beliefs

- Determined to lead the world on climate change
- Wants to expand EU-ETS to a global trading system, including CDM
- Sees low carbon technologies as a major business and growth opportunity
  - ✓ Nuclear?
- Perceives EU to be in a strong competitive position



## EU (II)

### Actions

- EU Energy Plan “3x20 by 2020”
  - ✓ - 20% GHG emissions  
(-30% if international agreement)
  - ✓ 20% energy efficiency
  - ✓ 20% renewables
  - ✓ 10% biofuel for automotive by 2020
- Mandatory standards
  - ✓ Cars 140 → 130 gr/km fuel efficiency
  - ✓ All energy related products (light bulbs)
- EU-ETS review in 2007
- EU High level Group on Energy, Climate and Competition
  - ✓ 2 year initiative, 2006-07



# US (I)

## Status

- Actions happening on state and city levels, example California
- USCAP (US Climate Action Partnership)
  - ✓ 10 companies and 4 NGOs Jan. 2007
  - ✓ “Lukewarm reaction” by the Administration
- Democrat controlled congress with leading Senators and Congressmen pushing for federal action
- President Bush – “15 biggest emitters”





# US (II)

## Beliefs

- Technology development and deployment the key answer
  - ✓ “US is going to be leading the world in efficient and low carbon technologies: This is a major business opportunity”.
- “Cap and trade” a contentious issue  
= synonymous with Kyoto Protocol
- China and India must be part of any global solution.



# Japan (I)

## Status

- The most energy efficient of the 3 main economies
  - « Energy efficient products is a competitive advantage »
- Voluntary actions by industry in place



# Energy Intensity – Energy GDP

■ Japan	1.0
■ EU	1.6
■ US	3.0
■ China	9.0



## Beliefs

- No “cap and trade” domestically  
Business: “We do not trust governments to be able to properly allocate emission rights”
- Positive to CDM, i.e. trading internationally
- Continue voluntary actions



# China (I)

## Status

- Tremendous growth in energy demand and investments
- Will become the biggest GHG emitter by 2010 (?)
- Substantial improvements in energy efficiency
- Major coal reserves





# China (II)

## Beliefs

- Need to grow the economy / increase energy use to alleviate poverty and maintain a “harmonious society”
- Government concerns about air pollution impacts, including acid rain
- Concern that climate change could have serious consequences for Chinese food and water supplies
- The industrialized world must carry the main burden to reduce GHG emissions



# China (III)

## Actions

- 11th 5 year plan 2006
  - + 20% energy efficiency in 5 years
- Export tax on energy intensive products
- High fuel efficiency standards on cars - higher than the US
- Surtax on SUVs in Beijing



# India (I)

## Status

- Situation similar to China as regards growth in energy demand, investments and coal reserves

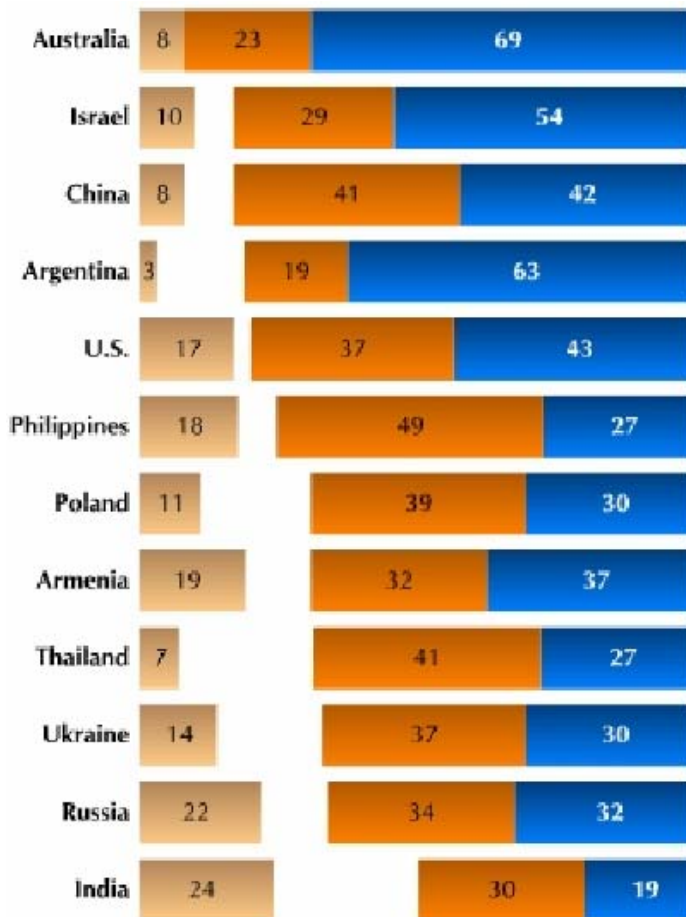


## Beliefs

- Need to grow the economy and increase energy use to alleviate poverty
- Low public support for actions on climate change
- The industrialized world must carry the main burden to reduce GHG emissions



# Views of Global Warming



WPO/CCGA

- Until we are sure that it is really a problem, we should not take any steps that would have economic costs
- ... should be addressed, but its effects will be gradual, so we can deal with the problem gradually by taking steps that are low in cost
- ... a serious and pressing problem. We should begin taking steps now even if this involves significant costs

Source: Chicago Council on Global Affairs & WorldPublicOpinion.org



## Actions?

- “It is difficult to get climate change onto the desk of the Prime Minister or the Finance Minister”
- “The issue that US kids can no longer ski in Vermont is not a major concern for us”



# 5 Main Economies / Countries

- They represent
  - ✓ GDP – 80% of global GDP
  - ✓ Population – 60% of the world's population
- What does this tell us?
  - ✓ Economic growth is a priority
  - ✓ Energy demand will grow
    - Actions: Energy efficiency
  - ✓ Urgency to act on climate change?
    - “You first” mentality
  - ✓ Burden sharing?
  - ✓ They will use their coal
  - ✓ Likelihood for a new global framework agreement on climate?



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# Key Areas of Action on Climate Change



HM TREASURY



Home > Independent reviews > Stern Review on the economics of climate change

Stern Review on the economics of climate change

- Long term target
- Energy efficiency
- Price of carbon
- Technology development and deployment
- Combating deforestation



# Energy Efficiency

- Energy efficiency targets
  - ✓ EU - 20% by 2020
  - ✓ China - 20% in 5 years up to 2010
- IEA:  
1 USD invested in reduced energy demand will save 2.2 USD in energy supply capacity



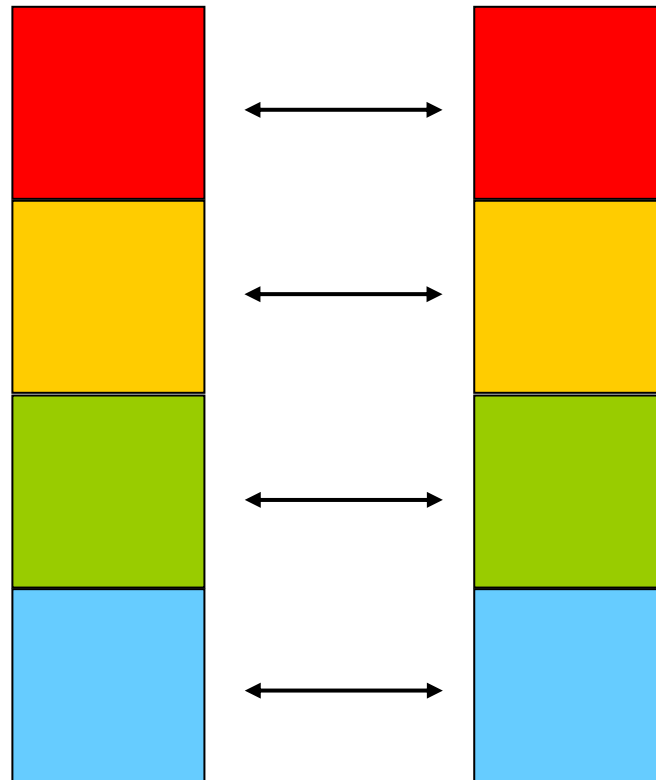
# Technology Development and Deployment

- R&D investments in energy reduced 50% during last 25 years  
Needs to be reversed
- A new public private partnership?
- Deployment of technologies requires supporting government policies
  - ✓ “Horses for courses”



# Technology & Policies

Technology                      Policies





# Technology Development and Deployment

## Policies adapted to technologies

- Simplify red tape for planning
- Product standards for appliances and cars
- Building codes
- Subsidies for fast market penetration of renewable energy
- Sharing of R&D costs between governments and business
- Risk guarantees for these new technologies



# A revised CDM Clean Development Mechanism I

- Objective
  - ✓ Bring technology and financial resources to developing countries
  - ✓ Offset CO<sup>2</sup> reduction commitments in the G8 countries
  - ✓ “More bang for the buck” for the investments in emission reductions as a global community



# A revised CDM

## Clean Development Mechanism II

### CDM

- So far too bureaucratic with too high transaction costs
- Reformed CDM needed
  - ✓ Designed according to how Business works
  - ✓ Allow for broad programs for industry sectors in developing countries
  - ✓ Eliminate present offset limitations in Annex I countries



# Sector Approaches to Address Climate Change

- Initial work ongoing in some sectors
  - ✓ WBCSD Cement Sustainability Initiative
  - ✓ Aluminum industry
- Could be a way to address the “global level playing field” issue

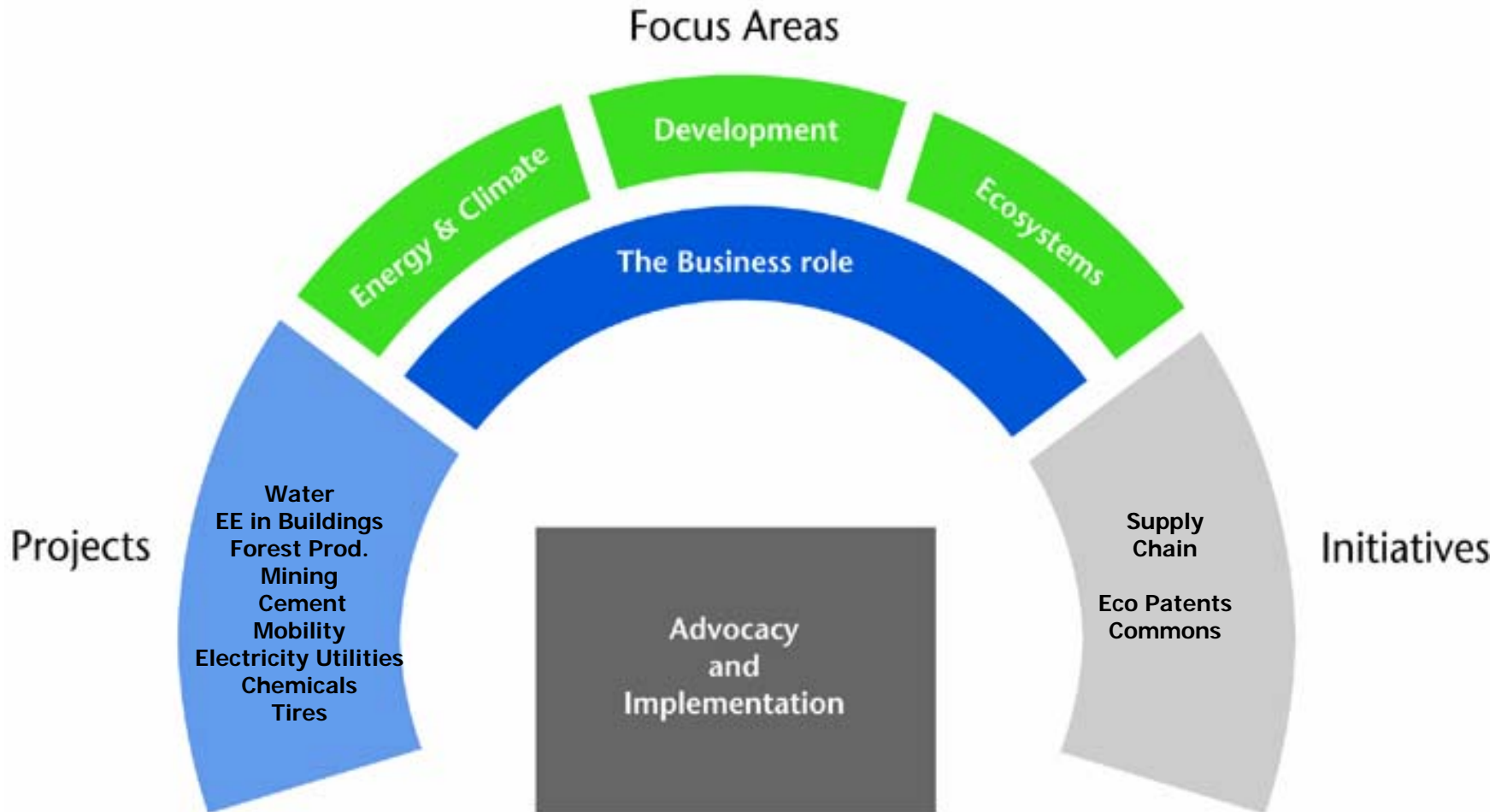


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# WBCSD Work Program





# WBCSD Work

- Dedicated projects for industry sectors
  - ✓ Energy Efficiency in Buildings
  - ✓ Mobility
  - ✓ Electricity Utilities
  - ✓ Forest Products
  - ✓ Cement
  - ✓ Tires
  - ✓ Chemicals
  
- Building blocks for actions
  
- GHG Protocol



# A Sustainable Energy Future

- Understanding the energy challenge
- Recognising the need for a sustainable approach
- Investing in technology
- Using the markets
- Delivering solutions

**Doing it now !**



# Five "Mega trends" in our energy system



Oil



Biomass



Gas



Coal



Nuclear



Renewables

Primary Energy

Liquids

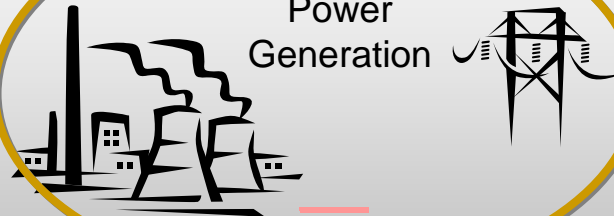


Direct combustion  
Industry and  
Manufacturing



Energy

Power  
Generation

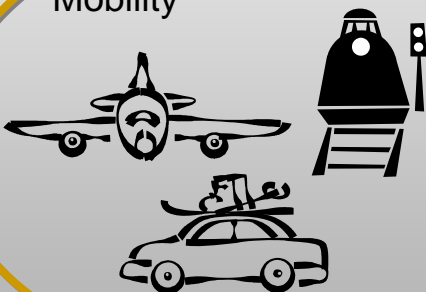


Final Energy

Energy

Energy

Mobility



Consumer  
Choices

Buildings





# Power Generation – What is needed

## Key directions . . .

- Decarbonisation
- GHG emissions management
- Energy efficiency improvements
- Electricity as a preferred domestic and commercial final energy source

## Key technologies...

- Renewables
- Nuclear power
- Clean coal technology - including carbon capture and storage (CCS)
- Natural gas





# Mobility – What is Needed

## Key directions . . .

Involve fuel producers, vehicle makers and the consumer.

- New more efficient vehicles
- Broadening the range and type of fuels
- Changing the way we use mobility



## Key technologies . . .

- Hybrids and plug-in hybrids (drive trains and batteries)
- 2nd generation biofuels, synthetic diesels, electricity.
- Integrated public / private transport mechanisms
- Hydrogen



# Industry & Manufacturing – What is Needed?

## Key directions . . .

- Energy efficiency measures
- Breakthrough low-GHG manufacturing technologies
- Rapid deployment of best available technology

## Sectoral Approach . . .

Many different policies already exist, but a sector based initiative offers scope for wide coverage and inclusiveness.

- Creation / Expansion of the international project mechanism to recognise whole sectors as a “project”.



# Consumer Choice – What is Needed?

## Key directions

- Increased consumer awareness and understanding of the energy/ carbon issue
- Robust programs to encourage energy efficiency targeted at consumers
- Attribute a value to carbon, which allows consumers to recognize its cost throughout product and service life cycle
- Market conditions that influence the consciousness of consumers

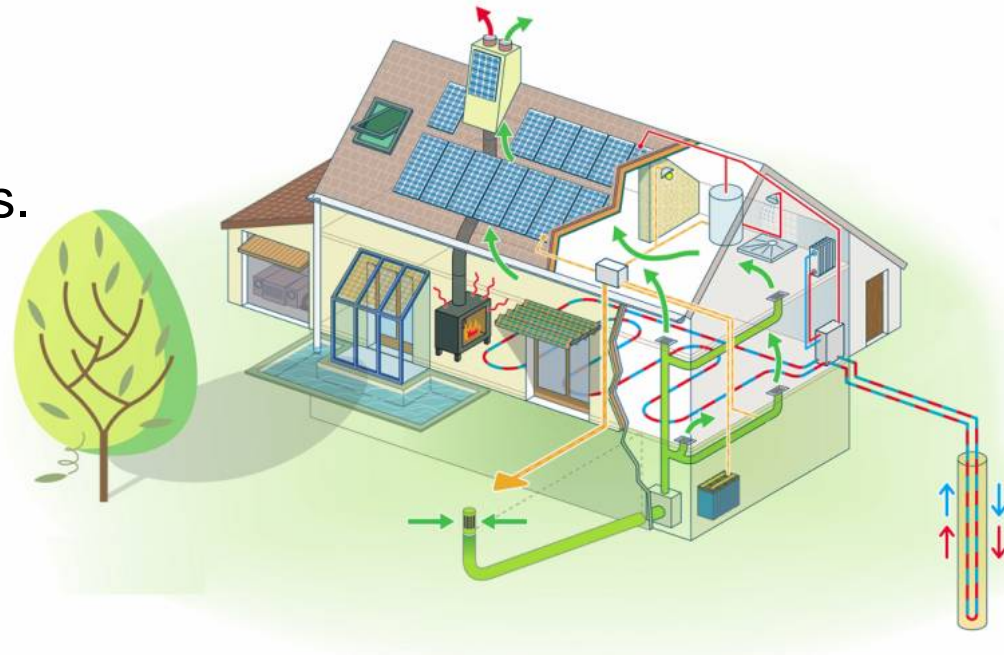




# Buildings – What is Needed

## Key directions . . .

- Energy standards and codes for buildings, appliances and lighting.
- Education programmes for operators and occupiers.
- Transparency and awareness.
- Focus on building materials and their lifecycle emissions.
- Innovation in building design.





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# Cooperation Business and Academia

- Two specific experiences
  - ✓ AGS, Alliance for Global Sustainability
  - ✓ IPCC



- Coalition of MIT, ETH, Tokyo University, later on Chalmers and Monterrey Tech
- Support by an Advisory Board of Business Leaders
- Conclusions
  - ✓ Very different cultures at different universities, e.g. funding
  - ✓ How do you cooperate with an institution like MIT with no « boss » and 350 professors with independent programs when sustainability is a cross cutting issue?
  - ✓ Different timescales in business (now) and academia (next 3-5 years programs already locked in)



# IPCC (I)

- A study based on academic principles, i.e. knowledge must be based on academic, peer reviewed work published in learned journals  
Consequence: the knowledge in business is not considered as objective and possible to consider



## IPCC (II)

- Substantial time commitment by individuals if you want to contribute as lead author, contributing author, etc. Very difficult for a business person to allocate that much time



# IPCC (III)

- Conclusions for policy makers (governments) are negotiated with governments word by word.  
Business participation?



# Cooperation Business and Academia

- Governments do not seem to be able to solve the long-term and complex issue of sustainability and climate change
- Neither Academia nor Business can do it each on its own
- But, if we could find a closer and more productive cooperation, we could push the world in a sustainable direction



# Apollo Projects of Our Time? (I)

What do we need to solve to deal with climate change?

- Clean coal
  - ✓ Carbon capture and storage
- Next generation of nuclear
- Decentralized economically viable electricity generation based on renewables
  - ✓ Solar, wind, fuel cells



# Apollo Projects of Our Time? (II)

- Biofuels without the present consequences for food supply and water access
- Efficiency improvement in fuel efficiency for road transport
- Zero net energy use in buildings



# Concluding Words

- The transformation to a sustainable energy infrastructure will not be easy



# Concluding Words

- The transformation to a more sustainable energy future will mean winners and losers  
“Rough ride” for the next 25 years
- Climate Change is becoming a core business issue with strategic and financial implications
- Tension will grow inside the business community due to climate change implications on strategies and operations



**”If you do not change direction,  
you will end up where you are going”**



[www.wbcasd.org](http://www.wbcasd.org)