

Energy Efficiency - THE Bridge to Sustainability

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May 2006

We are facing tremendous business opportunities which are well hidden as enormous challenges:

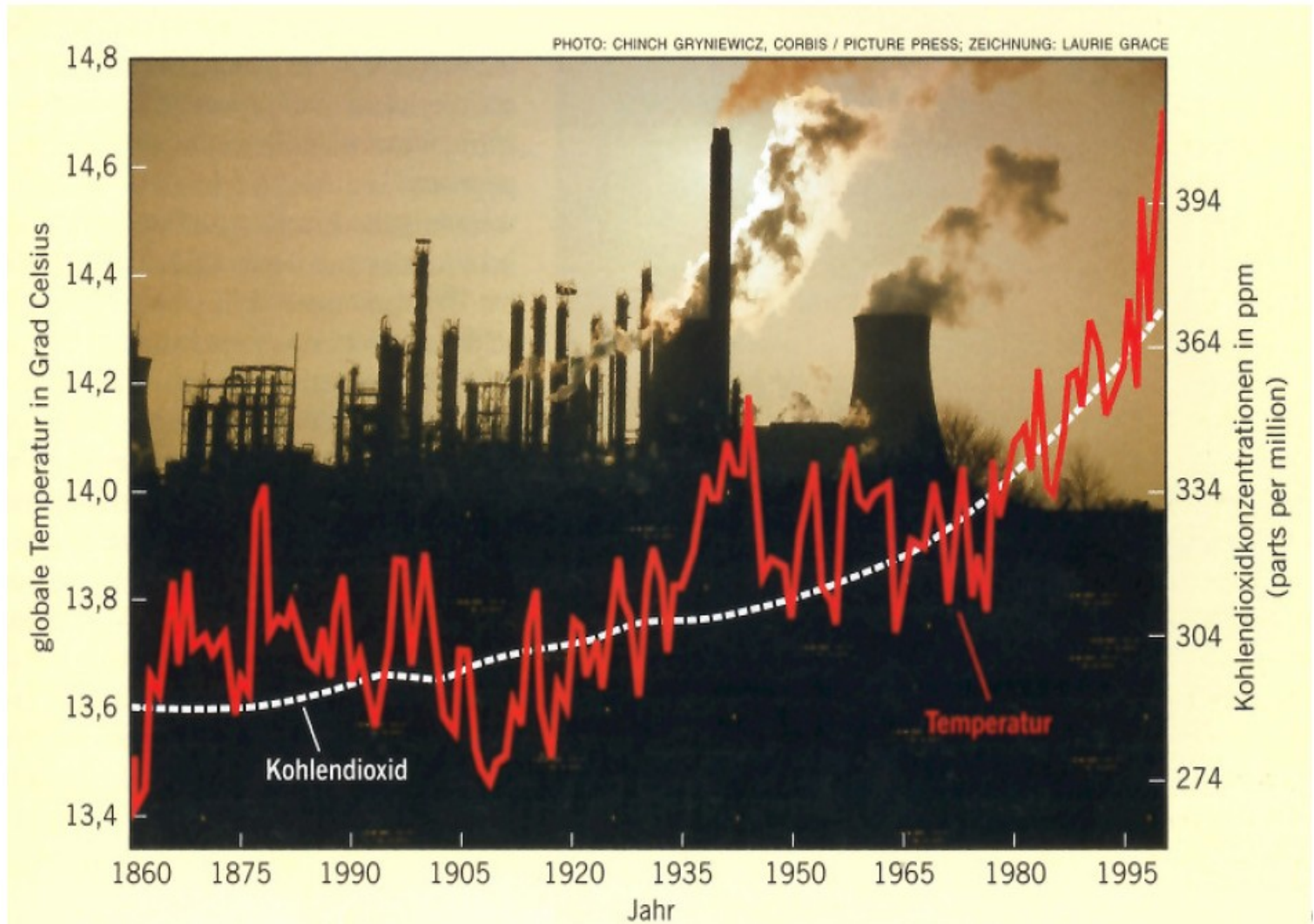
Fighting the Climate Change

The Key Challenge: Demand of Energy

- **Two billion people lack access to electricity** and other modern sources of energy, and **three billion** people still cook on wood or charcoal fires.
- **By 2030 demand for energy will rise by nearly 60%** -
- as well as the **discharge of greenhouse gases !**
- **Two-thirds** of this increase will be due to **economic growth in developing countries.**

Source: International Energy Agency (IEA)

CO2 Concentration and Global Temperature



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"The scientific understanding of climate change is now sufficiently clear to justify nations taking prompt action."

*Joint Science Academies' Statement:
Global Response to Climate Change,
2005*

Tony Blair, Prime Minister UK, April 06

- "Climate change is the world's greatest environmental challenge"
- "Action now can help avert the worst effects of climate change. **With foresight, such action can be taken without disturbing our way of life.**"
- „There cannot be any agreement with serious implementation plans **without involving China and India ...**“

Ten US States Sue Environment Protection Agency (EPA) ...

...on April 27, 2006, for its **decision not to regulate carbon dioxide emission as a contributor to global warming**

„Environment Protection Agency (EPA's) rulemaking in this matter is inadequate in two fundamental ways:

- First, EPA refused to regulate carbon dioxide, despite overwhelming research and **scientific consensus that carbon dioxide contributes to global warming and thus harms "public health and welfare."**
- Second, EPA failed to set adequate standards for sulfur dioxide and nitrogen oxides, power plant pollutants that contribute to soot, smog, acid rain and higher levels of respiratory disease. The law dictates that the emission safeguards be set at levels that require use of the best demonstrated technology, but **EPA is setting weak standards that can be met through less effective technologies.**“

Source: Press Release by the ten states

Sustainable Development

Sustainable Development involves:

- **A broad view** of social, environmental and economic outcomes
- **A long-term perspective**, concerned with the interests and rights of future generations as well as people today
- **An inclusive approach to action** which recognizes the needs for all people to be involved in the decisions that affect their lives

Economy as Partner

- „For the development of ever growing demand and in some cases even reckless exploitation of natural resources business has a significant co-responsibility.“
- **„However, simultaneously business is an indispensable partner to find solutions for these problems.“**

Stefan Schmidheiny, 1992, Rio Summit

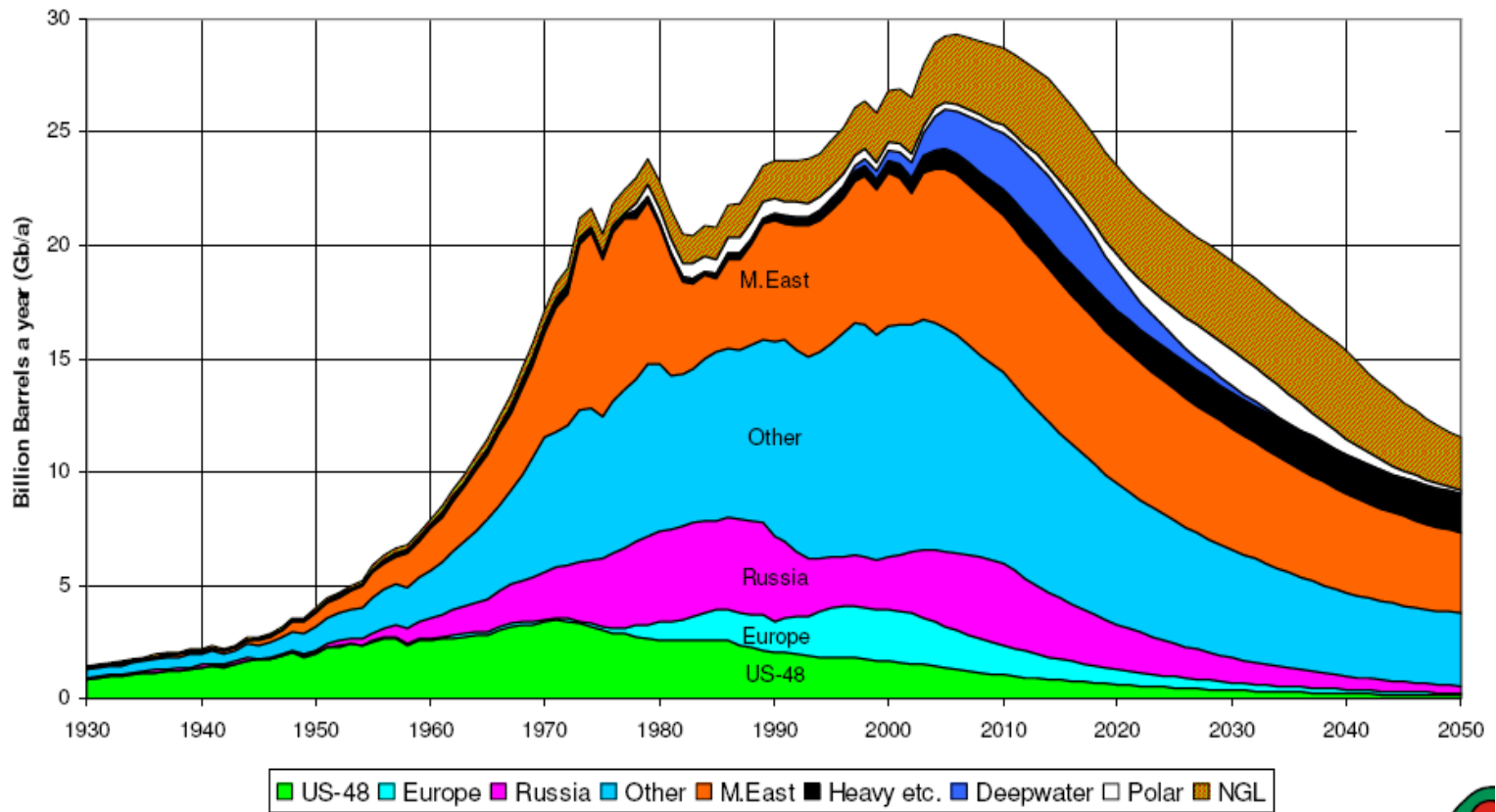
The Challenge

- To provide more **value** with less environmental **impact**
- To **de-link** growth of welfare from the use of nature
- To improve both **economic** and **ecological efficiency**

= ECO-EFFICIENCY

Peak Oil Scenario

OIL AND GAS LIQUIDS Peak Oil Scenario



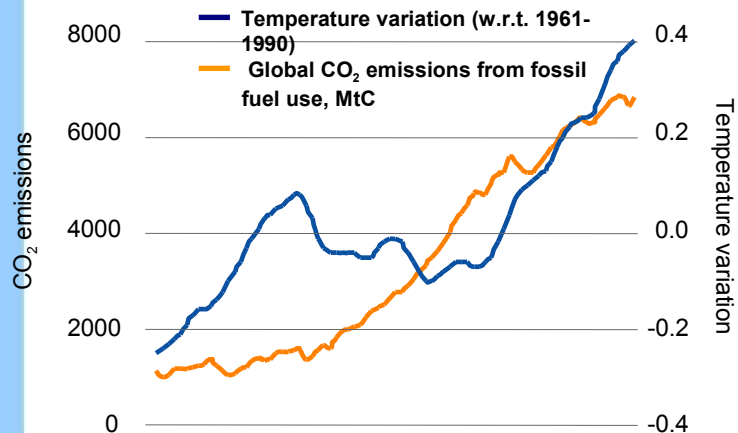
Peak Oil – Begin of the End of the Oil Period

- The day with the absolute maximum global oil production
- From this day on it is **not possible to increase production**, available quantity on world market cannot anymore cover global demand
- The **date is discussed**. Conclusion of the Center for Security Studies of the ETH Zurich: either this date has been already during 2004/05, or it will be between 2008 und 2025. Most frequently allocated to **2010**.
- **Forecasts show constant increase of demand**
- The energy crisis has become a top political issue
- **Oil price will further increase** – to 100 \$ end 2006 ?
- Which changes will be forced by this, on political decisions and on consumers behaviour ?

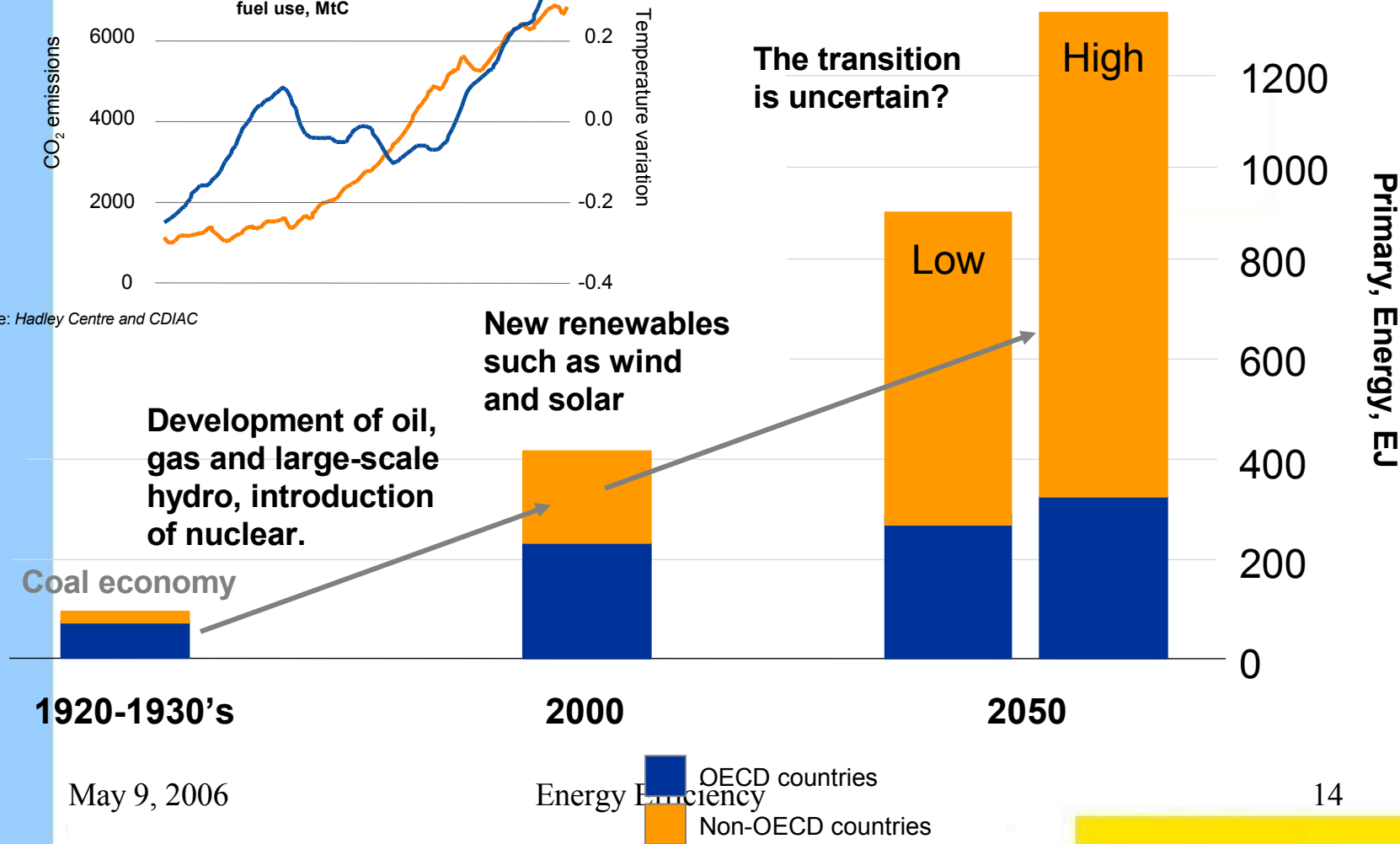
Innovation as Key Driver for Business

- The urgent demand to mitigate negative impact on climate by human activities forces changes based on **new technologies, solutions and processes**
- **New technologies open new application areas**
- Changes in regulations and laws open new business opportunities
- **Changes in behaviour** (= buying criteria) of customers / investors on all levels (B2B, B2C ...) **require new approaches by the business community**
- Corporate social responsibility (CSR), corporate ethics, environmental policy of corporations **become increasingly more important values for their stakeholders**
- Pro-active approach will be mostly an advantage for companies

How will our energy system develop ?



Source: Hadley Centre and CDIAC



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Legend: ■ OECD countries, ■ Non-OECD countries

Six strategic directions

- 1) an aspirational, long-term goal;
- 2) adaptation; 3) emission targets and trading;
- 4) sectoral approaches; 5) policy-based approaches; 6) technology cooperation.

The first of these is an aspirational, long-term goal.

Examples:

California: reduce emissions 80% by 2050

EU: limiting global temperature rise to 2°C

Sweden 2020 Independent from Fossil Fuel ?

- Study of a committee including industry, science, agriculture, SAAB, VOLVO, ministries
- **Recognizes the enorm risks of single dependency to oil and natural gas**, increasing prices and their impact on global economy, and so for Sweden
- **Mandatory to have low and calculable energy prices**
- Sweden has reduced after the energy crisis 1973 the **share of fossil fuels on primary energy** consumption from 77 % in 1970 to **32 % in 2005**
- Presently **oil** is used almost **entirely for transportation**,
- Power generation by hydro 40% and nuclear 50%
- Leader with Flexi-Fuel cars, 30 000 cars 2005.
March 2006 3834 new cars (15 % of all new cars);
- Biofuel 4 SEK cheaper
- Stockholm city toll: Free access for Flexi-Fuel cars !

- **Boiler manufacturers specializing on bio-energy fuels**
- 70 % of boilers exported, 4 out of 5 sold in DE coming from AT
- 35 % of the companies founded after 1990, 10 % after 2000
- 2005: 46 % increase of installed wood pellets fired boilers in AT
- Austrian technology reference for **bio waste treatment generating bio gas in Singapore 2007**
- Numerous references of **local district heating plants firing biofuel**
- Reference site in Lower Austria for thermal waste treatment, 300 000 t p.a., 90% of waste supplied by rail
- **Solar energy cluster** Upper Austria
- **Wind energie** Lower Austria (1/3 households) and Burgenland
- **Biofuel** plants

Renewable Energy – Community Güssing

- **1992: one of the poorest communities in Austria**, no industry, no tourism, 4000 inhabitants, 70% of workers forced to commute weekly to Vienna,
- **Main resources: Forests, ... and EU border region !**
- Start with 3 MW **biomass combined cycle plant**, now 23 MW
- 2005 Biomass-gasification, 11 000 t biomass p.a., produces 4350 MWh electricity for 1200 households and 5 200 MWh heat
- Community **produces more energy than it consumes** from renewable sources harvested within a radius < 5 km, and sells surplus for 13 M € p.a. in 2005
- Local district **heating customers paid 2006 25-30% less** than in 2005
- **Since 1996 foundation of 50 companies employing 1000**
- Foundation of the European Center for Renewable Energy
- Due to increasing eco-tourism building of a hotel necessary

EBRD Launches 1.5 Bn € Initiative to Cut Energy Waste and Pollution (1)

- EBRD, founded 1991, assists transition of former communist nations to market economies, operates in 27 countries in central and eastern Europe and central Asia.
- Bank president Jean Lemierre: "If the **EBRD countries had the energy efficiency of Europe, world energy demand would be reduced by more than 7.0 percent**".
- "That is why the bank is launching a **Sustainable Energy Initiative** focused on climate change and energy efficiency. The global concern with climate change is one good reason to reduce the use of fossil fuels."

„Living the Brand Value“ ...

- There has been a fundamental change in consumer loyalties – and brand owners will also be required to make a fundamental change.
- **They will actually have to begin living their brand values** – not just pay lip service to them in marketing messages.

Kevin Allen

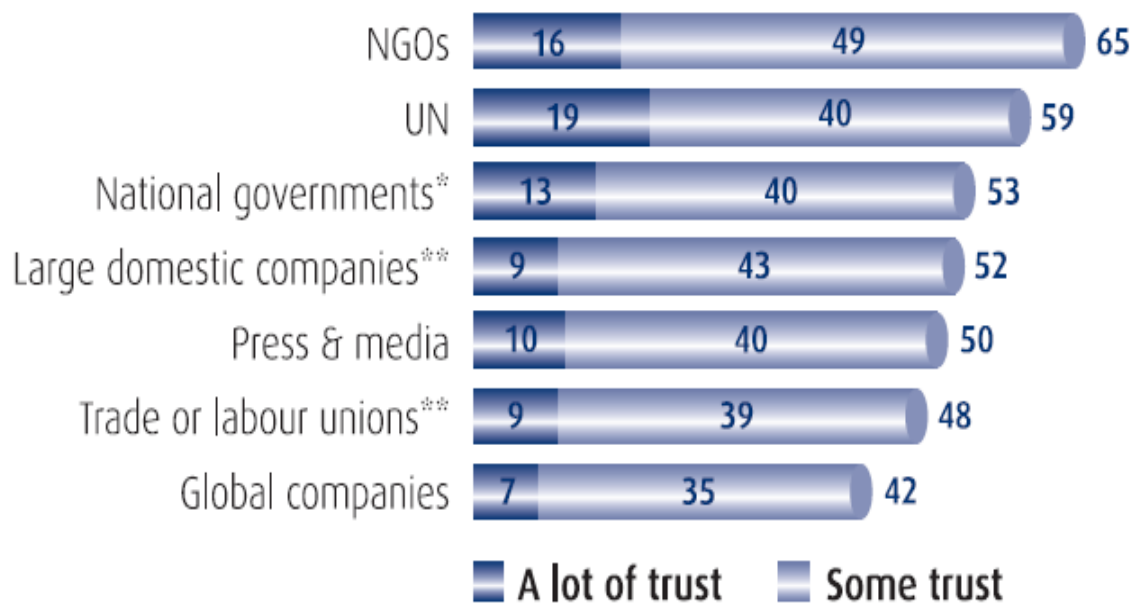
McKann-Erickson World Group

„Can Sustainability Sell?“, UNEP, 2002

Trust in Institutions

Trust in Institutions

"A lot" or "Some trust", Average of 20 Countries Surveyed, 2004



*Excludes China **Excludes Nigeria & South Africa

Source: Globescan

Credit Suisse Goes Carbon Neutral

- Swiss bank Credit Suisse has announced that it is to make its domestic banking operations carbon neutral.
- As of this year, it will offset all its greenhouse gas (GHG) emissions from its operations in Switzerland and all business flights out of the country. It is the **first major corporation in Switzerland to take this step**, it says.
- German carbon offset and trading specialist 3C Climate Change Consulting will, on behalf of the bank, source and retire approximately 80,000 tonnes of “high quality” emission reduction certificates annually.
- Credit Suisse will also investigate extending the scheme to its other locations around the world. The Zurich-headquartered bank has close to 40,000 employees in more than 50 countries.
- Over the last 18 months, Credit Suisse has cut its worldwide GHG emissions by 20% through better management and maintenance of its operations, and by sourcing a higher proportion of its electricity

Source: Environmental Finance, 25 May 2006

Walking the Talk ...



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Divestment due to Ethical Reasons

- **Norwegian government** informed June 7, 2006, that it ended its investment and **sells shares** of Walmart, US, value of **416 M \$, owned by its Norwegian Oil fund**
- Norwegian oil fund, assets > 1000 Mrd NOK (> 130 Mrd €), is fed by government's oil income and established to secure future pension payments to Norwegians by government
- Decision was taken by the ethic council of the fund, based on informations that **Walmart violated in a heavy and systematic way human rights and workers rights**
- Up to now Walmart did not comment the decision of the Norwegian government
- Shares of Walmart fell at the New York's stock exchange by 1%

Source: Reuters, June 7, 2006

US State Treasurers Press ExxonMobil on Climate (1)

- The treasurers of seven US states and one city, all major holders of ExxonMobil shares, and eight other **institutional investors totally owning \$5.26 billion shares**, are pressuring the company's board of directors for a meeting on its plans to **address climate change issues**.
- **ExxonMobil has been notoriously hostile to the notion of human-induced global warming.**
- The **treasurers are seeking a formal report on ExxonMobil's plan to address the issue**, such as major emitters American Electric Power and Ford have produced. "We're looking at this **strictly from a financial perspective**, not from a social perspective".
- They have also stated that **ExxonMobil is "a company that fails to acknowledge the potential for climate change to have a profound impact on global energy markets."**

- ExxonMobil's **new CEO Rex Tillerson** has taken a softer line on the issue than his predecessor.

In a 20 April speech during a conference in Rotterdam, he stated that while "scientific research continues for these recent changes" in climate, "at **ExxonMobil, we recognise that the risk to society posed by greenhouse gas emissions may prove significant.** And therefore action is justified now."

Source: Environmental Finance, 25 May 2006