WORLD ENERGY COUNCIL
CONSEIL MONDIAL DE L'ÉNERGIE
For sustainable energy.

WEC Scenarios Project - Future of Energy in Europe

02 June 2011, Thessaloniki

Promoting sustainable energy for the greatest benefit of all



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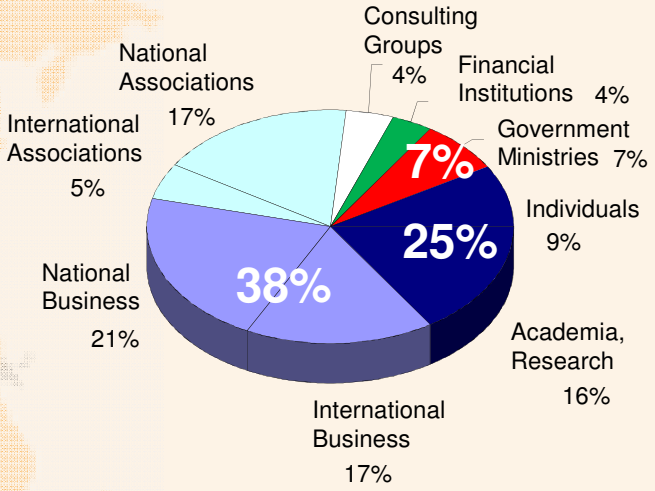
World Energy Council – who we are

- The World Energy Council is the **only truly global and inclusive* forum** for thought-leadership and tangible engagement committed to our **sustainable energy future;** *public & private sectors, developing & industrialized countries, producing & consuming countries, all technologies & resources
- Established in **1923** to help rebuild the electricity grid in Europe after WWI, first Congress in 1924; today, covers all technologies and resources
- With over **90 national committees** (including e.g. all BRICs), we represent over **3000** government, private sector and experts **organisations**
- National committees are chaired by **energy ministers, leading CEOs or experts**
- The Council's impartiality is ensured by its governance with the **Executive Assembly (one country one voice),** our Officers Council, presided by WEC's Chairman, with the Secretary General in the executive function
- Our flagship event is the **World Energy Congress** held every three years; next in **Daegu, Korea, 2013,** with 4000 participants

WEC Membership Breakdown (based on data from 30 MCs)



2557 member organisations in 67 of total 93 assessed MCs
(status 2009)

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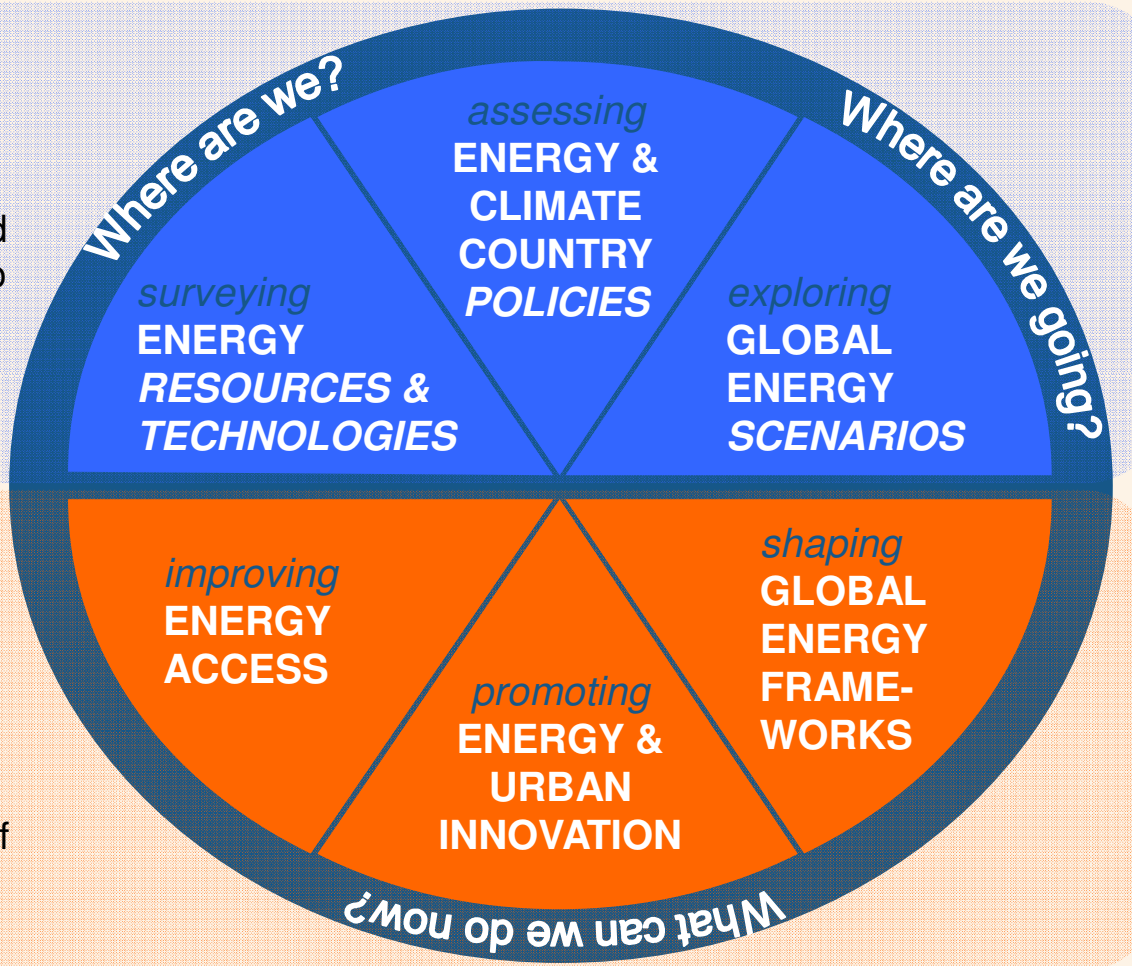
WEC's activity areas – what we do

FLAGSHIP PROCESSES

Policy and strategy relevant insight processes with annual updates (e.g. focus area deep-dives), based on **own methodology and data**, to support sound and robust decision processes of our key constituents (ministers & CEOs).

GLOBAL & REGIONAL AGENDAS

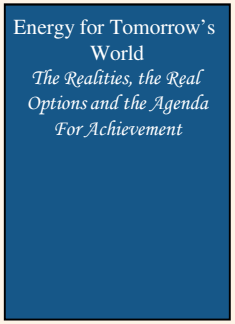
Action and outcome oriented processes where we directly engage and work with relevant stakeholders to **advance agendas** through exchange and promotion of best practices and building of partnerships.



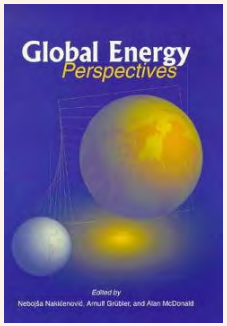
Integrated, annual publication with consistent format:
WORLD ENERGY INSIGHT 20

WEC energy scenarios – new pathways to our energy future

The World Energy Council has been involved with energy futures for more than two decades. WEC's first comprehensive study on energy, with a long term vision, combining both global and regional perspectives, was the groundbreaking "Energy for Tomorrow's World", 1993. Since then, WEC has been producing scenario-based studies consistently. The most recent WEC Scenarios study (2007) is class apart, with its main focus on policy. This is a first among energy scenarios studies. The new global energy scenarios 2050 will be finished by 2012



Energy for Tomorrow's World (1993)



Global Energy Perspectives (1998)

Deciding the Future (2007)

Traditional Approach – Top-down

- Many recent external in-depth studies of the sustainability of energy systems
- Most provide a strong top-down perspective from experts
- There is a focus on macro-economic and global or regional energy aspects.

The new global energy scenario exercise to 2050:

- Will be bottom-up, harnessing the knowledge embedded within WEC network of member committees
- Global, qualitative and descriptive picture of key issues and driving forces in the energy landscape
- Provide regional insights for public discussion
- Will include open source modelling of energy system

Energy is a common issue in all countries worldwide

Industrialised nations:	Transformation of the energy system → Problem: Financing
Growth regions:	Construction of the energy system → Problem: Making energy available
Poor regions:	Fight against energy poverty → Problem: instable framework
Solution for all regions:	Technology & energy efficiency

2010 Policy Assessment Report

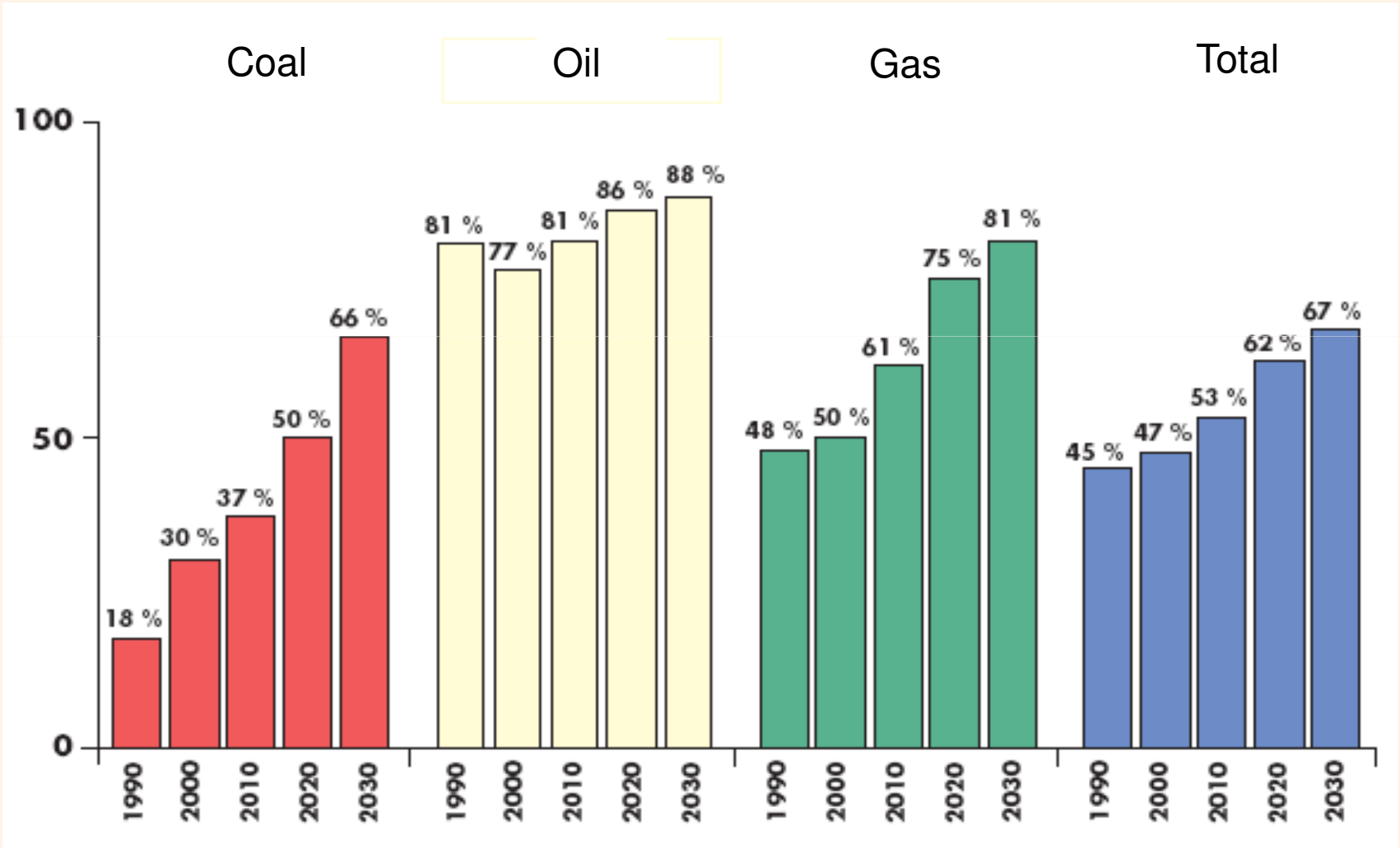
Energy Sustainability Country Index leaders (by economic groupings)
Source: Multiple (IEA, EIA, World Bank, IMF, WEF etc. 2007)

	GDP/capita (USD)	> 33,500	14,300 – 33,500	6,000 – 14,300	< 6,000
Positioning	1	Switzerland	Spain	Colombia	Indonesia
	2	Sweden	Portugal	Argentina	Egypt
	3	France	Slovenia	Brazil	Cameroon
	4	Norway	Italy	Mexico	Philippines
	5	Germany	New Zealand	Turkey	Swaziland

Black font = net energy importers. Blue font = net energy exporters

Quelle: WEC

Energy import dependency of EU-25



Quelle: Europäische Kommission – European Energy and Transport Scenarios on Key Drivers, Brüssel 2004

Nuclear power – what now?

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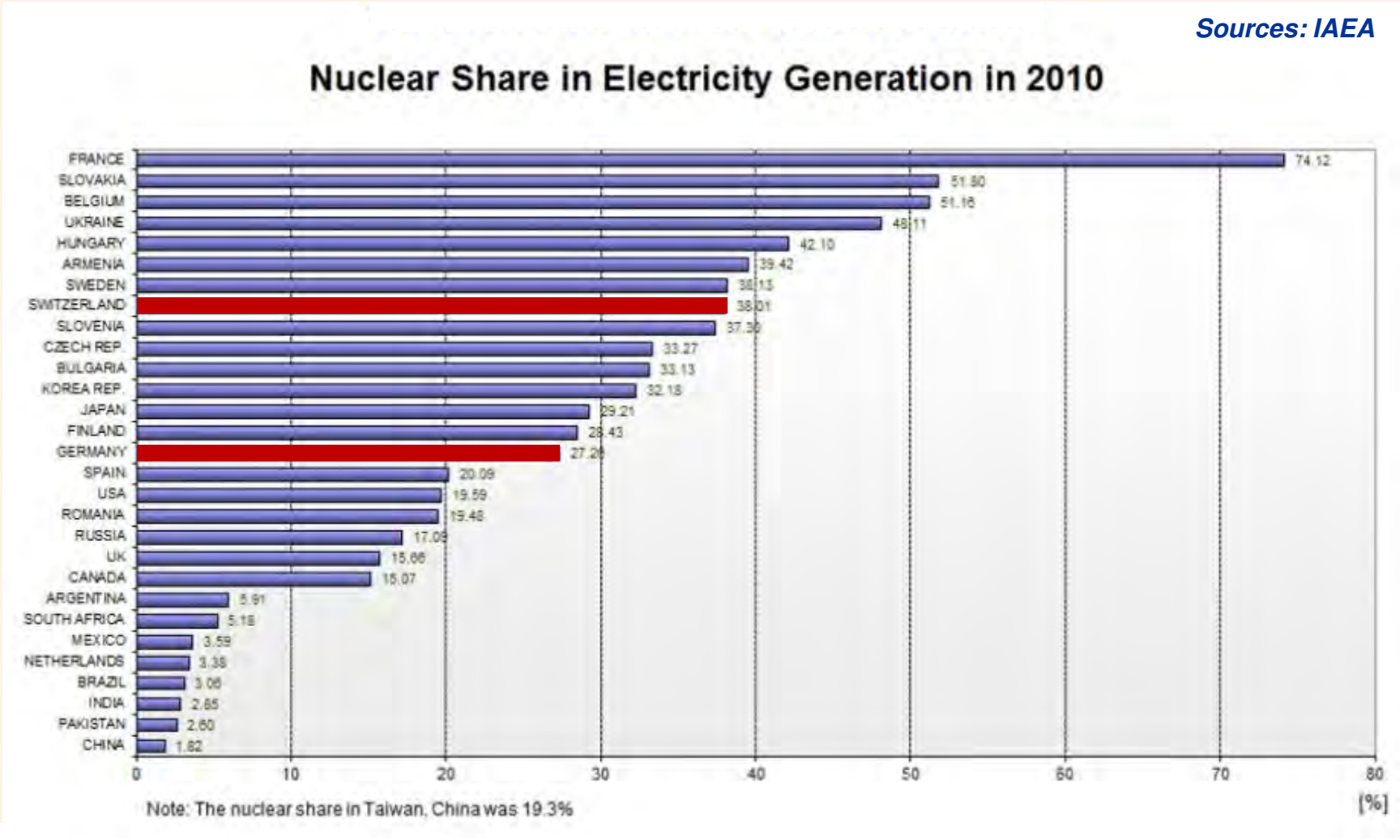
Sources: IAEA



Last 10 year trend for electric energy production from different sources

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	2001		2010	
Coal	38.7%		41.7%	
Oil	7.4%	64.7%	4.2%	66.6%
Gas	18.6%		20.7%	
Nuclear	17.1%		13.4%	
Hydro	16.5%		16.2%	
Biomasses	1.1%	18.2%	1.5%	20%
Other Renewables	0.6%		2.3%	

Source: IEA

- Increase in share of electricity from fossil fuels
- The increase of renewables does not overcome the decrease in percentage of nuclear (before Fukushima!)
- Non CO_2 sources loose market share

Ways for reduction of energy consumption

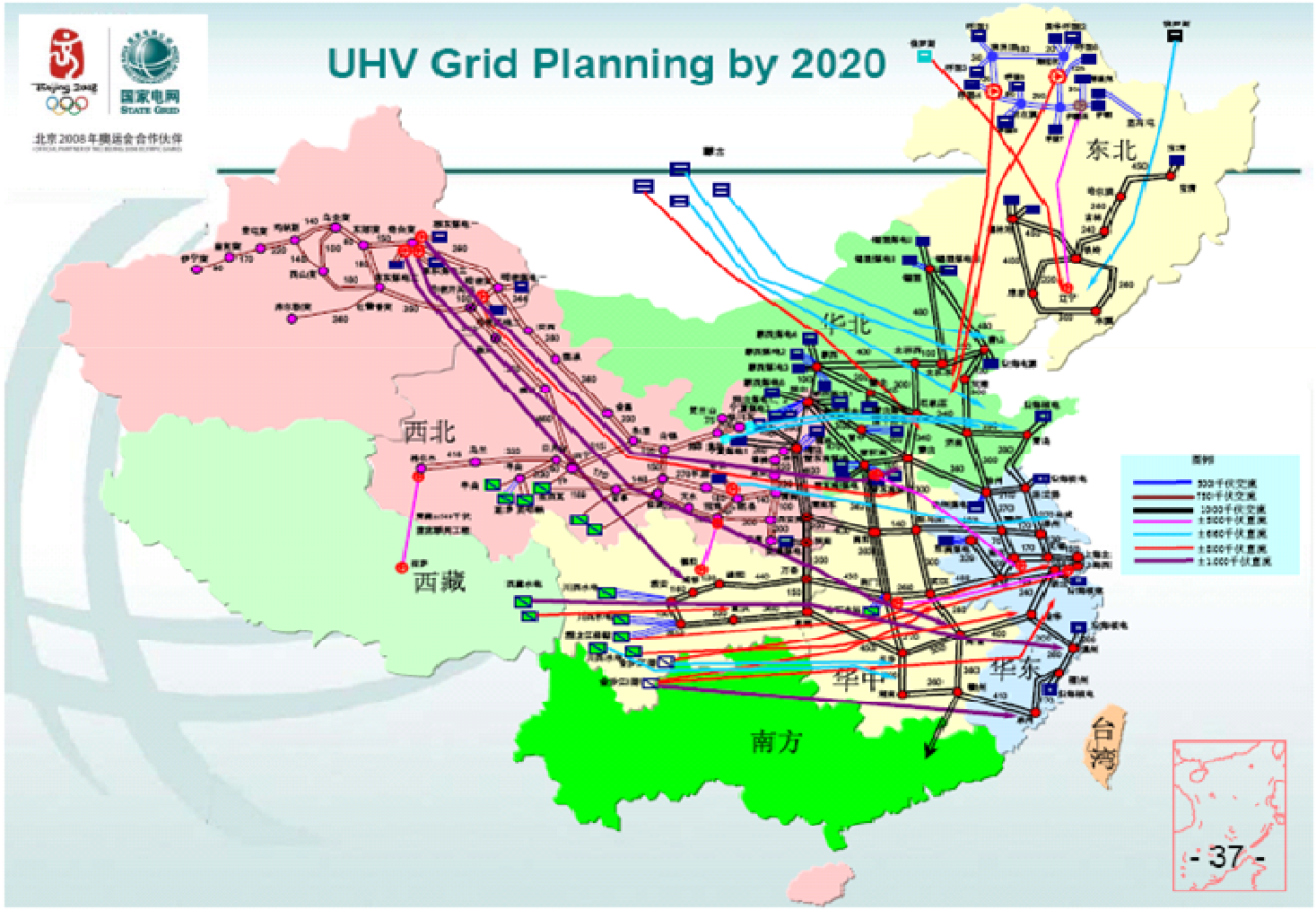
- Energy efficiency: doing the same with less: same products and services but using less energy, with no impact on the standards of living.

  Technology driven but affected also by legislations, standards, "life cycle culture".

- Energy conservation: changes in standards of living, doing / having less with less.

  Politically driven.

Is Europe still competitive?
- example of Ultra High Voltage (UHV) in China



Critical factors to consider

- Energy demand expected to increase between 32% and 40% until 2030
- Fossil fuels will play an important role for decades to come – we need technologies to decarbonize them during the energy transition
- Urgent need to address infrastructure (grid systems) and storage options
- We need innovative financing mechanisms to cover large investment needs for new energy infrastructure
- Energy poverty will be a rising challenge – also within Europe
- Urgent need for politicians to address demand side policies (e.g. energy conservation) and end-user technologies
- Transforming the energy system will require large scale societal change and needs to be properly understood and managed

Mobility and transport - WEC study 2011

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WEC mobility study 2011 will look at fuels, technologies, transport systems

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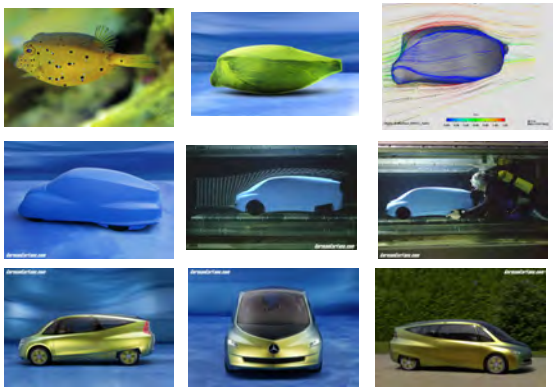

Improve fuel economy
+ CO2 reduction

Vehicle design
- Light weight - Composite materials
- Aerodynamics- biomimetics
- Road resistance
- Drive Train
- Batteries, super capacitors

Fuels
- Fuel Standards
- Dieselisation
- Bio
- Hydrogen
- Electricity
- Gaseous Fuels
- Synthetic fuels

Traffic management
- Intelligent Traffic Systems
- Public Transport
- Road improvements
- Congestion charging
- Driving behaviour

WEC Mobility & transport study outline

A. Qualitative Analysis

- Existing & Potential technologies & Fuels
  - Existing Technologies
  - Existing Fuels
  - Potential Breakthroughs in both Technologies and Fuels
- Transport Systems
- Environmental Policies & Framework

B. Quantitative Analysis

- Macro-Drivers
- Constraints

C. Potential Scenarios to 2050

- Regional Analysis
- Global Analysis

Come and join us!!

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