

**Report concerning the 21<sup>st</sup> World Energy Congress 2010 Montreal**  
**12<sup>th</sup> – 16<sup>th</sup> September 2010**

- **Further increase of the global energy demand from 32% to 40% until 2030 expected**
- **Fossil fuels will play an important role globally for decades to come**
- **Scarcity of capital the more decisive bottleneck than reserves for crude oil, natural gas and coal**
- **Reserves of fossil fuels substantially greater compared to previous estimates – mainly due to shale gas**
- **Access to affordable energy and energy as a driver for economic growth, more in the focus than climate change**
- **The expected outcome of Cancun will not deliver a binding climate change treaty**

The 21<sup>st</sup> world energy congress took place in Montreal, Canada between the 12<sup>th</sup> – the 16<sup>th</sup> of September. There were approx. 7,000 participants from more than 130 countries, including 70 energy ministers. This was a new participation record. In the speeches and during the panel discussions representatives of all energy sectors from all continents, politicians, supply industries, consultants and international energy agencies were broadly covered. Energy customers, especially the energy consuming industries, however, only played a minor role.

The most important topics of the congress were as follows:

- The increasing global energy hunger and its supply with a mix of conventional generation (fossil, nuclear) and renewable energies
- The dramatic changes on the supply side by unconventional gas
- The urgently needed energy infrastructure only faces one real challenge: That is finance

### **General picture**

A fundamental result of the discussions: Energy is a central issue for all countries. There is an overwhelming consensus, that a broad and affordable availability of energy is a prerequisite for economic growth and prosperity. However, different countries have different key topics, when it comes to energy.

For industrialised nations the transformation of the energy system is the key issue. In Northern America this basically implies the renewal of the partly outdated energy infrastructure with a strong emphasis on security of supply. Japan and South Korea are improving their greenhouse gas balance by use of nuclear power, which also helps them to reduce their import dependency. In Europe environmental issues dominate the debate. In all of the above mentioned regions, energy efficiency plays a crucial role. In Japan, end consumer efficiency is in the foreground.

In general industrialised countries put emphasis on a sustainable supply of energy, but have also an eye on affordable energy in order to stay competitive. A substantial growth in energy demand is in most cases not expected.

There is consensus about the main concern to make the transformation of the energy system a reality: to finance the transformation. Replacing the existing, and to a large extent, well-functioning system by climate friendly technologies (nuclear, CCS, renewable) is connected with higher investment costs in comparison with the new-build or replacement of conventional plants (fossil)<sup>1</sup>. But the financial situation of state-owned and privately owned utilities is burdened due to the investments that have already taken place in the past years.

Without a stable and consistent political framework this will become difficult. **Pierre Duhaime**, CEO of SNC Lavalin (one of the then largest engineering companies world-wide with about 22,000 employees) stated: “The main issue in acceptability is not technology. Technology is available. The population will grow and so will the carbon-intensive industries, but sustainable growth will be difficult with the current atmosphere of increasing tension and distrust of industry, government and the public. (...) We need cooperation between all parties.”

According to the World Energy Council (WEC) the transition of the energy system costs more than US\$ 20 trillion by 2030. Hence financing is at the very centre, to achieve this goal – this change needs to occur.

A reasonable use of energy by all parties is decisive: „Energy efficiency is the best permanent change“, says **John Drzik** of consulting company Oliver Wyman.

For growth regions (especially BRIC = Brazil, Russia, India, China) the large-scale construction of an energy system is the significant issue. The strong growth of their industries and the increasing income of their population leads to high growth rates in energy demand. The main challenge, is consequently, to make energy available and the coordinated build-up of their energy system. Investments are driven by the goal to make large amounts of energy accessible. Hence conventional and robust technology is preferred. Renewable energies are part of the mix, but do not dominate (apart from hydro in some cases), since competitiveness of the industry is of utmost importance to guarantee further economic growth.

The key role of the growth regions is addressed by **Fatih Birol** (chief economist and director of the Office of the Chief Economist of the International Energy Agency IEA): “China’s energy policies will determine the future of the oil price.” Birol furthermore stated, that China’s energy demand has grown from half of the US demand in 2000 to parity with US demand today, and its population still uses only one-third of the energy per capita as OECD countries. According to IEA currently about 180 GW new generation capacity are coming online each year, with about 70 GW coal (especially in China, India, Africa).

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<sup>1</sup> IEA-report „How the energy sector can deliver on a climate change agreement in Copenhagen” (October 2009). Here the costs for transforming the energy system in the EU is connected with additional costs of 500 bn. US\$ (0.3% of GDP) during 2010-2010 and more than 1,000 bn US\$ for 2021-2030 (0.6% of the GDP). The investments are done in renewables, nuclear and CCS.

Also for the growth regions energy efficiency plays an important role. According to **Dadi Zhou** (director general emeritus and senior researcher at the Energy Research Institute in China), China planned to improve energy efficiency by 20% from 2006 through 2010 and by 3% to 4% per year in the next decade. But China has still to invest in their supply side: Another 300 GW of hydro power is possible, along with up to 70 GW of nuclear and 80 GW of power from natural gas by 2010. Substantial investment in cleaner, more efficient energy gives China the opportunity to develop these products and techniques to distribute to the rest of the world, he said. With respect to renewables hydro, wind (150 GW) and solar (20 GW) are dominating, but though their share in generation capacity is significant, they will only deliver a small contribution to the electricity supply, since their availability is limited. Following Dadi Zhou coal stands for 70% of the actual total electricity production – by 2050 the share of coal should decrease below 40%.

**Fatih Birol**, IEA, pointed out, that in growth regions, there is another source of high energy demand: transportation. For transportation, he said, one billion cars are operating now and another billion will operate by 2035. “The next billion will be critical to energy security and emissions”, he said. Regulation can help to determine how those next billion vehicles operate.

Poorer regions (especially in Africa) are fighting against energy poverty, their main interest is access to affordable modern energy. The IEA states, that the energy consumption in sub-Saharan Africa, with roughly 800 million inhabitants, is equivalent to the energy consumption of New York with 8 million people. Still between 1.5 and 2 billion people have no access to modern energy services. In poorer regions energy is mainly used to prepare the food, hence the demand is mainly covered with fuelwood. Collecting fuelwood is mainly done by children, consequently they have less time for education: Without a successful energy supply, these countries will never have an opportunity to develop. The main problem in poorer regions is the instability of the legal and political framework. Hence the basis for a coordinated approach to solve the energy supply is missing. Technological solutions furthermore have to be very robust and easy to maintain, given the average educational level in these regions.

“The entire African continent has less energy capacity than the country of Spain”, said **Donald Kabureka**, president of the African National Bank. “Even though Africa is an energy exporter, the average use of electricity is 200 kWh or less. Many social indicators can’t be attained until this gap is closed.” However, he is also optimistic: “Africa is still struggling with many challenges, but for the last 10 years, economic development is better than it has been in the last 50 years”, said Kabureka.

**Yvo de Boer** (Special global advisor, Climate Change and Sustainability at KPMG International, and former executive secretary of the UN Climate Change Conference UNFCCC) added, that the IEA predicts investments of almost US\$ 23 trillion in the time period 2020 – 2030 with half being spent in developed countries and half in developing countries. “Eighty five percent of the investment is coming from the private sector and the rest from the public sector”, he noted.

The unifying role between regions, with their different targets and demands, is played by technology and energy efficiency. The underlying laws of physics are universally the same – a local adaptation by engineers to the given environment is possible.

**Daniel Yergin** (Chairman of IHS Cambridge Energy Research Associates – IHS CERA) sees another fundamental law for the energy sector: “ While each of these countries are governed under different laws, there remains one law that we all must adhere to where energy is concerned, that is the law of long lead times.”

“Innovation cannot always be adopted quickly”, Yergin said. Referring to the current shale gas revolution taking place in the United States, or the “shale gale” as Yergin called it, “this is perhaps the biggest energy innovation since the beginning of the 21<sup>st</sup> century”, he said. “Many of you may not be aware of this fact, but shale gas became revolutionary only after a 15- to 20-year period of extensive research and development.” As a consequence: “Timely deployment of investment is necessary in the years ahead to avoid future demand shocks that can cause crises and disruptions and damage the global economy.”

Yergin stated that emerging markets showed a very interesting picture. “Rising incomes and large populations in developing countries will be the growth engine for world energy demand in the years ahead”, he said. “It is very sobering to realise that much of the infrastructure that will be needed in 2030 to meet the energy needs of a growing world economy is still to be built”, Yergin added.

According to the scenarios presented by Yergin, world energy demand will increase by between 32% and 40% within the next 20 years. “This demand growth will require investment measured in many trillions of dollars”, he said, “and it will pose a dramatic challenge to all the energy industries.”

World oil supplies will increase, but Yergin pointed out, “oil’s share of the overall energy mix will decline.” He added, “Oil demand will pose many puzzles for years to come. Although, the growth in electricity will outpace the overall growth in energy as societies depend more and more upon electricity. This raises the question of future fuel choice for generational electricity supplies.” All scenarios emphasize the role of nuclear energy – and of affordable, abundant shale gas: “The availability of that gas will provide greater flexibility in meeting the fuel needs of the electric power industry.”

**Fatih Birol** (IEA) even sees first signs for a positive development towards sustainable solutions. He mentioned three examples:

1. US\$ 700 billion investment programme in China
2. Life-time extension in Germany
3. Energy efficiency plan of the US

## The role of the different energy carriers

The World Energy Council emphasized, that in the coming decades conventional and unconventional fossil fuels will dominate the global energy supply. Some larger economies will still rely on coal, the host country Canada, on oil sands. In general, each country will primarily use its own resources, in order to reduce the import dependency. Countries with poor resources e.g. Japan, South Korea or France have decided in favour of nuclear generation, to reduce the vulnerability of their economy.

**Rick George**, CEO of the Canadian company Suncor, stated: „I've long believed the future is about expanding energy choice, not restricting it. First we need to get increasingly creative about finding and developing conventional energy sources, whether it's oil, gas, coal or nuclear – and do so in ways that are environmentally and socially responsible. Second, we should use these conventional sources to help drive research and development of alternative energy and new environmental technologies.”<sup>2</sup>

Depending on the company or national background often narrow views to solutions were often presented, i.e. natural gas (driven by the reserves of shale gas), oil (including oil sands), nuclear power, renewables or coal was seen as the major energy solution of the future. Broader concepts that addressed the implementation of existing technologies and the development of new technologies as well as making energy efficiency to a benchmark instead of hunting for subsidies were largely missed.

Some speakers, however, emphasized the necessity of a broad technology mix for security of supply. **Anne Lauvergeon** (CEO of Areva): „There is not just one ‚magic solution‘, but many energy solutions. In any given mix, we have to look, what is available today and stop our ideological squabbling. We have to act now to develop those energies that don't emit carbon dioxide (CO<sub>2</sub>).” Lauvergeon sees nuclear energy and renewables as complementary and compatible. “Nuclear offers a base energy that renewables can build on. Nuclear energy requires more time for construction, but the plants will last a long time. It's much easier to install a wind farm, but nuclear acts on a continual basis.”

### Oil

CERA expects a global increasing in oil consumption by 2030. North America and Europe have almost reached the peak demand, however in developing countries and in growing economies a further increase of demand is expected, driven by mobility. Aramco expects, that the increasing demand can be covered. The actual capacity reserve is about 4 mb/d. In the future oil production from existing fields can be increased substantially by EOR („enhanced oil recovery“, injection of CO<sub>2</sub>). The oil reserves of Saudi Arabia (20% of the global reserves) are sufficient for at least 80 years. Canada is rapidly developing its oil sands. It was noted, that only 20% of the remaining conventional oil reserves are truly accessible by non-state companies while the remaining 80% is in the hands of governments or nationally owned oil companies. Hence oil sands are not only economically attractive – but also with respect to security of supply.

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<sup>2</sup> Suncor, which pioneered development of Canada's oil sands more than 40 years ago, also is one of Canada's biggest investor in wind power and biofuels, targeting \$705 million in spending in this sector by 2012.

## Nuclear

In contrast to the German debate various technologies were viewed in a rather open manner: Nuclear and renewables were not seen as enemies, but as complementary and compatible CO<sub>2</sub>-free electricity sources. Especially in developed countries and in the emerging economies nuclear is viewed as a major contribution to a reliable, affordable and climate-friendly electricity supply.

**Fatih Birol**, IEA, mentioned the life-time extension of nuclear power plants in Germany as one positive example for the already visible transformation of energy systems in industrialised countries.

**Jim Ferland** (CEO Westinghouse) stated, that currently about 60 nuclear power plants are under construction (largest number since 1987) and that nuclear power is one option next to renewables and energy efficiency.

**Shosuke Mori** (Chairman of Kansai Electric Power, Japan): "Even though electricity consumption in Japan has increased 3.5 times since 1970, we managed to control the increase in CO<sub>2</sub> emissions from power supply by 2.5 times, by optimising the generation mix with nuclear power as the basis. In terms of emissions per kW, we achieved a 30% reduction." And further: "By 2020, we plan on building nice more reactors with a total capacity of 12 GW.

**Ssang-Su Kim**, president and chief executive officer of KEPCO in South Korea, said no single solution would solve the energy environment debate, but "nuclear is one of the best solutions for the future with regards to CO<sub>2</sub> emissions. The nuclear share of South Korean energy will grow from 28% now to 40% by 2030." Korea, depending strongly on oil and gas imports, considers this as a major contribution to security of supply.

**Lu Huaxiang** (China National Nuclear Corp.) stated, that in mainland China there are currently 11 nuclear facilities in operation, 22 units are under construction and 12 have been approved for future development.

With respect to nuclear waste, **Areva** explained, that the whole nuclear cycle including reprocessing is offered. Then it is only about the last 4% of nuclear waste. Russia and Kazakhstan have offered an international repository. For states, that only operate three to four nuclear power plants, this offer might be very interesting. In contrast, countries like the US, Finland or Sweden prefer a final repository in their own country.

## Natural gas

Unconventional gas has changed the resource situation dramatically. Globally the reserves for conventional gas are estimated at 187 Tcm, whereas shale gas is estimated with 456 Tcm. Consequently, shale gas prices will determine the prices on the North-American gas market for a long time to come. „We believe there is enough recoverable natural gas to last for more than a century“, said **Peter Voser**, Chief Executive Officer Royal Dutch Shell. „Even though we knew those reserves were available, it took many years of technological advances to be able to produce the reserves economically and responsibly“, he continued.

Hence, gas will deliver a valuable contribution: „Some energy solutions will only become available tomorrow while some solutions are available today. For me, that’s natural gas.” Gas fired power stations would be a very simple way to reduce CO<sub>2</sub> emissions. Using this reasoning, Shell votes to replace coal by gas in the electricity generation. Voser expects a global increase in gas demand: 25% by 2020 and 50% by 2050.

Russia has a roadmap for the gas industry through 2030, and part of the map plans for a 20% to 25% increase in domestic energy supplies by 2020. It also forecasts a dramatic increase in exports. **Oleg Aksyutin** (Head of Gas Transportation, Underground Storage and Utilisation Department, Gazprom) said those massive energy projects require huge investments. Gazprom is looking for 25-year-supply contracts to assure financing for those projects. Furthermore, he is convinced that “gas, from the point of view of energy security, is the most safe.”

## Coal

**Fatih Birol** (IEA) said, that China is developing huge new coalfields in the northwest with supplies that could make it a coal exporter.

**Vinay Kumar** (Chairman and managing director of Northern Coalfields Ltd., India), said that his nation gets 54% of its energy from coal to feed the world’s fastest-growing economy. That coal sells at half the price of coal on world markets, and 90% of the coal is mined through the government, and the nation still must import coal for power and steel. While India has other energy sources, “coal is the only solution for the energy to elevate the standard of living”, he said. The largest share of the 100.000 MW planned generation in India by 2020 will be fuelled with coal.

**Rob Whitney**, chief executive officer of CRL Energy (New Zealand) said, “New Zealand with 15 billion metric tons, has more coal per capita than any other country in the world.” That gives the nation an incentive to develop technology around its coal, including coal-to-gas technology developed by Sasol in South Africa. New Zealand could produce 100,000 b/d of coal liquids if oil prices made it economical, he said, but that would take an oil price between \$100 and \$150/bbl.

**Gregory Boyce** (CEO of Peabody) emphasised the increasing global use of coal in the electricity sector: In China electricity generation by coal has increased by 475% since 1990. Globally the demand for coal has increased by 46% from 1999 until 2009 (for comparison: In the same period oil demand rose by 10%). For the future he expects an increase in coal demand of 53% by 2030 – 90% of the long-term global coal demand are due to Asia.

Canada – as a contrary position – plans to close its existing coal fired power stations in the next 10 to 15 years, with the exception of two newer plants.

## Renewables

**Hélène Pelosse**, Interim Director-General of the International Renewable Energy Agency IRENA (Abu Dhabi), is optimistic to see a further increase of renewable sources. “Renewable energy accounts for 18% of total global consumption”, Pelosse said, “We expect renewable energy to account for 50% of the global mix by 2050.” Since high-quality sunlight is abundant in many different parts of the world and will therefore assist solar energy to maximise its share of the global mix throughout the next several decades. She expects the largest contribution by in solar in the period until 2050. To reach the 50%-goal IRENA will gain knowledge with respect to renewable energy, provide a substantial network for researchers and eventually map the world’s potential for every possible form of renewable energy. Targets could be achieved by applying technologies where they are best suited.

CERA mentioned in a side-discussion, that they are working on a study about the future perspectives of fossil and renewable energies. A central result of the analysis is that the cost difference between fossil and renewables increases –this will strengthen the fossil position worldwide.

Project ideas were also presented, for example e.g. solar electricity generation in Morocco by **Mustapha Bakhoury** (President of the Moroccan Solar Energy Agency) who wants to increase the solar capacity from the current 500 MW to 2.000 MW, connected with investments of roughly US\$ 9 billion. He considers this as a good opportunity to reduce the energy bill of Morocco, since the country imports 95% of its oil.

## **Climate change**

The previous world energy congress in Rome (2010) was largely dominated by the topic of climate change, due to the expectations in advance of the COP 15 in Copenhagen. In Montreal a sense of disillusion was obvious: Cancun and the COP 16 was rarely mentioned – and if, then combined with the expectation, that no further impulses will come.

Nevertheless, climate change was on the agenda: The importance of CO<sub>2</sub>-free generation was highlighted, but it was also noticeable, that the interest in this topic is driven by industrialised countries. And even then, Europe has a special position in comparison with Japan and the US. Both Japan and the US are advocates of a competitive and secure energy supply, at least as similar goals.

The WEC study *Power Generation Performance* delivered an interesting contribution to the climate debate. Result: A US\$ 80 billion investment to increase the performance leads to around 1 billion tonnes CO<sub>2</sub>-abatement. This is a rather inexpensive and extremely effective way to contribute to climate protection.



## **Grid infrastructure**

“Smart grids” was often referred to, however it became clear, that the motivation for smart grids varies differently across the regions. The US, for example, wants to make better use of their existing grids. China has the task to transport and distribute electricity on a very large scale. In Europe, the thinking behind smart grids is to give the customer the tools to regulate individual household energy consumption.

In the WEC Policy Assessment the different approaches towards renewables are due to the existing grid infrastructure: Germany and Texas have successfully developed their renewable electricity production due to the existing highly meshed transmission grid. Other countries, for example, Brazil or Ghana use renewables preferably as island solutions, since there is no grid infrastructure in rural areas.

## **Studies**

Here is a list of the WEC studies presented in Montreal together with a short summary. The studies can be downloaded using [www.worldenergy.org](http://www.worldenergy.org).

### *Biofuels*

In the past few years there have been important advances in the field of alternative transportation fuels, primarily ethanol and biodiesel. Both the automobile industry and the biodiesel producers have played a major role in developing the technical and normative prerequisites. The challenge is to develop biofuels which do not compete with the food chain, which are sustainable, and for which the carbon footprint is known and a net gain. The main objective of the Task Force will be to identify and evaluate the leading production technologies and the main barriers to an accelerated development and deployment of biofuels standards and technologies worldwide and formulate recommendations for removal of these barriers.

### *Committee on Cleaner Fossil Fuel Systems, Carbon Capture and Storage after Copenhagen*

Given the growing concerns about the environmental performance of fossil fuels, it is imperative to find ways for deployment of cleaner and more efficient fossil fuels combustion technologies. Cleaner systems mitigate the adverse consequences of the use of fossil fuels and permit their positive qualities to be more fully harnessed for economic and social development. Clean technologies development is advancing rapidly and there is a major potential for their deployment, in particular in the quickly growing developing countries.

### *Energy Efficiency Policies and Indicators*

The Energy Efficiency Policies and Indicators Committee, together with l'Agence française de l'environnement et de la maîtrise de l'énergie (ADEME), is focusing its work on the evaluation of energy efficiency trends worldwide and analysis of the interaction between energy efficiency policies and energy efficiency performance of economies by comparing specific energy efficiency indicators.

### *Energy Foresight – Turning critical uncertainties into strategies for the future*

Energy systems are complex and their evolution involves input from a variety of disparate sources. This high complexity, combined with uncertainty, constrains the predictability of energy foresight. The World Energy Council (WEC) scenarios, built on its diverse membership structure, play an important role in a multi-stakeholder environment filled with ambiguity.

### Interconnectivity

The introduction of market liberalization in many countries and regions, and the unbundling of generation from transmission, have exposed transmission “bottlenecks” limiting the development of well-functioning markets. Despite a fairly strong opposition to construction of new transmission lines, strong interconnections between countries can reduce the supply volatility and mitigate its impacts. The objective of this study is to identify and demonstrate, both in quantitative and qualitative terms, the potential benefits of properly designed, maintained and operated transmission infrastructures using state-of-the-art technologies and management practices, including “smart grids”. The Task Force will provide a picture for each continent of the existing interconnections and of projects under discussion including environmental and socio/political aspects, and the latest technologies.

### Power Generation Performance

Market structures, technologies, environmental standards, and other factors are changing the way the electricity sector operates and are posing new challenges for power plant operators around the world. New strategies, greater collaboration within the industry, and new tools are required to make it possible to collect, analyse, and leverage plant performance initiatives. The Committee’s main objective is to promote international data exchange and best practices for generating plant performance and to achieve the most effective use of generation assets and energy resources worldwide. This objective will be accomplished by enhanced international data exchange and communications, benchmarking workshops and presentations. The new generating plant performance indicators database will be at the centre of the process with continuous power plant reliability statistics collection and direct entry of data into the database by participating companies and organisations.

### Rules of Energy Trade and Investment

The need for clearer international rules governing energy trade and investment has been identified as a potential problem in the World Energy Council (WEC) Studies. Concerns about security of supply by consuming nations and security of demand by supplying nations are more pronounced than ever and threaten the international fabric of the global trade. The World Trade Organization (WTO) agreements govern trans-border movement of energy in various ways, but do not deal with energy in a coordinated manner and leave many aspects unclear and unanswered, particularly regarding new forms of energy such as biofuels and the carbon footprint. The main objective of the Task Force is to provide a systematic analysis of how trade rules affect international energy trade and to make recommendations for improving those rules consistently with the interests of the energy industry. Ultimately, the objective is to work directly with the WTO and other international organizations (such as the OECD, the IAEA, UNCTAD, etc.) as well as NGOs active in the field on preparations for the next round of trade negotiations (post-Doha) so as to put energy goods and services into the mandate.

### Survey on Energy Resources

This triennial publication is a valuable reference for energy industry executives as well as scenario modelers and energy technology researchers. Its contents are actively sought by various energy organizations such as the IEA, the EIA, and the IAEA, and development organizations. It is the only source of global energy resource data collected on a country by country basis. The input data are then carefully screened for consistency. The result in its latest version is a 600 page document that will be the basis for much of the world's planning. The 22nd Survey of Energy Resources to be made available for delegates at the Montreal Congress in September 2010, including a complete report in CD-ROM format with an Executive Summary.

### Vulnerabilities to Energy Sustainability

Previous World Energy Council (WEC) studies have identified four vulnerabilities as significant hurdles to be overcome: Human Resource Availability, Manufacturing Bottlenecks, Water for Energy and Logistics Capabilities.

Four sub groups will examine these four vulnerabilities as parts of an integrated study and their findings will be parts of a final study. Working with governments and academics and taking regional characteristics into consideration, each sub group will identify its specific issue and examine the financial and policy requirements needed to address them. The objective is to provide important information for decision makers in industry, governments and development institutions highlighting the risks to energy and social sustainability from these vulnerabilities.

There will be special emphasis on issues specific to regions, but these will be assembled into global scale recommendations. The study being completed in stages from December 2008 until the Montréal Congress in 2010.

### World Energy and Climate Policies Assessment

The objective of this study is to provide an annual assessment of policies, regulations and/or standards and their effectiveness in addressing climate, growth or equality goals. The study will take into account regional characteristics as policies are not necessarily transferable from one region to another. It will also measure progress toward achieving the WEC development goals. Second, it should enhance WEC's visibility by publishing and promulgating the results of the assessment and proposing ways in which good practices in one country or region might be used in others.

## **Some more information to the World Energy Council**

The World Energy Council (WEC) was founded in 1923 in London and covers all sort of energies. It has over 90 member countries, in each member country there are representatives of government, utilities, supply industry and energy consumers.

The World Energy Council uses the “4 A’s” as core values:

- Energy Accessibility:  
How can energy demand be covered?
- Energy Availability:  
What energy system guarantees the best long-term stability?
- Energy Acceptability:  
What solutions are sustainable and hence acceptable?
- Energy Accountability  
How to define the political and regulatory framework, in order to make investments happen in the appropriate way?