



The World Energy Council: meeting global energy challenges

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It has become commonplace to state that the world has fundamentally changed over the past few years. Unlike during the nineties, when the oil price bottomed out at below 20 dollars per barrel and climate change was still an issue for environmentalists, energy security and climate change are today at the forefront of the global agenda. With these themes on the one side and the need for global dialogue to find solutions on the other, the founding vision of the World Energy Council is now coming to fruition.

Founded in 1923, the World Energy Council is the only truly global and inclusive forum for thought-leadership and tangible engagement committed to our sustainable energy future. We promote the sustainable supply and use of energy for the greatest benefit of all. Our network, through National Member Committees in more than 90 countries, includes over 3000 member organisations from public and

private sectors, producing and consuming countries, and covering all aspects of the energy value chain. With our mission, impartiality, legitimacy and depth of network, the World Energy Council is uniquely positioned to catalyse new thinking and facilitate worldwide consensus on the very issues that the world is most concerned about namely:

- **Risk Management and Responsibility:** a global and all-energies priority;
- **Managing the Energy Transition to 2030:** the need for effective policies and long-term investments that keep technology options open and lead to a sustainable energy future;
- **Improving the Living Standards of People:** the aspirations and behaviour of the new energy consumer, poverty mitigation, and lifestyle changes (urbanisation).

Taking up these three vital challenges is paving the way to sustainable energy. In order to contribute effectively to global sustainable development, the stakeholders of the energy sector and beyond will have to address technological risks more responsibly, manage the complexity and uncertainties of environmental factors thanks to scenarios planning, and assess the potential impact of policies on the everyday life of people to ensuring their acceptance by society.

The World Energy Council: a brief history

In 1923, a small group of energy experts came together in London to plan a conference which would bring together experts from around the world to help consider how to rebuild the electricity grid in Europe following WWI. The first World Power Conference was then held in London in 1924. It was so successful that the meeting has taken place every three years ever since. Over the years the original purpose was widened, the organisation grew, and the name changed, eventually, to become the World Energy Council. The World Power Conference has evolved into the World Energy Congress and gathers every three years 3,000 energy leaders from 100 countries to assess the state of the energy world.

WEC's work is governed and legitimised through its Executive Assembly (with the principle of "one country one voice", forming an "Energy UN") and its Officers Council, presided by WEC's Chairman, with the Secretary General in the executive function. Our national committees are chaired by energy ministers, leading CEOs or experts. Our studies are complemented by views from a global energy business leaders group (Patrons Roundtable) and ministers (Ministerial Roundtable) which we facilitate during our Energy Leaders Summits.

The World Energy Council's activity areas

The World Energy Council addresses these challenges with activities in the following six areas: we survey resources, and technologies; we assess national energy policies across the world and identify which policies are effective and transferable to other countries; we explore possible global energy futures and analyse critical uncertainties; we look at how energy access can be improved; we promote best practices in the field of energy and urban innovation; and, we contribute to the dialogue on global frameworks, be it in the context of rules of energy trade or with respect to the global climate framework.

Surveying energy resources & technologies

When will the world run out of oil? What is the status and the potential of shale gas, biomass, wind, solar and other renewable and fossil energy resources? What are the issues with smart grids, energy-water linkages, carbon capture and sequestration, clean coal technologies, generation IV nuclear or e-mobility? How much difference can benchmarking and improving performance of existing power plant make? The World Energy Council has been conducting the Survey of Energy Resources for over 60

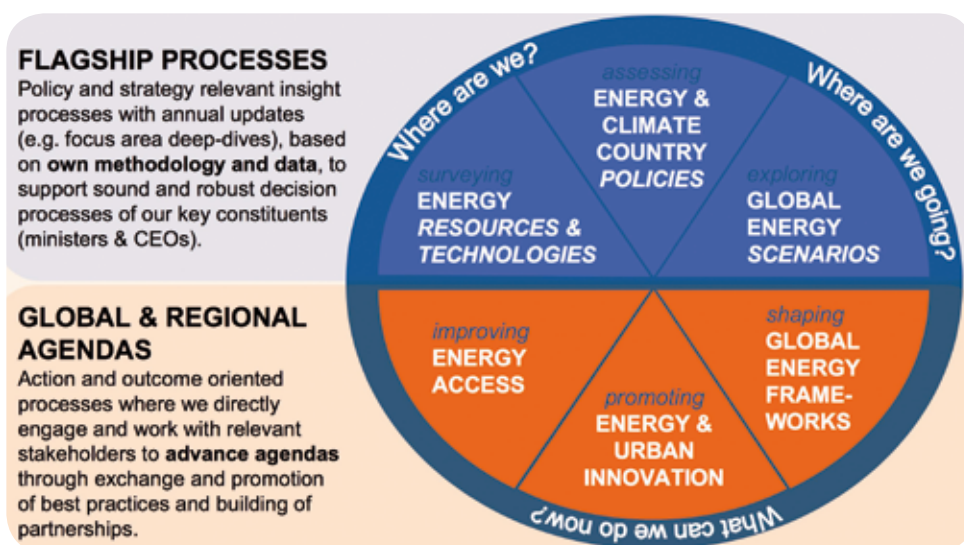


Figure 1 - six activities - WEC's 'activities wheel'

years and now also assesses current and emerging technologies and resources to provide a solid basis for policy and strategy decision making processes.

Assessing energy & climate country policies

We live in a world of change and energy and related policy innovation will affect our energy future in many ways. In the aftermath of the financial and economic crisis the world places more emphasis on policy than on Adam Smith's "invisible hand" to guide us towards a sustainable energy future. Which policies balance cost-effectiveness, social equity, environmental viability and effectively enhance the general welfare of the citizens of a nation or region? In the interest of our sustainable energy future, the World Energy Council has developed a methodological framework to identify effective policies around the world and how they can be transferred from one country to another. The methodology is founded on an index based on 22 indicators, an industry executives' survey, a review of over 200 individual policies in over 40 countries, as well as a survey conducted with our Member Committees in over 90 countries.

Exploring possible global energy futures (2050 scenarios)

What if...? We live in a time of increasing volatility and extraordinary changes, driven by new uncertainties and ambiguous value systems. The financial crisis, the

technological shift from conventional to unconventional resources, shifting geopolitics, climate change and the likely future carbon price, the changing water footprint and its impact on the energy value chain, the urbanisation trend and new forms of mobility, competing value systems, armed conflict and ideological extremism ... how will all these issues affect our future energy system and what will be the critical drivers to watch? The extrapolation of the past into the future is not a meaningful approach when trying to improve our understanding, especially in terms of effective energy policy and leadership. By drawing on the

wisdom and experience of its global membership to develop a small set of distinct but consistent scenarios – "plausible stories of pathways into the future" – the World Energy Council enables decision makers to test the robustness of their own assumptions and to validate policies and strategies.

Shaping global energy frameworks

Resources and skills are unevenly distributed across the world and are not often at the places where they are most urgently needed. Energy access, energy security and climate change are global challenges and therefore have no economic and efficient solutions within national boundaries. This underlines the role of trade in goods and services and makes the global frameworks and rules that govern it an essential building block of the global public good. Nationalistic solutions that lose sight of the global picture and the need for a coordinated and collaborative approach delay the necessary international policy convergence. The resulting highly uncertain investment framework makes infrastructure investments unnecessarily risky and we will all pay the risk premium as part of higher energy prices and further delay in climate change mitigation. Critical issues in this context include defining "green goods and services", the legitimacy of "border tax adjustments" to avoid carbon leakage, or the promotion of technology transfer to developing countries. The World Energy Council promotes dialogue and develops constructive proposals.

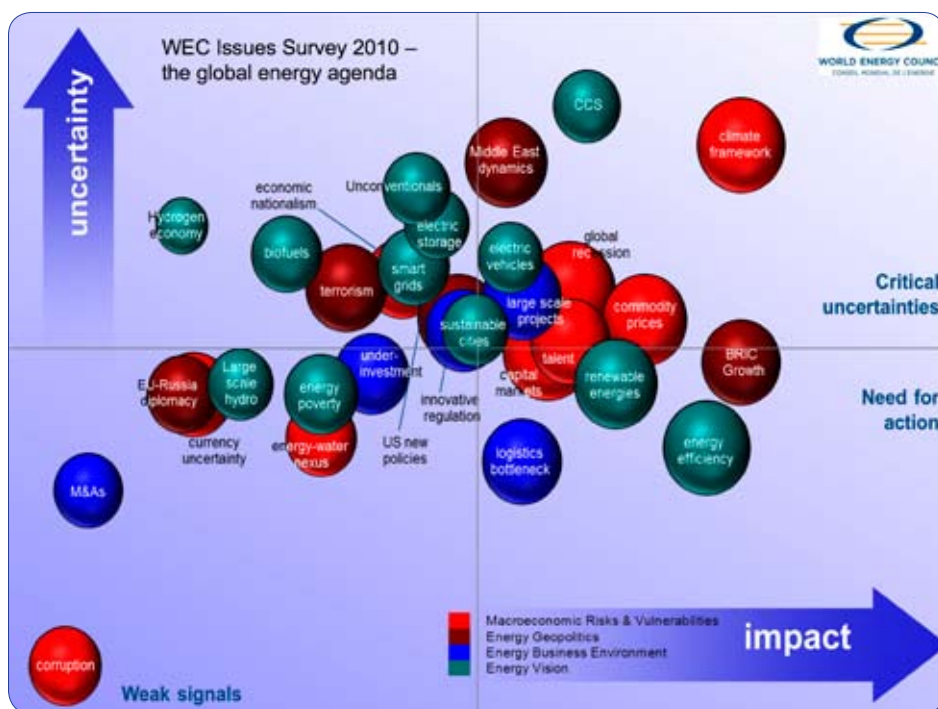


Figure 2 - The global energy agenda - the World Energy Council's issues map

A lack of basic energy service impacts all aspects of these people's lives, from healthcare to clean water, safe housing, education and the potential to earn a living. Rural communities account for 85 per cent of energy poor. Institutions, including the International Financial Institutions (IFIs), and also most governments focus on grid-expansion and densely populated urban areas. This simply leaves the rural poor perpetually exposed and in the dark. Key challenges include the lack of adapted financing mechanisms that can deliver on rural energification schemes; poor education and shortage of local skills for project initiation, implementation and system operation; the absence of easy local access to components for equipment maintenance and enhancement; the lack of understanding and political support necessary to replicate enduring local ownership models. The

Promoting energy & urban innovation

Today, 50 per cent of the world's population lives in cities and by 2030, this number will grow to over 60 per cent. Key concerns for the people leading cities include security, pollution, health, wealth and broader well-being for their citizens. These issues directly or indirectly link to energy and resource efficiency: transportation and traffic management, building heating and cooling, sanitation and waste management, and communication networks are among the key processes that determine the energy pattern of a city. Innovative approaches are being implemented in a number of cities across the world. The World Energy Council plays a constructive role through the facilitation of the best practices dialogue and the delivery of expertise to leaders, city planners, managers and leaders.

Improving energy access

With only five years left until the 2015 deadline to achieve the Millennium Development Goals the world is on a path to an "unacceptable failure, both moral and practical". None of the MDGs can be delivered without access to modern energy services for the 1.5 billion people who today live without it.

World Energy Council works with other relevant stakeholders on pragmatic approaches to promote energy access.

Assessing the global energy agenda

In order to assess the global energy agenda and its evolution, the World Energy Council conducts an annual issues survey with the Chairs of our Member Committees who represent their national networks in over 90 countries. They quantify the impact, uncertainty and urgency of approximately 30 issues, covering macro-economic risks, geopolitics and business environment as well -as energy vision in a high-level "helicopter perspective". The responses are translated into issues maps with the three assessed dimensions as its axes.

How to read the issues map: Issues with high uncertainty and high impact (in the upper right corner – "critical uncertainties") include these which will most benefit from multi-stakeholder dialogue and scenario analysis. The issues on the high-impact/low uncertainty side are these where immediate action finds easy consensus (bottom right – "need for action"). The low impact/low uncertainty issues include issues of perceived lesser importance but also "weak signals", which may be issues that are still badly

understood. Further, the urgency of an issue is proportional to the size of its bubble. Finally, the four different categories of issues – macro-economic risks, geopolitics, business environment and energy vision – are represented in four different colours.

Interpretation: In comparison to last year’s survey macro-economic risks related to the financial/economic crisis have lost their dominance as key concerns of WEC Chairs. The climate framework was already high in 2009 and in 2010 has become the dominant critical uncertainty for the energy sector. On the regional issues side, it is the growth of BRICS and regional dynamics in the Middle East that rank top. On the vision front renewable energies and efficiency are dominant issues. In comparison to last year, the trio of smart grid, storage or electric vehicles have made a jump upwards in terms of their perceived impact and uncertainty. Notably, carbon capture and sequestration (CCS) is still “taxed” with the highest uncertainty, which means that there is much more convincing work needed if the world is to become serious about CCS. Top perceived uncertainties also include unconventional resources. Innovative regulation and large-scale projects are perceived to be of higher uncertainty and impact compared to under-investment after the financial/economic crisis. Other notable issues include the energy-water nexus as a rapidly growing concern as well as sustainable cities as a key driver for future energy consumption.

Undertaken on an annual basis, the issues survey will show the evolution of the perceived importance of the assessed issues

and enable us to define global and regional priorities for our work: to facilitate dialogue and build consensus around critical uncertainties and contribute to the implementation of issues that need action.

Climate framework – WEC’s view on the dominant critical uncertainty

A recent survey of WEC’s members globally has identified the carbon framework as the outstanding critical uncertainty for the energy sector. A vast majority believes that further progress towards an international climate framework is needed to decrease energy investment uncertainty. 60 per cent have a preference for a carbon price mechanism (such as cap & trade), 38 per cent prefer a carbon tax. A vast majority in both, developing and industrialised countries think that it is legitimate to prioritise progress regarding energy poverty and more broadly, development over the climate agenda, or at least require that the two are linked.

Figure 3 - WEC stakeholders’ view on the global climate framework

