



# The final word

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Every three years, the World Energy Congress brings together people involved in energy from across the globe. Daegu 2013 is no exception, with specialists and stakeholders from more than 80 nations representing all activities of the energy sector. The number of participants and their range of interests reflect the continuing, indeed growing, importance of World Energy Council and its premier event, the World Energy Congress.

Despite the multiplication in recent years of international and multilateral fora in which energy and the environment are discussed, few, if any, match WEC as a non-partisan platform at which stakeholders from the world of energy can discuss future challenges and contribute to the development of sustainable solutions. WEC's unique structure, based on 93 Member Committees, allows it to reach out to every element of the energy equation, from generation to end use, technology development and environmental mitigation.

Over recent years, the World Energy Council (WEC) has witnessed a major change in the way the organisation functions. From being primarily a platform for discussion, it has emerged as a major player in the global debate through the publication of comprehensive and wide-ranging reports that can have a tangible impact on energy policy in all five continents.

Much of that pivotal evolution is owed to Pierre Gadonneix, under whose tenure as chair many of these changes have taken place. Over the past six years, Pierre has shown remarkable leadership and vision, in the process transforming World Energy Council from an organisation where policy is discussed to one where policy orientations are formulated and suggested to national governments. The fact that WEC was invited to join the United Nations' Sustainable Energy for All (UNSE4ALL) initiative highlights the organisation's growing prestige and influence.

WEC's triennial Congresses have helped to cement the organisation's global reach. Its Congress in Rome in 2007, held during a period marked by a major enlargement of the European Union, cemented WEC's role in the continent. The subsequent Congress in Montreal in 2010 resulted in renewed vigour in Member Committee activity in both North and South America, as well as a record attendance by African delegates. Of course, Asia has always been a key WEC constituent and this Congress in Daegu will doubtlessly lead to a greater focus on Asian energy, especially in the light of the appointment of my colleague David Kim from Korea as Co-Chair of World Energy Council. Looking ahead, the Istanbul World Energy Congress of 2016, at the crossroads

between Europe and Asia, will certainly help WEC make new inroads in emerging regional energy hubs in Central Asia.

## Increased complexity

WEC studies paint a picture of increasing complexity in the world of energy. For a start, one can see the impact of technological breakthroughs and innovation on not just the production of energy but also its conservation. However, there is increasing awareness of the effect the energy sector has on climate change, whose effects may threaten energy infrastructures which may in turn cause global geo-political instability. World population growth, economic development and changing demographic trends raise questions about access to affordable and secure energy supplies. And, finally, energy is no longer the domain of governments and specialists. There is increasing public awareness and sensitivity towards complex energy issues. In short, energy is now a complex global issue of concern to all and at the top of the public agenda.

## Responding to a triple challenge

Energy has always been a valuable commodity, not just providing for basic human needs but also the base for economic growth. A single light bulb in a village in India, under which a child can do her or his homework, has as much value as a high-voltage connection supplying a major industrial unit in a developed country. Today's energy prices not only reflect that value but they also highlight the challenges for energy producers and consumers and the need to incorporate the costs of energy production and use to the environment.

We cannot allow the current global economic stagnation and consequent slow growth in energy consumption to distract us from the long-term challenge. Demographics and population growth alone will result in major challenges in terms of energy access and energy security. It is widely recognised that the world cannot continue with a business as usual scenario. Indeed, it is clear that the world recognises this and that a transformation of the energy sector is already underway. This transformation is neither linear nor uniform as each country responds to its respective reality.

But as we move towards a more sustainable energy future, it is clear that the world is facing a triple challenge that WEC describes as the 'energy trilemma', namely the need to create a policy framework that simultaneously delivers secure, affordable, and environmentally sustainable energy. Energy security, energy access, and environmental

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sustainability are the three pillars of this 'energy trilemma'. Each of the three elements is vital to a healthy economic and social development of a country on the long term.

WEC recognises that each country has its own view on the relative importance of each element in the world energy trilemma equation. While all countries are right to focus on energy security as a critical factor to fuel economic growth and social cohesion, there is more variability when it comes to energy access and affordability, the energy equity pillar, and even more so for the environmental sustainability pillar.

The key strength of WEC's role is its total neutrality. The Trilemma Report does not pass judgement but provides an objective toolkit for policymakers, in the form of the Energy Sustainability Index. The Index provides public and private stakeholders with the opportunity to evaluate and benchmark their country against others in order to help policymakers identify areas where action needs be taken in line with their national priorities.

## The Future Landscape

National governments and policymakers have a clear role to play in shaping how their respective energy systems evolve. However, they have to work within the constraints of certain fundamentals, not least energy availability. WEC's World Energy Scenarios gives a truly realistic indication of what the future energy landscape could look like. It gives policymakers an extra tool to plan for a sustainable energy future.

WEC's World Energy Scenarios shows that by 2050 fossil fuels will still play a crucial role in the global energy mix. Coal is also going to play an increasingly important role in the long run, especially for power generation in China and India, the two most rapidly growing energy consumers in the decades leading to 2050. Natural gas production, especially from unconventional sources, will continue to grow and account for an increasing proportion of the energy mix.

The age of oil is far from dead. Oil will continue to remain dominant as a transport fuel and we expect to see an increase in importance of unconventional energy sources – in particular oil sands, and oil shale. For its part, nuclear energy is unlikely to grow at anywhere near the levels seen in previous decades. WEC anticipates a large increase in the share of renewables, mainly in solar photovoltaic energy and hydro globally.

As the global population grows and energy consumption rises, WEC's World Energy Scenarios show that energy efficiency and energy conservation are absolutely crucial in ensuring that demand does not outstrip supply. However,

the report warns that both require a change in the mind set of consumers and have cost implications across industries. As a result, growing amounts of capital will be required to finance energy efficiency measures. Typically, investments in this area can take time before they are paid off.

Electric mobility will take longer than expected to make an impact on energy demand – at the earliest after 2030. The Report warns that policy makers need to undertake an even greater effort to promote the share of renewables in electricity production, which is not increasing enough to ensure environmental sustainability in the long run.

Despite growing energy demand and continued dependence on fossil fuels, the future is not necessarily disastrous for the planet and its environment. WEC believes that a reduction in greenhouse gas emissions is possible in the second half of the scenario period, if strong global agreements and the implementation of cost-efficient market instruments like emissions trading within a cap and trade system are put in place sooner rather than later.

## A Stark Warning

WEC World Energy Scenarios indicate that these large reductions in CO<sub>2</sub> are possible if and when governments take concrete action and industry players and markets are given the right incentives to provide suitable technological solutions to achieve this. However, current signals indicate that the global economy is not on track to meet the 450ppm target. We need to work harder.

WEC's World Energy Scenarios offer a stark warning to politicians: the time for short termism is over. A holistic long-term view of the energy sector is required to address these energy challenges up to 2050 and beyond. Critical uncertainties remain, especially with regard to CCS and the scalability of energy storage technologies. In this complex scenario, governments play a crucial role in determining and establishing frameworks for markets to function. Industries and markets need to provide efficient solutions.

## The Way Forward

Daegu 2013 is a landmark event at which all these issues are being discussed. Of course, discussion is not enough. We need our participants – ministers, CEOs and experts – to leave us not just with concrete ideas to implement at home but fired with the necessary enthusiasm to make the tangible and lasting changes that are required for a sustainable energy future. 