



Managing the energy transition to a sustainable future

By Pierre Gadonneix, Chairman, World Energy Council and Honorary Chairman, Electricité de France (EDF)

Our 21st World Energy Congress offers a unique opportunity for all stake-holders of the energy sector to meet and exchange visions, strategies and practices, during four days of very intensive and interesting sessions, round-tables and exhibitions. More than 3,000 energy leaders gather from around the world from both developed and developing countries, from all types of energy, from public and private companies and government organisations, in order to think together about how to bring about a sustainable and acceptable energy future.

The truth is that nobody has the choice any longer. All energy leaders have to take decisions every day, and they need to have a clear analysis of what is at stake, what the risks are, and what the solutions can be.

What is at stake? Energy security, sustainability, what else?

Even as we speak, all countries are working to develop strategies for putting the crisis behind them. And economic growth is an entirely legitimate and worthwhile goal for all countries. The problem is that the kind of growth we have pursued in the past forces us to address three fundamental issues. The first is security of supply. We must invest in new sources and infrastructure to meet demand. The crisis has

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negatively affected some investment plans, and the recent surge in oil and commodity prices may curb growth. The energy industry will need to go further afield and deploy ever more sophisticated technologies to tap into available resources, which will come at a cost.

The second is environmental protection and climate change. Responsible for 60 per cent of global greenhouse gas emissions and much of regional and urban air pollution, the energy sector is clearly on the front line of climate change. We have to deploy cleaner technologies, and adapt our production and consumption systems, which will also come at a cost. And because energy goes hand in hand with development, the question of inequalities within and across countries is another central concern. Now more than ever, we must work to find a sustainable path that reconciles economic growth, protection of the environment and greater energy equity among peoples. The energy transition will be expensive and we have to make every effort to minimise the transition costs.

What are the assets, the risks and uncertainties in this transition?

We have the technologies we need at hand. Energy resources are not a major constraint but their uneven distribution across nations, and the fact that ensuring security of energy supply will lead to an increase in energy prices, are issues. And, as the recent events in the Gulf of Mexico dramatically reminded us, we will need to respect the highest standards of safety, which are more expensive. But other types of resources are genuinely scarce or under stress.

The environment is one example, and particularly the climate. Water and land use issues have also become real constraints. There is also a need for the skills to conceive, build and operate systems powered by efficient and clean technologies. The real shortage today relates to governance. We need effective rules and smart policy frameworks to update our energy policies and ensure that the right resources and technologies are available in the right place, at the right time... and at the 'right' price.

The role of energy and climate policies to manage the transition

Innovation in terms of policies, institutions and governance will be just as important as technological innovation. Copenhagen has rightfully put energy policy at the centre of the sustainability debate. The challenge is now to design

sound and effective regulatory frameworks to deliver national objectives. These frameworks must rely on two pillars, as shown in our second edition of our yearly *Energy and Climate Policy Assessment* that will be released in Montreal.

The first is the critical need to factor in thorough assessment of technologies to energy policy making. Updating energy policies will require planning the roll-out of different technologies, starting with those that are mature while preparing others for the market.

We could already organise a massive roll-out of mature technologies over the next 20 years with hydro power, wind, biomass, nuclear and high efficiency coal and gas plants on the supply side, and solutions like efficient lighting, insulation in buildings and heat pumps and more efficient engines on the demand side. These are competitive solutions with prices of up to a few tens of dollars per tonne of CO₂ avoided.

For technologies that are not yet mature, the cost of CO₂ avoided is usually five to ten times higher. So, our first step should be to encourage and support R&D and experimentation.

Assessing the maturity of each technology in each local context is a crucial element in controlling the costs of energy transition and ensuring the long-term viability of rules, which is essential for our sector (in contrast to some dramatic and costly 'stop-start' in policies).

The second element relates to the way regulatory frameworks can encourage behaviours and habits to change. The same WEC report highlights the need to set up bundles of complementary instruments. Norms and standards will play a vital role in encouraging business and consumers to incorporate energy efficiency into buildings and transport, for instance. At the same time, energy prices must do their part to stimulate investment, guarantee security of supply, and promote energy savings. This will require making sure the poorest members of society continue to enjoy access to energy, for instance by having subsidies specifically for them.

Some innovations like intelligent energy supply and use (smart grids and smart homes and buildings) can be real catalysts in changing energy behaviours, making people more aware of the value of resources and therefore more eager to be efficient and responsible.

Sustainable growth is no longer an option – it is a necessity. While the goal is clear, finding the best path to reach it will be a challenge for us all. I believe that to rise to the challenge, we will have to rely more than ever on cooperation and dialogue between all stakeholders – governments, business, research and NGOs. This is WEC's mission and spirit. □

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