

World Energy Issues Monitor | 2017

WORLD ENERGY COUNCIL

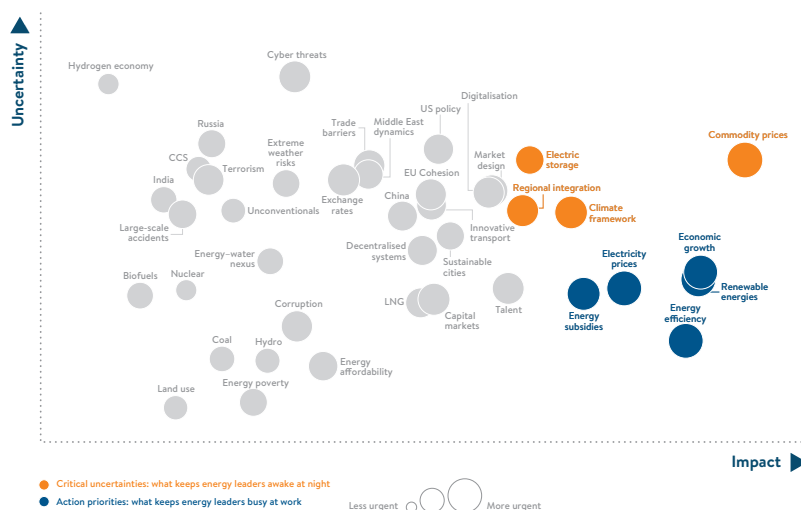
EXECUTIVE SUMMARY

EXPOSING THE NEW ENERGY REALITIES

As the Grand Energy Transition fast becomes a reality, the minds of global energy leaders are becoming increasingly focussed on long term trends that threaten existing economic and business models rather than concerns about short term risks. Issues that will dictate the speed and the breadth of the energy transition rise to the top of the global energy agenda as government and corporate take stock of the impacts and opportunities that arise as the world goes down a path of increased decarbonisation. This includes regional integration, climate framework, electric storage, renewables, energy efficiency, electricity prices and economic growth.

COMMODITY PRICES STAND OUT YET AGAIN

The biggest single critical issue in terms of both high uncertainty and higher impact is commodity prices, an issue that has remained at the top of the global agenda for much of recent history. Ostensibly a short term-term concern of critical importance to resource-holding governments, international hydrocarbon developers and all consumers, commodity prices takes on an increasingly long-term perspective within the context of the energy transition. Increased price volatility is a likely consequence of the peak in energy demand growth predicted by the latest World Energy Scenarios as International Oil Companies and National Oil Companies reduce their investment spending in anticipation of falling demand. Already, the IEA has warned of such price volatility as necessary investments fail to keep up with natural declines from existing oilfields and increasing demand in the run-up to the anticipated peak.



Commodity price volatility is an issue of importance for all regions but resource-holders and consumers in developing economies show the highest levels of concern. Energy leaders in Asia and Africa, regions heavily dependent on energy imports, reveal this to be the biggest issue in terms of critical uncertainty. Likewise, MENA countries dependent on hydrocarbon exports see the issue as undermining long term economic models. Already, Saudi Arabia has embarked on a what it calls a National Transformation Plan outlined in a document known as Vision 2030 that aims to leverage current oil revenues to provide long term investments necessary for a future beyond oil. Oil price volatility undermines this plan and helps explain the Kingdom's current commitment to maintaining oil price stability. For their part, North American energy leaders are equally concerned buoyed by the fact that they are major producers and consumers of energy. Here, the slow decline in coal has an impact on commodity price concerns but, more than anything, it is the future of the tight and shale oil/gas industries that keeps energy leaders awake at night. Massive amounts of capital are now tied up in the industry in both the United States and Canada and they are held hostage to a single issue: price.

CLIMATE CONCERNS WANE

The global climate framework remains in the quadrant of critical uncertainties but global leaders believe that this issue has less uncertainty and a lower impact than commodity prices. Again, at first sight this is surprising: after all, the move towards the decarbonisation of energy is the biggest single driver behind the energy transition. However, in the wake of the agreement at the COP meeting in Paris in December 2015, this is a clear signal that energy leaders believe that the world is in an irrevocable path towards decarbonisation, one that is no longer entirely dependent on a global climate agreement.

TECHNOLOGY IS KEY TO THE GLOBAL ENERGY FUTURE

Energy leaders clearly believe that technology, in its many forms, is the key to a decarbonised energy future. In particular, advances in electric storage and renewable energy are key areas that have the potential to dictate the pace and the scale of the energy transition. The rapid implementation of renewable energy capacity across the globe, notably wind and solar PV, means that there is a degree of certainty about the future role of renewable energy in the global energy mix. However, its impact is growing as renewable energy displaces hydrocarbons, particularly oil and coal, in power generation. In turn, the anticipated improvement in electric storage, notably batteries, has the potential to revolutionise the transport sector as the electric vehicles (EVs) become a viable alternative to petrol and diesel fuelled cars. Factors that could further dampen the growth in energy demand growth such as energy efficiency and the end to energy subsidies remain high on the agenda of global energy leaders. While energy efficiency gains tend to come in slow increments and are hard to retrofit, there is an increasing certainty that it will have a major impact on the future of energy. There is greater uncertainty about the end of energy subsidies but the fact on the ground is that countries throughout the world are using the window of opportunity afforded by relatively low energy prices to trim energy subsidies and accustom consumers not just to the need to pay real prices for their energy needs but also to provide an economic signal for them to moderate consumption. Leading the way are some of the countries with the highest per-capita energy use such as the GCC where the United Arab Emirates and Saudi Arabia are both in the process of reducing or eliminating subsidies for both transport fuels and electricity.

Global economic growth that both drives energy demand and is directly impacted by energy price volatility remains high on the global agenda. Recent history has shown that falling oil prices have largely failed to boost economic growth in consuming countries but they have had a dramatic impact on the fiscal balances of hydrocarbon-producing countries. Societal welfare and employment

depend on continued economic growth which in turn is closely intertwined with energy consumption and production. Falling energy prices might not boost economic growth but the inverse is true: economic growth does boost energy demand.

TRADITIONAL ENERGY SOURCES FAIL TO EXCITE ENERGY LEADERS...

As global energy leaders focus on the big picture, there is a noticeable lack of concern regarding historic primary energy sources. On a global level, coal, nuclear, and hydro all fall off the radar screen, rated as low-impact, low-uncertainty issues. Coal use falls over the coming decades under most energy scenarios, including the Council's World Energy Scenarios while both nuclear and hydro have seen their growth constrained by public concerns regarding safety, in the case of nuclear, and environmental impacts, in the case of hydro. Notwithstanding the apparent lack of interest in these energy sources at the global level, there is a noticeable divergence at the regional level. Coal remains a major primary source of energy in Asia and, as a result, energy leaders in those regions fret about the future of that fuel notably in India, Indonesia and China. Likewise, energy leaders in South Africa, a major producer and consumer of coal, worry about its future.

Similar regional and national divergences can be seen around nuclear power. This is a lack of concern about the future of nuclear energy not just in those countries and regions that do not have it but also in some key nuclear states. For example, and perhaps surprisingly, the future of nuclear energy in South Korea, which generates nuclear energy and exports nuclear technology, is not an area of critical concern for energy leaders in that country. Similarly, most Europeans do not rate the issue as being critical. However, the same is not true for other nuclear power users such as UK, China, North America, South Africa, Japan and Belgium. Most of these countries are either grappling with the choice of whether to advance or not with planned new nuclear or whether to go ahead with planned closures. A clear message arises from the Issues Monitor: nuclear energy is a contentious issue in many countries that have it with some surprising exceptions.

...BUT LNG REMAINS CLOSELY WATCHED

A more complex picture arises from the future of liquefied natural gas (LNG). Consumption of natural gas under most global energy scenarios, including World Energy Scenarios, will continue to enjoy modest growth for the foreseeable future. Much of this will be supplied in the form of LNG, a market that for much of 2016 was volatile. While energy leaders in Europe, Africa and Asia see LNG as an issue of little concern, it was a major issue in individual countries where LNG plays an important role. For Singapore, a state that aims to become a leading regional hub for LNG, and has invested heavily in LNG storage infrastructure, it is a critical uncertainty. Singapore's LNG business model depends on the continued role of natural gas in Asia and benefits from a new focus of spot sales of LNG instead of gas supplied under long term contracts. LNG is also an important issue for the MENA region which is increasingly dependent on LNG imports for domestic power generation. Qatar, the region's main gas exporter, has effectively capped gas exports to neighbouring states forcing Kuwait and the UAE to start LNG imports.

REGIONAL PERCEPTIONS OF KEY ISSUES VARY WIDELY

If there is a single message from the World Energy Issues Monitor it is that many regions view issues very differently. An example that illustrates this is the issue of cyber threats, viewed very differently throughout the world. For Africa, Latin America and indeed the non-OECD as a whole, cyber threats are

seen as a low impact, if uncertain, risk. Not so for other regions who all view this is an area of uncertainty but with various degrees of seriousness. Regionally, leaders in Europe, MENA, North America and Asia all agree that cyber threats offer a moderate risk to business continuity. However, in the UK, Japan and Singapore, this is an area of critical uncertainty, representing a major risk to energy security.

Likewise, there is even greater variability in the perception of extreme weather risks. In Latin America, in a year when the El Nino phenomenon is peaking, minds have become acutely sharpened to extreme weather risks with leaders in Columbia and Ecuador showing particular concern. The issue is also regarded as a major risk in Asia though to a lesser extent than in Latin America. Inversely, for leaders in other regions, extreme weather risks are not regarded as significant at all. For those in North America, Africa, Europe and MENA, extreme weather events are low on their radar screen.

ABOUT THIS REPORT

The World Energy Issues Monitor provides a snapshot of what keeps CEOs, Ministers and experts awake at night in over 90 countries. The monitor helps to define the world energy agenda and its evolution over time. It provides a high-level perception of what constitute issues of critical uncertainty, in contrast to those that require immediate action or act as developing signals for the future. It is an essential tool for understanding the complex and uncertain environment in which energy leaders must operate, and a tool through which one can challenge own assumptions on the key drivers within the energy landscape. This eighth iteration of the monitor is based on insights provided by more than 1,200 energy leaders to provide over 35 national assessments across six regions.

ABOUT THE WORLD ENERGY COUNCIL

The World Energy Council is the principal impartial network of energy leaders and practitioners promoting an affordable, stable and environmentally sensitive energy system for the greatest benefit of all.

Formed in 1923, the Council is the UN-accredited global energy body, representing the entire energy spectrum, with over 3,000 member organisations in over 90 countries, drawn from governments, private and state corporations, academia, NGOs and energy stakeholders.

We inform global, regional and national energy strategies by hosting high-level events including the World Energy Congress and publishing authoritative studies, and work through our extensive member network to facilitate the world's energy policy dialogue.

Further details at www.worldenergy.org and [@WECouncil](https://twitter.com/WECouncil)

The full report can be found at www.worldenergy.org/publications

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World Energy Council

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Registered Office

62-64 Cornhill
London EC3V 3NH
United Kingdom

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