Spain, Europe and the World: The Geopolitics of Energy

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In the 40 years since the IEA was established, much has changed. Emerging economies now make up the bulk of energy demand, the threat of climate change and the growth of renewable technologies has shifted priorities, and LNG is rewriting the global gas landscape.

One thing that has not changed is the need for vigilance and preparedness, even in the case of supposed calm.

Because even for oil, markets today seem well-supplied, and prices are reflecting this supply – this is reassuring. Markets are surely comforted that the turmoil in Iraq has not disrupted the country’s oil exports. But the risk remains that long term, instability will deter investment, resulting in a supply shortfall. This may not happen today, or tomorrow, but is a possibility down the road.

Similarly, although gas supply is likewise ample and set to be reinforced by a new wave of LNG over the coming years, geopolitics is also creating uncertainty. Debate in Europe has reignited over whether or not to take steps to reduce reliance on future gas supply from Russia.

There has also been positive news in terms of climate change and the environment. We have seen a number of recent policy efforts that can help reduce CO2 emissions, such as the Clean Power Plan in the United States or the 2030 framework for energy and climate in the European Union. And of course just

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recently the United States and China have signaled to the world that they are ready to take steps together on reducing emissions. That said, 2013 was yet another record year in terms of global CO2 emissions, rising 2.6 percent over 2012.

Indeed some degree of uncertainty underlies all discussions of energy security. The question is, what do we know today, and how can that help us to prepare for tomorrow?

To answer that question, perhaps it is best to start at home.

Here in Spain, your country is taking full advantage of the promise of renewable energy. In 2013, Spain generated a full quarter of its electricity through wind and solar. On its face, this is nothing but good news. With the EU target of 27% renewable energy by 2030, Spain is already well-positioned.

But as with all things, it is not so simple.

When the sun doesn’t shine, or the wind doesn’t blow, then alternative power sources are necessary. As the system stands today, conventional generation capacity will be needed to complement this high share of renewables.

However adding additional grid interconnections with France, and the rest of Europe, would increase flexibility dramatically. Excess power from Spain’s renewables could be fed across the border, and likewise Spain could import power when there is less wind and sun, rather than maintaining expensive gas capacity. This could in turn reduce the volatility of wholesale electricity prices.

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From the perspective of both energy security, and climate goals, increased interconnections between Spain and Europe would be a positive development for everyone. Finding an investment structure to make this happen is the challenge.

And so from Spain, we take a step back and look at Europe as a continent.

Here it is concerns about security of gas supply that are making headlines.

In this context Ukraine is extremely important: roughly 15 percent of European gas supplies arrive on the Brotherhood pipeline. Contrary to widespread expectations, the Russian shutdown of Ukraine did not lead to an interruption of transit. The Ukrainians have acted with remarkable self-restraint, in full compliance with the Energy Charter Treaty.

But there are reasons to believe that gas markets will be better equipped in the future to deal with potential interruptions to supply than they are today – even as global demand for gas rises by more than half. A key reason for this is the rise in LNG, which almost doubles in terms of volume by 2040, to account for an increasing share in the gas traded between regions. Spain and Portugal has a disproportionate share of underutilised LNG capacity, though weak pipeline interconnections make taking advantage of this capacity a challenge.

But while, under the right circumstances, LNG trade can help to bring back confidence in the reliability of gas supply, it cannot transform over the long term the competitive positive of gas in markets that rely on imports.

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Here we step even further back from Europe, and also look to Asia.

Because moving gas around the world is expensive, and the LNG imported to Europe or the Asia-Pacific markets will not swing the economic calculation between coal and gas. The production and transport of LNG simply cannot be compared to pipeline gas.

There are no prospects for radical new technologies leading to a cost breakthrough. Liquefying and transporting gas will always be capital and energy intensive. As a consequence, Asia must expect to always have relatively higher gas prices than self-sufficient or exporting regions.

If Asia really wants cheaper gas, then it will have to produce it itself. China has the largest estimated unconventional resources in the world: this is what could really transform the long-term economic case for gas in the region.

From Europe and Asia, we take the final step back and look to the world.

And globally, what we are seeing today is significant disparity in the cost per unit of energy among different economies. In general it is highest in the European Union and Japan, and much lower in developing countries.

In OECD countries, the average cost per unit of energy has risen sharply over the past decade – closely mirroring international fuel price developments. However in developing countries, the cost per unit of energy is set to increase considerably.

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The average cost in China, for example, is set to overtake that of the United States by 2040, due to a decreasing importance of energy-intensive industries and changes in the fuel mix, with cheap coal increasingly being replaced by more expensive gas and electricity in the industry sector. Similarly, the average cost per unit of energy in India is also gradually approaching that of the United States, a result of oil consumption subsidies reforms, a strong growth of the transport sector and an increase of electricity prices due to a change of the power mix towards more expensive fuels and technologies.

This disparity can be a source of concern, depending on your perspective. Rising prices in one part of the world may represent an opportunity for fuel producers, yet be an impediment to economic competitiveness. Falling prices elsewhere may increase competitiveness, yet put bottlenecks on energy investments. Like the shift in energy demand, such disparities have the possibility of changing the energy, geopolitical landscape.

In this regard, it is important to keep track of demand and how demand affects investment.

This year’s World Energy Outlook sees oil demand increasing by 14 million barrels per day over the period to 2040, although the rate of increase slows as high prices encourage energy efficiency and fuel switching.

For now, markets are currently well-supplied; but short-term conditions should not blind us to the problems that may be around the corner.

To understand why, we need to look at the longer term and see where the extra barrels are going to come from over the next two decades: the United States, Canada, Brazil and the Middle East.

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Tight oil production is making the United States the largest oil producer in the world – and it stays that way in our projections until the late 2020s. But, by then, US production is already starting to fall back and, by 2040, output is back to where it is today. Instead, it is the oil sands in Canada that takes over as the main source of North American supply growth, assuming that a way can be found to bring this oil to market. The other major non-OPEC source of supply growth is Brazil, with its prolific, complex and capital-intensive deepwater fields – where delay is an ever-present risk. These suppliers do a lot to satisfy growing demand over the period to 2020, but after this, there is a large and growing gap in the market.

This is the gap that needs to be filled by the only remaining large source of low-cost oil, the Middle East.

More than half of this growth comes only from one country, Iraq. There is no shortage of resources to meet this challenge. But, looking at the turmoil in parts of the Middle East today, there is a real concern about a shortfall in investment.

This is a decade away, but we should not be lulled into a false sense of security. To be producing extra barrels in the 2020s requires investment today. Aside from the obvious security concerns in parts of the region, there are also fiscal and demographic pressures that could squeeze the funds available for the upstream.

What would be the implications of a shortfall in investment? Tighter markets and higher prices. The effects would be felt around the world. But vulnerability would be particularly acute in those countries that are actually looking for these extra barrels.

First among the sources of demand growth are the large importers in Asia, notably China, but also India and others. By 2040, two out of every three barrels of crude oil that are traded internationally – including 90 percent of Middle East exports – will be heading for Asia.

But for today, there is plenty of supply, and prices are low.

As you are all well aware, following three consecutive years of prices above 100 dollars, the price of Brent crude has fallen by almost 30 percent since the middle of this year.

Buoyant supply from North America has been instrumental in bringing prices down. What remains to be seen is for how long this supply can keep prices at or around today’s levels.
Around today’s price levels, we will start to see some investment in low-margin fields around the world being curtailed or cancelled. There are signs already that, in some cases, investment budgets for 2015 are being revised downwards; only projects with strong economics are likely to gain approval.

We estimate, for example, that a price around today’s levels – if maintained – would result in a 5 to 10 percent fall in US upstream capital expenditure in 2015, compared with this year. In Canada, we could see the postponement of new oil sands projects. Lower cash flows from operations could also be a constraint on the medium-term outlook for Brazil. Taken together, this could slow the growth in production that we anticipate from non-OPEC suppliers.

This brings us back again to the question marks that we have about the adequacy of investment in the Middle East, where fiscal and geopolitical challenges only become more intense with the recent falls in price.

So while today’s price levels offer some comfort to consumers, they don’t provide reassurance about longer-term market dynamics.

The thread weaving through all of these issues is the global shift in energy demand.

Over the past 14 years, global energy demand has grown by around one-third. However overall energy demand in OECD countries is almost the same today as it was in 2000. Indeed, global energy demand growth over the past decade was entirely driven by non-OECD countries, including China, India, and countries in the Middle East.

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And it is China that remains the driving force in global demand growth until the mid-2020s, when it accounts for more than one-third of global energy demand growth. But then growth slows and energy demand reaches a plateau by the late 2030s. This occurs as efficiency measures take effect, as economic growth slows and as population growth slows and starts to slowly decline.

As the pace of growth in China loses steam, other countries assume its role as the engine of global energy demand growth. This is particularly true for India, which has today a similar level of income per capita as China had some 10 years ago, but uses only little more than half the energy per person that China did at the time, which indicates the large potential for energy demand growth in this country. In our projections, India accounts for 15 percent of global energy demand until 2025, and then takes over the lead from China with one-quarter of global growth after 2025.

What this shift in demand means, is a possible shift in roles and responsibilities in the global energy system. Emerging actors may have different priorities, different rules, and different ideas about how energy should be approached in terms of cooperation, engagement, and competition. It is crucial that established, traditional actors are prepared for this shift.

Ladies and gentlemen, energy and geopolitics are often one and the same.

We cannot talk about renewables in Spain without talking about EU climate policy. We cannot talk about oil prices without discussing security issues in the Middle East. It is likewise impossible to discuss gas without considering Russia’s relationship with Europe. We cannot discuss fuel prices without considering the effects of fuel price disparity, competitiveness, and the changing landscape of the global

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energy system. And I have not even had time to discuss energy poverty, and the remarkable impact that energy demand growth will have in Sub-Saharan Africa and South Asia over the coming decades.

All of these issues present us with uncertainties.

However there is one thing of which we can be certain. Countries will always require energy, and the ways in which we generate, transport, and use this energy may not be the same tomorrow as they are today. Being vigilant, having foresight, and ensuring energy security today is the best way to stay prepared for tomorrow.