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The long term energy transition
An investor and energy utility dialogue

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preventable surprises

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Executive summary

Once a dependably boring part of investor portfolios, energy utilities are undergoing a rapid transition driven by technological innovation and shifts in the regulatory landscape. Stakeholders of all types are affected:

Utilities

The model of centralised generation is being replaced by one of decentralised, low carbon producer-consumers with utilities providing baseload and back up. New business models and approaches to pricing will emerge from the digital and smart revolution, making the power sector more complex and less predictable.

Investors

The dividend-rich, defensive stock of old is disappearing as utilities adapt to new challenges. Investors will need to adapt their strategies to reflect these new business models that look more like a technology and data company than an infrastructure one. They also need to assess whether a company's strategy and financial plans are fit for future climate scenarios.

Regulators

As technology leapfrogs policy, how do governments and regulators ensure that their policies enable the transition and keep up with the pace of change in technology and business models or even accelerate it?

The low carbon transition also offers opportunities

Electricity demand could double as it replaces natural gas for heat and transport fuel. This transition won't be easy. Interaction and information sharing between the big utilities and their investors must expand to achieve a shared understanding of the risks and opportunities ahead.

Setting the scene

PwC teamed up with Preventable Surprises to bring together utility companies and investors to discuss the challenges of planning for the long term energy transition. The group considered what it will take to meet IEA's target of 95% clean energy by 2050, while continuing to grow shareholder value. The discussion touched on themes of decentralisation, decarbonisation and democratisation of the industry.

Parallels were drawn with the pricing and business models adopted in the telecoms sector during the 1990s. Moreover, investors discussed the need for greater transparency and dialogue with utilities in order to manage the uncertainty associated with an industry that was previously seen as a predictable and stable source of long term cash flow.

The energy transition has been underway for 10-15 years – renewables are now powering almost half of the world's new power generation capacity. But there are signs that innovation is driving that change faster than ever before, while regulators in some cases have accelerated change and in others have impeded it. There was broad agreement that utilities, investors and regulators need to work together during this period of disruption.

The accelerated pace of change can already be seen with the shift from central power generation to an increasingly decentralised system, with some consumers producing their own electricity ('prosumers') and selling it back to the grid. Advances in battery technology and the harnessing of user data are also producing new entrants in the sector, creating uncertainty among investors accustomed to utilities-as-monopoly.

'It doesn't make sense to just compare utilities with each other now they are competing against non-traditional players.'

Governments and regulators face the challenge of how to create a regulatory environment that facilitates a long-term transition. Creating the right incentives is difficult given the fast pace of change in the sector – and a history of incentives that bet on the wrong technologies. With energy becoming more democratised, utilities must act quickly to invest in innovation rather than fight change. They must also focus on achieving optimal pricing models that respond to the changing nature of the utility market. The bold decisions needed to achieve the transition can gain investor support if regulators and companies provide greater visibility into long term transition planning. Hence the recommendation of the G20 Financial Stability Board (FSB) Task Force on Climate Related Financial Disclosure that companies assess and disclose the implications of 2°C and other climate scenarios on their strategy and financial plan.

'The energy system will be decentralised, democratised, electrified and decarbonised.'

The roundtable focused on three main topics: (a) how the industry has changed over the last 10 years, (b) parallels to the telecoms sectors, and (c) the key challenges and opportunities that lie ahead for investors, policymakers and utilities.

The last 10 years

The energy transition is not new. In Europe, it has been underway since the early 2000s – particularly in Germany with its Energiewende. These experiences should be used as an opportunity to learn from mistakes and replicate best practices. For example:

1) Technology has leapfrogged policy

Although the transition is not new, the context of change is different today as we witness an accelerated rate of technological disruption. This requires policymakers to think about how they can best harness this feedback loop between policy and technology in a way that enables the transition.

2) The power of incumbency

The utilities sector was a dependable and predictable investment until the early 2000s, when governments began to offer incentives for renewable energy. Perhaps due to the power of incumbency, energy utilities were slow to embrace renewables. While some utilities have been more forward-thinking, others must adapt quickly to remain competitive in the face of renewables prices that are competitive with fossil fuels.

3) Economies of scale

Government subsidies in the past have facilitated technological advances and economies of scale. We see this as the cost of onshore wind and solar has fallen significantly over the last ten years. This reduction in costs has the potential to create deflationary pressure on energy prices. But a stronger carbon price signal is a better driver of low carbon investment by utilities and investors rather than ever-changing subsidies in a rapidly shifting market landscape.

'The wholesale price drove investment in the past but this is now broken. The value in the market is being split between capacity, renewables, ancillary services.'

Lessons from telecoms

The telecoms sector moved from fixed line infrastructure to mobile data services in the 1990s. This led to a complete shift in pricing models from pay-per-minute to the lump sum contracts we see today that package voice and data. Opening up markets in the telecoms industry coincided with dramatic technological advances. During this period, the Bell companies were extremely resistant to change and eventually this resulted in customers migrating from telephone companies to mobile wireless and the internet. It should not be lost on utility investors that innovations in technology and regulatory changes can lead to revolutions in business and pricing models.

'New entrants recognise the value of flexibility and control. Utilities should be better at this.'

Democratisation

Community energy development and similar initiatives have enabled smaller scale decentral projects to transform the market and shift power away from the utilities. The occurrence of these new 'prosumers' who use and generate at the same time for their own needs have tilted the playing field against established players who still need to deal with their legacy of old systems. The utilities have underestimated how quickly customers and communities have adapted to the new challenges. In addition the rapid development of digital technology has accelerated that transformation and added pressure on the big utilities.

Regulation 2.0

The technology revolution in the energy sector is also challenging for regulators. They aim to enable a low carbon transition while maintaining energy supplies that are reliable, secure and affordable. Effective carbon price signals are critical as they can provide more certainty in this otherwise rapidly changing landscape. The European Commission is working on reform of the ETS, which has the potential to create a functioning mechanism for the first time since 2010.

Governments are often still managing markets with old 'regulatory technology', which is not fit for purpose given the pace of market disruption. There is an opportunity here for investors and industry leaders to support and encourage the regulator to 'upgrade' its approach to innovation and advances in technology, as it remains in the best interest of all key stakeholders. There is also the question of whether the regulator can 'de-politicise' energy policy. Independent bodies such as Ofgem can potentially play a more stable role in delivering the policies that meet the Government's objectives if its role is not conflicted by political considerations. Is it possible to reform the current regulatory space in a way that creates greater longevity in policy?

'Regulators are using slow moving governance structures and are sensitive to criticism of errors of commission rather than omission.'

Incentivising investors

Some investors may be slowing the transition because they are still reaping benefits from the stable revenue of legacy assets in the sector: i.e. carbon-intensive plants that should be replaced prior to their sell-by date. How can we create the right incentives for investors to accept and facilitate the transition rather than block it? How do we then create an incentive for investors to move capital to something that appears higher risk and less stable in order to facilitate the transition? And if much of the innovation in the sector is going to come from technology based start-ups, do we need new kinds of patient, risk-seeking capital?

Perhaps new financial models are needed to recognise the difference between legacy assets and more innovative technologies in their risk, maturity and return profiles. New technologies often find it hard to get a rating, so how do ratings agencies correctly assess the utilities sector through this transition so that they can access the finance needed? And will more agile, volatile business models lead to lower leverage and less access to debt capital?

Creating a clear and focused regulatory framework is a challenge for governments across Europe. So far, we have seen partial commitment to regulation and partial commitment to more competition. The current lack of clarity creates uncertainty amongst investors and utilities. Policymakers must therefore increase dialogue within the sector. This is essential to ensure there is competition to drive technology and business model innovation while providing the strong carbon pricing signals needed to deliver the low carbon transition.

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