



Alternative  
Insight

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FOR THE WORLD'S INFRASTRUCTURE MARKETS

# INFRASTRUCTURE INVESTOR

KEYNOTE

## TOTAL CONTROL

RON BOOTS ON APG'S  
INVESTMENT PHILOSOPHY

## BREXIT

CROSS-ASSET CLASS  
ROUNDTABLE

## UNLISTED RETURNS

ARE THEY HYPED?

## EMERGING MARKETS

MOST PROMISING  
DESTINATIONS

LISTED INFRA PROXY INVESTMENT? | ARDIAN DIGITAL DISRUPTION |  
QIC GOING GREEN

## POWER

# Wind of change

Jeffrey Altman, Hans Poser and Felix ab Egg, of consultancy Finadvice, take **Bruno Alves** on a whirlwind tour of the global power markets and draw lessons from Europe's rapid renewables buildup

## Q Why do you think the power sector is one of the most dynamic sectors in infrastructure?

**Finadvice:** Since the advent of fibre and cellular technologies in the telecoms industry, no other sector has seen such enormous value creation – as well as value destruction – as the global power sector. Put simply, the business models as well as economics for generation, transportation and supply of power are dynamically changing.

Let's take a quick look at a few facts:

- In 2013, the top 20 European utilities on the MSCI Utility Index lost an unprecedented half a trillion dollars in share value over a period of less than nine years;
- According to the United Nations Environment Programme and *Bloomberg New Energy Finance*, global investment in renewables reached a new high in 2015 with some \$286 billion in investment – a circa sixfold increase since 2004, which in total has amounted to \$2.3 trillion. Last year also set a new benchmark, with the global buildout of renewables exceeding that of both new coal and gas generation by twofold in terms of capital;
- The aftermath of Fukushima led to an enormous amount of global social movements against nuclear power, with Germany planning the decommissioning of its entire nuclear plants and Switzerland mothballing its plan to build new ones;
- The global buildout of coal generation is rapidly declining. Technological innovation in horizontal drilling and hydrofracturing has led to the discovery

of enormous supplies and cheap production of natural gas in the US. In the US, the Energy Information Administration estimates that 2016 will be the first year in history in which natural gas generation will surpass coal generation. It was also recently reported that China is planning to stop granting permission for new coal-fired power stations until at least 2018.

“Renewables in themselves are not disruptive. However, the combination of renewables and storage becomes a potentially disruptive force.”

## Q The power sector has been through significant change over the past years, particularly in Europe. Could you give us an overview of what went right and what went wrong?

**Finadvice:** We would argue that the foundation of Europe's problems began when regulators some 25 plus years ago worked on liberalising the power markets.

Without going into too much detail, regulatory frameworks initially reduced costs, but these increased again over time as did consolidation of various sectors across the power industry. Furthermore, regulators could not have envisioned the advent of distributed generation and the necessity for co-ordination and transparency with regards to the buildout of renewables. As a result, well-intentioned policies created enormous subsidies for renewables which, combined with cheap financing, led to the rapid, immense and for the most part, unco-ordinated spread of renewables. This created overcapacity in various markets and crashed wholesale energy prices.

Those utilities that acquired or built enormous amounts of conventional capacity essentially doubled-down on their investments and incurred enormous losses. RWE and EON, Germany's two largest power companies, were the leading global power companies a decade ago. In a period of less than nine years, the companies' share prices have fallen more than 80 percent each.

These losses were due to a confluence of events, namely permanent demand destruction after the global financial crisis, decommissioning of nuclear power

and a collapse of wholesale power prices due to an enormous buildout of renewables. This came at the cost of subsidies charged to the consumers. In the end, prices to consumers have also risen, in some cases, as in Germany, these were almost twofold over a period of 10 years.

On the renewable investor side, regulators across various countries took measures to address these unintentional market distortions, which included retrospective measures and/or massive changes to regulations that led to significant value destruction. Terminal values for many renewables investors were also materially impacted by the low wholesale prices.

This is not to say the whole effort in the liberalisation and buildout of renewables has led to disaster. From a reduction of emissions perspective, Europe is the global leader and also with regards to the amount of renewables capacity per total power production. Furthermore, its goal of becoming energy independent is progressing.

With respect to capital investment, several smart investors have made some impressive returns over the last 25 years. We think that over the next couple of years there will be another opportunity to make significant returns as the industry consolidates and there is a reset of regulation.

**Q If I'm a regulator or power markets professional in the US, what lessons should I learn from Europe?**

**Finadvice:** We have actually done a considerable amount of work in the US speaking to federal and state regulators as well as utility executives about the lessons learned from Europe. In fact, we published a white paper in July 2014 titled, 'Development and Integration of Renewable Energy: Lessons Learned from Germany', which received critical acclaim. Suffice to say, we feel the vast majority of the US will not replicate the errors in Europe.

For US regulators, we strongly recommend the need to work with all stakeholders in order to develop a smooth

transition to a larger portfolio of renewables on the market. This will require a comprehensive buildout and integration plan that works with the industry in load shaping, as well as the location of renewables to ensure the lowest cost possible to minimise grid interventions and stranded investments. Moreover, full transparency and long-term planning will be required for all parties involved and information will need to be published regularly.

With regards to power industry professionals, we cannot emphasise enough the need to prepare for unprecedented change in both regulation as well as the overall business model of all market players (utilities, renewable companies, energy traders, and so on). One of the lessons from Europe was cognitive dissonance of various players, who refused to acknowledge the dynamic requirements of the market to their own detriment.

**Q What are the main challenges and opportunities for the sector going forward?**

**Finadvice:** Renewables in themselves are not disruptive. However, the combination of renewables and storage becomes a potentially disruptive force. This will unequivocally change the landscape for a

greater move towards distributed power. Furthermore, we suggest that this will also have a material impact on both transmission and distribution assets, as power flows will ultimately change.

With regards to supply of power, the future winners will be those that can manage unprecedented amounts of information for trading, procurement and transport of power, energy usage patterns, and so on. We expect Silicon Valley to become a major competitor here and the likes of Google (owner of NEST), Apple, and Yahoo to be some of the major new entrants.

**Q If I'm an investor looking to invest in the power sector, what should I be aware of?**

**Finadvice:** The two best pieces of advice we can provide investors are for them to undertake serious deep-dive analyses of all opportunities in the power sector and to have an investment strategy based upon optionality – the ability to quickly get in and out based upon the dynamic forces of the power markets.

Needless to say, the power sector is no longer assumed to be a buy-and-hold sector for the next 30 years out. In fact, one can even now make the argument for a period of less than 10 years. □

