EUROPE AT A CLEAN ENERGY CROSSROADS

When Winston Churchill said of the Balkans that they “produce more history than they can consume”, he could have been speaking of the whole of Europe. The world in 2016 is facing perilous times, and no region other than the Middle East looks more threatened than Europe – as the events unfolding in Brussels as I write this so tragically demonstrate.

The fiscal crisis, economic slowdown and attendant destruction of Southern Europe’s economies; conflict in the Middle East; uncontrollable floods of refugees and migrants; Islamist terrorism; the adventurism of Vladimir Putin in Crimea and Syria – each have each placed enormous strain on the EU’s governance, and so far its responses have been found wanting, as evidenced by the surging popularity of nationalist movements.

As long as the continent’s lords and masters seem more focused on preserving their federalist project, and are unable to come up with solutions to the real problems facing the continent, the EU forfeits legitimacy in the eyes of the people of Europe, and the results will continue to be unpredictable, as the U.K.’s June 23 referendum on leaving the EU – or Brexit, as it has been dubbed – may demonstrate.

ECLIPSE OF THE EUROPEAN CLEAN ENERGY SECTOR

The grounding of the good ship Europe has had serious consequences for the clean energy industry.

Europe pioneered large-scale wind and solar power. In 2010, despite surging investment in China, Europe accounted for no less than 45 percent of global clean energy investment. Sadly, since peaking at $131.7 billion in 2011, European investment dropped by more than half to $58.5 billion last year, just 18 percent of the global total (figures exclude large hydro projects). Last year, Europe’s investment in clean energy was the lowest since 2006.

In manufacturing, the solar sector in Europe has been simply brushed aside. Where in 2007, Europe had the world’s largest cell and module maker (Q-Cells), today there are no European players in the top 10, and this despite protectionist measures enacted by the EU to penalize Chinese manufacturers. Even in wind power, where European turbine makers have generally held onto their positions much more successfully, a Chinese company, Goldwind, took over the top spot in the global manufacturing league tables for the first time in 2015.

How could this happen? How could Europe, once the clear world leader in all things renewable, have so quickly taken a back seat in this flagship industry? In part, it is a direct consequence of the world’s economic woes, and the particular way in which they played out in Europe, and of Europe’s failure to respond. Global investors, scared about the survival of the euro, have had plenty of reason to hesitate about putting money into euro-denominated clean energy projects. But that is not the whole story. It also resulted from gross errors by Europe’s clean energy industry and its backers at various levels of government. Indeed Europe’s clean energy story is an object lesson in the dangers of the entrepreneurial state.

Germany’s feed-in tariffs were certainly effective: they triggered a surge in volume that drove the wind and solar sectors to the point of competitiveness. However, set too high and kept in place too long, they were also inefficient: in the solar sector alone, between 2004 and 2010 the feed-in tariff craze resulted in excessive costs – defined as the market price less the expected price as derived from the experience curve – of $31 billion. But even generous support was not enough to cement Germany’s leadership in solar technology. By 2015, Germany saw only $10.6 billion invested overall in clean energy, the lowest for at least 11 years and 80 percent percent down on its 2010 peak.
Spain’s feed-in tariff experiment drove a runaway solar boom in 2008. In one year, the Spanish government’s infatuation with solar added an estimated 8 percent percent to the national debt, just at a time when the country’s balance sheet was about to be sorely tested. Think about when you next see figures for Spain’s youth unemployment. When the Zapatero government was kicked out, the new administration imposed retroactive revenue cuts on already-commissioned projects – not only did investment grind to an immediate halt, but it has not restarted since.

Italy followed a similar boom-bust route as Spain, with investment crashing almost to zero in the past three years, from $30 billion in 2011, and still showing little sign of bouncing back.

In recent years it has been the U.K., despite being seen as a reluctant participant in the European renewable energy love affair, that has attracted the most investment – with a boom first in onshore wind, then solar and now offshore wind. However, after winning an absolute majority, unshackled from renewables-friendly Liberal Democrats, the new Conservative government lost no time in dismantling support for renewables and reaffirming its support for gas and nuclear power.

Once the world’s most important carbon market, the EU Emission Trading System has become a painful reminder of what happens when politicians design financial instruments. EU Allowances this week were languishing at EUR 4.88 per tonne, far below the 20 euros or so required to push coal-fired generators out in favour of gas. For all of the excitement around Germany’s Energiewende, it has had little impact on the country’s emissions, as the surge in renewable energy has been matched by reductions in zero-carbon nuclear power, while coal retains its hold on the generating mix, in defiance of trends in the U.S. and China.

The tragedy of all this is that Europe lost its renewable energy mojo just as costs were plummeting to the point where green power is fully competitive without subsidies in more and more parts of the world. If solar power can be built for 5.85 U.S. cents per kilowatt-hour in Dubai, or $4.8 cents per kWh in Peru, or 6.4 cents per kWh in India, why not in Italy, Spain, Portugal, Greece or Croatia? If wind power can be delivered for 3 U.S. cents per kWh in Morocco and 4 cents per kWh in the US, why not in France, Spain, Portugal, or, heaven forbid, the U.K.? When British commentators and politicians refer to renewable energy as “ludicrously expensive”, they clearly don’t realize how foolish they sound to anyone acquainted with cost data from around the world; and they have failed to grasp that one of the reasons why costs are higher in the U.K. is because of the policy uncertainty they have themselves helped to create.

It is a depressing picture. But the key question for Europe is whether it is possible for it to regain its seat at top table in the clean energy industry, and despite the current deep malaise, there are six major trends that Europe could exploit to its advantage.

THE EMPIRE STRIKES BACK?

First of all, in terms of renewable penetration, Europe is still the world leader. Renewable energy is likely to have provided some 30 percent of Germany’s electricity in 2015, about 50 percent of Denmark’s, 38 percent of Spain’s, 33 percent of Italy’s and nearly 25 percent of the U.K.’s. Ten years ago, the received wisdom even among utility industry managers was that, while the grid could cope with 5 or 10 percent variable renewables, anything above that would lead to grid instability and blackouts. Yet I cannot think of a single major blackout caused by over-reliance on renewable energy by a European system operator.

Having said that, it is clear that the techniques that have allowed an operator like 50Hertz in the former East Germany to get to 42 percent variable renewables will not be sufficient to get to the figures across Europe of 50 percent, 80 percent or even 100 percent, as required for the continent to meet its obligations under last year’s Paris Agreement. So one substantial opportunity for the European clean energy sector is to push into this unknown territory, gaining knowhow and technology along the way. That can then be exported to other countries.

Sea-based renewables provide the second major opportunity for Europe’s clean energy sector. China is now getting into offshore wind, with no fewer than nine projects financed last year, and Japan has led the early days of floating offshore wind turbines. However, Europe accounts for no less than 10.8 gigawatts of the total of 11.7 gigawatts of offshore wind capacity installed worldwide by the end of 2015. It is the location for all 20 offshore wind “whales”, defined as $1 billion-plus projects, financed in the last three years, as well as for those in the deepest water, and at the greatest distances from land. Europe’s turbine makers lead the onshore wind market globally outside China and, with reliability and track record even more important in harsh sea environments than on land, have a good chance to pick up export business for their huge 8- and 10-megawatt offshore machines.

Power from tidal stream turbines is a much less established area than offshore wind, and the early 2 to 6-megawatt demonstration projects being rolled out this
year in Scotland, France and Canada could end up disappointing. However, the technology has progressed further than its troubled cousin, wave power, and attracted industrial players such as DCNS, Lockheed Martin, Alstom and Andritz. With its commitment to pilot projects easing the route for companies to put metal in the water, Europe has a sporting chance of being the early center of device design, project development, installation and financing skills.

Clean energy finance is the third big opportunity, as renewable energy spreads into new markets around the world.

When it comes to clean energy financial innovation, the U.S. is a leader – having pioneered a range of techniques from tax equity to third-party solar ownership, peer-to-peer equity and debt, and asset-backed projects for wind and solar projects all the way down to small-scale PV. However, Europe has matched the U.S. as a pioneer in green bonds and yieldcos and, when it comes to cross-border investment, particularly into the developing world, it is the old continent that is the master.

Development banks such as Germany’s KfW, France’s Agence Francaise de Development, the European Investment Bank and the European Bank for Reconstruction and Development have built up substantial knowhow on funding developing-country clean energy projects such as the Lake Turkana wind farm in Kenya and the Ouarzazate solar thermal complex in Morocco. European commercial banks have followed, giving their continent a disproportionate market share in international clean energy finance. This is potentially very significant, given the $5.8 trillion that Bloomberg New Energy Finance’s New Energy Outlook forecast says will be invested in emerging market renewables between 2015 and 2040.

And it is not all about debt. European equity providers have played an important role in the developing world build-out to date – from project developers such as Mainstream Renewable Power in Chile and South Africa, to private equity providers, and most importantly, institutional investors. Indeed, in 2015, pension funds, life assurance companies and wealth managers committed a record $7 billion to renewable energy projects in Europe, up from annual figures of around $1 billion in the 2007-09 period. They did so via an ever-widening array of approaches, including direct investments in projects (a la Allianz or PensionDanmark), private infrastructure funds such as Copenhagen Infrastructure Partners, platforms led by banks (such as the Green Investment Bank’s offshore wind fund) and quoted project funds such as Greencoat UK Wind.

The fourth opportunity for Europe lies in power storage. Lithium-ion batteries are the most promising technology for very short-term balancing and frequency regulation on the grid, helped by recent sharp reductions in cost per MWh. Europe’s few manufacturers such as Leclanché and Saft face formidable competition in the face of Asian manufacturing powerhouses such as Samsung, LG Chem, BYD and NEC; South Korea has been prominent in developing utility-scale battery storage, as has the U.S. However, one of the latest major projects to be commissioned was a 10-megawatt AES system at Kilroot in Northern Ireland, designed to provide balancing in a grid heavily dependent on wind power, and there are other even larger projects in development across Europe, including one for six 15-megawatt systems for German utility Steag GmbH.

With much of the complexity of integrating storage lying not in manufacturing battery cells but in battery management systems and integration, where Europe has real champions in the form of Siemens, Schneider Electric, ABB and newcomer Younicos, there is everything to play for.

The fifth clean energy arena in which Europe could – with decisive and rapid action – gain the mantle of leadership lies in electric vehicles. While it may seem that U.S.-based Tesla has ransacked the fortress of the world’s major car manufacturers, it is worth noting that its global share of car market unit sales in 2015 was a princely 0.06 percent. It is, however, set to grow. Tesla sold 10 percent more of its Model S than the Mercedes sold of its flagship S Class in the U.S. last year, and it blew far past competition from other European luxury car-makers such as Audi, BMW, Jaguar and Volvo.

In China, sales of electric vehicles accelerated from 36,000 to 128,000 between 2014 and 2015. Electric vehicles are seen by the Chinese government as helping to solve three of the country’s biggest problems: improving air quality in its cities; creating a major industry to absorb its massive industrial overcapacity; and helping it to shed its image as a manufacturer only, instead assuming technological leadership in one of the world’s largest industries.

Europe saw more EVs bought than China last year, with 182,000 sales, up from 96,000 in 2014. However, its days as the biggest market may be numbered. While European mass-market manufacturers such as Renault and Volkswagen have had electric vehicles in the market for some time, Tesla’s Model 3 seems more likely to deliver the sector’s Model T moment. Europe’s luxury
car manufacturers are all developing electric versions of their principal models, but have yet to figure out how to keep them charged on Europe’s motorways.

The team at Bloomberg New Energy Finance, like me, is very bullish about electric vehicles. We have watched battery prices come down over 65 percent in the past six years; at some point between 2018 and 2022 (depending on oil prices), a selection of family-sized electric vehicles with a 200-mile range will hit the market with unsubsidized sticker prices of $30,000 and far lower total costs of ownership than their internal combustion equivalents. The question for Europe’s car industry is a simple one. Does it put its resources into protecting the doomed diesel-industrial complex in which it has invested so much, or does it lean in to the electric vehicle revolution? Despite the shock of Dieselgate, it is not clear it will make the right choice.

The sixth area of potential European clean energy leadership represents both an opportunity and a risk. As explained above, Europe has more countries and grid operators with high levels of variable renewables than any other region. Its power systems have coped, partly thanks to interconnectors between countries. Around the world, from Japan to California, the understanding is dawning that it is only by interconnecting neighbouring systems that the transition to variable renewables can be achieved without prohibitive costs.

Europe certainly has the technology champions to play a leading role in the high voltage direct current, or HVDC, market. The big opportunity lies in creating the world’s largest, densely-interconnected, transnational interconnected grid of grids: doing so would open up unlimited opportunities to export hardware, software and expertise. However, interconnection is not just about hardware. It is also about creating markets across all power products – spot, forward, frequency management, capacity, green certificates, and so on – making them ever more responsive to price signals on ever-shorter timeframes, and ensuring that players with the widest possible range of technologies and business models can bid.

The EU is full of good intentions about completing the single energy market, under the banner of the European Energy Union, but progress remains slow. In 2013, the EU identified 248 “Projects of Common Interest” in the electricity sector; so far, just 13 have been completed. The EU has a 10 percent target for electricity interconnection in each of its member states by 2020 and while there has been some progress, such as a 1.4-gigawatt connection between France and Spain commissioned in October 2015, it is unclear that the top-down setting of targets will be effective without sustained commitment to energy market reform among member states. Meanwhile seven European power exchanges are cooperating in an initiative called Price Coupling of Regions, and power trading volumes are increasing on the European Power Exchange. It is likely to be these developments, rather than any attempt to steer Europe’s energy mix from the center that will result in the rapid progress that moves Europe back into the clean energy peloton.

BREXIT

It is in the context of the integration of Europe’s power markets, that any potential Brexit (U.K. exit from the EU, following that country’s referendum on June 23) must be considered.

In and of itself, I do not believe Brexit a major threat to the U.K. economy – it’s more like the Millennium bug than the disintegration of the Soviet Union. Of course there are risks to exiting, but there are also risks to remaining. Whether the U.K. is in the EU, permanently negotiating a loosening of restrictive regulations, or outside the EU negotiating market access, seems to me to be six of one, half-a-dozen of the other. The EU is unquestionably suffering from a democratic deficit. You can call me old-fashioned, but I quite like to know exactly how failed politicians get removed, something impossible to achieve in the current EU. When it comes to June 23, I will probably vote to leave, though not without trepidation: I would much rather stay in a reformed EU, but sadly that is not what is on offer.

As things stand, however, I am expecting the British people to choose the devil they know, and to vote to remain in the EU.

Should there be a vote for Brexit, a period of uncertainty will follow. Without doubt, it would cause some clean energy investors to hesitate before making final decisions on renewable energy projects in the U.K., but the impact is likely to be less than feared: frankly there is already a high level of uncertainty due to endless changes to U.K. energy policy.

This uncertainty would most likely hit Irish clean energy projects too for a time, and it might get in the way of some British investor moves on projects in mainland Europe. Over time, however, it will be resolved through negotiations between parties with an interest in a solution: interconnecting energy markets in an increasingly variable-renewable world simply makes sense, as does the free movement of capital.

The inevitable period of renegotiation of relations with the EU is unlikely to see any significant changes in overall U.K. energy policy. The 3.2-gigawatt Hinkley
nuclear project looks to be a financing headache in any scenario, given the parlous state of EDF's share price and balance sheet – if you don’t believe me, ask Thomas Piquemal, EDF’s former CFO.

The U.K. is reasonably well-placed to achieve its target of 15 percent renewable energy by 2020, and would be unlikely to pull out of the European carbon market, since the current Conservative administration supports decarbonization along the lines agreed in Paris, and is committed to using market mechanisms to achieve it.

U.K.-Europe interconnectors would be likely to happen just as quickly – or as slowly. The U.K. and Norway (which is not an EU member but is heavily interconnected with countries that are) have already agreed on a 1.4-gigawatt line between their countries, to be completed by 2021.

As for London as a financial center, it has shown over decades that it can survive extraordinarily high seas. Big banks, which have invested heavily in their relationships with government, most recently being bailed out by them, are unsurprisingly in favour of remaining; smaller, nimbler players like hedge funds are almost universally comfortable with, or even in favor of, Brexit. In a post-Brexit world, both will turn their minds to innovation in the new environment, and there is no a priori reason to expect them to fail.

What is very much to be hoped is that, whether in or out, the U.K. is still able to influence EU energy policy in the direction of interconnection, transparency, access and integration. Whether the EU is ready to hear this message, and whether it is capable of acting on it, is another thing. Current evidence from other areas of policy, such as management of the European economy or the refugee and migrant crisis, do not give much cause for optimism.

We will no doubt touch on these issues at our New York Summit, on April 4 and 5 in New York, and then return to them in depth at our London event on October 10-11, with the benefit on that occasion of knowing the outcome of the Brexit referendum. Let’s hope that Europe does not produce too much in the way of history in the intervening months.

For further details on the New York, London and Shanghai Summits, see http://about.bnef.com/summit/
ABOUT US

sales.bnef@bloomberg.net

© Bloomberg Finance L.P. 2016. This publication is the copyright of Bloomberg New Energy Finance. No portion of this document may be photocopied, reproduced, scanned into an electronic system or transmitted, forwarded or distributed in any way without prior consent of Bloomberg New Energy Finance.

This service is derived from selected public sources. Bloomberg Finance L.P. and its affiliates, in providing the service, believe that the information it uses comes from reliable sources, but do not guarantee the accuracy or completeness of this information, which is subject to change without notice, and nothing in this document shall be construed as such a guarantee. The statements in this service reflect the current judgment of the authors of the relevant articles or features, and do not necessarily reflect the opinion of Bloomberg Finance L.P., Bloomberg L.P. or any of their affiliates (“Bloomberg”). Bloomberg disclaims any liability arising from use of this document and/or its contents, and this service. Nothing herein shall constitute or be construed as an offering of financial instruments or as investment advice or recommendations by Bloomberg of an investment or other strategy (e.g., whether or not to “buy”, “sell”, or “hold” an investment). The information available through this service is not based on consideration of a subscriber’s individual circumstances and should not be considered as information sufficient upon which to base an investment decision. BLOOMBERG, BLOOMBERG PROFESSIONAL, BLOOMBERG MARKETS, BLOOMBERG NEWS, BLOOMBERG ANYWHERE, BLOOMBERG TRADEBOOK, BLOOMBERG BONDTRADER, BLOOMBERG TELEVISION, BLOOMBERG RADIO, BLOOMBERG PRESS, BLOOMBERG.COM, BLOOMBERG NEW ENERGY FINANCE and NEW ENERGY FINANCE are trademarks and service marks of Bloomberg Finance L.P. or its subsidiaries.

This service is provided by Bloomberg Finance L.P. and its affiliates. The data contained within this document, its contents and/or this service do not express an opinion on the future or projected value of any financial instrument and are not research recommendations (i.e., recommendations as to whether or not to “buy”, “sell”, “hold”, or to enter or not to enter into any other transaction involving any specific interest) or a recommendation as to an investment or other strategy. No aspect of this service is based on the consideration of a customer’s individual circumstances. You should determine on your own whether you agree with the content of this document and any other data provided through this service. Employees involved in this service may hold positions in the companies covered by this service.