



Great expectations

**Deal making in the
renewable energy sector**



February 2018

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Methodology

In Q3 2017, Acuris surveyed 200 senior-level investors in renewable energy. All responses are anonymous and results are presented in aggregate. For the purposes of this study, 'renewable energy' is power generated from the following sources: offshore wind, photovoltaic solar, hydropower, biomass/biogas, thermal solar, onshore wind and geothermal.

The companies involved were split between the Americas, EMA and

ASPAC; in this report we position a specific country lens on both France and Germany. The survey included a combination of qualitative and quantitative questions, and all interviews were conducted over the telephone by appointment. Results were analyzed and collated by Acuris and KPMG member firms.

Geographic (based on headquarters) and sector splits*

	Americas**	EMA***	ASPAC****	Total
Utilities firms†	10	20	10	40
Oil and gas†	8	15	7	30
Independent power producers†	7	15	8	30
Renewable developers†	8	15	7	30
Infrastructure funds, PE funds, pension funds‡	12	25	13	50
Banks‡	5	10	5	20
Total	50	100	50	200

* This report has a specific lens on France and Germany

** US 30, Canada 10, Latin America 10

*** UK 25, France 30, Germany 20, Spain 10, Central and East Europe 7, other 8

**** China 10, Australia 10, Japan 10, other 20

† Have direct investments in renewable energy

‡ Specialize in renewables or have significant proportion of renewables in financing portfolio

Foreword

The energy sector is under extraordinary pressure to perform. Renewable energy offers new opportunities ...

Margins are tight, forcing key players to seek out new ways to improve efficiency and returns on investment, and new revenue streams.

At the same time, customers expect more from suppliers. They are demanding increasingly green energy options that are both consistent and made available at a reasonable price.

Governments, meanwhile, are struggling to adapt or reinvent their energy policies to help the industry meet this demand, maintain a healthy energy sector and address the challenges posed by climate change. And this is playing out in very different ways around the world, such as feed-in tariffs (FITs) designed to encourage investment in renewable technology as well as a variety of other financial incentives.

Through it all, energy-focused investors — both corporates and financial buyers alike — are searching for the deals that will give them the best return, if not an opportunity to get in on the ground floor of the next big renewables breakthrough.

There are plenty of opportunities to be found. The renewables revolution offers technology-driven energy generation and distribution, consistently and at an increasingly reasonable price. Innovative technology, designed to increase and maintain security of supply and meet growing consumer demand, is being introduced with impressive speed. The energy sector itself is undergoing consolidation in some countries while in others, new, smaller and more agile providers are stepping onto the stage at a steady pace.

And with this activity comes a stream of renewable energy M&A activity and growth, as developers, utilities and investors alike strive to stay ahead of the curve. Who is taking advantage of the opportunities? Who is holding back, worried about the inherent risk? We spoke with 200 senior-level investors in renewable energy to find out where they're looking for the next big opportunities.

Executive summary

1 Investment in renewables is increasing

From offshore and onshore wind to photovoltaic and thermal solar, hydropower, geothermal, and biomass, more and more investors are entering the renewables arena — including oil and gas companies searching for opportunities.

Based on the survey of 200 senior-level investors in this sector, from ASPAC, EMA and the Americas, they are searching for large-scale projects in countries with welcoming regulatory environments. Subsidies, tax incentives and direct investment are also mentioned as appealing prospects for investment.

2 Government policy and financial backing can make markets more appealing

Germany is at the heart of this investor activity, due to its stable regulatory landscape and continuous development plans for renewables. Respondents expect the country to see the biggest rise in M&A activity in the next 12 months, ranking it the western European country where they are most likely to invest.

China is attracting similar interest, based largely on its deep pockets and long-term renewables strategy. The government plans to invest 2.5 trillion Yuan (US\$377 billion) in renewable power generation as part

of its 13th Five-Year Plan on energy development, increasing installed capacity to 680GW by 2020.

France and the United States, meanwhile, sit further down the lists. While ranked fourth globally on the survey's favorable policy country list (see page 39), just 3 percent of respondents say France has the most favorable policies for promoting investment in renewables, while the US has the least favorable among advanced economies according to 43 percent of respondents.

Fifteen percent of respondents say they expect France to see the biggest rise in M&A activity, more than the US at 10 percent. But a healthy percentage say that the election of President Macron makes them more likely to invest in renewables in France in the future, whereas the current US administration's move away from the Paris Agreement does not inspire confidence.

3 Some sub-sectors are attracting more interest than others

While policy can provide assurance, some sub-sectors are the real attraction for investors. Respondents say offshore wind will see the biggest rise in M&A over the next 12 months, followed by hydropower, photovoltaic solar and thermal solar, while smaller-scale technology like biogas remains under-represented.

Innovation in secondary technology like storage and energy aggregators is also proving to be important in investment decisions, as they contribute to stability and security of supply.

4 There are still obstacles to investment, even as valuations continue to rise

As always, there are challenges to overcome in renewables, not least of which is the transition from FITs to auction-based support regimes.

According to 40 percent of respondents, this increases the risk that some low-price projects may never be built. It also encourages consolidation as developers struggle to generate a profit, creating uncertainty and prompting a decrease in the strike price, which may hit those depending on such schemes to raise capital.

Investors also point out that this interest in renewable energy assets is pushing up prices. Valuations are expected to rise for offshore renewables over the next 24 months, followed by photovoltaic solar, hydropower and thermal solar.

Overall, the future looks bright for renewables, in terms of their ongoing development and implementation as well as their return on investment. But investors should remain cautiously optimistic as there remain obstacles to be overcome and risks to mitigate.

Key findings

406 deals

in renewables globally, worth **EUR40.1 billion** (2017)



62%

of respondents say the election of President Macron has increased the appetite for investment in renewables in France

98%



of respondents say battery storage is important when considering an investment in any future renewable energy projects



74%

believe hydrogen will be a significant enabler for the advancement of renewable energy

91%



say renewable energy aggregators will be important in facilitating investment in renewable energy projects

Which **sub-sectors** can expect a **rise in valuations** in the next 24 months?



82% offshore renewables



81% photovoltaic solar



68% hydropower



51% thermal solar



25%

of respondents say **obtaining planning permits and licenses** is the main concern for those considering an investment in renewables

Which **sub-sectors** can expect **the biggest increases in M&A activity** in the next 12 months?



43% Offshore wind

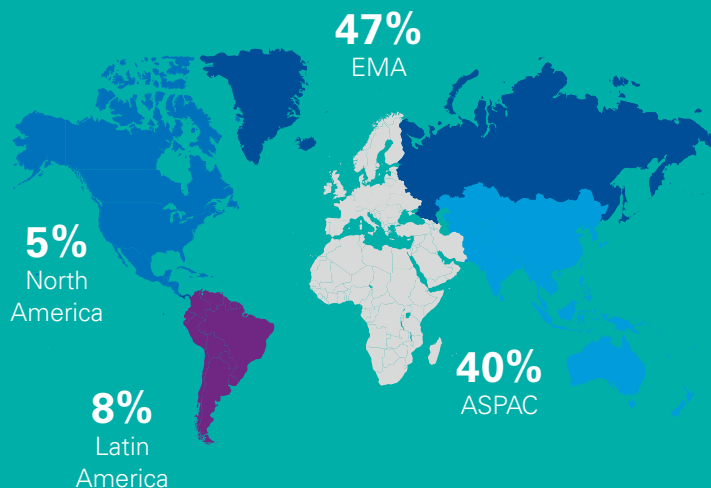
39% Hydropower

16% Photovoltaic solar

1% Thermal solar

1% Onshore wind

Which **regions** can expect **the biggest increases in M&A activity** in the next 12 months?



Countries with the biggest increases in M&A activity

expected in the next 12 months:

- 40%** Germany
- 40%** China
- 26%** UK
- 21%** India
- 15%** France
- 10%** US
- 8%** Brazil
- 7%** Canada
- 6%** Japan
- 5%** Australia

Policy drivers

60% say Germany's policies are the most favorable among advanced economies for investment in renewables

43% say the US has the least favorable policies among advanced economies for promoting investment in renewables

41% of respondents say subsidies are the most important measure for driving investment in renewables

Looking beyond — KPMG's perspective on the market

As highlighted in this report, M&A activity in the renewable energy sector is extremely strong and, in some jurisdictions, it has become almost feverish. Renewables — particularly operating renewable assets — have become a very attractive investment proposition for many different investors including, institutional investors such as life and pension funds, utilities, corporates,

infrastructure and energy funds, and family offices. Indeed, the significant growth in renewable energy funds in the alternative asset management sector is noteworthy in itself.

We have seen both the levered and unlevered cost to capital fall dramatically in numerous markets over the past 24 months. This has led to record high prices for operating assets prompting many existing holders to consider

selling to take advantage of the strong market, particularly as demand far outstrips supply. This is a trend we expect to continue well into 2018 with unparalleled levels of capital chasing renewable assets globally. Also as a subsidy free market begins to develop, this will raise new challenges for investors as this trend ultimately increases exposure to volatile market dynamics.

There are a number of particular trends in renewable M&A activity we would highlight, as follows:



Institutional investment — attractiveness of alternative asset classes

Over the past 20 years, institutional investors have survived many volatile market swings. To counter the peaks and valleys, pension funds, in particular, are seeking higher returns to satisfy specific retirement funding levels. As a result, they are shifting investments away from low-risk, fixed income government and corporate bonds in favor of alternative investments such as renewables.

Renewable assets offer many advantages to institutional investors including annual yield, long-term investment horizon, scale and long-term income protection, especially where FITs or similar arrangements are in place.

Furthermore, some institutional investors are now pursuing a model whereby they invest directly into alternative assets such as renewables and have developed in-house capabilities to directly and actively manage these portfolios. This increases net investment returns because of the lower costs involved. This model is particularly prevalent in Canada, in Australia and in Europe in places like Scandinavia and Germany. However, it is important these institutional investors recognize that external managers provide investors with services and often have significant expertise and infrastructure to support their activities, which direct investors might not have.



Development platforms

Because of the wall of capital chasing limited operational asset opportunities, investors are seeking more innovative solutions to access operating assets. As a result, investors are increasingly seeking to enter into framework and platform agreements with developers. Under these agreements, they would provide financial support during the development phase in the form of equity or debt with an option to acquire the assets either at pre-construction or post-construction, broadly at market price. This is helped by the fact that many successful developers are cash constrained while the costs of development continue to rise due to planning and grid complexities in many jurisdictions.

Other trends

Various other trends that have become prevalent in the marketplace include:



Battery storage

There have been remarkable developments in the area of battery storage in recent years as the technology improves. As a consequence, we see this becoming a significant new area for investment for 2018 and beyond.



Emerging economies

As accessing investable renewable assets in major developed jurisdictions is proving more and more difficult, investors are now looking elsewhere more frequently. In particular, institutional investors are focusing on emerging economies including Mexico, India, Vietnam, South Africa and Chile for renewable assets. Affordable solar energy also offers a potential solution to emerging economies in Africa and elsewhere. The deployment of affordable solar energy can unleash further economic development, while at the same time providing clean, affordable and sustainable power.



Offshore wind

As discussed elsewhere in this report, we expect offshore wind to continue expanding in the coming years. In the past, this would not always have been the asset of choice for institutional investors because it was regarded as riskier than onshore wind and solar. However, sentiment from institutional investors has clearly changed and this has been evidenced through numerous transactions in the offshore wind markets in northern Europe.



Responsible investment

The whole area of responsible investment is becoming a key factor in driving investment policy from the institutional world into the broad area of sustainability, particularly in renewables. This is prevalent among pension fund managers who are actively adopting responsible/environmental, social and governance (ESG) principles into their investment strategy.

Chapter 1

Renewable energy — an M&A overview

Renewable energy deal activity continues to heat up, with M&A activity having maintained a steady rise in volume for the past 7 years. Valuations are up as utilities and other larger players strive to keep up with new entrants and the pace of technological change. Corporate and financial buyers alike are searching for new opportunities while keeping a close eye on the potential risks.

Key messages

- 01 M&A activity in renewables is healthy and growing.** Deal volumes have increased every year since 2010 and continue to climb. In 2017, there were 406 deals globally, worth EUR40.1 billion.
- 02 Valuations are expected to rise for offshore renewables in particular.** Offshore renewables are expected to increase over the next 24 months, according to 82 percent of respondents, followed by photovoltaic solar (81 percent), hydropower (68 percent) and thermal solar (51 percent).
- 03 There are still bureaucratic and legislative obstacles to overcome for those considering an investment in renewables.** Planning permits and licenses are the main concern for 25 percent of respondents in the survey.



The world's energy mix continues to turn green, with the addition of almost 165GW of renewable generating capacity in 2016.¹ This represents an increase of around 9 percent in capacity compared with 2015 — the equivalent of more than 80 nuclear power stations — according to the Renewable Energy Policy Network for the 21st Century (REN21), despite a 23 percent decline in investments in new renewable energy installations in the same time period.²

An estimated 6,392TWh of power was generated by renewables in 2017 and this looks set to grow, with global renewables electricity generation expected to increase to over 8,000TWh by 2022.³

On the M&A side, deal volume is on the rise for the sector, with a total of 406 deals globally, worth EUR40.1 billion, in 2017, as investors seek out new opportunities in a low interest environment offering limited

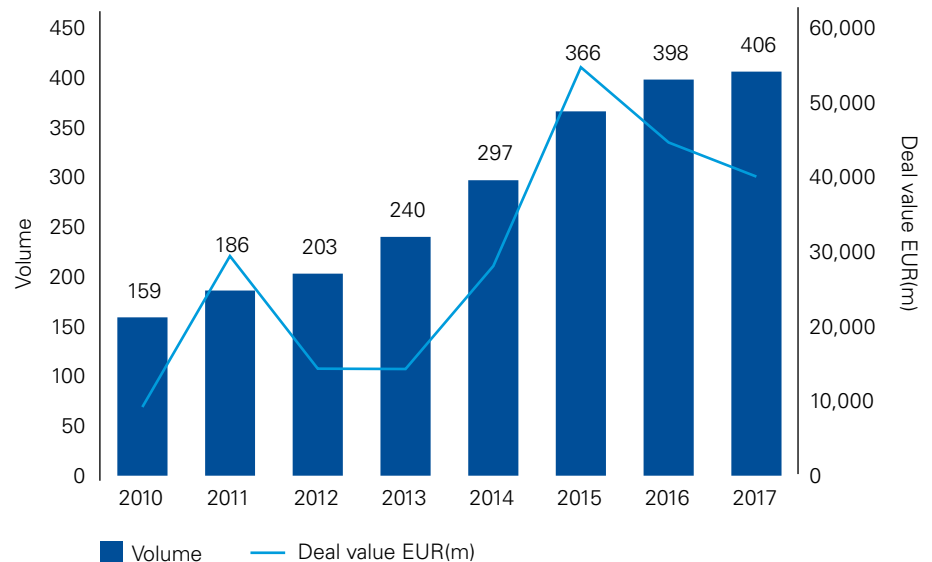
returns. Compared to 2016, deal volume in 2017 increased by 2 percent, although, deal value decreased by 10 percent, according to Mergermarket data. This is consistent with an ongoing trend: deal volumes have increased every year since 2010, reflecting the continued expansion of the installed base of renewable assets.

Deal drivers in renewables

Much of the M&A activity in renewables is being driven by traditional energy businesses scrambling to acquire new capabilities and institutional investors looking for stable and predictable returns. In addition, we see diversification of the landscape with new players like oil and gas companies coming into the game.

Utilities are also racing to keep pace with public demands to tackle climate change, as Charles Abbey, KPMG in France,

Global renewable energy M&A

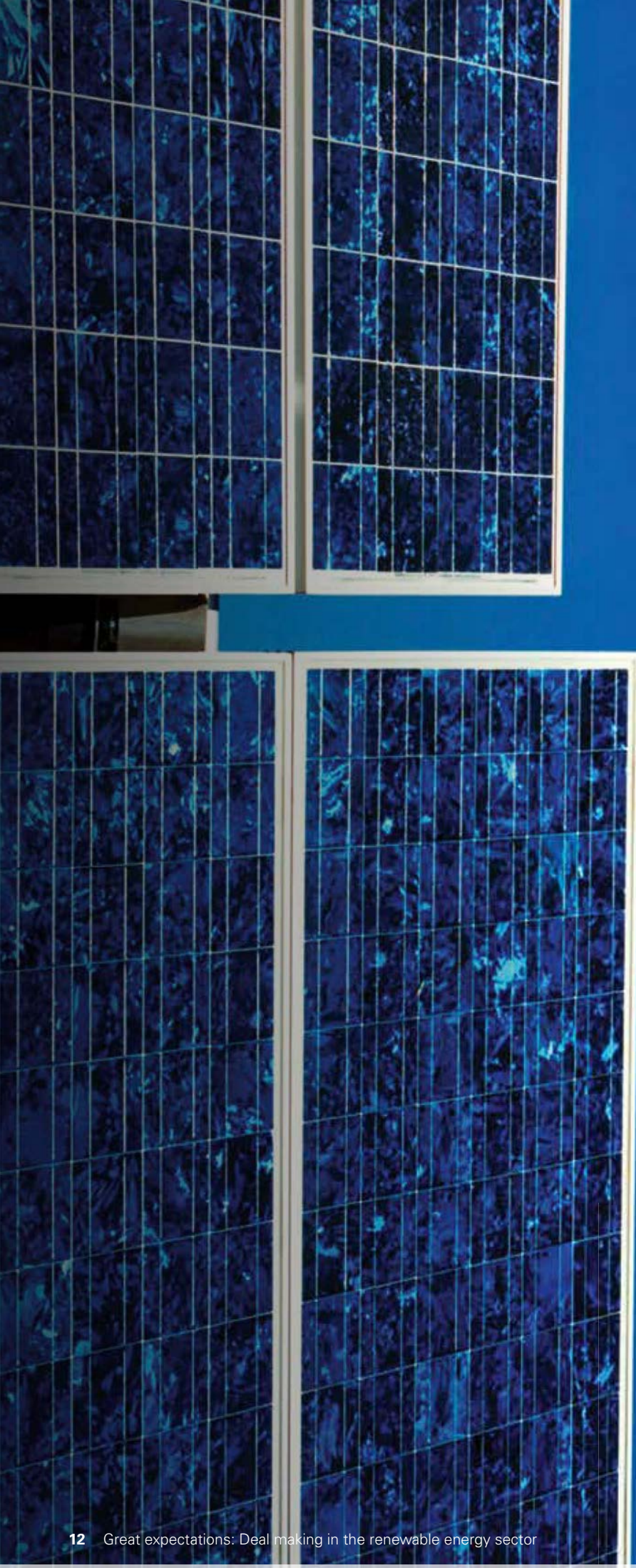


Source: Mergermarket data

¹ "Solar leads the charge in another record year for renewables." IEA, October 2017. <https://www.iea.org/publications/renewables2017/>

² "2016 Was Another Record Year for Renewable Energy." United Nations Framework Convention on Climate Change. June 2017. newsroom.unfccc.int/unfccc-newsroom/another-record-breaking-year-for-renewable-energy/

³ "Solar leads the charge in another record year for renewables." IEA. Op cit.



points out: “Customers expect it. Some utilities have declared they will dispose of all their coal assets. But if they do that, they will need to consider replacement capacity.”

Another deal driver is renewable energy integration. Australia, for example, is facing some of the most complex integration of renewables in the world, with coal down 20 percent since 2008 and wind power up 325 percent in the same time period⁴ according to the Australian Energy Market Operator (AEMO). There is also the “potential for an annual energy shortfall in the domestic gas market” in eastern and southeastern Australia.⁵ And solar and wind power, while on the rise, are dealing with a fragile and stretched energy grid in many areas.

While integrating such a complex energy mix can cause headaches for end users and government policy-makers, it gives investors opportunities.

“Investors want to take advantage of this disruption — they’re looking at sophisticated service models, blockchain applications and fringe-of-grid solutions because of the geography,” says Ted Surette, KPMG Australia.

Who are the big buyers in renewables?

There is an even split among survey respondents between those who believe corporates will be the most active acquirers in the next year and those who think this will fall to financial buyers. However, in each case, it tends to be based on which side of the fence they sit. If you’re coming from a fund with direct investments in renewable energy, such as infrastructure, private equity (PE) or pension funds, then you’re more likely to expect financial buyers to dominate. If you’re a utility, oil and gas firm, or independent power producer, you’re probably expecting corporates to take the lead.

Big deals in renewables 2017

The top deal in 2017 was Canadian asset management company Brookfield Asset Management's purchase of a 38.84 percent stake in US owner and operator of clean power generation assets, TerraForm Power for EUR4 billion, taking it to 51.0 percent ownership of the company.

This was one of two deals by Brookfield in the top three, the other being its outright purchase of

TerraForm Global for EUR1.2 billion, designed to consolidate its control of the group's assets from SunEdison, which filed for Chapter 11 bankruptcy protection in April 2016. These transactions were in line with TerraForm's strategy to separate operations from SunEdison, while giving Brookfield an opportunity to strengthen its renewable power pipeline.

Top renewable deals 2017

Announced date	Target company	Target dominant country	Bidder company	Bidder dominant country	Deal value EUR(m)
7 Mar 2017	TerraForm Power, Inc. (38.84 percent stake)	US	Brookfield Asset Management Inc.	Canada	4,013
31 Oct 2017	Orsted (Walney Extension 659 MW offshore wind farm project) (50 percent stake)	UK	PKA A/S; PFA Pension Forsikringsaktieselskab AS	Denmark	2,274
24 Feb 2017	Sustainable Power Group, LLC	US	The AES Corporation; Alberta Investment Management Corporation	Canada	1,490
7 Mar 2017	TerraForm Global, Inc.	US	Brookfield Asset Management Inc.	Canada	1,171
7 Aug 2017	Borkum Riffgrund 2 (50 percent stake)	Germany	Global Infrastructure Partners	US	1,170
2 Aug 2017	Energy Development Corporation (47.5 percent stake)	Philippines	Consortium for Energy Development Corp	Singapore	1,080
22 Dec 2017	InterGen (Mexico Assets)	Mexico	Actis LLP	UK	1,060
26 Nov 2017	Inkia Energy Ltd. (Latin American and Caribbean businesses)	Peru	I Squared Capital	US	994
7 Mar 2017	RusHydro OAO (12.46 percent stake)	Russia	VTB Bank OAO	Russia	869
13 Jan 2017	Lincs Wind Farm Limited (75 percent stake)	UK	Green Investment Group Limited	UK	837

Source: Mergermarket data

⁴ Change: Matching the pace of transformation. Australian Energy Market Operator Annual Report 2017. https://www.aemo.com.au/-/media/Files/About_AEMO/Annual-Report/AEMO-Annual-Report-2017.pdf

⁵ "Update to Gas Statement of Opportunities." Australian Energy Market Operator. September 2017. https://www.aemo.com.au/-/media/Files/Gas/National_Planning_and_Forecasting/GSOO/2017/2017-Gas-Statement-of-Opportunities—Update.pdf

In either case, the motivations of the buyers are distinct, according to Dmitry Danilovich, KPMG Australia. Corporate acquirers tend to focus on assets that are relatively technically complex to operate, have an element of technology risk or are commercially new to the market. Financial buyers, on the other hand, tend to focus on assets based on proven technologies, without that high degree of operating complexity and with low operating risk.

“Wind farms and solar voltaic farms are classic examples of where financial buyers would be ahead of corporate buyers,” he adds.

Survey respondents on the corporate side back up this view: “Corporates are seeking out assets to increase output and consolidate because the environment is becoming very competitive,” says the chief corporate development officer of a US-based renewable developer. “Not only is competition growing, but companies also need to carry out M&A deals to show growth over the previous year’s lack of performance.”

Other respondents think financial buyers will hold sway. For some, it’s

a simple matter of finding returns in a limited marketplace — “The current lack of better options will make private equity firms focus their acquisition strategies on renewable energy,” says the head of a Hong Kong-based fund — or tapping into fast-growing renewables markets like India, Brazil and China.

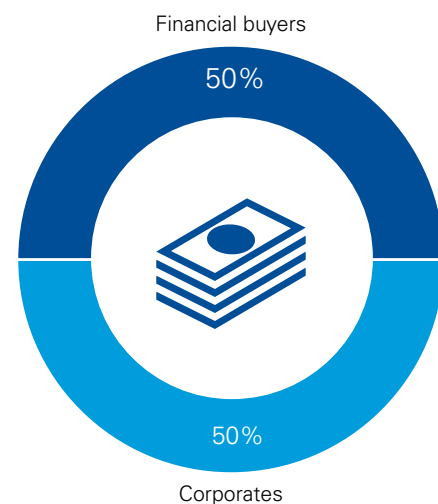
For others, it’s a question of having the financial power to take advantage of available assets: “Financial buyers are going to dominate the market because they have the most capital at their disposal,” says the managing director of a fund in the US. “PEs and other financial buyers are looking for new assets to invest their capital and will seek out infrastructure assets based in the energy sector.”

Valuation outlook

Valuation is a factor in investment decisions, with investors anticipating major shifts in value for some renewables sub-sectors.

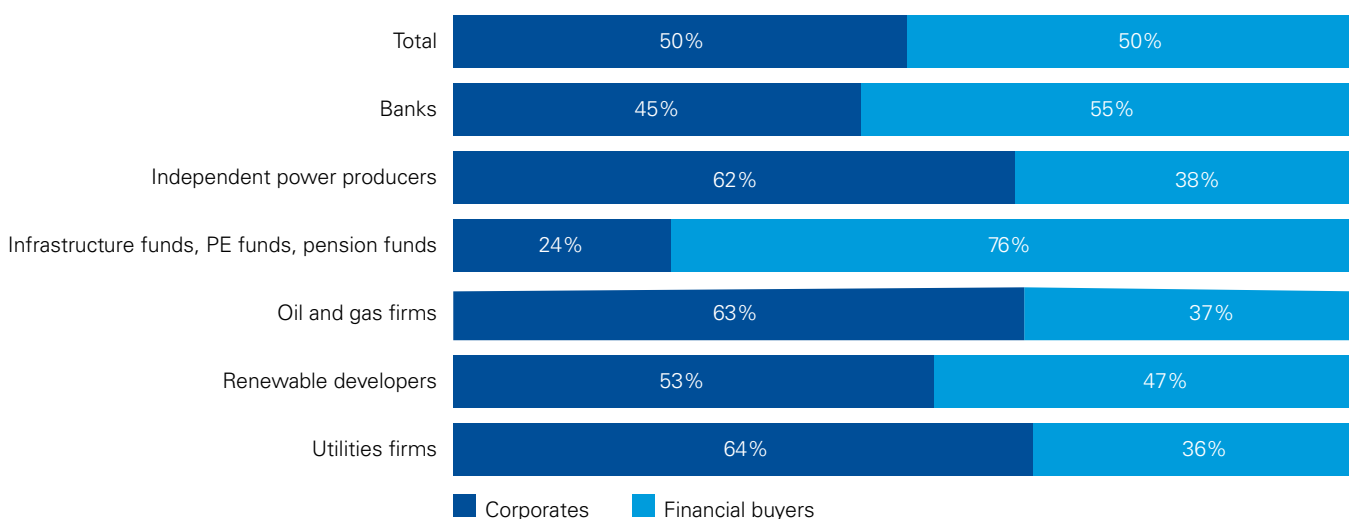
Among the deal-specific factors influencing the valuation of individual renewable assets are asset quality, cost of finance, regulatory stability, the state of the wholesale energy

Do you expect corporates (utility companies, power producers, and oil and gas companies) or financial buyers (funds) to be the most active acquirers over the next 12 months?



Source: KPMG and Acuris survey

Do you expect corporates (utility companies, power producers, and oil and gas companies) or financial buyers (funds) to be the most active acquirers over the next 12 months? (by sector)



Source: KPMG and Acuris survey

market, evolution of the competitive environment, the lifecycle stage of the asset relative to the prevailing subsidy regime, and curtailment risks that lie beyond the control of the asset owner.

All of these factors vary markedly between geographies and across sub-sectors.

Eighty-two percent of respondents expect valuations to rise over the next 24 months for offshore renewables, closely followed by photovoltaic solar (81 percent). Majorities also expect increases in the hydropower (68 percent) and thermal solar (51 percent) sub-sectors.

Looking to the bigger picture, two macro factors are likely to account for these anticipated increases. One is the decline of fixed income from traditional sources, e.g. bond markets, which has driven an increasing number of financial investors into the renewable arena in search of returns, and intensified competition for assets.

Another factor is the commodification and relative maturity of renewable technologies — particularly offshore wind — which now makes renewables a far more appealing bet for traditionally cautious investors.

Investment blockers

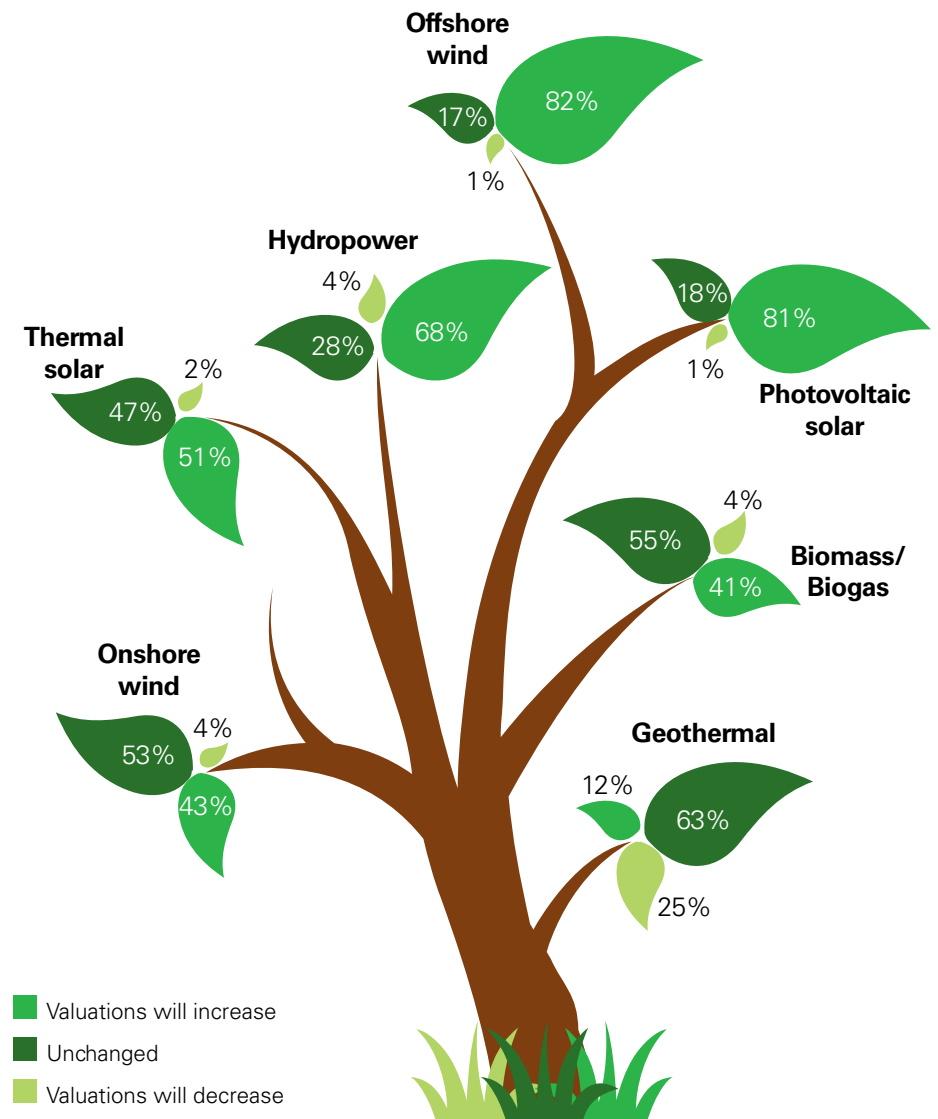
Investors looking for their next big opportunity in this relatively nascent industry face multiple obstacles, from planning permits and licenses to uncertainty around incentives, FITs and regulations, as well as the ongoing disruption and pace of technological change, and the perennial challenges involved in financing such projects.

There's fairly broad consensus that planning permits and licenses are a major issue for most. This was cited by 25 percent of respondents as the most significant obstacle to investment.

“Financial buyers are going to dominate the market because they have the most capital at their disposal.”

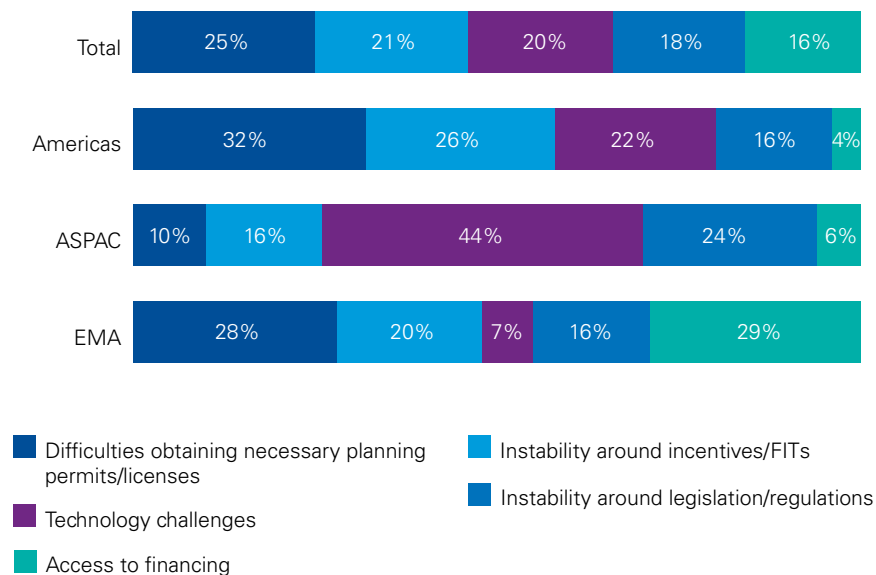
Managing director of a US-based fund

How do you expect valuations to change for projects in the following sectors in the next 24 months?



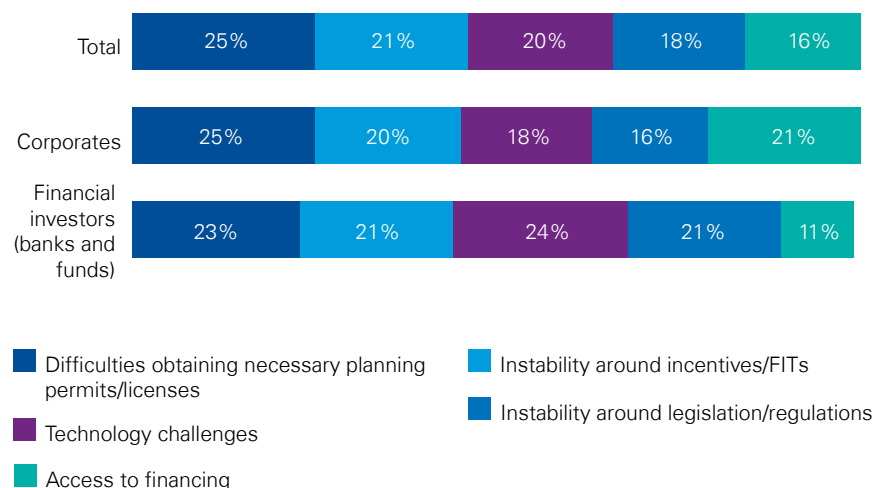
Source: KPMG and Acuris survey

Which of the following do you see as the most significant obstacle to investment in the renewable energy sector? (by respondent region)



Source: KPMG and Acuris survey

Which of the following do you see as the most significant obstacle to investment in the renewable energy sector? (by respondent type)



Source: KPMG and Acuris survey

As the chief corporate development officer of a renewable development firm in the United States points out, assets such as photovoltaic solar, hydropower and wind farms often require a significant amount of space in areas that are either reserved, private or in difficult locations. As a consequence, getting permits for these can take time and increase the cost of the whole project.

This concern is notably higher in the Americas (cited by 32 percent of respondents) and EMA (28 percent), where suitably large, long-term locations for renewable assets are often at a premium.

Meanwhile, just over one in five respondents (21 percent) say that uncertainty around incentives and FITs is blocking potential investment. Incentives are not always well developed, which creates confusion for companies considering an investment in renewables, according to the head of corporate development at a utility in the UK. Local government can delay the movement of capital to companies, which in turn can affect the performance of an asset.

“Investors seeing these issues are less likely to invest,” he adds.

Technology challenges can block investment, particularly as digital forms such a significant part of renewable energy systems. As the CFO of a renewables developer in Brazil points out, technology keeps evolving and keeping up with that evolution is expensive and difficult for most companies, especially in such a young industry. Large players banking on any one technology could find themselves undercut by new and more agile tech, which represents a major risk for potential investors.

“

Events like Brexit, the US walking out of the Paris Agreement and Spain opting for a sun tax show how governments can really turn a profitable opportunity into a loss for an investor. Regulations, laws and policies mean a lot to investors and are considered extreme obstacles.”

Managing director of an Australian bank

This challenge is particularly worrying to ASPAC respondents in the survey, at 44 percent (compared to 22 percent in the Americas and just 7 percent in EMA). As the CFO of a utility in China points out, “The only thing holding back the proper execution of renewable energy is limitations of current technology.”

This will be due, in part, to a lack of access to renewables technology in some emerging economies in the region but also to the ongoing efforts of China to build its renewables technology through investment.

According to the Institute for Energy Economics and Financial Analysis, “China made a record US\$32 billion in overseas investment deals [in renewables] in 2016 alone, marking a 60 percent year-on-year rise in spending.”⁶ While the country has stated its plans to dominate the renewables market, it is still in the process of building a coherent and connected renewables network, which may be cause for concern among investors.

Legislation and regulation remain an issue as well, cited by 18 percent of respondents, as governments around the world struggle to create policy that both understands and encourages renewables.

And, in the case of the United States, government policy may be introducing new hurdles along the way. For example, in October 2017, the US International Trade Commission approved measures designed to protect domestic solar panel manufacturers from cheap imports, by introducing potential tariffs or quotas.

“Events like Brexit, the US walking out of the Paris Agreement and Spain opting for a sun tax show how governments can really turn a profitable opportunity into a loss for an investor,” notes a managing director of an Australian bank.

“Regulations, laws and policies mean a lot to investors and are considered extreme obstacles.”

⁶ “IEEFA Report: China Set to Dominate US in Global Renewables Boom; \$32 Billion in Overseas Investments in 2016 Alone.” IEEFA press release. 6 January 2017. ieefa.org/ieefa-report-china-set-dominate-%E2%80%A8global-renewable-energy-boom-expands-lead-u-s/

Chapter 2

Hotspots for renewable M&A

China, Germany, the UK, India and France are all expected to see the biggest increases in renewable energy M&A activity over the next 12 months, as deal activity in the sector continues to heat up.

Key messages

- 01 China and Germany are the top spots for renewable energy deals in the near future.** China's appeal is being driven largely by government spending — it announced it would invest 2.5 trillion Yuan (US\$377 billion) in renewable power generation by 2020. Germany is the top western European country for investment in the next 12 months.
- 02 In France, the election of Emmanuel Macron as president has increased the appetite for investment, according to 62 percent of respondents.** Macron has promised he would continue efforts to simplify planning procedures, phase out coal, and double wind and solar capacity by 2022. EDF plans to install 30GW of solar capacity between 2020 and 2035 in France.
- 03 The UK and India are both attracting attention from investors.** According to 26 percent and 21 percent of respondents, respectively, both countries will see increased M&A activity in the next 12 months.

A global perspective

While three of the top 10 renewable energy deals in 2017 targeted US-based companies, and three of those deals featured Canada-based bidder companies, investors are now looking to EMA and ASPAC for big rises in M&A in the next 12 months.

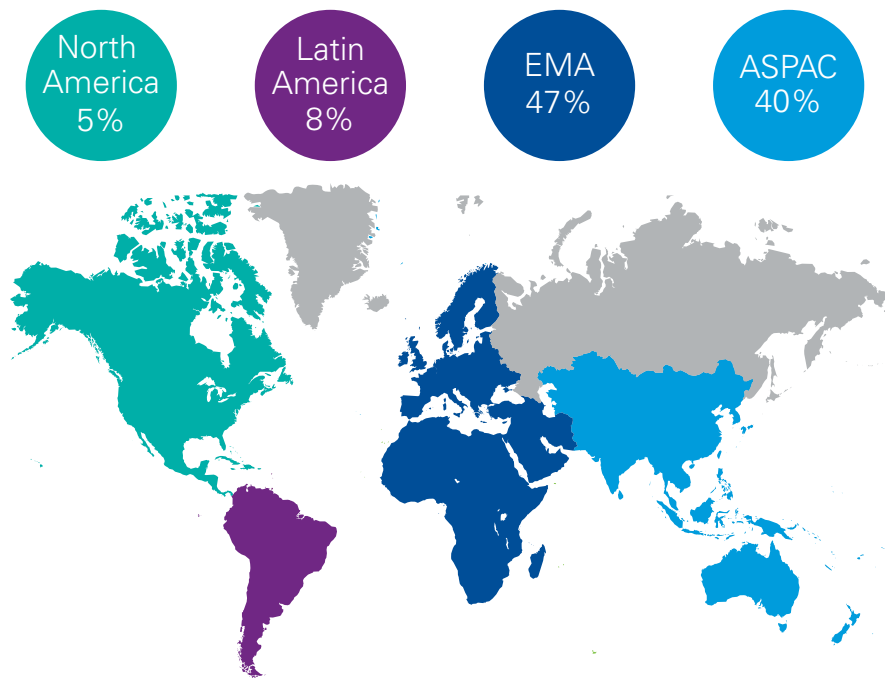
“M&A activity in Europe is going to rise because of the region’s take on renewable energy,” says the CFO of a US-based renewable developer. “For example, Germany has one of the most developed renewable energy industries and its execution has been amazing, while France has taken up responsibility for the advancement of renewable energy [through, for example, the Paris Agreement on climate change]. The policies that countries in Europe have are essential for uplifting this sector and that’s what investors want to see: a bright future for their investment.”

China and Germany are expected to see the biggest rise in M&A activity over the next 12 months compared with the previous year. This should come as no surprise, given the focus given to renewables by both countries.

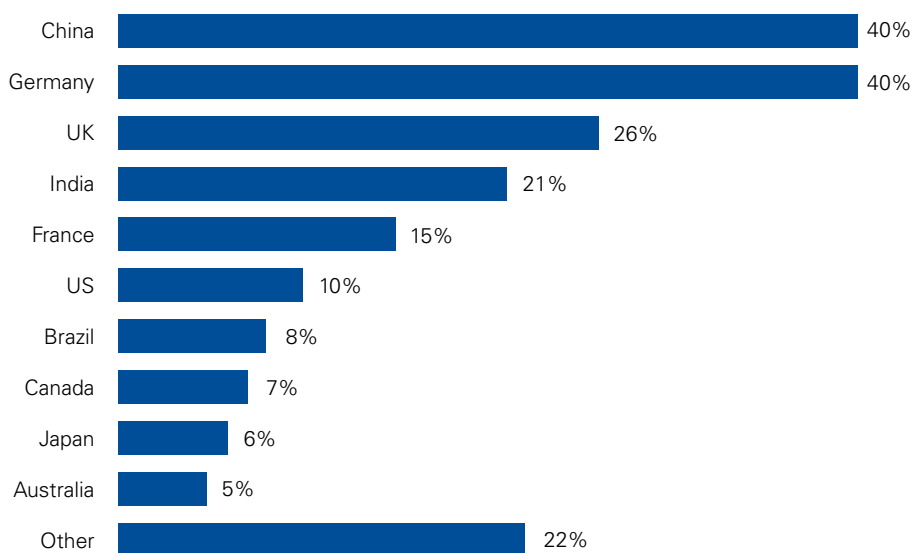
Just over a quarter of respondents (26 percent) expect the UK to see the biggest rise in M&A activity over the next 12 months, followed by India (21 percent). “Foreign investors and companies will expand in the UK because the cost of assets is low and there are plenty of initiatives by the government which allow companies to do business,” says the M&A director of an Argentinian oil and gas firm.

Despite having an overall renewable power capacity exceeded only by China, the US is expected to see the biggest rise in M&A activity by only 10 percent of respondents. One reason for this may be the growing expectations gap between buyers and sellers, as Henry Berling, KPMG in the US, explains: “A lot of generators believe that their renewable power is going to be worth more than traditional power in the future. But buyers have no way of knowing what renewable power capacity in this country will be worth 5 to 7 years from now and therefore they’re not willing to pay a premium.”

In which region do you expect to see the biggest rise in M&A activity over the next 12 months compared to the last 12 months?



In which two countries do you expect to see the biggest rise in M&A activity over the next 12 months compared to the last 12 months?



Source: KPMG and Acuris survey

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Global Power & Utilities CEO Outlook

report to learn more about industry trends.

Europe

Germany

Progressive energy policies are the key to Germany's highly anticipated M&A activity — it takes the top spot as the western European country most respondents (43 percent) are likely to invest in over the next 12 months.

Germany's approach, as stated by the Federal Ministry for Economic Affairs and Energy, is to "fundamentally alter Germany's energy supply: away from nuclear energy and fossil fuels and towards renewable energy. By 2025, at least 40 to 45 percent of our energy is to be sourced from renewable energy, and we want to raise this to at least 80 percent by 2050."⁷

This *Energiewende* or 'energy transition' is ongoing and government policies — such as the Renewable Energy Sources Act from 2000, which originally encouraged renewable energy through FITs — have been implemented to maintain this momentum.

"Germany has always been a winner in renewable energy in Europe and I am sure the trend will continue as the support for renewable energy has grown stronger," says the managing director of a US-based fund.

"Policies have been framed in the best possible manner, making it an attractive region for investors to target. The government has provided a lot of alternatives to raise capital for companies investing in energy, taxes are a lot lower than they were and ROI in the German market is very strong because of the lack of pricing caps enforced by the government."

The UK

The UK is also seen as an appealing target, as government policy aligns with business opportunities in the sector, particularly offshore wind (see Chapter 4). Public approval for renewables also remains high: according to the government's quarterly survey published in November 2017, 82 percent of respondents support renewable energy.⁸ And the ongoing government-sanctioned roll-out of smart meters, in which every household will be offered one by 2020, will prompt many consumers to re-evaluate their energy choices, leaving the door open to new opportunities for utilities.

Smart energy technologies such as these, coupled with greater availability of renewable energy sources, are already generating M&A in the UK.

EDF Energy Renewables is among the latest to make a move, announcing plans to sell its majority stake in five wind farms to Greencoat UK Wind. It will retain a 20 percent share and continue to run the sites.

According to Matthieu Hue, CEO of EDF Energy Renewables, this deal allows the company to invest in other UK renewables projects, per the group's larger strategy.⁹

As the CFO of a Hong Kong-based independent power producer explains: "The falling value of the pound, along with high debt levels, allows us to invest in the UK with ease. The infrastructure is well developed and we want to expand in the UK to take advantage of the low costs and the changes that we expect the government to make, as well as to get access to the market to acquire new technologies."

“

There is no doubt that the French government wants to make a big step in renewables. France has the second-largest offshore wind farm capacity in Europe and opportunities are huge. ”

Éric Jacquet
KPMG in France

France

The election of Macron has increased the appetite for investment in France, according to 62 percent of respondents. In his election manifesto, Macron said he would continue efforts initiated by the previous governments to reduce France's reliance on nuclear generation, phase out coal, and double wind and solar capacity.

"From a business perspective, Macron's election sends out the right signals," says Charles Abbey at KPMG in France. "He supports renewables, which means change is to be

⁷ "Ready for the next phase of the energy transition." German Federal Ministry for Economic Affairs and Energy. bmwi.de/Redaktion/EN/Dossier/energy-transition.html

⁸ Energy and Climate Change Public Attitude Tracker Wave 23. UK Department for Business, Energy and Industrial Strategy. November 2017. https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/656549/Wave_23_Summary_Report.pdf

⁹ "EDF Energy Renewables sells majority stake in five UK wind farms." EDF Energy press release. 1 Nov 2017. media.edfenergy.com/tr/1309/edf_energy_renewables_sells_majority_stake_in_five_uk_wind

expected that will support the sector, such as simplifying the authorization permits process, for example.”

This view echoes an interview with French Prime Minister Edouard Philippe — newly installed by President Macron — on France Inter radio in May 2017, in which he argued that the country needs “an approach founded on the secure base of nuclear and a rapid, massive and visible development of renewables”.

This approach will need to align with France’s ‘Plan de programmation pluriannuelle de l’Energie’, or PPE, published in 2016, which called for at least 70GW of renewables capacity, generating between 150 and 167TWh of renewables-sourced electricity per year by 2023.¹⁰ The PPE anticipates significant leaps in onshore and solar photovoltaic (PV) capacity (to reach at least 21GW and 18GM by 2023, respectively) while also proposing targets for offshore, marine energy (floating wind, tidal and wave), wood and biogas power.

In November 2017, Minister for the Ecological and Inclusive Transition Nicolas Hulot announced that the French government needs to set a more ‘realistic’ target to reduce the share of nuclear energy in France’s power mix. Reducing nuclear from 75 percent to 50 percent by 2025 would not be possible without increasing carbon emissions, according to the environment minister. The French government has committed to providing a clear transitional roadmap with new targets a year from now.

“Renewable energies have a bright future in France, even though the measures announced by Macron during the election campaign will not happen at the expected pace. There is no doubt that the French government wants to make a big step in renewables, one signal being administrative

authorizations granted more easily and the continuation of offshore tenders. France has the second-largest offshore wind farm capacity in Europe and the opportunities are huge,” says Eric Jacquet, KPMG in France.

In December 2017, Minister for the Ecological and Inclusive Transition Nicolas Hulot announced that the level of tenders in solar would be increased by 1 GW per year, i.e. a volume of 2.45 GW per year. Furthermore, in January 2018, the government announced various simplification measures in order to accelerate the development of onshore wind and to reduce the delay of installation of offshore wind farms.

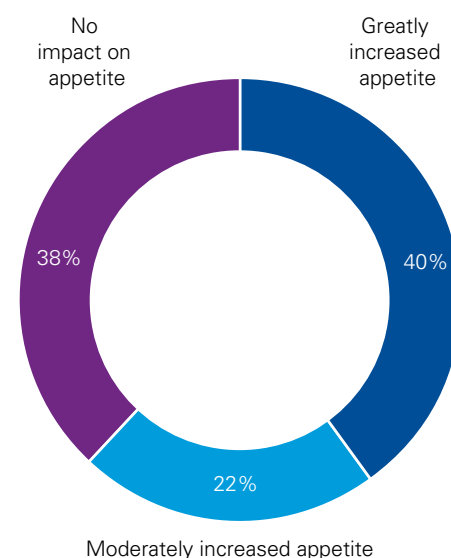
Half of respondents say that offshore wind is the sub-sector attracting the most investment interest in France, in part because its potential has not yet been exploited: “France has more than 3,000km of coastline, which could easily be used to generate energy;” notes the head of investments at a Singapore-based fund. “Hydroelectricity power, on the other hand, is already well established in France, with most resources already tapped.”

The executive vice president of finance with an independent power producer in France adds that “The development of grids will further enable companies to invest in wind as well as solar energies, and will push for the development of these technologies.”

Just over a quarter of respondents (26 percent) believe photovoltaic solar is the sub-sector in the country that is attracting the most attention from investors.

“Solar energy is the most abundant source of energy,” says the director of investment for a fund based in France. “Although restricted to certain times of day, it is capable of producing energy on a large scale to supply cities as well as sustaining individual homes.”

Has France’s election of Macron and his support for renewable energy increased your appetite to invest in the French market?



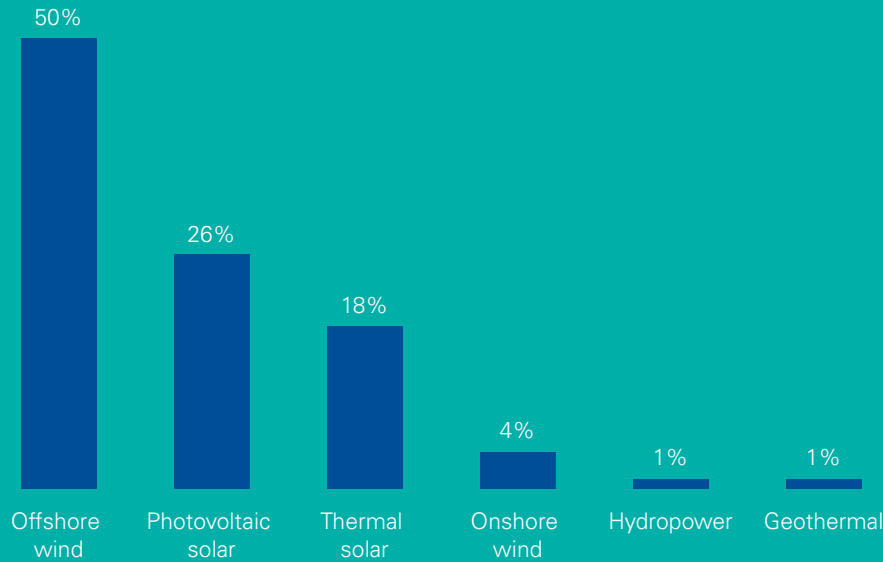
Source: KPMG and Acuris survey

For 18 percent of respondents, thermal solar is the most appealing. And while biogas was not cited specifically by survey respondents, it could attract more investment in future, following the recent announcement by the French energy ministry that it is cutting the grid connection costs of renewable and biogas installations by 40 percent.

Nearly a third (30 percent) of respondents based in France say improved incentives/FITs would be most likely to increase their appetite to invest in the country’s renewable sector — the top choice among French respondents. Among non-French respondents, 36 percent say a “more business-friendly regulatory regime” would influence their decision.

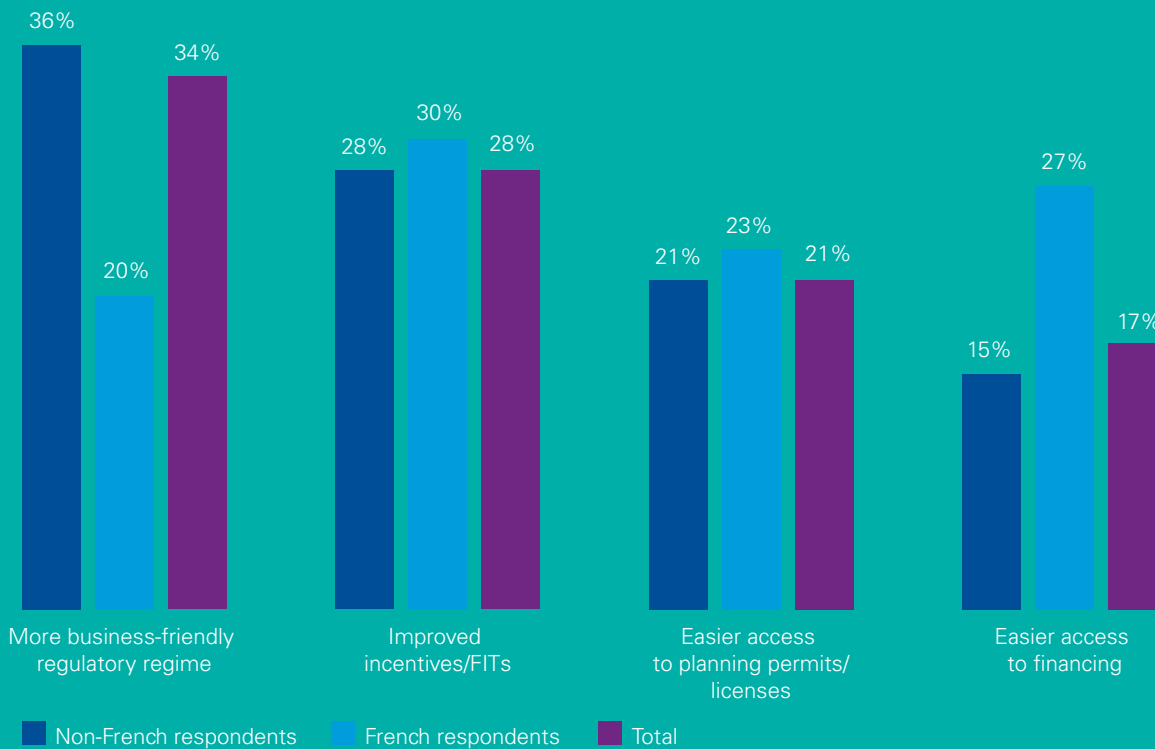
¹⁰ “France locks renewables target for 70 -76 GW by 2023.” Renewables Now. Reporting on the French government’s “Plan de programmation pluriannuelle de l’Energie.” 31 October 2016. <https://renewablesnow.com/news/france-locks-renewables-target-for-70-76-gw-by-2023-545098/>

Within France, which sub-sector of renewable energy is currently the most attractive for investment?



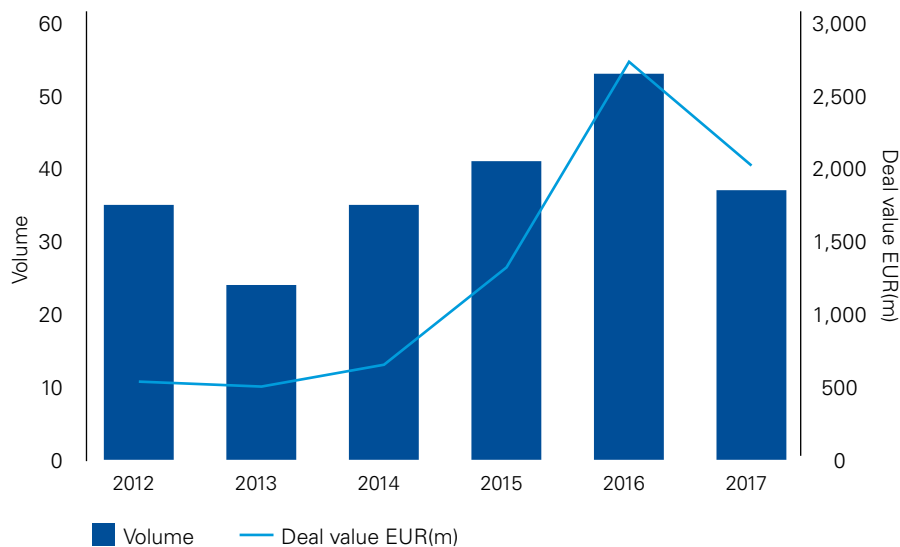
Source: KPMG and Acuris survey

Which of the following would be most likely to increase your appetite to invest in the renewable sector in France? (please select one)



Source: KPMG and Acuris survey

France renewable energy transactions*



Source: KPMG and Mergermarket data

*Includes M&A, asset sales, capital increases, equity funding and IPOs

“There’s definitely going to be an easier investment space in France now,” believes the strategy director of a Norwegian oil and gas company. “We’re expecting investor-friendly policies in France, such as tax incentives, as it intends to double its green energy.”

Another respondent, the chief financial officer (CFO) of an Australian utility, adds that France has a strong vision in terms of renewable energy use, based on the government target which calls for at least 70GW of renewables capacity by 2023: “With climate changes taking place at an alarming rate, and the need for proper use and reuse of energy whenever there is scope, we expect several reforms to take place,” he says. “We also expect investing to get easier. We are aiming at mid-size targets and are sure to get the best value as we are going to use cash, which helps in negotiating to a great extent.”

In terms of deal activity, France has been a popular choice in recent years, with deal volume and value on the rise. In 2017, there were 37 deals with a total value of EUR2.0 billion.

Major deals include EDF Energies Nouvelles' purchase of wind energy developer and operator FUTUREN for EUR394 million, the acquisition of renewable energy producer Quadran by Direct Energie for an enterprise value of EUR681 million, the acquisition by TOTAL of 23 percent of EREN Renewable Energy share capital, a French group dedicated to natural resource efficiency, for EUR238 million and Innergex Renewable Energy's purchase of three wind farms in France from Velocita Energy Developments with an aggregate installed capacity of 119.5 MW.





The BRIC economies

Among BRIC (Brazil, Russia, India and China) countries, 35 percent of respondents say they are most likely to invest in China over the next 12 months, followed closely by Brazil (33 percent) and India (28 percent). Just 4 percent say they are most likely to invest in Russia.

China

“Global renewables are being skewed significantly by China, which has been a high-growth market for the past 6 or 7 years,” says Adrian Scholtz, KPMG in the UK. China is currently the world’s largest single developer of renewable power, followed by the US, with the largest installed capacity of hydro, solar and wind power.

The country’s policies have promoted renewable energy use for over a decade, beginning with its Renewable Energy Law in 2005, which prioritized the development and use of renewable energy. In 2017, the government announced it would invest 2.5 trillion Yuan (US\$377 billion) into renewable power generation by 2020 as part of its 13th Five-Year Plan on energy development. According to the country’s National Energy Administration (NEA), the plan will increase installed renewable power capacity to 680GW by 2020.¹¹

The array of existing assets and huge project pipeline make China a major draw for investors, says Scholtz: “One of the themes of the next couple of years will be international capital going into China. The country also has an extremely large pool of domestic capital.”

Sub-sectors of interest include photovoltaic solar, hydropower and onshore wind, but investors need to weigh up the risks, says Scholtz: “You need to look at certain locations and certain vintages because some of those assets are subject to major curtailment risks, such as grid issues. If you’re putting money into Chinese renewables, you need to invest through an expert team.”

Brazil

The country’s abundant solar, wind and hydropower potential — it has the largest hydro resources in South America¹² — prompts one respondent to describe Brazil as “geographically gifted.” Another, the CFO of an Australian renewable developer, says: “We see potential for further development in Brazil, which has a large, untapped renewable energy source — especially hydro energy.”

According to the International Energy Agency (IEA), almost 45 percent of Brazil’s primary energy demand is met by renewable energy, with around 80 percent of total installed capacity stemming from large hydropower plants and the rest made up of biomass and wind power, followed by fossil fuels and nuclear.¹³

According to the ABEEólica, the Brazilian Wind Energy Association, wind power has a particularly strong future, with 496 wind parks already installed, representing an installed capacity of 12.48GW, with 4.86GW of capacity under construction.¹⁴

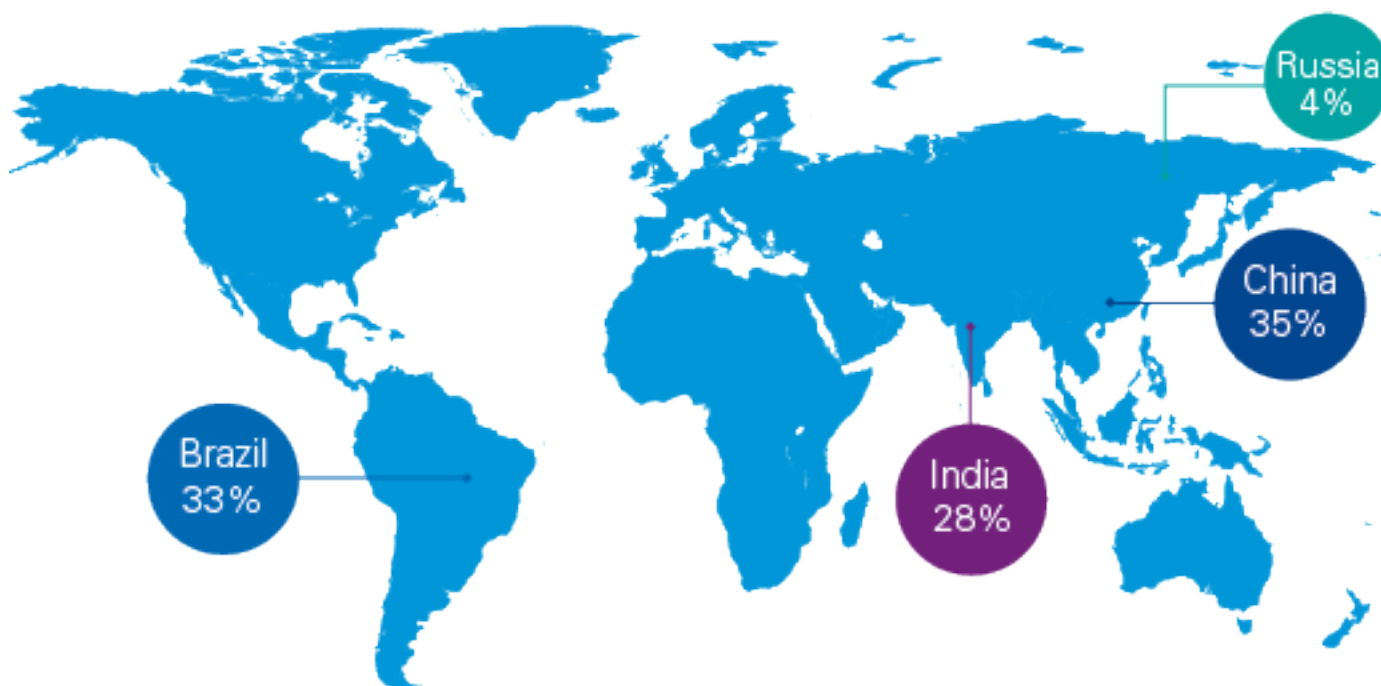
¹¹ China 13th Renewable Energy Development Five Year Plan (2016–2020). International Energy Agency (IEA). 10 December 2016. <https://www.iea.org/policiesandmeasures/pams/china/name-161254-en.php>

¹² Profile on Brazil. International Hydropower Association. <https://www.hydropower.org/country-profiles/brazil>

¹³ “Brazil (Association country).” IEA. <https://www.iea.org/countries/non-membercountries/brazil/>

¹⁴ ABEEólica, the Brazilian Wind Energy Association. abeeolica.org.br/en/quem-somos/

Which of these countries would you be most likely to invest in over the next 12 months?



Recent recessions in some countries in Latin America have weakened their economies. However, this does open up opportunities for acquirers, according to Oscar Silva, KPMG in Mexico.

“The downturn means it is possible to buy assets cheaply, so now is a great time to invest, looking ahead to the recovery of the economy,” he says. “The risk is low, relative to the profit potential, and it offers a great investment.”

India

Investment opportunities are expected to open up with the shift to renewables in India, according to the IEA: “By 2022, India’s renewable capacity will more than double. Solar

PV and wind together represent 90 percent of India’s capacity growth as auctions yielded some of the world’s lowest prices for both technologies.”¹⁵

This leap in renewables is being driven by the government’s ambitious target for renewables, announced in 2015, of 175GW installed capacity by 2022 (the country’s current renewable capacity is 58.30GW).

A report by the government’s economic policy think-tank, NITI Aayog, published that same year, indicates this is achievable, despite the tight timeframe: “One of India’s major advantages ... is that its renewable energy potential is vast and largely untapped. Recent estimates show that India’s solar

potential is greater than 750GW and its announced wind potential is 302GW (actual could be higher than 1,000 GW).”¹⁶

Indian Prime Minister Narendra Modi emphasized the country’s renewables ambitions at the 2017 BRICS summit meeting, asking fellow BRICS leaders to work with the International Solar Alliance (ISA): “Our five countries have complementary skills and strengths to promote use of renewable and solar energy. The New Development Bank (NDB) can also establish an effective link with ISA to support such cooperation. We would wish to see more clean energy funding, particularly in solar energy, from the NDB.”¹⁷

¹⁵ “Solar PV grew faster than any other fuel in 2016, opening a new era for solar power.” IEA. 4 October 2017. <https://www.iea.org/newsroom/news/2017/october/solar-pv-grew-faster-than-any-other-fuel-in-2016-opening-a-new-era-for-solar-pow.html>

¹⁶ “Report of the Expert Group on 175GW RE by 2022.” National Institution for Transforming India. 31 December 2015. [/niti.gov.in/writereaddata/files/writereaddata/files/document_publication/report-175-GW-RE.pdf](http://niti.gov.in/writereaddata/files/writereaddata/files/document_publication/report-175-GW-RE.pdf)

¹⁷ timesofindia.indiatimes.com/india/modi-pushes-for-solar-alliance-at-brics-summit/articleshow/60366699.cms



The Americas

The US

While 10 percent of respondents say the US is one of the top two countries where they expect to see the greatest rise in M&A activity in renewables over the next 12 months, much of that will be influenced by the current administration's stance. For example, renewable energy tax credits were cut in the Republican tax bill launched in November 2017 and there are signs that this trend is set to continue under the current administration.

As the CFO of a renewables developer in the US explains, "We're in a situation where we need to play safe and smart. The fact that the US withdrew from the Paris Agreement has made things a lot more complicated for us as we know now that our government won't be backing policies for renewable energy. This has just complicated our perspective towards acquisitions in the United States."

Such concerns aren't limited to renewables investors in the US: "We've invested a lot in the US and the decision taken by the United States was a scare for us," says the

director of corporate finance at one Canadian bank. "There are going to be consequences that won't be in our favor and hence our appetite for acquisitions in the US has definitely reduced. The only silver lining for us would be the fact that the American corporates are still going strong with the renewable energy sector. But for now we would rather wait it out."

Mexico

Major reforms in Mexico's electricity sector in 2014 have paved the way for increased private investment. The Mexican government's clean energy generation targets are ambitious: 25 percent by 2018, 30 percent by 2021, 35 percent by 2024 and 50 percent by 2050.

"This country has a very aggressive renewables policy," says Oscar Silva, KPMG in Mexico. "Today, we generate approximately 18 percent of our total electricity with renewables. The goal is to reach 35 percent by 2024. We recently had the first public bids for electricity — most have been granted to renewable projects."

Africa

According to respondents, three countries in Africa are hotspots for investments in renewables in the near future:

South Africa

South Africa, a clear leader among African economies, was chosen by 46 percent of respondents, who said they would be most likely to invest there over the next 12 months. The country has provided clear signals that it intends to develop its renewables capacity as part of its energy mix.

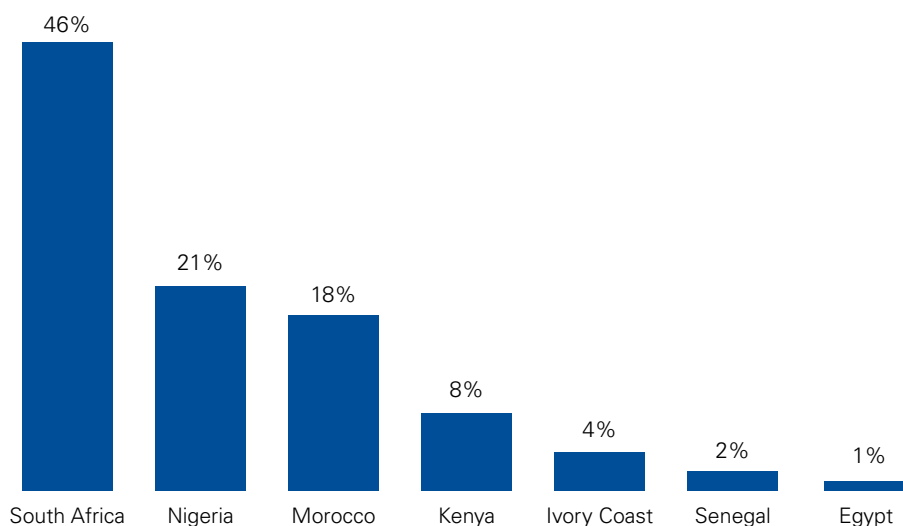
In a speech at the Generation IV International Forum in Cape Town in October 2017, South Africa's newly appointed energy minister, David Mahlobo, stated that "South Africa recognizes the role of nuclear power in ensuring security of energy supply and meeting the challenge of climate change. We promote an energy mix of coal, gas, renewables and nuclear. Each of these options has their role; some of the energy sources are intermittent supply while others, such as nuclear and coal, are base-load supply."

The government replaced its FIT system in 2011 with a public procurement program — the Renewable Energy Independent Power Producer Programme (REIPPP) — to encourage private investment in the sector.

The REIPPP covers onshore wind, solar PV, solar thermal, biomass solid, biogas, landfill gas and small hydro plants, establishing a ceiling tariff level for each in auctions. The winning bids are given power purchasing agreements (PPAs) guaranteed for years.

According to the IEA, "From 2011 to the beginning of 2015, five rounds of reverse auctions were held for construction and supply of 3,625MW of large-scale (>5MW) renewable energy capacity."¹⁸

Which of these countries would you be most likely to invest in over the next 12 months?



Source: KPMG and Acuris survey

"Challenges from regional stability and under-developed regulations make investing in African countries very risky," says the partner of a UK-based fund. "If we had to invest, it would be in South Africa because the economy is growing well, regulations are developed and are enforced, and there are opportunities for us to take advantage of."

Nigeria

Despite it being Africa's largest economy, only 21 percent of respondents cited Nigeria as the African country they were most likely to invest in over the next 12 months. The country has made strides in recent years to develop its renewables market, bringing in the Feed-in Tariff for Renewable Energy Sourced Electricity regulation in 2015.

Among other things, this directs distribution companies to source at least 50 percent of their total electricity

procurement from renewable sources, with the rest coming from the Nigerian Bulk Electricity Trading Company. According to the IEA, a total of 2,000MW will be generated in the country through renewables like biomass, small hydro, wind and solar by 2020.¹⁹

Morocco

Under the auspices of the Office National de l'Electricité (ONE), Morocco's plans for renewables are ambitious and, as demonstrated by the Noor-Ouarzazate Concentrated Solar Power Project, definitely achievable. The project is expected to produce 580MW at peak when finished.

Much of this is being driven by government edict. In 2015, King Mohammed VI announced a target of 52 percent renewable electricity generation by 2030, with installed capacity of around 10GW split between solar, wind and hydraulic dams.

¹⁸ "Renewable Energy Independent Power Producer Programme (REIPPP)." IEA. 9 Nov 2017. <https://www.iea.org/policiesandmeasures/pams/southafrica/name-38785-en.php>

¹⁹ "Nigeria Feed-in Tariff for Renewable Energy Sourced Electricity." IEA. 23 Aug 2017. <https://www.iea.org/policiesandmeasures/pams/nigeria/name-154529-en.php>

Chapter 3

Sub-sectors and innovation

Renewable energy embraces a range of sub-sectors, but the field is dominated by three: photovoltaic solar (which accounted for 47 percent of new global capacity added in 2016), wind power (34 percent) and hydropower (15.5 percent).²⁰ But the future of all three depends on innovation in battery storage and energy aggregators, both of which are becoming increasingly important to investors.

Key messages

- 01 Offshore wind will see the biggest sub-sector rise in M&A over the next 12 months, according to 43 percent of respondents.** Investors are paying close attention as operational and manufacturing costs come down, and wind farms in Europe and China produce increasingly impressive results.
- 02 EMA is the region drawing the most attention from investors looking to offshore wind for new opportunities.** The UK (53 percent) and Germany (28 percent), are the most attractive, with multiple projects already operational or in the pipeline.
- 03 Hydropower is of interest to 39 percent of investors, despite hydropower already being well established in most regions.**²¹ The bulk of this attention is focused on ASPAC and Latin America, where there remain pockets of untapped potential and plans for major projects.
- 04 Battery storage, energy aggregators and hydrogen** are considered major drivers — and challenges — to investors in the long run.

²⁰ "2016 Was Another Record Year for Renewable Energy." The United Nations Framework Convention on Climate Change (UNFCCC). 7 June 2017. newsroom.unfccc.int/unfccc-newsroom/another-record-breaking-year-for-renewable-energy/

²¹ "Renewables 2017: Solar leads the charge in another record year for renewables." IEA. 4 October 2017. <https://www.iea.org/renewables/>



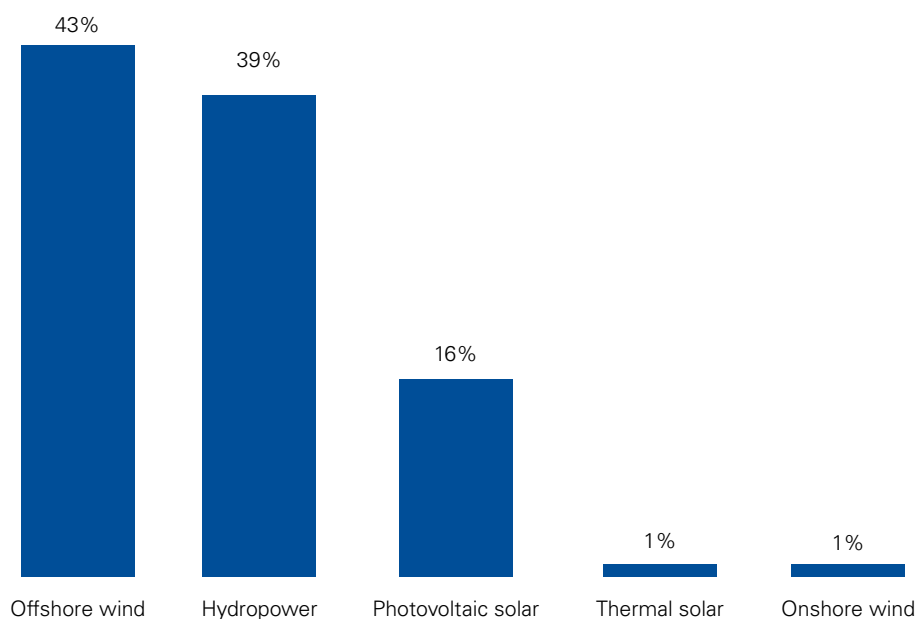
Sub-sector M&A status

According to respondents, the biggest sub-sector rise in M&A activity over the next 12 months will be in offshore wind (cited by 43 percent), followed by hydropower (39 percent) and photovoltaic solar (16 percent). Thermal solar and onshore wind are each mentioned by just 1 percent of respondents.

Infrastructure, PE and pension funds, banks, and independent power producers have the highest expectations for offshore wind M&A, while respondents from oil and gas firms and utilities think hydropower will see the greatest activity.

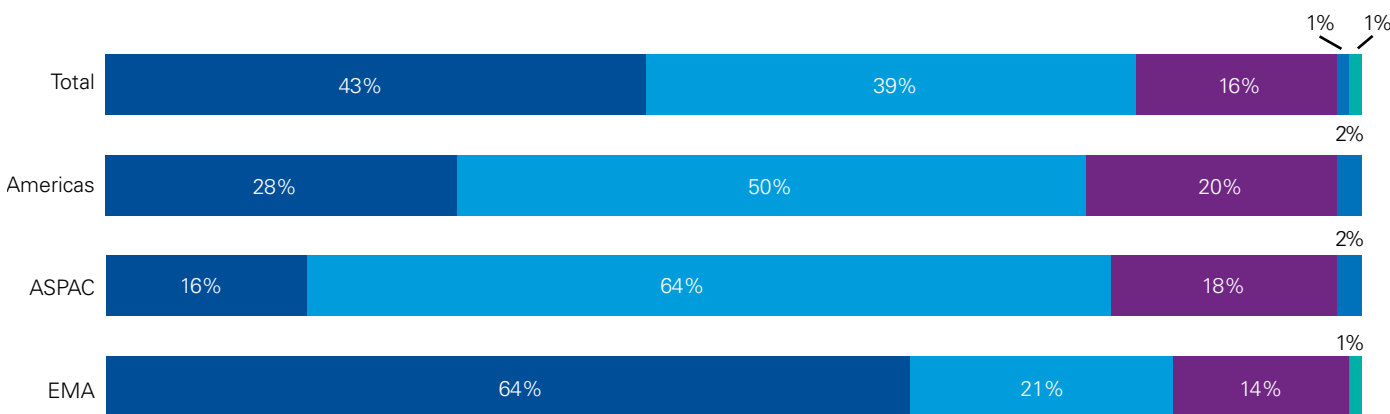
Offshore wind is expected to see the biggest rise in M&A over the next 12 months by 64 percent of EMA-based respondents, compared to 43 percent overall. Hydropower is the top choice among ASPAC-based respondents (64 percent) and those in the Americas (50 percent). This compares to 39 percent overall.

In which sub-sector do you expect to see the biggest rise in M&A activity over the next 12 months compared to the last 12 months?



Source: KPMG and Acuris survey

In which sub-sector do you expect to see the biggest rise in M&A activity over the next 12 months compared to the last 12 months? (by respondent region)



■ Offshore wind
 ■ Hydropower
 ■ Photovoltaic solar
■ Thermal solar
 ■ Onshore wind

Source: KPMG and Acuris survey

Offshore wind is a clear winner for potential future M&A activity among renewables sub-sectors. While some of these projects struggle to get off the ground due to a lack of financing or political backing, offshore has retained broad support from banks and politicians alike.²²

Large-scale wind farm projects are already well established, from the London Array offshore wind farm in the UK's Thames Estuary to the Gemini Wind Farm off the coast of the Netherlands and the Gode Wind Farms in the North Sea off the German coast.

New projects are also being considered around the world, including France, Ireland, Canada, Jamaica and the Baltic states.²³ The technology has matured enough to have reduced development, manufacturing and operating costs.

But, ultimately, offshore wind is attractive because of the size of the individual deals, according to Annette Schmitt, KPMG in Germany: "This allows investors to deploy relatively large sums of money on one deal, at a scale investors won't find in other renewables projects. For utilities, it's a question of survival — if they want to remain a player in the game, they have to be in offshore."

Their size means that high-profile offshore wind deals attract headline attention, which adds to the attraction. For example, Innogy recently became the sole owner of the planned 860MW Triton Knoll wind farm off the coast of Lincolnshire in the UK after agreeing to acquire Statkraft's 50 percent stake in the offshore megaproject.²⁴

"There have been some very high-profile offshore wind deals and people expect there to be more. There may be more offshore wind deals focused in Europe. There are also a lot of secondary assets that still need to trade from original owners through to long-term pension-fund-type owners," says KPMG in the UK's Scholtz. "But, having said that, I think that we may see a lull over the next few years. The sector has consolidated massively, so there are fewer and fewer major participants in offshore wind. We're seeing wind superpowers emerging, among them Ørsted, Vattenfall, Statoil and Innogy."

Photovoltaic solar, meanwhile, is the sub-sector that the IEA expects to grow the most, in terms of capacity, over the next 5 years.²⁵ Respondents point to factors such as improvements in technology and lower costs relative to other types of renewables.

"Demand for solar-generated energy is growing and the development of cheap, effective solar panels and batteries means it has become cheaper for companies to generate energy," says the managing director of a US-based fund.

"We expect dependency on solar to increase and the number of M&A deals in solar to increase as well."

Hydropower — the grandfather of renewable energy technologies — is cited as the "most attractive" sub-sector for investment by more than one in five respondents. But because hydroelectric generation is a mature technology (the first plant appeared in the 1870s), the best places to generate hydropower are already taken in many geographies.

“There have been some very high-profile offshore wind deals and people expect there to be more ... But, having said that, I think that we may see a lull over the next few years. The sector has consolidated massively ...”

Adrian Scholtz
KPMG in the UK

²² "Offshore wind attractive to investors." Macquarie. 8 Apr 2016. <https://www.macquarie.com/uk/about/company/renewable-energy/investment-in-offshore-wind/>

²³ "Offshore wind projects being proposed in the Baltic, Asia, Caribbean and elsewhere." Offshore Wind Journal. 19 October 2017. owjonline.com/news/view/offshore-wind-projects-being-proposed-in-the-baltic-asia-caribbean-and-elsewhere_49591.htm

²⁴ "Innogy acquires Statkraft's 50 per cent share in Triton Knoll offshore wind project." Innogy. 10 October 2017. <https://news.innogy.com/en/innogy-acquires-statkrafts-50-per-cent-share-in-triton-knoll-offshore-wind-project/>

²⁵ "Renewables 2017: Solar leads the charge in another record year for renewables." Op cit.

However, there's plenty of upside for hydropower investors. There are still substantial pockets of untapped potential, including an estimated 7,195TWh/year in Asia²⁶ — the equivalent of about 800 nuclear power stations. Latin America is also promising, according to the World Energy Council: "Brazil leads the continent in both installed capacity and new capacity additions, with 91.8GW installed capacity in total. Brazil looks set to continue hydropower development with plans for construction of up to 19GW in the next 10 years."²⁷

Secondly, innovation in turbine design and better control technologies mean owners are able to get more out of existing installations through rehabilitation.

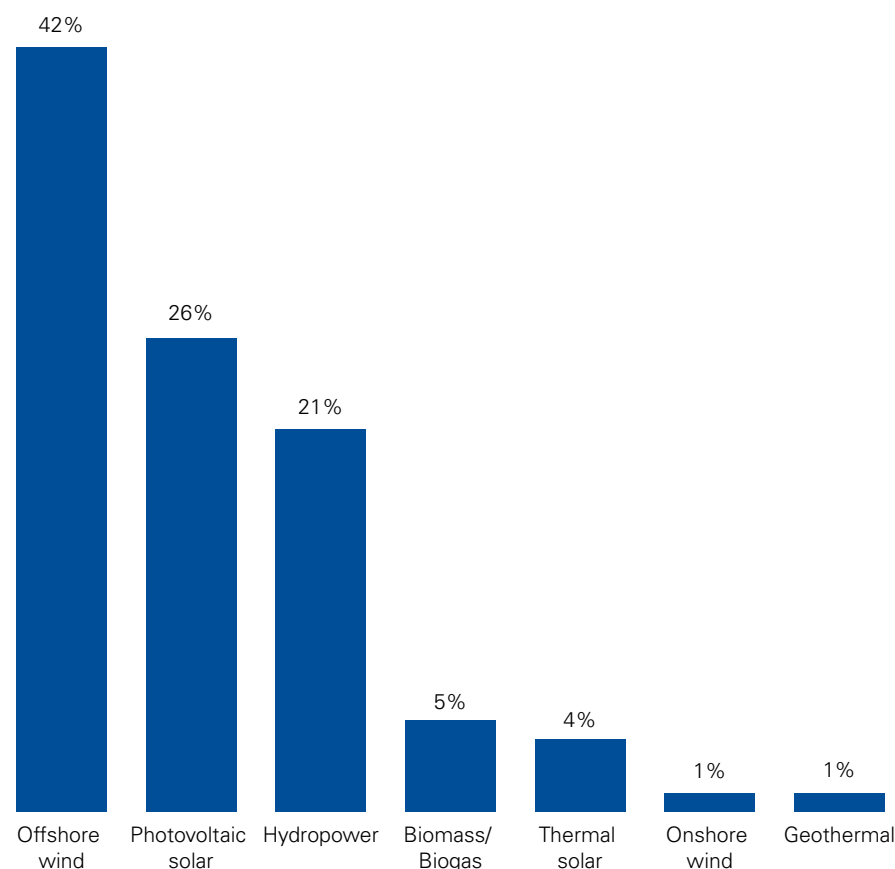
"Hydropower will continue to see a rise in M&A activity," argues the head of energy and commodities at a French bank. He argues that, when setting up a hydropower plant, businesses seek to bring expertise in specialized architecture, technology and engineering on board, which could trigger M&A activity, as businesses seek to bring that expertise on board.

Offshore outlook by region

Among the countries that respondents see as attracting the most investment in each of the three sub-sectors mentioned above, 53 percent say the UK is the top choice for offshore wind, followed by Germany at 28 percent. Just 2 percent of respondents see the US as the most appealing target for offshore wind investments.

Various factors are contributing to its popularity in Europe. In the UK, for

Which renewable sub-sector do you currently see as the most attractive?



Source: KPMG and Acuris survey

example, offshore project design and construction are appealing to investors, as the transmission cable and asset are built together, which is better for the overall quality of the project, according to Scholtz at KPMG in the UK; responsibility for the transmission line is with the transmission-system operator, not the owner of the generation asset.

In the US, meanwhile, the industry has been slow to take a foothold, despite the country's long stretches of suitable coastline. As of 2016,

there was only one American offshore wind farm in operation, Block Island Wind Farm off the coast of Rhode Island. Other projects are at various planning, approval and financing stages — such as the Principle Power WindFarm (a floating wind turbine), the Virginia Offshore Wind Technology Advancement Project (VOWTAP) and Deepwater One South Fork (built by the same company behind Block Island) — but many have been delayed or abandoned over the years due to politics and bureaucratic obstacles.

²⁶ Hydropower: World Energy Resources 2016. World Energy Council. October 2016. https://www.worldenergy.org/wp-content/uploads/2017/03/WEResources_Hydropower_2016.pdf

²⁷ Ibid.

The size of coastal populations in the United States should make offshore wind an appealing option, but the cost of installing generation out in the ocean, overcoming permit obstacles, and a lack of enthusiasm on the part of the public and politicians alike mean it hasn't progressed, according to Henry Berling, KPMG in the US.

"I do think it will happen, but it's going to be longer and slower," he adds.

Solar prospects

Solar PV is undergoing something of a renaissance, particularly in Germany, according to KPMG in Germany's Annette Schmitt: "There wasn't a very favorable subsidy regime for large-scale solar PV in Germany for a long time.

It was mostly smaller-scale rooftop installations. Now, with the transition from FITs to an auction-based support regime, larger-scale projects are coming back and, contrary to onshore wind, there are still many sites where larger solar PV can be put into operation."

"Germany has been leading the implementation and production of solar energy," says the M&A director of a US-based independent power producer. "They have been able to roll out some of the biggest solar energy projects in the past 5 years. I consider Germany an attractive destination for investing in this form of renewables."

The survey findings back this up: nearly a third (32 percent) of respondents see Germany attracting the most investment in the near future.

China, meanwhile, is attracting investors in solar through sheer scale. In 2009, it introduced its Golden Sun program, which subsidized solar power plant installations across the country. By

2016, 34.5GW of photovoltaic capacity had been installed, more than twice the US total.²⁸ By the end of the country's 13th Five-Year Plan (2016–2020), the NEA has set a solar PV target of 190GW to 200GW — having already exceeded its original 2020 solar power target of 105GW by mid-2017. "China is leading the world in renewable energy production," says the finance director of a French independent power producer. "Having generated the most energy through solar PV fields, China will continue to attract investment."

With 21 percent of respondents citing China as the most attractive for investors interested in solar energy, it's likely this trend will continue for some time to come.

Given Australia's enormous solar potential, the country's low ranking is surprising — only 1 percent of respondents chose Australia, though Germany and China's dominance in this area skews the results somewhat. But the outlook is positive, says Danilovich at KPMG Australia: "We have experienced a massive increase in the development of utility-scale solar PV farms in Australia this year, creating opportunities for investors and financiers. Strong investment in the sector is expected to continue in 2018. Solar PV is very interesting to Australian investors and to international investors operating in the Australian market."

Hydropower horizons

As with solar, the scale of China's hydropower activity is a powerful lure: in 2016, it commissioned more new capacity than any other country. China is placing increased emphasis on pumped storage schemes to

“We have experienced a massive increase in the development of utility-scale solar PV farms in Australia this year, creating opportunities for investors and financiers. Strong investment in the sector is expected to continue in 2018.”

Dmitry Danilovich
KPMG Australia

²⁸ "Snapshot of Global Photovoltaic Markets." IEA Photovoltaic Power Systems Programme (PVPS). 2016. iea-pvps.org/fileadmin/dam/public/report/statistics/IEA-PVPS_-_A_Snapshot_of_Global_PV_-_1992-2016__1_.pdf

For offshore wind, photovoltaic solar and hydropower, which country do you see as the most attractive for investing in renewables?



Source: KPMG and Acuris survey

make the most of variable output from renewables such as wind and solar. China's 13th Five-Year Plan on hydropower development (2016–2020) envisages a near doubling of pumped hydro storage by 2020, with total installed hydropower capacity reaching 380GW, of which 40GW is pumped hydro. According to the IEA, "380GW of hydropower capacity will be generating ca1.25TWh of power, which is equivalent to 50 percent of national non-fossil energy consumption."²⁹

"The hydropower units being set up in China are huge. These units are sure to attract more attention in the next 12 to 18 months in terms of investment," says the senior vice president of a US-based utility.

Brazil is also pulling in investors — as already noted, it has the largest hydro resources in South America. Despite 2 years of recession, Brazil added 9,526MW to its national electricity grid in 2016, 55 percent of which comes from hydropower.³⁰

"Brazil is home to one of the world's largest hydropower plants (the Itaipu Dam)³¹ and the target it has set over the next 8 years and the pace of hydroelectricity development is quite significant," says the finance director of an American oil and gas company.

Battery storage

Large, grid-scale battery systems are vital to the future of renewables because they make it possible to store surplus energy and create sustainable power supply from inconsistent and varied sources. Currently, for example, the lack of efficient and effective electricity storage systems means

wind turbines have to be turned off when demand drops, or when the grid becomes overloaded. Batteries would allow renewable energy projects to act more like conventional power stations, with the option to provide a constant output if required.

Australia is already taking this approach to cope with ongoing energy supply issues. For example, Tesla is building the world's largest lithium ion battery (100MW/129MWh) in South Australia, to be paired with Neoen's Hornsdale Wind Farm.³² The battery will provide stability services for the wind farm, providing emergency backup power if a shortfall is predicted.

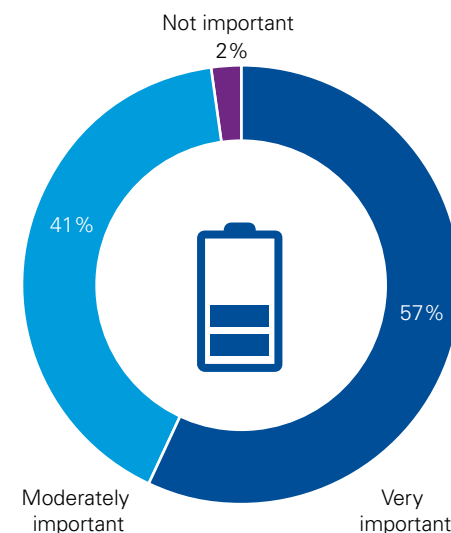
In October 2017, Australian renewable energy company, Windlab, announced that it was working with Danish battery storage experts Vestas to create "the world's first utility-scale, on-grid wind, solar and battery energy storage project".³³ This will provide a consistent supply of electricity that will help meet power demand in Australia. As Clive Turton, president of Vestas Asia Pacific said at the time, "Hybrid solutions combining wind, solar and storage hold a huge potential for Australia."

"Battery storage is a game-changer," says the managing director of an Australian bank. "It's the next step towards using clean energy efficiently."

When considering an investment in future renewable energy projects, 98 percent of respondents say the inclusion of battery storage is important, including 57 percent who find it very important.

Regulatory and contractual considerations add to the complexity. Although the idea of hooking up a wind or solar farm to battery storage is sound in theory, the ability to

How important is the inclusion of battery storage capabilities when considering investing in future renewable energy projects?



Source: KPMG and Acuris survey

store energy and sell it on may be subject to limitations imposed by energy offtake contracts, subsidy mechanisms and financing agreements.

"Battery storage is costly to add to projects and the additional burden of inefficiency exists. I believe it will take a little more than a decade to achieve the goals we've set today," says the investment director of a Japanese fund.

Asked when they believe renewable projects with battery storage will start to deliver uninterrupted energy at grid parity, 31 percent of respondents think it will be 5 to 6 years. However, a significant proportion — 38 percent — believes that grid parity is between 9 and 16 years away.

²⁹ China 13th Hydropower Development Five Year Plan (2016–2020). IEA. 21 February 2017. <https://www.iea.org/policiesandmeasures/pams/china/name-161188-en.php>

³⁰ Profile on Brazil. Op cit.

³¹ "Itaipu Binacional". International Hydropower Association. <https://www.hydropower.org/companies/itaipu-binacional>

³² "Hornsdale will host world's biggest Li-Ion Battery," Hornsdale Wind Farm. 18 August 2017. <https://hornsdalewindfarm.com.au/hornsdale-will-host-worlds-biggest-li-ion-battery/>

³³ "Windlab and Vestas partner on the world's first utility-scale hybrid integrating wind, solar and storage." Vestas. 19 October 2017. <https://www.vestas.com/en/media/company-news?l=30&n=1630749#!NewsView>

Hydrogen

Like battery storage, hydrogen offers another way to make the most of electricity that might otherwise be wasted, through 'power-to-gas' technology. The key is electrolysis, the process by which water molecules are split into hydrogen and oxygen using electricity. Converting electricity to hydrogen (or, in an additional step, to methane), means the gas can be used as a substitute for natural gas or other fossil fuels. Hydrogen has an extremely high energy density, emits no CO₂ when burned and, unlike electricity, can be stored indefinitely.

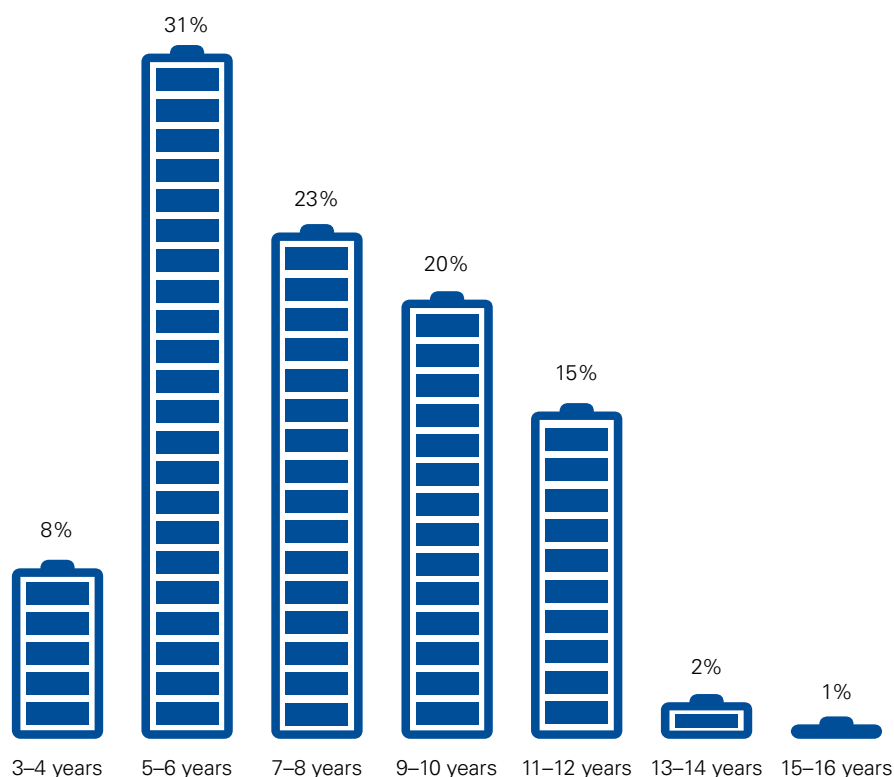
Nearly three-quarters of respondents (74 percent) believe hydrogen will be a significant enabler for the advancement of renewable energy.

"Given the properties of hydrogen and the fact that it can be stored longer, it is a very big step towards the sustainability of renewable energy. Hydrogen will be a major contributor in future," says the strategy head of an Austrian utility.

Power-to-gas has been a huge movement in Germany over the last few years. In Falkenhagen, for example, Uniper Energy Storage has constructed "the world's first demonstration plant for storing wind energy in the natural gas grid".³⁴ According to Uniper, electrolysis generates approximately 360Nm³/h of hydrogen and is fed into the gas grid operated by ONTRAS Gastransport GmbH via a 1.6km hydrogen pipeline — "In this way, the energy is available to the electricity, heating, mobility and industrial market as and when required."

Annette Schmitt at KPMG in Germany argues that governments need to pay more attention to hydrogen's potential: "The trend is towards electrification of the heating and transport sectors, but the storage of excess electricity through methane in the existing gas grid is largely overlooked in policy making."

When do you believe renewable projects with battery storage will be able to deliver uninterrupted energy at grid parity*?



*Generating power at a cost that is less than or equal to the price of purchasing power from the electricity grid

Source: KPMG and Acuris survey

Renewable energy aggregators

Renewable energy aggregators have emerged in response to the increasing fragmentation of power generation, particularly in California, where regulators have been trying to open up the power sector to give consumers greater choice.³⁵

While still very new, aggregators provide centralized management of supply and demand. This is achieved by coordinating power generation (from sources such as wind farms and solar installations), consumption (commercial and domestic) and storage (such as batteries). Demand and supply are monitored and dispatched by the aggregator, so the grid is kept in balance.

Networks of this kind — known variously as virtual power plants (VPPs) — are built around the latest advances in technology, from the cloud to smart appliances. Renewable energy aggregators typically do not own any generating assets.

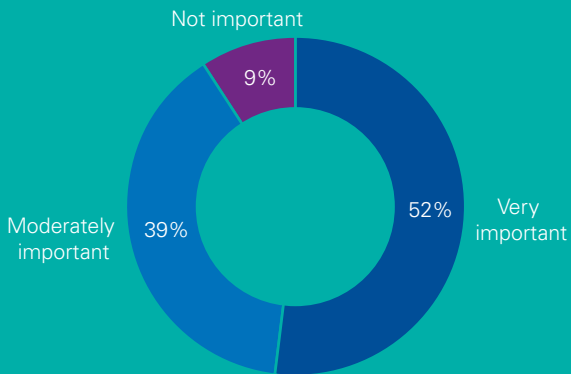
"Renewable energy aggregators help to increase the value of energy projects and will improve the outcome of these projects in the next few years," says the partner of a UK-based fund.

"Aggregators are already showing signs of importance," adds the strategy head of a German oil and gas company. "But it will take a little longer for them to turn out to be an integral part of the energy market. Conventional sources of energy still dominate and renewables will take 3 to 4 years to consume a larger percentage of the energy sector."

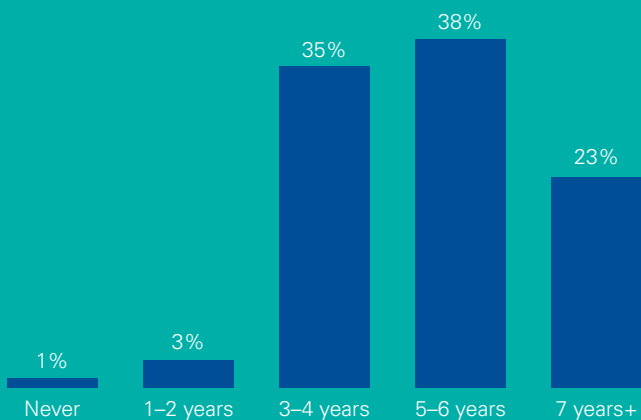
³⁴ "Power to Gas: Our contribution to the energy transition." Uniper. <https://www.uniper.energy/storage/what-we-do/power-to-gas>

³⁵ "As California Mulls Retail Electricity Choice, Utilities Are Losing Customers in Droves." GTM. 17 May 2017. <https://www.greentechmedia.com/articles/read/california-utilities-are-losing-customers-in-droves#gs.Lmd4MLo>

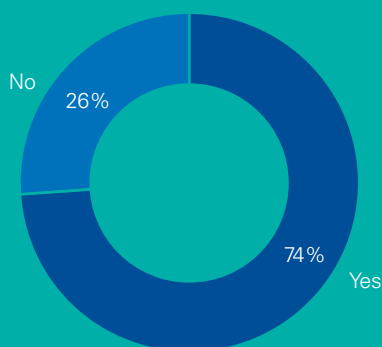
How important do you think renewable energy aggregators will be in facilitating investment in renewable energy projects?



How long do you think it will be before renewable energy aggregators account for a significant part of the renewable energy market?



Do you believe that hydrogen will be a significant enabler for the advancement of renewable energy?



Source: KPMG and Acuris survey

Overall, 91 percent of respondents say renewable energy aggregators will be important in facilitating investment in renewable energy projects, with just over half (52 percent) saying they will be very important. Nearly three-quarters (73 percent) of respondents say renewable energy aggregators will be a significant part of the market in the next 3 to 6 years.

Another area of technology that respondents believe will impact the renewable energy market is smart grids, which use real-time digital communications to coordinate supply and demand. As we shift from centralized power plants to decentralized generation, existing grids will struggle with the number of feed-ins. Trying to integrate renewable sources at medium- and low-voltage levels with inconsistent output will add to the complications.

Smart grids will provide consistent and secure supply, allowing energy providers to improve performance and to oversee operations while getting the most from their assets, attracting investment from electricity companies and investors alike.

“Smart grid technologies are changing the renewable energy sector,” says the director of investment with a UK-based fund. “Newer grids have increased the efficiency of overall energy systems and have helped reduce costs for companies. These technologies have allowed the smooth and effective transfer of energy, and are gaining in importance. Their development has prompted further growth and development of renewable technologies.”



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Chapter 4

Policy matters

Investors will always look to local policy to influence their decisions, which puts pressure on governments to make their policy as appealing as possible. Germany is the developed nation offering the most favorable renewable energy policies, but what lessons does it offer countries where policies aren't keeping up with the pace of change?



Key messages

- 01 For 60 percent of respondents, Germany's policies are the most favorable among advanced economies for investment in renewables.** This places Germany ahead of other countries by a wide margin, with the UK — which comes in second — cited by only 23 percent.
- 02 The US is the country with the least favorable policies among advanced economies for promoting investment in renewable energy, according to 43 percent of respondents.** This should come as no surprise, given the current administration's recent actions, such as withdrawal from the Paris Agreement.
- 03 According to 41 percent of respondents, subsidies are the most important measure for driving investment in renewables.** Both tax incentives (32 percent) and direct investment (27 percent) were also highlighted.

Germany is the clear winner among advanced economies when it comes to promoting investment in renewable energy, according to 60 percent of respondents.

“The German government and its long-term support for renewables is what got them where they are today,” says the finance director of an Indian utility. “In this sector, it’s extremely important to have government support and Germany has that.”

Germany has supported renewable technologies through its *Energiewende* policy framework for more than 7 years. However, KPMG in Germany’s Annette Schmitt says that investors should take heed of the changing subsidy landscape: “Strike prices and tenders across all technologies are coming down, so it is a much tougher market these days. Everyone who is playing in the German market, or wants to play in the German market, has to think about how to respond.”

The UK’s policy regarding renewables has faced significant challenges in recent years, from changes in government to currency pressures following the EU referendum, but for the most part it has been driven by economics.

For example, the government’s Clean Growth Strategy, unveiled in October 2017, “sets out proposals for decarbonizing all sectors of the UK economy through the 2020s” and “how the whole country can benefit from low carbon opportunities, while meeting national and international commitments to tackle climate change.”³⁶

This approach has already produced solid returns for renewables in the

UK. Offshore wind costs, for example, have halved, reaching GBP58 for every megawatt-hour of electricity produced according to the latest auction for support contracts. This lowers costs to the consumers supporting those contracts via their energy bills and opens the door to more investment.

The Clean Growth Strategy also allocates GBP557 million in funds for the next auctions for less-established renewable electricity projects, no doubt hoping to duplicate the success of offshore.

From an investor perspective, this is all good news, aligning business opportunities with renewable development — and the survey reflects this, with 23 percent of respondents saying the UK is the advanced economy with the most favorable policies after Germany.

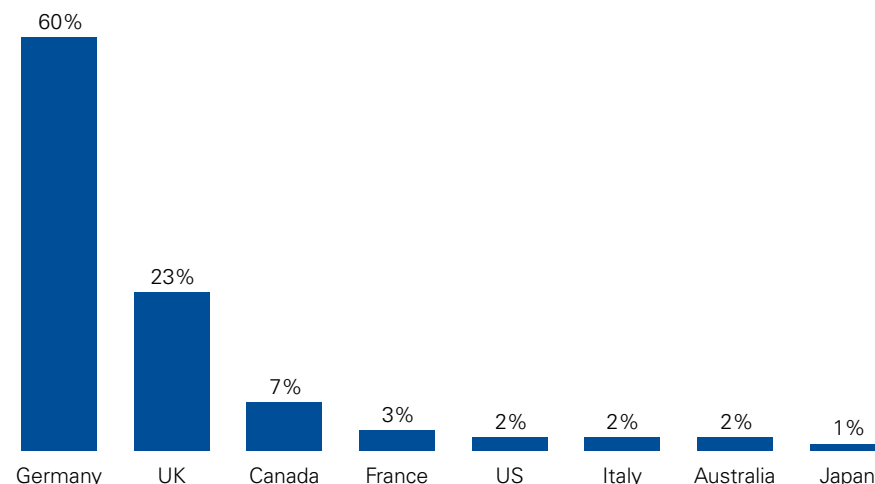
Canada is flagged as having renewable-friendly investment policies by just

7 percent of respondents but this could rise as the country continues to update its renewable energy policy.

“Canada has considered making itself a sustainable nation in the future,” says the strategy head of a German oil and gas company. “The decision has strong backing from the current political leadership, which has made a serious effort to transform their power generation and consumption by laying down a very supportive policy framework.”

France, while fourth on the survey’s favorable policy list, was cited by only 3 percent of respondents. Regulatory watersheds — such as authorization hurdles and the length of the development periods — may be a factor, according to KPMG in France’s Charles Abbey: “French authorities have provided consistent support to the development of renewables but certain regulatory hurdles have slowed

Which of these advanced economies has adopted the most favorable policies for promoting investment in renewable energy?



Source: KPMG and Acuris survey

³⁶ Clean Growth Strategy. UK Department for Business, Energy & Industrial Strategy. 12 October 2017. <https://www.gov.uk/government/publications/clean-growth-strategy>

down the development of renewables compared to Germany and the UK. But now, with climate change matters high on the agenda of the new government, there are encouraging and renewed commitments: refreshed commitment to solar with regular upcoming 500MW biannual tenders; the offshore wind sector nearing the end of development phase with construction of first the GW getting closer; installed onshore wind capacity almost reaching 12GW; interesting initiatives on the floating offshore segment; and real potential for biomass from agricultural waste.”

Policy obstacles

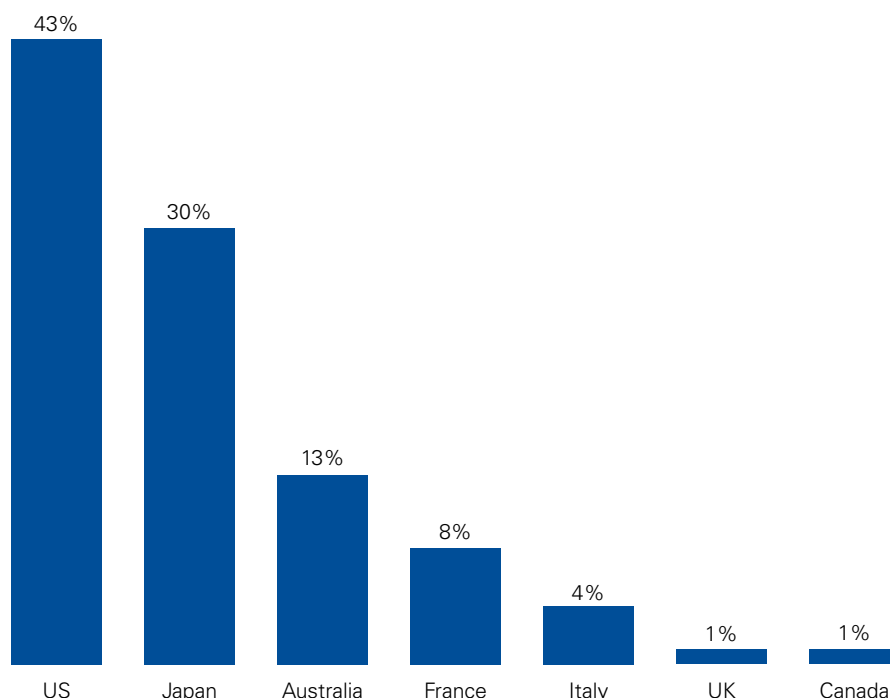
The US has the least favorable policies among advanced economies for promoting investment in renewable energy, according to 43 percent of respondents. Japan is highlighted as unfavorable by 30 percent, while 13 percent point to Australia and 8 percent say France.

“The US has blocked progress of companies expanding in renewable energy by blocking the development of different programs. Projects that were operational were stopped and the tax benefits provided by the government were reduced. This has stalled the growth of renewable energy,” says the chief corporate development officer of a US-based renewable developer.

Japan — which introduced a FIT system to encourage renewable generation in the wake of the Fukushima nuclear disaster — is also one of the countries highlighted as having the least favorable policies for promoting investment.

The principal of a Hong Kong-based fund says: “Japan is slowly targeting renewables, but it has not completely taken the steps to make capital available for the development of these renewable energies. There is a need to invest in the development of new

Which of these advanced economies has the least favorable policies for promoting investment in renewable energy?



Source: KPMG and Acuris survey

“The industry, the federal government and most market participants in Australia are all of the view that we need a nationwide energy policy that brings together federal and state requirements.”

Ted Surette, KPMG Australia



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the energy industry
from Ted Surette by visiting kpmg.com/energy.

fields and investors need to be given incentives to push up the development and production of renewables.”

Another country considered to have unstable energy policies is Australia: “The current lack of long-term policy certainty is the biggest blocker,” says Ted Surette, a partner with KPMG Australia. “There have been multiple changes in policy over the past 10 to 15 years. The industry, the federal government and most market participants in Australia are all of the view that we need a nationwide energy policy that brings together federal and state requirements. This is the number one issue facing the country right now.”

Investment drivers

Which pro-renewable government policies are most effective? According to respondents, 41 percent say subsidies are the most important measure for driving investment in the sector, 32 percent cite tax incentives while 27 percent favor direct investment.

“Subsidies give companies the initial boost to develop and grow and they increase the value of a deal, which is beneficial in attracting investors to a project,” says the chief corporate development officer of a US-based renewable developer. “By giving grants, the government can provide companies with the capital backing they need to expand and invest in renewables. The cost of renewable energy is high and companies need capital to help them acquire renewable assets.”

Climate discord?

The decision by the current US administration to withdraw from the 2015 Paris Climate Agreement has produced a mixed reaction in terms of respondents' appetite for acquisitions.

“Although America is the second largest market for renewable energy, its withdrawal from the Paris Agreement and a few changes in its policy for renewables has had no major impact on M&A activity in the country,” says the executive director of a China-based independent power producer. “The renewable energy sector is huge and that wouldn't cause any setback to our interest in the US market.”

However, the CFO of a German renewable developer is less sanguine: “The message that was conveyed was that the US won't be backing up renewable energy. That's a concern for us, as we have already invested in the US and this affects our acquisition plans that we had for the US.”

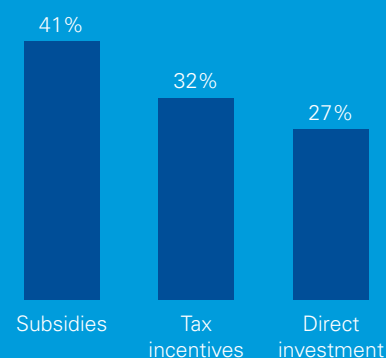
More than half of respondents (54 percent) say it has had no effect, while 41 percent report that they have moderately less appetite for acquisitions. Only 5 percent say they have substantially less appetite.

Under the hammer

According to 40 percent of respondents, the most important impact of the current transition towards auction-based support regimes and away from FITs is an increased risk that certain projects with low prices are never built. Twenty-one percent of respondents say this will prompt even more consolidation among developers in the sector, while 19 percent say a continuous decrease in strike price is most important.

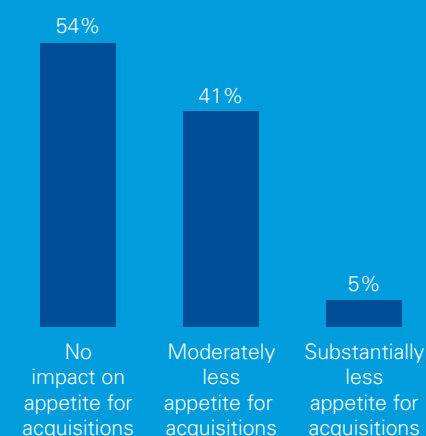
“The transition to an auction-based support regime is a problem because it puts risks on certain projects with very low prices,” says the chief investment officer of a UK-based fund. “This may result in these assets not being built, which is a problem, because it affects growth overall. It also places supply chain risks on companies transferring

Which of the following government policies is most important for driving investment into renewable energy?



Source: KPMG and Acuris survey

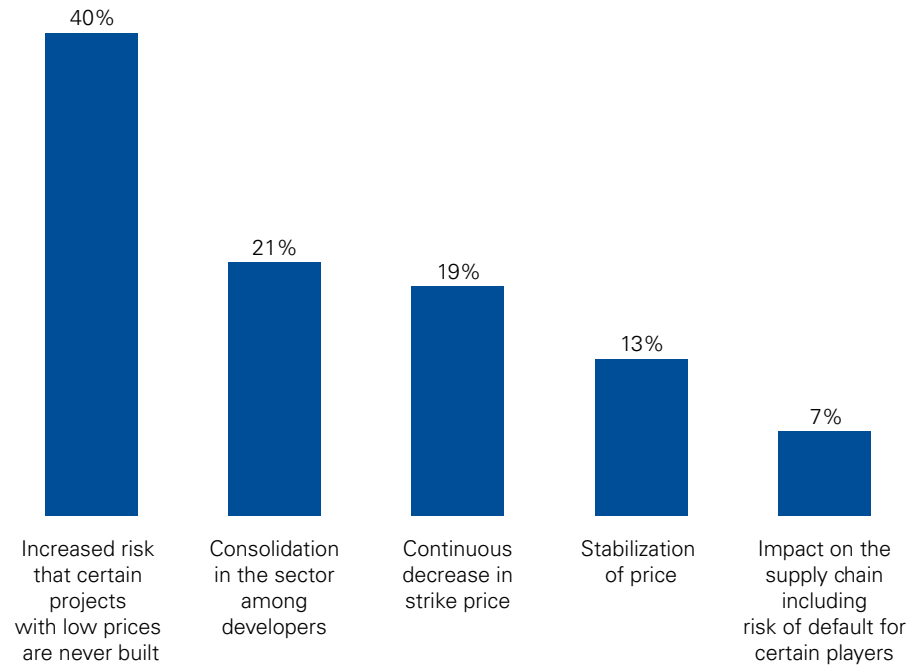
How has US withdrawal from the Paris Agreement affected your appetite to make acquisitions in renewable energy?



Source: KPMG and Acuris survey



In your view, what will be the most important impact of the current transition towards auction-based support regimes from FITs?



Source: KPMG and Acuris survey

energy, leading to lower earnings and in some cases even losses.”

The consolidation predicted by more than one in five respondents is seen as positive by some but for others this generates more uncertainty: “The transition is not any easy one and has led to consolidation among developers because they have been hard hit: generating profits for them has become difficult and getting access to capital is tough. This has forced developers to work together to reduce costs. It has also increased risks for projects that are about to be completed or must be started,” says the CEO of a German renewables developer.

The prospect of a continuous decrease in strike price is also a concern. The executive vice president of a French independent power producer points out that “the reduced strike price is good for investors but is proving to be bad for companies like ours, which depend on these schemes to raise capital on our behalf.” He adds that there is also a certain amount of risk for players in the distribution of technologies.

Conclusion

Overall, we foresee a very active M&A market in renewables for years to come especially as the level of renewable assets to be built will increase substantially as the transition to a low carbon economy accelerates. It should not be assumed, however, that the current trend of ever-decreasing cost of capital will continue as any upward

movement in the global interest rate environment would adversely impact this. Also, notwithstanding the competitive environment for assets, investors do need to recognize that there are some risks associated with renewable assets which do need to be evaluated in the context of any acquisition. Otherwise, the industry will suffer if investors ever start to

lose confidence in the asset class. We have seen this happen in the past in some countries where unanticipated legislative changes have threatened the predictability of future cash flows. Overall, though, we expect a thriving M&A market in 2018 and beyond.



About KPMG's Energy and Natural Resource practice

Businesses today are under more pressure than ever to deliver better and more sustainable results for stakeholders. At KPMG, our professionals think like an investor, looking at how opportunities to buy, sell, partner, fund or fix a company can help preserve and enhance value.

Today's deals do not happen in a vacuum. From your business to acquisition strategy, your plans for divestments or for raising funds, or even your need to restructure, every decision must be made in the light of your entire business, your sector and the global economy.

Our teams of specialists across member firms combine a global mindset and local experience with deep sector knowledge and analytic tools to help you navigate a complex, fragmented process. From helping to plan and implement strategic change to

measurably increasing portfolio value, our teams focus on delivering tangible results. The kind of results that let you clearly see what you gained from the deal at hand, and what you want to bring to the next deal down the road.

In relation to renewable energy, we are extremely committed to doing our part in making a low carbon future a reality. We are working with all participants across the renewable spectrum including developers, investors, governments and utilities.

A key part of our work is to help our clients design and implement innovative solutions to the many challenges and opportunities that this market sector brings. Also, we are actively involved with policy makers across the world in helping them to create the market environment necessary to action these objectives.

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Charles focuses on the energy and infrastructure sectors and has been advising clients in the clean energy and renewable sectors for more than 15 years, about their financial due diligence in the context of financing, acquisition, disposal, refinancing, etc. In France Charles has been involved in transactions across the spectrum of technologies, onshore and offshore wind, solar, biomass and cleantech (smart grid, demand management, aggregation etc.). Charles is part of the Paris-based Francophone Africa Hub and advises clients investing in Africa.



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Henry joined KPMG in August 2015 as a managing director in the Corporate Finance practice. Prior to KPMG, Henry worked with a middle-market investment banking firm focused on the energy sector and was instrumental in building the firm's energy investment banking effort, an advisory practice focused on developers of renewable and distributed energy projects, and providers of products and services to the oil and gas sector. Henry previously worked for KPMG as a supervising senior tax consultant in the financial services area in Richmond, Virginia.



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Valérie is leading the energy and utilities sector within KPMG in France. She has been advising our clients in this sector for more than 10 years. Her primary focus is the audit of large energy and utilities companies. Besides audit, Valérie has advised her clients in areas such as financial due diligence, GAAP conversions, carve-outs, IPOs and internal control reviews. Currently, Valérie specializes in French listed clients.



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Dmitry has over 20 years of experience in the Australian energy sector having advised developers of energy projects and investors on feasibility studies, project development and financing, acquisitions and investments. Dmitry has extensive experience in energy procurement and has advised electricity retailers and large energy users on Power Purchase Agreements for electricity and Large-scale Generation Certificates. These included power supply to mining and resource operations, manufacturing facilities, port and rail, desalination plant, public transport, hospitals, and office buildings. He is a Fellow of the Australian Institute of Energy.



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Mike advises clients in the renewable energy, infrastructure and asset management sectors (principally alternative investments). Mike works with global institutional investor's independent utilities and investment funds across the full spectrum of renewable assets. He has advised on transactions in over 30 jurisdictions globally. He is involved in helping to develop policy in the renewable energy industry at a national and at an EU level. Also a key area of focus for Mike is working with global corporations who wish to transition to low carbon solutions particularly for their own energy needs. Mike has recently become Global Leader of Renewables at KPMG in Ireland.



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Eric is the signing partner of French listed companies in energy and aviation. Most of the time, he travels on a regular basis in Africa, Asia and Eastern Europe to assist his clients. During a 2 year experience with Deal Advisory, Eric performed several purchase due diligence and conducted IPO in the Energy sector. As the Global Lead Partner of significant renewable energy developers and producers located in France and abroad, Eric has gained a deep knowledge and vision of the renewable market in France, South America and Eastern Europe.



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Annette's focus is on M&A transactions in the energy and renewables sector. With more than 20 years' experience, she is advising utility clients as well as inbound investors on investments across the energy sector value chain, with a specific focus on offshore and onshore wind. Annette leads the energy M&A sector team in KPMG in Germany.



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Focusing on the renewables and low carbon sector for 12 years, Adrian advises major utilities, new entrants, financial institutions and independent developers across the spectrum of technologies and business activities (development, construction, asset value optimization and asset management). Adrian maintains a high profile across the European renewables sector, attending and speaking at a range of events and preparing analysis materials for key clients.



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Oscar has over 15 years of professional experience, of which he has dedicated 10 exclusively to advising investors in their establishment process in Mexico and other countries, in projects in sectors such as automotive, pharmaceutical, telecommunications, IT, chemical, and oil and gas, among others. Oscar focuses on M&A strategy projects, market entry projects, market and macroeconomic analysis, and commercial due diligence for financial and strategic buyers. He has participated in international projects with teams from the United States, Latin America, Asia and Europe.



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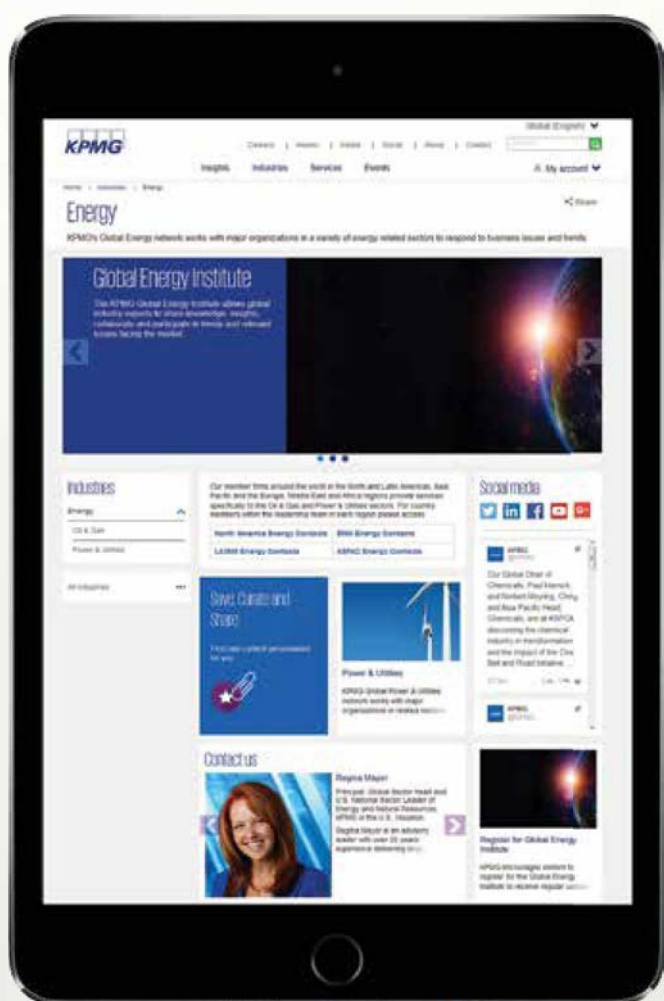
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In his role as Industry Leader, Energy & Natural Resources, Ted is sought after for his skilled adaptation of knowledge from one sector to help find solutions to complex challenges in another, technology acumen and collaborative working style. Bringing corporate sector operation processes to the government-led reforms to the power and utilities sector is one example of how Ted strives to add value and learning to every project he's involved with. Understanding the client's needs and knowledge gaps, as well as their end goals, shapes his approach to building a project team. It also guides his work when assisting other areas of KPMG involved in a client's project.

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