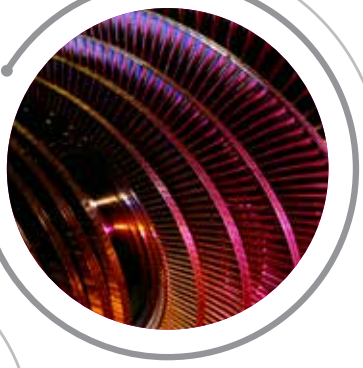
Power transactions and trends

Q4 2017

EY

Building a better working world

Contents



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Overview

Will 2018 mark the start of a new era in energy investment?

Chart 1: Global P&U deal value and volume by segment
(announced asset and corporate-level deals, 2013–17)

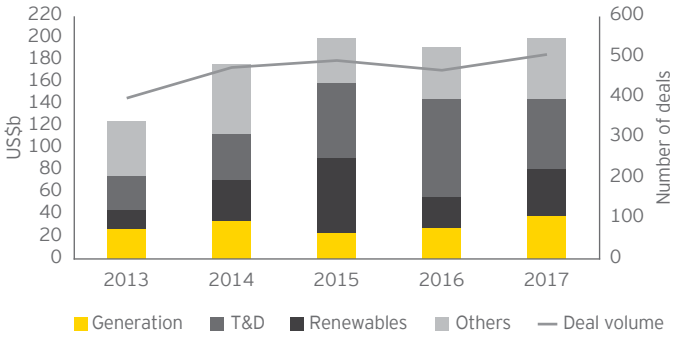
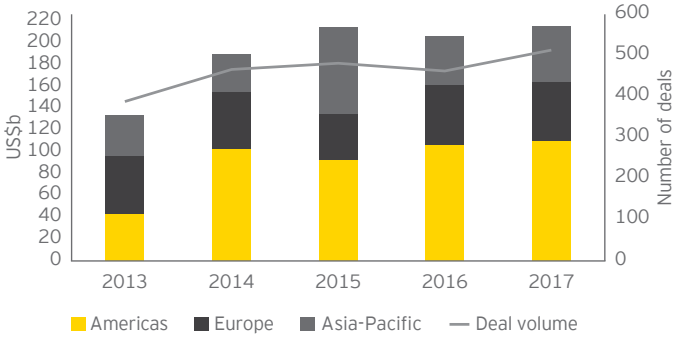


Chart 2: Global P&U deal value and volume by region
(announced asset and corporate-level deals, 2013–17)



Source: EY analysis based on Mergermarket data.

2017 was another stellar year for mergers and acquisitions (M&A) in the global power and utilities (P&U) sector. Deals hit an eight-year high in terms of both value (US$200.2b) and volume (516).

Key figures:

- US$63.3b deal value in networks
- US$55.1b deal value in "others," including integrated and water and wastewater
- US$42.8b deal value in renewables
- US$39b deal value in generation
- 35 multibillion-dollar transactions, contributing 77% of total deal value
- 10% increase in deal volume from 2016 driven by a 28% rise in renewable energy deals
- Corporate buyers invested 1.6x more than financial investors

The year's investment agenda was dominated by several themes:

Buyers favor safe investments with long-term stable returns

In a global marketplace with low (but increasing) interest rates and excess capital, investors continued to look to yield investments delivering long-term stable returns. Transmission and distribution (T&D) and integrated assets attracted US$100.3b (50.1%) of total deal value in 2017, with US$57.8b of these deals in the Americas (58% of total deal value for that region), US$25.6b in Asia-Pacific (26% of total deal value) and US$16.9b in Europe (17% of total deal value). Corporate investors were the dominant buyers of these assets, investing US$82.7b, or 82%, of total deal value.

Renewable energy assets backed by a power purchase agreement (PPA) also attracted buyers, and investment in renewables increased 1.5x in 2017. Most value was contributed by European deals (US$15.1b), followed by those in the Americas (US$14.2b) and Asia-Pacific (US$13.5b). Financial investors invested 65% (US$27.9b) of total deal value.

Consolidation and acquisition of independent power producers (IPPs) drove up deal value

Market fundamentals no longer support highly leveraged IPPs, and 2017 saw the re-emergence of M&A activity involving these assets. The trend was particularly strong in Europe and the US, where deals involving these assets grew from US$15.2b in 2016 to US$33b in 2017. Many of these deals centered on reducing the debt of distressed IPPs and capturing the value of operational synergies.

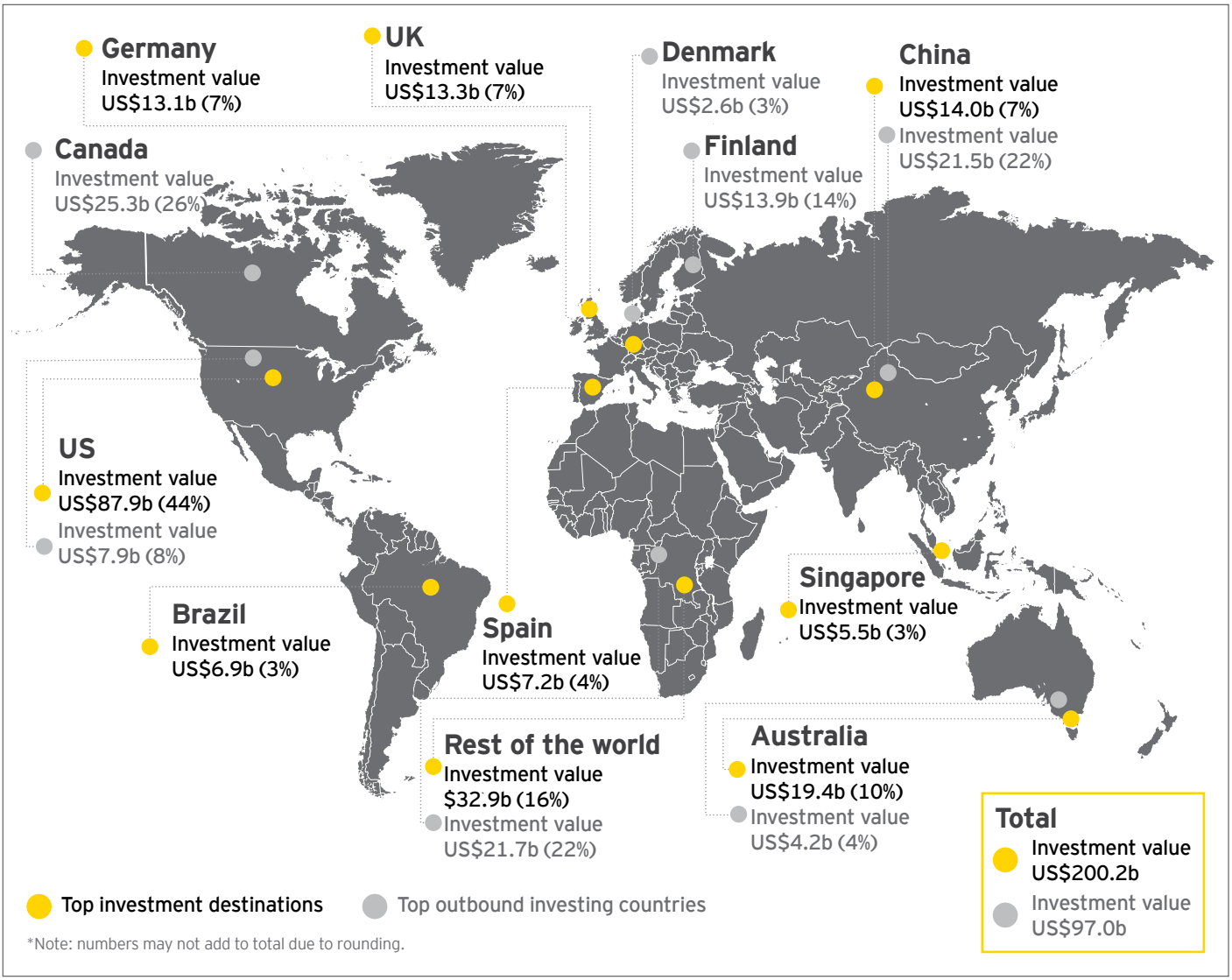
US$200.2b
deal value – an eight-year high

US$63.3b
T&D deal value,
31.6% of total

The US attracted the most global investment, while Canada and China looked overseas

The US was the top investment destination, attracting US$87.9b; however, 73% was domestic investment. Canada and China were the top outbound investment regions, investing $25.3b and $21.5b overseas, respectively. Chinese activity was aligned to the country's "One Belt One Road" policy, while astute Canadian investors looked to geographical diversification for growth.

Image 1: Global investment flows inbound and outbound by country (2017)*



Outlook for 2018

Finding investment value this year will require a vigilant eye on how the market is tracking, particularly as business models shift and new ancillary services emerge. Read more about the rise of new energy paradigms in Matt Rennie's blog.

A rebounding global economy, tightening capital markets and evolving energy ecosystem set the scene for what promises to be an interesting P&U investment environment in 2018.

Interest rate increases may dampen investment in networks

Low interest rates in recent years created a highly contested market for network assets that promised investors safe, stable returns. Now,

interest rates are rising, and demand for these assets is beginning to waver. 2017 deal value in T&D decreased 29%, making it the only segment to record an overall decline in deal value. Activity in these assets declined 53% in Europe and 37% in the Americas. Globally, T&D assets traded at an EV/EBITDA (enterprise value by earnings before interest, tax, depreciation and amortization) ratio of 11.2x, a 13% premium to the two-year forward ratio of 9.9x and an average P/E (price to earnings) ratio of 19.6x, a premium of 42% to the two-year forward ratio of 13.8x. These figures signal overvaluation in the segment. With US interest rates forecast to increase further over the next year — influencing global markets — we expect that investors will be cautious investing in assets that they consider overvalued and will look instead to growth markets for superior returns.

Emergence of a new generation paradigm

We are in the midst of a changing generation landscape, as global investment in coal-fired power recedes and renewable energy takes the spotlight. As the number of renewable projects has increased globally, so too has the pipeline, and we anticipate increasing blockages of projects as the PPA market tightens. Transactions in renewables should continue to grow, given ongoing global policy to support the segment; however, we expect a renewed focus will be placed on the economics of merchant generation.

As countries turn their backs on coal power, gas generation will become increasingly important to support system flexibility. In December, China introduced a policy to switch to gas from coal in a bid to reduce pollution. In July, ATCO and TransAlta, two utilities in Alberta, Canada, announced plans to switch to gas from coal by 2020 and 2022, respectively.

Investment in new technology to increase

2017 saw US$2.4b in deals in energy services and US$4b investment in technology and trading. In 2018, we'll start to see the market benefits of early investment in large-scale storage to support frequency response, which should help demonstrate the commercial business case for future investment. We expect to see regulators and network operators move to address market design issues, including reducing settlement periods to support increased investment in this space. The new Director of the UK System Operator at National Grid, Fintan Slye, expects market-based solutions will best address many of these issues. Read our full interview with Fintan on page 12.

In 2018, we expect to see an increased focus on digital in retail, with companies looking to acquire small innovative startups in this space. During the last two years, new energy-focused startups have raised US$746m of funding with US$253m of this focused specifically on energy services. Expect interest in this space to increase as retailers embrace a customer-focused, digitally enabled service offering. One energy retailer in Singapore, Red Dot Power, is leading the way by using a strong digital platform to create value for customers and reduce costs. Read more about Red Dot Power and CEO Vijay Sirse on page 20.

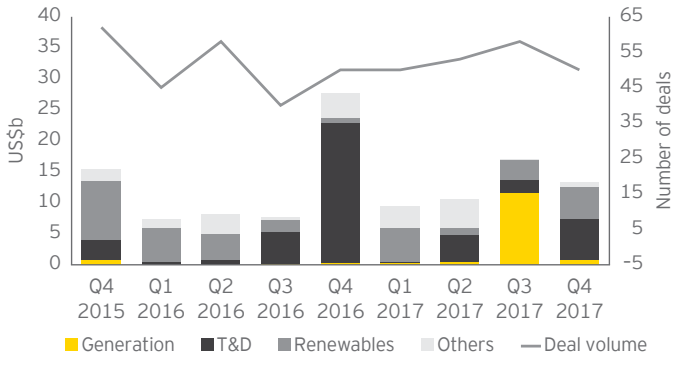
Europe

Investment in renewables and T&D sustains deal value

In Q4 2017, deal value in Europe's power and utilities (P&U) sector shifted back toward investment in transmission and distribution (T&D) and renewables, a trend that has persisted through the year. Although the quarter's deal value decreased 22% to US$13.3b, total yearly deal value reached US$50.3b, similar to that of 2016. Deal volume in 2017 increased 11% to 213.

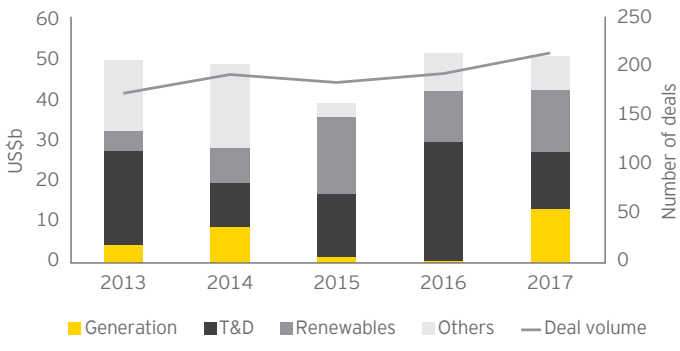
2017 was another difficult year for mergers and acquisitions (M&A) in the European sector as pool prices remained low and electricity demand stayed flat or even decreased against a backdrop of adequate supply. Of the total deal value of US$50.3b, renewables contributed 30% (120 deals), networks 27% (41 deals), generation 26% (17 deals) and the "others" segment (which includes integrated utilities) recorded 16% (35 deals). Most of the value in generation was contributed by one megadeal – the announced majority takeover of Uniper by Fortum in Q3. The deal closed in February 2018 with Fortum falling short

Chart 3: Europe deal value and volume, by segment
(announced asset and corporate-level deals, Q4 2015-Q4 2017)



Source: EY analysis based on Mergermarket data.

Chart 4: Europe deal value and volume, by segment
(announced asset and corporate-level deals, 2013-17)



Source: EY analysis based on Mergermarket data.

US$50.3b
deal value for 2017, down 1% from 2016

56%
of 2017 deals in renewables, totaling US$15.1b

of securing majority ownership but succeeding in acquiring 47.12% stake in Uniper, including E.ON's 46.65% stake valued at US$4.5b.

As earnings before interest, tax, depreciation and amortization (EBITDA) continued to decline, some of Europe's largest integrated utilities moved to transform their investment strategy and business models in 2017. For many, this transformation included increasing their investment in renewables and networks, while separating from or decreasing exposure to merchant conventional generation. This trend is reflected in Q4 deal value where US$6.2b, or 48%, of value was in distribution, US$1.1b or 9% in transmission, and US$5.1b, or 40%, in renewables.

More utilities are also positioning for growth in new energy. According to the European Commission's *Third Report on the State of the Energy Union* published in November, the region's energy sector is increasing its focus on adapting to new technologies, including the internet of things, artificial intelligence, energy storage, electro-mobility, decentralized energy generation and demand response. In May, Italy's Enel set up Enel X, an "e-solutions" division that aims to use new technologies to grow new solutions, increase innovation and improve the customer experience. We expect increased activity in this subsegment in 2018.

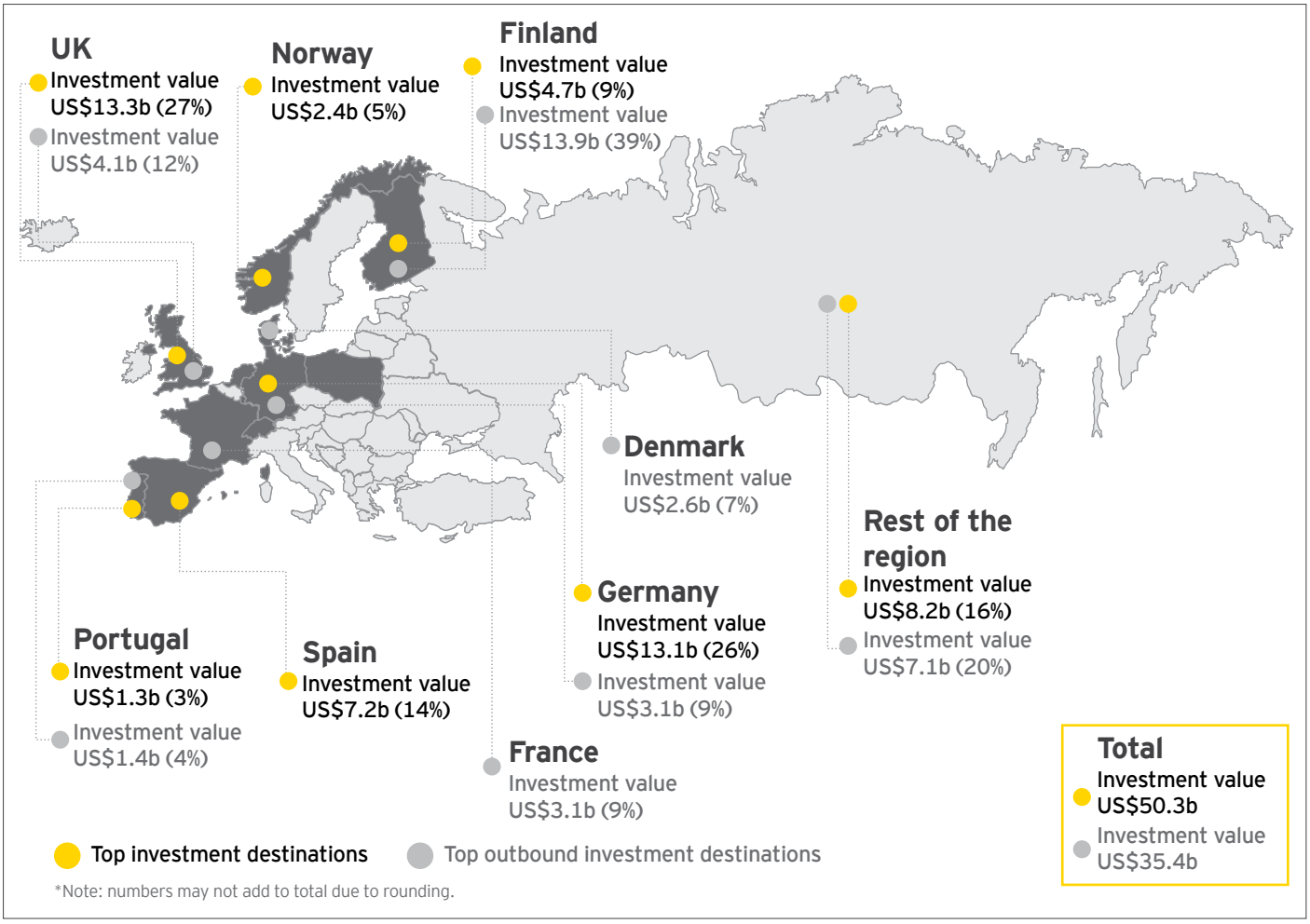
It's clear the stepping stones for sector transformation have been laid in Europe and, with new strategies in place, we expect the focus in 2018 to be on growing EBITDA. True recovery of the sector will depend on regional economic growth to boost electricity demand beyond the savings made through energy efficiency measures. Moderate economic growth is forecast for Europe in 2018, and we expect the outlook for the sector to remain stable.

2017 transactional highlights

- **Nuclear phaseout continues:** On 31 December 2017, Germany's Gundremmingen B nuclear plant closed, taking offline 1,284 MW of baseload capacity and continuing the country's planned nuclear phaseout by 2022. In May, Switzerland decided by referendum not to build any more nuclear power plants and to phase out five aging plants (no date has been set for closure) in favor of more renewables.
- **More investment in battery technology:** In April 2017, Enspire ME, a joint venture between Dutch gas and electricity T&D company Eneco and Japan's Mitsubishi, installed a 48 MW/50 MWh lithium-ion battery system in Germany to help regulate grid frequency amid growing use of wind and solar. In the UK in 2017, a total of 100 MW of commercial battery storage projects were installed.
- **Renewable assets remain at the top of the investment agenda:** In 2017, 120 renewable energy deals totaled US$15.1b and included two one-billion-dollar-plus transactions. This is an increase from 2016 where 93 deals contributed US$12.2b total deal value, representing growth of 28% and 24%, respectively. More than half of deal value was due to asset rotation as wind farm developers sought to free up capital by selling minority stakes in projects once they were operational.
- **Uniper deal leads a surge in generation investment:** In 2017, the number of deals in generation more than doubled to 17, with these transactions contributing 26% of total deal value. This is up from seven deals that contributed just 1% of total deal value in 2016. Much of the increase in value is due to the acquisition of Uniper shares by Fortum, a deal announced in Q3 and closed in February 2018.

Europe regional capital flows

Image 2: Investment activity in Europe by country, (2017)*



Top five Europe deals, Q4 2017

All deals are announced deals, and the values indicated are disclosed enterprise values comprising equity and debt components.

Announcement date	Target	Target country/ bidder country	Bidder	Deal value (US$)	Bidder rationale	Segment
13 December	Elenia Group	Finland/ Germany, Australia, Finland	Allianz Capital Partners GmbH; Macquarie Infrastructure and Real Assets; The State Pension Fund	4.7b	Aligns with bidder's strategy to build a diversified portfolio of infrastructure assets	T&D: electricity
31 October	Orsted (Walney Extension 659 MW offshore wind farm project) (50% stake)	UK/Denmark	PKA A/S (25% stake); PFA Pension ikringsaktieselskab AS (25% stake)	2.7b	Furthers PKA's strategy to invest in renewable energy assets for improved returns; represents PFA's largest single investment to date and heralds an expansion into green energy	Renewables: wind
13 October	Nedgia S.p.A.; Gas Natural Italia S.p.A.	Italy/Italy	2i Rete Gas SpA	0.9b	Strengthen 2i's expansion into central and southern Italy	T&D: gas
15 December	Sheringham Shoal Wind Farm (40% stake)	UK/UK	Equitix Limited	0.7b	Aligns with Equitix's strategy of investing in renewable energy assets	Renewables: wind
19 December	Dudgeon Offshore Wind Limited (30% stake)	UK/China	China Resources Power Holdings Co., Ltd (CRP)	0.7b	Fits with CRP's principal business and its long-term corporate strategy, while furthering the company's strategic focus on renewables	Renewables: wind

Sources: EY analysis based on Mergermarket data.

Valuations snapshot

The European P&U sector is trading at a two-year forward EV/EBITDA (enterprise value by earnings before interest, tax, depreciation and amortization) ratio of 8.4x, a 3% premium to the 2016 average of 8.1x and a 7% premium to the long-term average of 7.8x. The P/E (price to earnings) ratio in 2017 was 15.9x, a premium of 3% to the long-term average of 15.4x and an 18% premium to 2016.

T&D assets traded at a two-year forward EV/EBITDA ratio of 11.1x in Q4, representing premiums of 0.4% to Q3 and 14% to the long-term average of 9.7x. The two-year forward P/E ratio decreased to 14.1x from 14.2x in Q3 – still a 4% premium to the long-term average. This indicates an expected upside in the earnings of T&D utilities and continuing demand to acquire these assets. The US$623m acquisition of a 25% stake in the UK's Atlantica Yield represented a premium of 8.4% based on a closing share price of US$22.38 a day prior to the announcement.

Integrated utilities traded at a two-year forward EV/EBITDA average of 7.1x in Q4, representing premiums of 0.9% to Q3 and 5% to the long-term average of 6.8x. The two-year forward P/E ratio was 12.5x in Q4, a discount of 0.9% compared with Q3 but a premium of 8% to the long-term average of 11.6x. A lack of large transactions in this segment has kept valuations steady.

Renewable energy assets traded at a two-year forward EV/EBITDA of 7.3x in Q4, representing premiums of 4.2% to Q3 and 5% to the long-term average of 7.0x. The P/E ratio increased to 23.2x, a premium of 7.9% over Q3 and of 50% from the long-term average multiple of 15.4x. These figures indicate that investors expect a decrease in earnings from these assets and that they may consider them overvalued at present.

Valuations of **independent power producers** are challenged by the declining share of thermal energy and an increasing focus on renewable energy. Q4 hosted only three deals in generation: 1.9 GW of gas generation assets were acquired for US$140/MW.

Chart 5: Average EV/EBITDA trading multiples for select utilities (on FY2 consensus earnings-per-share estimates, 2011–Q4 2017)

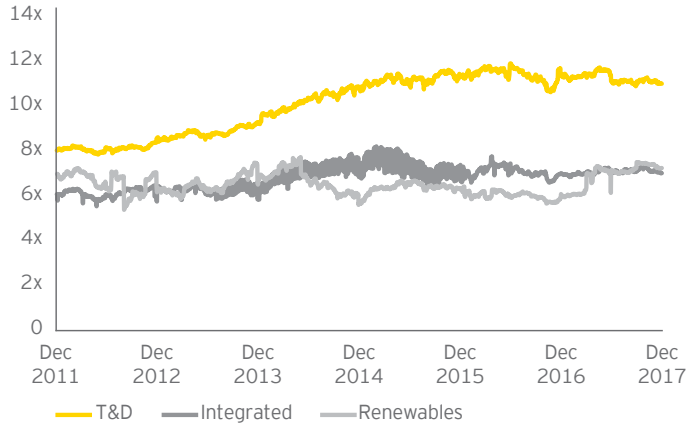
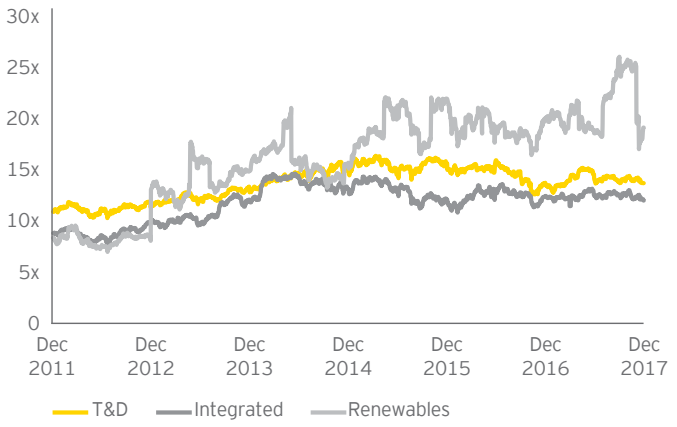


Chart 6: Average P/E trading multiples for select utilities (on FY2 consensus earnings-per-share estimates, 2011–Q4 2017)



Note: the valuations analysis only contains pure-play publicly listed companies in each relevant market segment.
Sources: Bloomberg and EY analysis.

M&A capital outlook and investment hotspots

Renewable assets are expected to remain at the top of investment agendas through 2018, and utilities are increasingly adopting new technologies. Centrica's acquisition of the Belgian demand response aggregator in November 2017 illustrates a trend expected to pick up pace in the coming year.

- **Retail consolidation to increase:** The UK Government aims to reduce customer electricity bills by proposing to limit the cost of standard variable tariffs and other default tariffs. With the margins of UK retailers already under pressure, this move is likely to prompt consolidation within the wider European market. Scottish energy supplier, SSE, and Innogy, a German energy company, have announced plans to merge and spin off a separate retail electricity business in the UK that is forecast to take a 23% market share.
- **Investment in renewable assets to continue:** An estimated 110 GW of renewable energy is expected to be commissioned across Europe between 2018 and 2025, requiring an annual investment of US$18b. In December, EDF announced plans to build 30 GW of solar in France with an investment of US$30b through 2035. EDF is also planning to sell 103 MW of small hydro assets in Portugal, at an expected valuation of US$2.4m per MW. RTR Rete Rinnovabile, the Italian solar energy company controlled by Terra Firma, is rumored to be sold in 2018, with expectations of bids of around US$1.4b. The European Investment Bank has entered into partnership with Akuo Energy to invest US$397m in renewable energy projects through Europe.
- **New opportunities for investment in batteries and gas to support reliability:** Austria, Belgium, the UK, Finland, Italy, Luxembourg, the Netherlands and Portugal have agreed to phase out coal by 2030. France has announced plans to exit coal power generation by 2021 and, in Spain, Iberdrola has indicated plans to close down coal power plants. Germany is continuing to phase out its remaining seven plants, totaling 9.4 GW, by 2022. These closures are expected to take about 80 GW of coal and nuclear capacity offline in Europe by 2025. Opportunities may emerge to invest in gas generation, battery storage and other digital capabilities to improve system flexibility and reliability.
- **Increased investment in new energy:** Utilities are increasingly seeking investment opportunities in new energy. In November, E.ON announced it would partner with Danish electric vehicle (EV) charging startup Clever to invest US$12m in a network of fast-charging EV stations across Europe.
- **Sector convergence to increase:** In October, UK oil company Shell announced that it would develop EV charging infrastructure across London. In September, French oil and gas company Total acquired a 23% stake in Eren, a renewable energy company.

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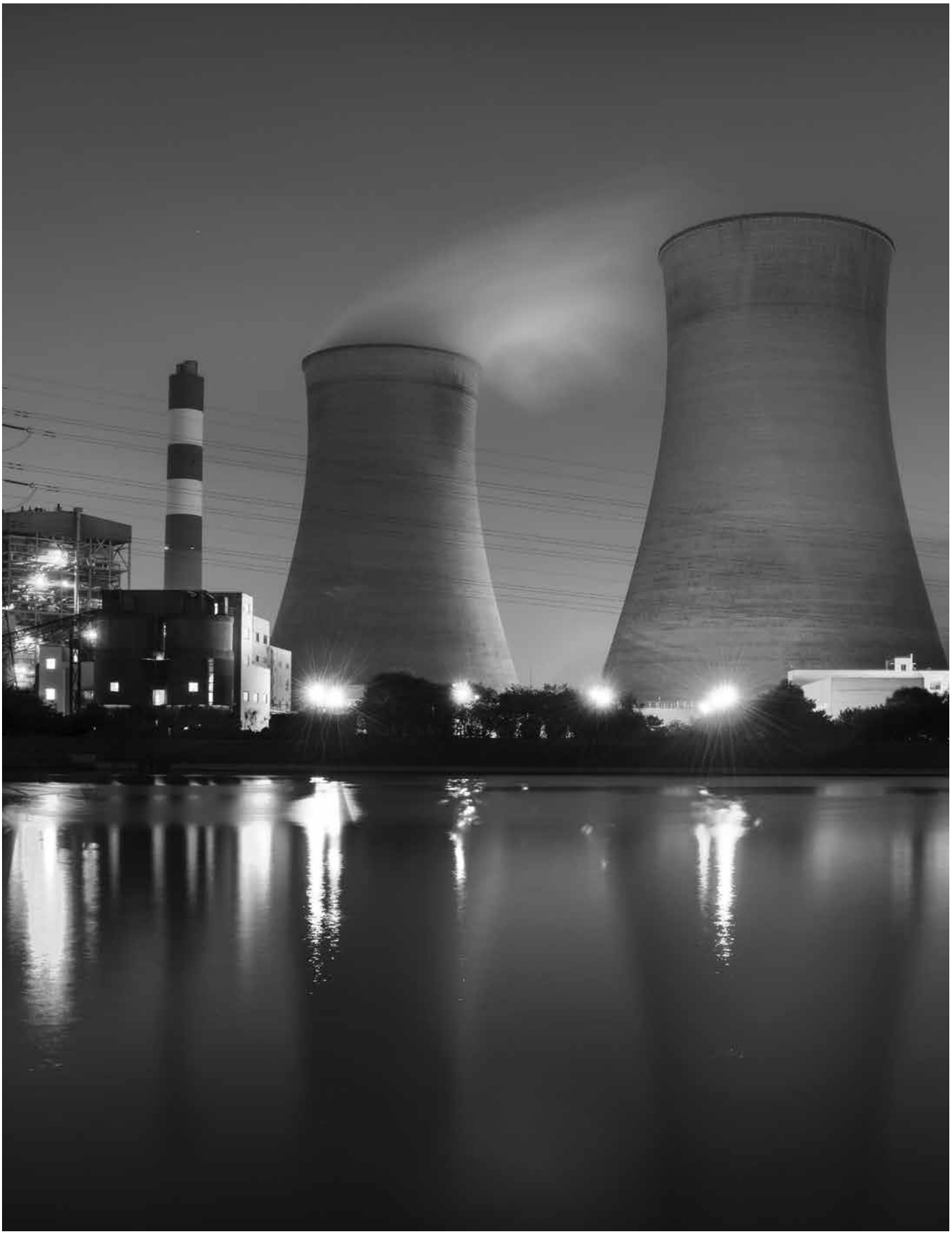


All systems go

Perhaps the greatest impacts of the energy transition will be felt by those who manage our electricity networks. EY Global Transactions P&U Leader, Matt Rennie, and EY UK Energy Leader, Anthony Byrne, spoke to Fintan Slye, incoming Director of the UK System Operator at National Grid UK, to discuss the future of energy markets, how he sees the system operator (SO) role changing over time and what he hopes to achieve in the role.

Fintan Slye
Director, UK System Operator, National Grid

Fintan is currently the Director of the UK System Operator at National Grid covering both gas and electricity. Prior to that he was Chief Executive of the EirGrid Group, the electricity system and market operator in Ireland and Northern Ireland. He also spent a number of years with McKinsey, supporting companies across Ireland and the UK, and with ESB, where he held roles in Ireland and the United States.

"Enabling new business models to flourish while still making sure we have a safe, secure and stable system that delivers value to consumers, the economy and society is occupying all of our minds."

Fintan Slye
Director, UK System Operator, National Grid

Previously the Chief Executive at Ireland's EirGrid, Fintan Slye takes up the pivotal role at Britain's electricity transmission network at a critical time for both the energy sector and National Grid's role within it. As one of the world's largest publicly listed utilities, National Grid is actively adapting to a rapidly shifting market, both at home and across the world, through a strategy centered on innovation.

Four main industry drivers behind changing role

He says four main drivers are behind the evolution of the system operator (SO) role now.

"The first is climate change and how we address that and meet our carbon reduction commitments.

"The second is the accelerated scale and pace of technological change. At the same time, the reducing cost of technology is allowing greater consumer participation in the energy sector, which will become an increasingly dominant force.

"A third factor is debate around the SO's license to operate. There are two dimensions to this – firstly around the network's ability to engage with communities and convince them of the benefits of hosting infrastructure that impacts directly upon them for the wider good. And the second is around changing society perceptions of energy and the cost of energy. In the UK, the cost of energy is a concern and is sparking political dialogue around the renationalization of utilities and other assets.

"The fourth factor is increasing levels of interconnectedness – of electricity and gas; of markets; and of geographies. The system will become increasingly integrated as we move forward."

Decentralized system demands collaborative approach

All of these factors are already impacting how the SO operates, notes Fintan, who says increased connectivity within the sector is driving the need for a more interactive, collaborative approach to managing the grid.

"It wasn't that long ago that the role of SO was a highly centralized command and control operation. A more decentralized energy system requires a shift in focus to facilitating solutions among market participants," he explains.

"Enabling new business models to flourish while making sure we have a safe, secure and stable system that delivers value to consumers, the economy and society is occupying all of our minds.

Fintan says he believes that market-based solutions offer the best potential to tackling grid management issues arising from the energy transition. He sees potential for new markets to manage the intermittency of distributed, renewable generation and very short-term frequency response and to facilitate innovative uses of battery storage on the grid.

"Going forward, a key part of planning for our growth will be around how

we can create markets for ancillary services. The first part of this is defining the services we need and the quantity required and then considering how we can establish a market-based mechanism to achieve this.

"I see batteries evolving and having a place in the capacity market. For example, instead of building a new distribution line into a congested area or reinforcing a transmission network, could I put a battery on the far side of the constraint and use that to alleviate it? The option to use batteries to solve network congestion is definitely a future possibility."

Turning innovation up while keeping the lights on

Fintan believes that balancing innovation and stability will depend upon ensuring the right regulatory incentives are in place and says that the introduction of the UK's RIIO (Revenue+Incentives+Innovation+ Outputs) model has been positive for the industry and energy consumers.

"Incentives are based on a more holistic, transparent view across the breadth of the business and a focus on what we've delivered. This creates a greater alignment of outputs and what's of value to society."

He said that there is scope to make future regulatory changes to improve settlement systems for short-term frequency response and to better recognize the costs and risks of operating a decentralized, disaggregated system.

As he settles into his new role, Fintan says that his first priority is to establish the new one-SO model for both electricity and gas while also delivering the legal separation of the electricity SO. "This integrated model between electricity and gas is the way forward because its ability to consider future scenarios across these two energy dimensions will deliver significant value to consumers."

In the longer term, he sees potential for National Grid to help lead the world's energy transition.

"We have done a lot to help decarbonize the UK – now we have an opportunity to lead that transition globally, bringing market-based solutions to issues around sustainability, affordability and security of supply."

Wider engagement will create better solutions to energy issues

What will the SO look like in five years? Fintan says that while critical elements of the organization will stay the same – "we'll always need core engineering skills" – new capabilities are already changing the way National Grid operates.

"We need more financial and commercial skills and also a greater external perspective.

"The SO sits at the heart of the energy system so it needs to be better at engaging with others – customers, regulators, other stakeholders. Whole system thinking can't be done in an ivory tower. We need to consider the problems we are trying to solve and then bring an external perspective to solving them.

"National Grid's vision is to bring energy to life – that's what it's all about. And a key part of that is engaging with customers to lead the transition toward a more sustainable energy system that meets government objectives and delivers at the end of the day for consumers."

"Whole system thinking can't be done in an ivory tower. We need to consider the problems we are trying to solve and then bring an external perspective to solving them."

Fintan Slye
Director, UK System Operator, National Grid

Asia-Pacific

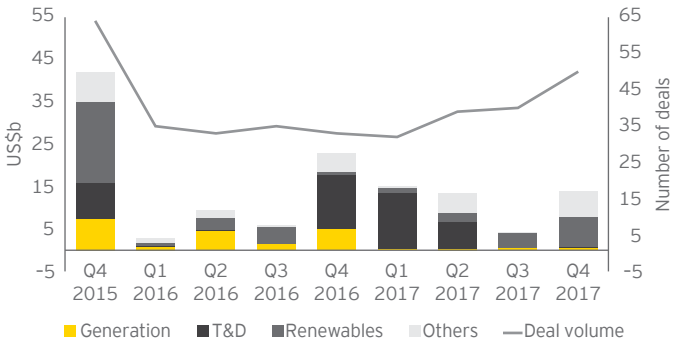
Renewables and new technologies attract more investment

In 2017, Asia-Pacific was the only regional power and utilities (P&U) sector to record moderate growth. Total deal value reached US$46.7b, a 14% increase from 2016 and reflecting growth across all segments except conventional generation.

Renewables deal value grew 72% year-on-year to US$13.5b (74 deals); transmission and distribution (T&D) deals rose 51% to US$20.1b (23 deals); deal value for assets in the "others" category, including integrated utilities, technology, and water and wastewater companies, grew 44% to US$11.5b (38 deals). Conventional generation in Asia-Pacific recorded the lowest deal value across regions, declining 82% to US$1.7b (18 deals).

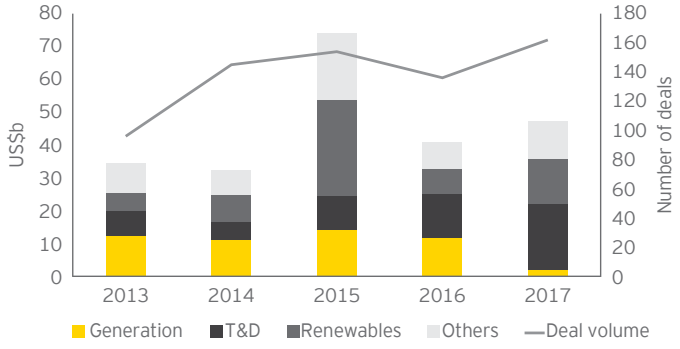
A diverse mix of developing and developed countries makes Asia-Pacific a study in energy investment contrasts. Those countries still pursuing full electrification continue to include thermal power in their energy mix, driving some investment in generation. But in most Asia-Pacific countries, P&U M&A is trending strongly toward renewables, partly because of continued favorable policies. For example, South Korea's

Chart 7: Asia-Pacific deal value and volume, by segment
(announced asset and corporate-level deals, Q4 2015–Q4 2017)



Source: EY analysis based on Mergermarket data.

Chart 8: Asia-Pacific deal value and volume, by segment
(announced asset and corporate-level deals, 2013–17)



Source: EY analysis based on Mergermarket data.

US$46.7b
deal value in 2017, up 14% from 2016

43%
of 2017 deal value contributed by T&D M&A (US$20.1b)

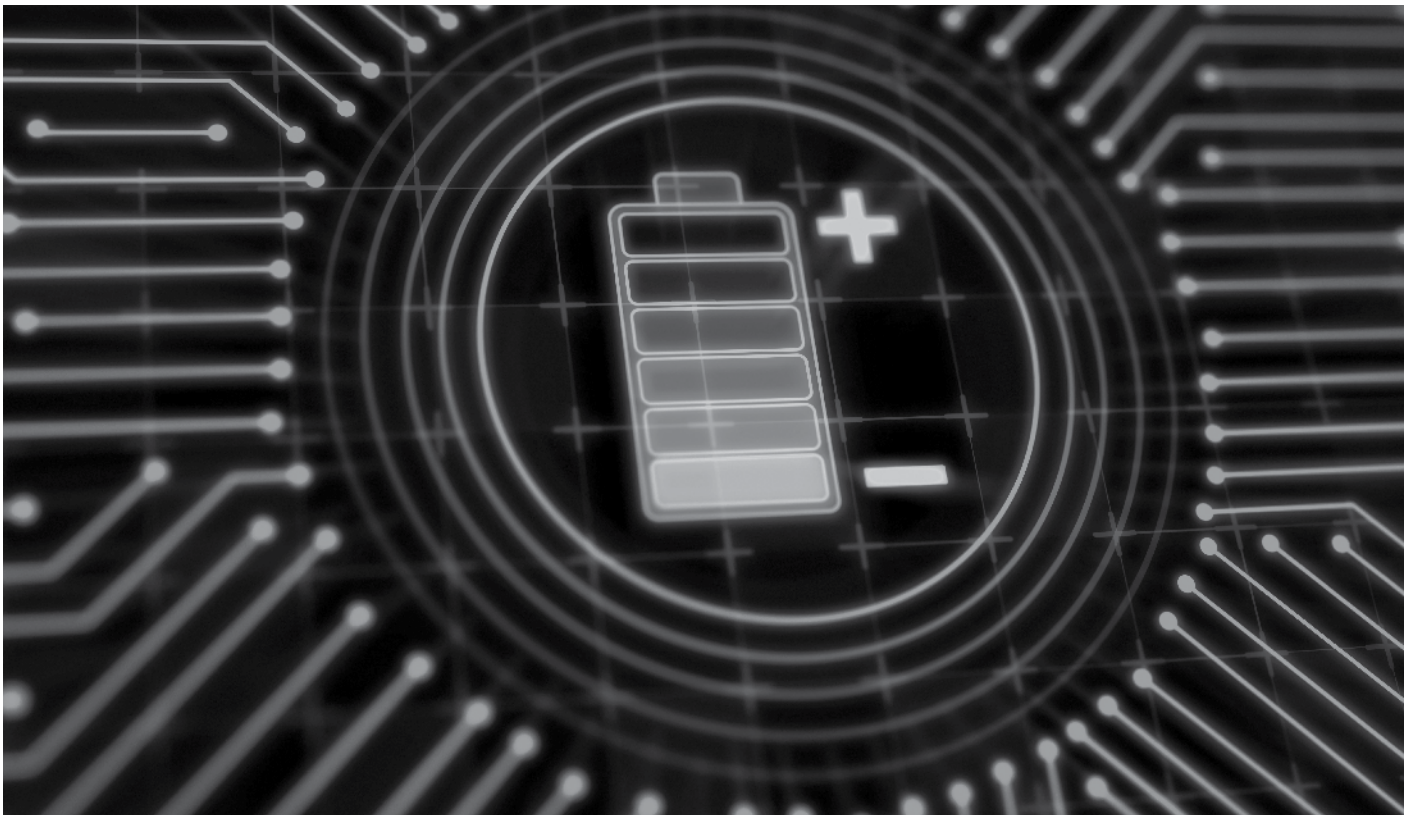
8th National Electricity Plan emphasises the country's shifting energy mix from coal and nuclear to renewables and gas, estimating that installed capacity of renewable energy will rise from current levels of 11.3 GW to 58.5 GW by 2030. India aims to achieve 175 GW of renewable energy by 2022, supported by a 40 GW target for rooftop photovoltaic (PV) and a tender for 10 GW of wind capacity through 2020. In December, China announced a national emissions trading scheme, demonstrating its ongoing commitment to renewable energy development.

More renewables in the system are driving investment in the infrastructure and technology needed to upgrade and stabilize the electricity grid. On 1 December, the world's largest battery was switched on for the first time in Australia — and soon called upon, dispatching 100 MW in 140 milliseconds when a nearby power plant tripped. The incident demonstrated the value of battery technology, and we expect further investment in grid reliability in 2018.

As in previous years, China made significant investment in the sector in 2017, conducting US$21.5b of overseas deals and US$13.8b of domestic deals. Much of this activity is driven by initiatives of the "One Belt One Road" policy, and we expect this to continue to help drive global investment into 2018.

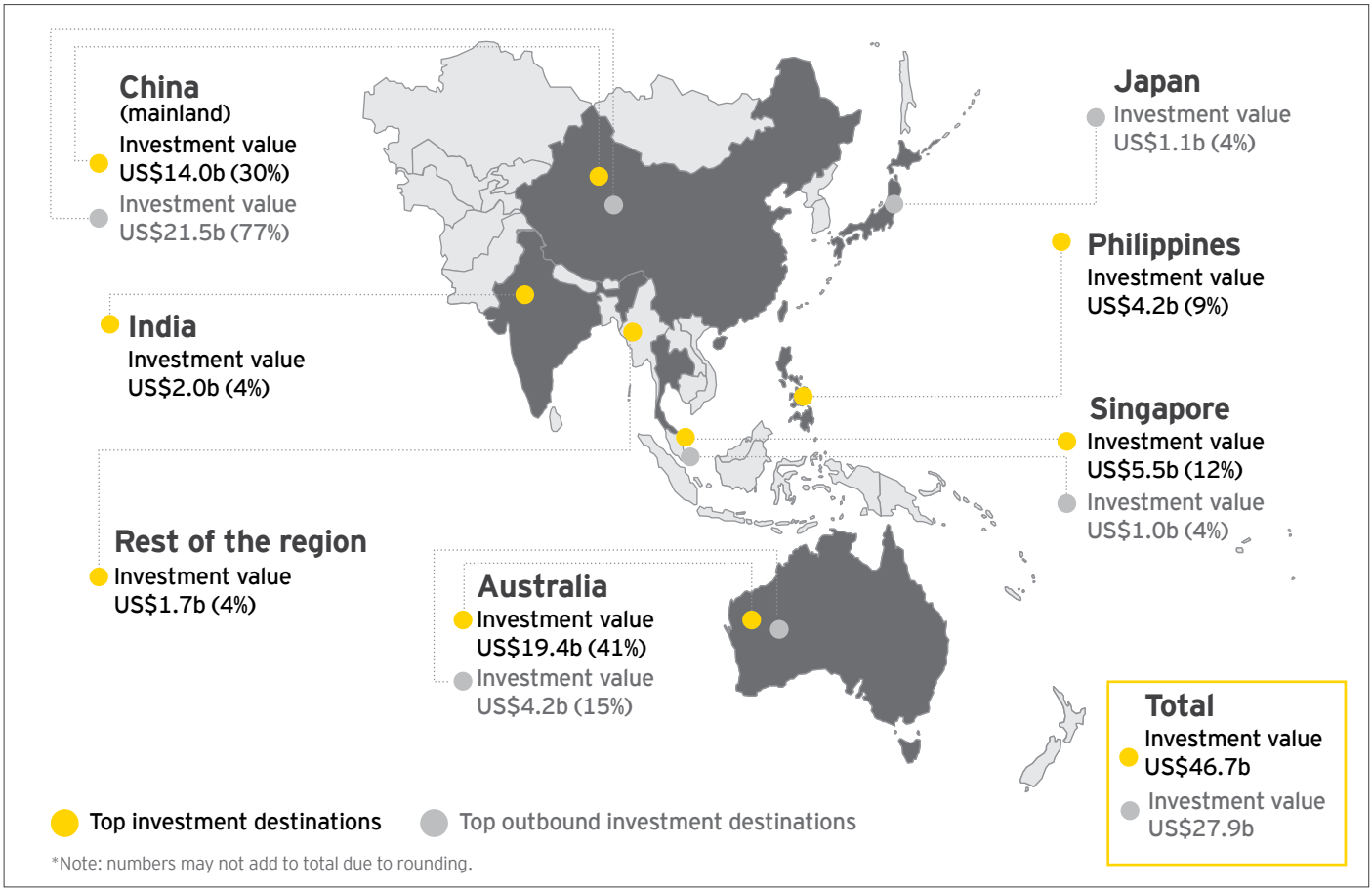
2017 transactional highlights

- **Megadeals boost T&D value:** Deal value in T&D assets rose 51% in 2017 to reach US$20.1b — three megadeals in the first half of the year contributed US$18.5b.
- **Financial investors seek renewables:** Financial investors dominated the renewables segment for the first time in eight years, contributing US$8.7b of the US$13.5b total segment deal value. The trend continued in Q4, where financial buyers conducted renewables deals worth US$5.5b, compared with US$1.6b by corporate investors.
- **Investment in generation decreases:** The region's total deal value in generation — US$1.7b — was the lowest recorded in eight years and the lowest of all the other major regions.
- **New technologies attract attention:** We saw more investment in battery technology, including the 100 MW/129 MWh lithium-ion battery storage installed by Tesla in South Australia in December. Early in the year, NTPC, an Indian state-owned generator, tendered 9.2 MW of battery storage capacity.

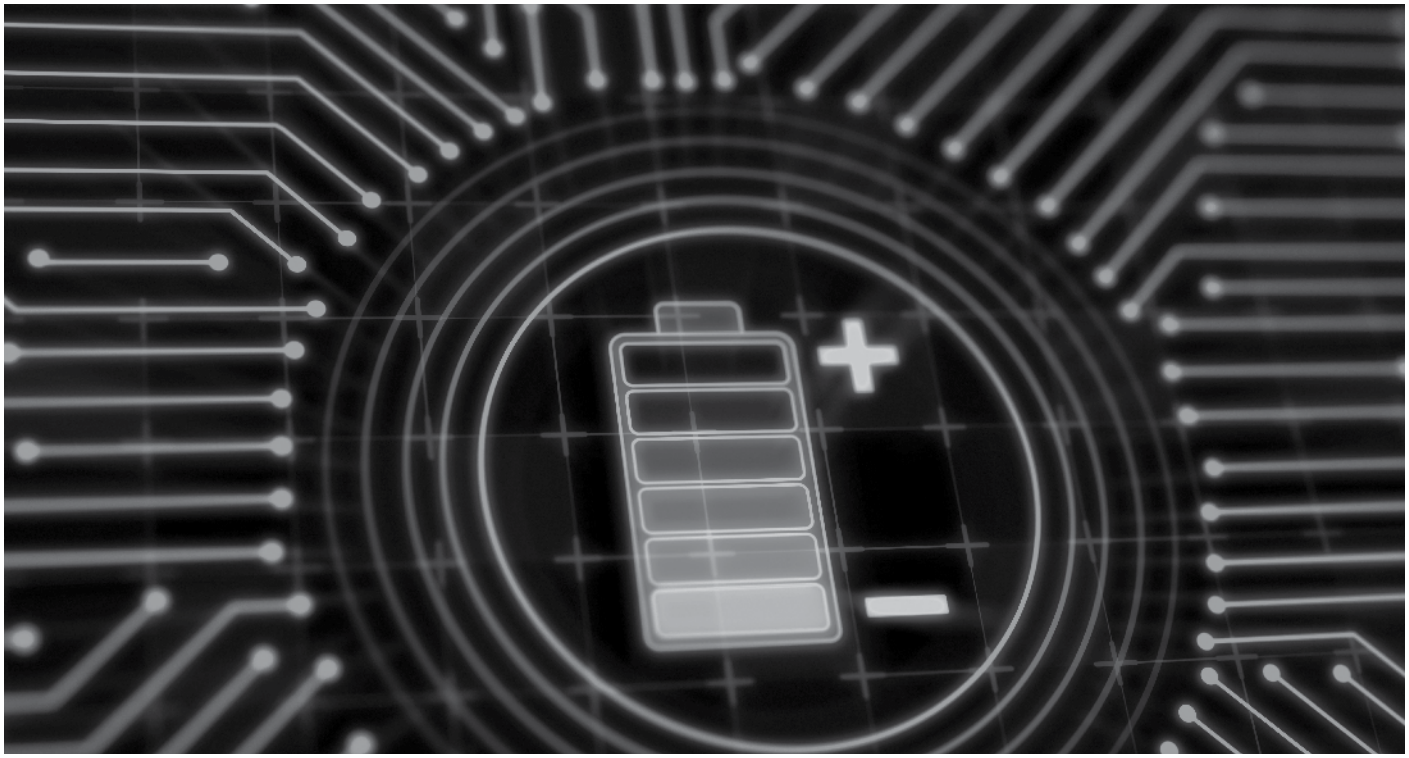


Asia-Pacific regional capital flows

Image 3: Investment activity in Asia-Pacific by country, (2017)*



*Note: numbers may not add to total due to rounding.



Top five Asia-Pacific deals, Q4 2017

All deals are announced deals, and the values indicated are disclosed enterprise values comprising equity and debt components.

Announcement date	Target	Target country/ bidder country	Bidder	Deal value (US$)	Bidder rationale	Segment
24 October	Equis Energy	Singapore/China	Public Sector Pension Investment Board; Global Infrastructure Partners; China Investment Corporation	5.0b	Strengthens bidders' position as renewable energy developers in the key OECD growth markets of Australia and Japan, as well as across India and Southeast Asia	Renewables
6 December	Datang Hebei Power Generation Co. Ltd.; Datang Heilongjiang Power Generation Co., Ltd.; Datang Anhui Power Generation Co., Ltd.	China/China	Datang International Power Generation Co., Ltd.	2.7b	Aligns with Datang International Power Generation's strategy to improve market share; improve its business in the Hebei, Heilongjiang and Anhui Provinces; and enhance its power generation business	Others: integrated
18 December	Masinloc Power Partners Co. Ltd.	Philippines/ Philippines	SMC Global Power Holdings Corp.	2.4b	Helps SMC increase its footprint in clean coal technology	Others: integrated
9 October	SPIC Guangdong Power Company Limited; SPIC Guangxi Power Company Limited; China Power (Sihui) Cogeneration Company Limited	China/China	China Power International Development Limited (CPID)	0.7b	Accelerates CPID's transition from a conventional power generation player to a clean energy company and will expand its group assets and market competitiveness	Renewables
4 December	Baotou Aluminum Co., Ltd. (25.67% stake)	China/China	China Huarong Asset Management Co., Ltd.; China Life Insurance Co., Ltd.; China Pacific Life Insurance Co., Ltd.; Shenzhen Zhaoping Chalco Investment Center LLP; BOC Financial Asset Investment Co., Ltd.; ICBC Financial Asset Investment Co., Ltd.; ABC Financial Asset Investment Company Limited	0.4b	Furthers bidders' strategy of acquiring stressed assets	Others: integrated

Source: EY analysis based on Mergermarket data.

Valuations snapshot

The Asia-Pacific P&U sector traded at a two-year forward EV/EBITDA (enterprise value by earnings before interest, tax, depreciation and amortization) ratio of 8.8x in Q4, a 1.6% discount to Q3 but a 6% premium to long-term averages. The two-year forward P/E (price to earnings) ratio in Q4 was 12.8x, a 0.5% discount to Q3 but an 11% premium to long-term averages. Overall, regional sector valuations remain steady.

T&D assets traded at a two-year forward EV/EBITDA ratio of 10x, showing no movement from Q3 but a premium of 9% to the long-term average of 9.2x. The two-year forward P/E ratio was 18.1x, a 4.3% premium to Q3 but a premium of 25% to the long-term average. Investors are paying a premium for these assets while earning expectations remain stable.

Integrated utilities traded at a two-year forward EV/EBITDA ratio of 9.3x in Q4, a discount of 0.3% from Q3 but an 8% premium to long-term averages. The two-year forward P/E ratio was 12.8x, a 3.5% premium to Q3 and a 10% premium to long-term averages. Investors remain bullish toward these assets, although little increase in earnings is expected in the medium term.

Renewable energy assets traded at a two-year forward EV/EBITDA ratio of 8.1x in Q4, a discount of 4% from Q3 but a premium of 14% to long-term averages. The two-year forward P/E ratio was 11.4x, an 8.8% discount to Q3 but a 10% premium to long-term averages. These high valuations reflect continued demand for renewable energy assets, which contributed US$7b – 49% of total deal value – in Q4.

Independent power producer (IPP) assets traded at a two-year forward EV/EBITDA ratio of 7.6x in Q4, a discount of 2.6% from Q3 and an 8% discount to long-term averages, demonstrating that analysts expect some earnings increases. The two-year forward P/E ratio was 8.7x, a 3.8% discount to Q3 and a 7% discount to long-term averages. The two-year forward P/E ratio of 8.7x represents a 31% discount to the two-year forward average P/E of the overall sector, signaling the ongoing bearish sentiment of investors for these assets.

Chart 9: Average EV/EBITDA trading multiples for select utilities
(on FY2 consensus earnings-per-share estimates, 2011–Q4 2017)

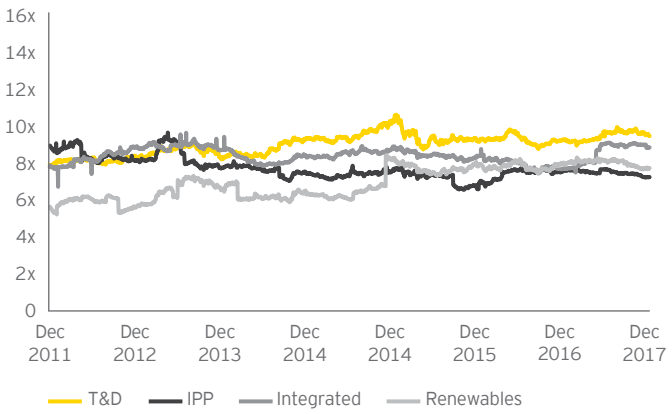
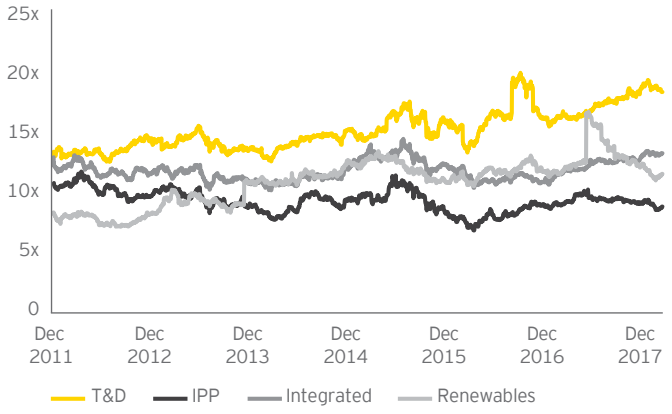


Chart 10: Average P/E trading multiples for select utilities
(on FY2 consensus earnings-per-share estimates, 2011–Q4 2017)



Note: the valuations analysis only contains pure-play publicly listed companies in each relevant market segment.
Sources: Bloomberg and EY analysis.

M&A capital outlook and investment hotspots

Investments in renewables — and subsequent grid strengthening — are likely to define future P&U growth in the Asia-Pacific sector. While many countries phase out coal power, others are continuing to include thermal generation in their push for electrification, and we expect more investment in these assets, albeit at a slow pace.

- **Renewable energy to remain attractive:** Recent investments include moves by conglomerate TTC to develop solar power plants with a combined capacity of 150 MW in Vietnam. In Singapore, the Government plans to build a 50 MW floating solar system, while Thailand's Government has deregulated the solar rooftop market, allowing consumers to sell excess power to the grid. In the Philippines, Manila Electric plans to invest approximately US$800m in two wind farms with a capacity of 300 MW.
- **China and India remain hotspots of investments:** India's Government plans to tender 3 GW of solar capacity during early 2018 and has already requested bids for 275 MW capacity in Uttar Pradesh. As well as its ambitious solar plans, the Indian Government is focused on improving grid reliability and stability by maintaining grid frequency at 50 Hz. This may lead to emerging opportunities in an ancillary services market that could be addressed by battery storage. China's 13th Five-Year Plan includes plans to invest US$360b in renewable generation by 2020.
- **Power market reforms are underway:** China, India, Japan, the Philippines and Vietnam are all completing various energy reforms. These include unbundling (Japan), the privatization of assets (the Philippines), the introduction of retail competition (China and India) and the development of a wholesale market (seven provinces in China). These reforms are expected to attract private investment, improve services and open avenues for investment in technologies such as ancillary services and battery storage.
- **Coal power generation to be phased out in a number of countries:** It is expected that by 2019, about 6 GW of old coal power plants will be retired in India. In December, AGL Energy, an Australian utility, closed a 500 MW coal-fired power plant as part of its target to retire coal power from its fleet by 2022.

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Can electricity retailers create real value through digital?

Vijay Sirse had a vision to start a power company that put customers first. Now, Red Dot Power is one of Singapore's leading electricity retailers – and changing the way we define an energy business in a digital world.

Vijay Sirse
CEO, Red Dot Power

Vijay Sirse is the founder, Chairman and CEO of Red Dot Power and vTrium Energy group, both based in Singapore. Vijay has more than 36 years of experience in business development, project financing and asset management in the electricity sector and, prior to starting his own companies, worked for many multinationals, including Globeleq (an Actis UK subsidiary), El Paso Energy USA and ABB.

"We wanted to add value by using data and analytics to help customers optimize their electricity use without compromising operations."

Vijay Sirse
CEO, Red Dot Power

Offering value, not discounts

Founded in 2010 and led by CEO Vijay Sirse, Red Dot Power describes itself as a new age energy company offering integrated energy solutions. Red Dot is one of Singapore's leading electricity retailers in the commercial and industrial space, offers demand response services to these clients and is now pioneering the country's emerging market in thin film solar photovoltaic (PV), battery storage and electric vehicle (EV) charging stations.

Vijay admits customers were first attracted to his company by the opportunity to change providers once the market was opened to competition. But they stayed long after the novelty of being able to switch wore off. And not because Red Dot necessarily offered cheaper electricity tariffs. The company decided to differentiate itself through offering extra value, not discounts.

Vijay says the proposition was unlike any other that Singapore's businesses had seen before. "In the past, retailers sent the bill. Customers paid it. There was no further discussion between the two. We wanted to add value by helping them reduce their energy consumption, using data and analytics that allows them to optimize their electricity use without compromising operations."

It may seem counterproductive for an energy retailer to encourage its customers to use less power. But this service has kept Red Dot customers loyal – their retention rates are above average. Outstanding customer service also helps.

"Our customer hotline is picked up within five rings. There's no pushing 12 buttons to speak to someone. We don't ask the customer to wait, we attend to him or her straight away.

"We ask ourselves, 'How do we make the customer comfortable?'"

No shortcuts to digital success

Red Dot's digital strategy is integrated with its overall business model, and every use of technology and analytics is designed to reap benefits for either the company or the customer. "It's not the data that's important, but what we do with it," Vijay says.

Red Dot has built its digital platform incrementally over time and is currently developing a mobile app that allows customers to manage every part of their relationship with Red Dot via their phone.

Customers love the ease of Red Dot's digital experience, which also generates big cost savings for the company.

"Every paper or manual intervention is an additional cost," says Vijay.

"Digital platform delivery is cheaper, more efficient, adds value to the customer and increases their satisfaction."

Vijay is quick to emphasise that Red Dot's digital platform was not cheap or quick to build.

"It took us two years to develop and significant manpower and money. We also had to make sure we met compliance regulations," he said.

"In this way, building a digital platform can be a barrier to entry for some startups. But once you have it, you will see real benefits in customer retention and satisfaction."

Organic PV will take over from rooftop solar

Red Dot's next move is to enter the residential electricity market and expand beyond its footprint in rooftop solar generation into organic PV – thin solar films that can be applied to almost any surface.

Vijay explains: "Rooftops are limited in Singapore, but we have big buildings. We're planning a significant deployment of thin film solar to 2019 and see it taking over from rooftop solar, due to improved costs, performance and the enhanced aesthetic appeal of films."

Vijay credits forward-thinking government policy and regulatory agencies in Singapore, which will complete reforms of the electricity market this year, as critical to the success of Red Dot and others in building different business models. He says competition is increasing in the local market, but Red Dot is "keeping up our market share with good margins."

Without debt due to robust risk management strategies, Red Dot has attracted interest from a wide variety of investors, including many from outside the sector.

"It can be a challenge helping those new to energy understand the industry dynamics. We see opportunities for investors to come on board, but we are looking at what value they can bring beyond just financing as we expand into new markets."

Next transformative technologies

For Vijay, Red Dot's growth through economic ups and downs has been rewarding.

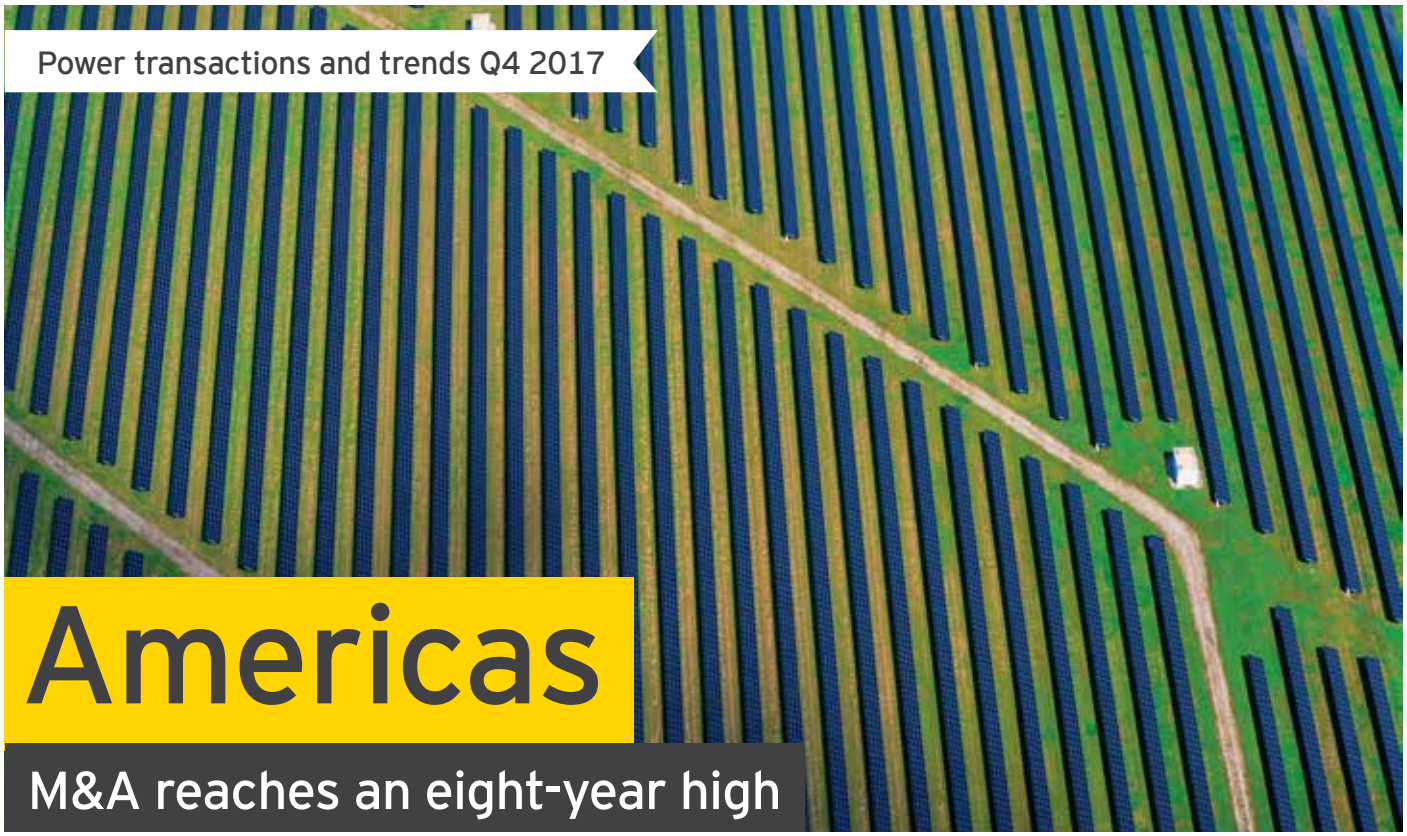
"We are still learning. We are seeing different business models in different jurisdictions trying to adopt some of those best practices and investing more in our human and digital platforms to provide top-class customer service."

He believes the next transformative segments for the electricity sector will be battery storage and EV charging, areas where Red Dot is already making its mark. "We are well positioned to integrate these services along with electricity retail, demand management and solar through an end-to-end digital delivery platform."

Vijay says that as the company expands, every initiative must be aligned to its core values of honesty, integrity and innovation. "Red Dot is built on a vision – we're empowering people and empowering our community."

"Digital platform delivery is imperative for a successful business model in energy today."

Vijay Sirse
CEO, Red Dot Power



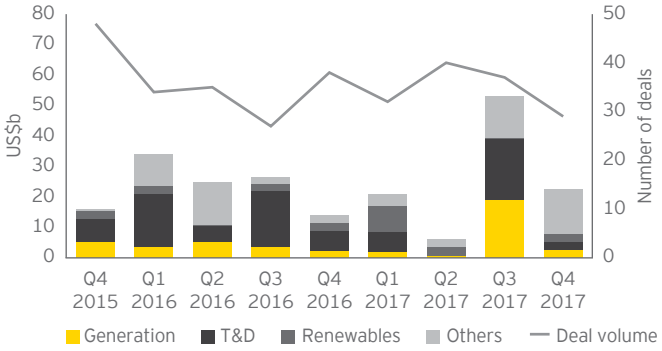
Americas

M&A reaches an eight-year high

In 2017, deal value in the Americas power and utilities (P&U) sector surpassed US$100b for the first time in eight years. Of the total deal value of US$102.2b, US$28.4b was attributable to integrated assets, US$24b to generation, US$14.2b to renewables and US$29.4b to networks. Conventional generation and renewable energy were the year's growth stories, increasing 63% and 71% respectively.

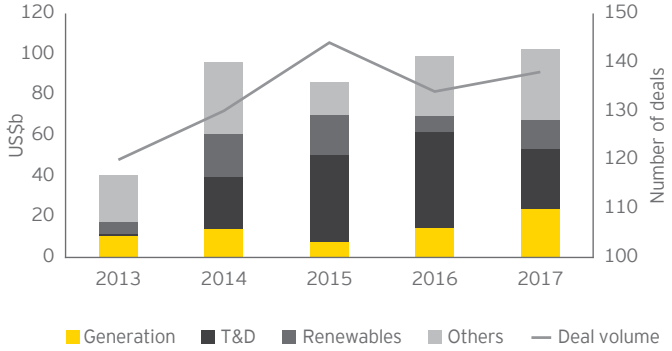
In the US, in particular, mergers and acquisitions (M&A) in renewables grew 14% in volume and 107% in deal value year-on-year. Investors remain attracted by both the improving economics of renewable energy and increasing support at a state level. In 2017, eight states – California, Connecticut, Massachusetts, Minnesota, Nevada, New York, Pennsylvania and Vermont – introduced bills to increase

Chart 11: Americas deal value and volume, by segment
(announced asset and corporate-level deals, Q4 2015–Q4 2017)



Source: EY analysis based on Mergermarket data.

Chart 12: Americas deal value and volume, by segment
(announced asset and corporate-level deals, 2013–17)



Source: EY analysis based on Mergermarket data.

US$102.2b
deal value for 2017

US$14.2b
deal value in renewables, up 71% from 2016

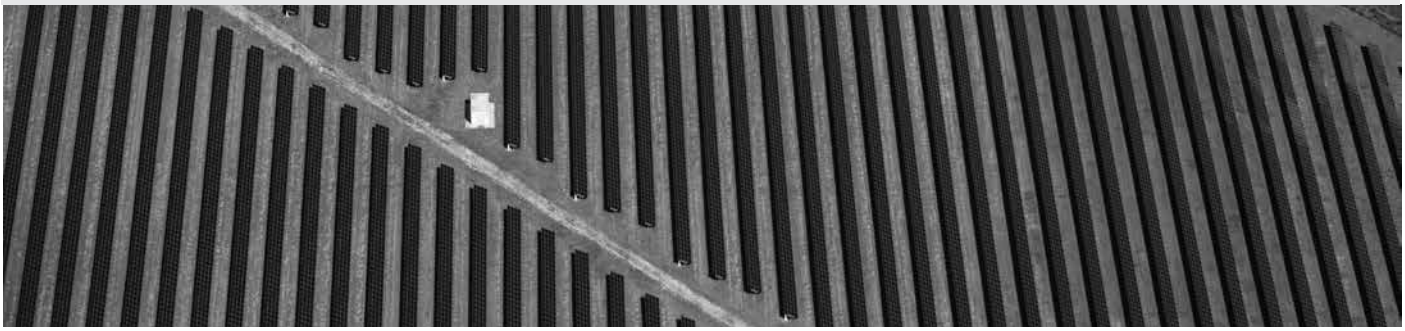
the share of clean energy in their power mix. Investment in renewables is likely to continue as these bills are operationalized and other states move forward with clean energy initiatives. For example, Hawaiian Electric Industries has planned renewable energy investments of US$450m in 2018 as part of Hawaii's plan to be powered by 100% renewable energy by 2040.

The year's increased activity in generation was driven by consolidation and the sale of highly leveraged assets against a backdrop of poor market fundamentals. A recent example is the Q4 announcement from Texas' largest energy retailer, Vistra Energy, that it would buy independent power producer (IPP) Dynegy to form an integrated utility. The deal helps Vistra diversify operations, will reduce Dynegy's debt and allows the merged company to take advantage of economies of scale and operating efficiencies. In 2018, a faster-growing US economy will support increasing energy demand, and this, as well as a growing number of asset retirements, should at least partly influence a reversal in the demand-supply dynamics that have plagued this segment for some time.

As we look to 2018, tax cuts in the US, low unemployment and a growing US economy support analyst expectations of several rate rises during the year. With the average dividend yields for transmission and distribution (T&D) utilities in the US tracking at 4.0%, further rate rises may prompt a shift toward tightening capital and see investor interest move away from regulated assets as expectations of returns increase. However, despite these positive macroeconomic indicators, there are concerns that US inflation will remain low — if the figure remains below the anticipated 2% , rates may stay on hold. Together, these factors have the potential to shift the investment profile globally in 2018.

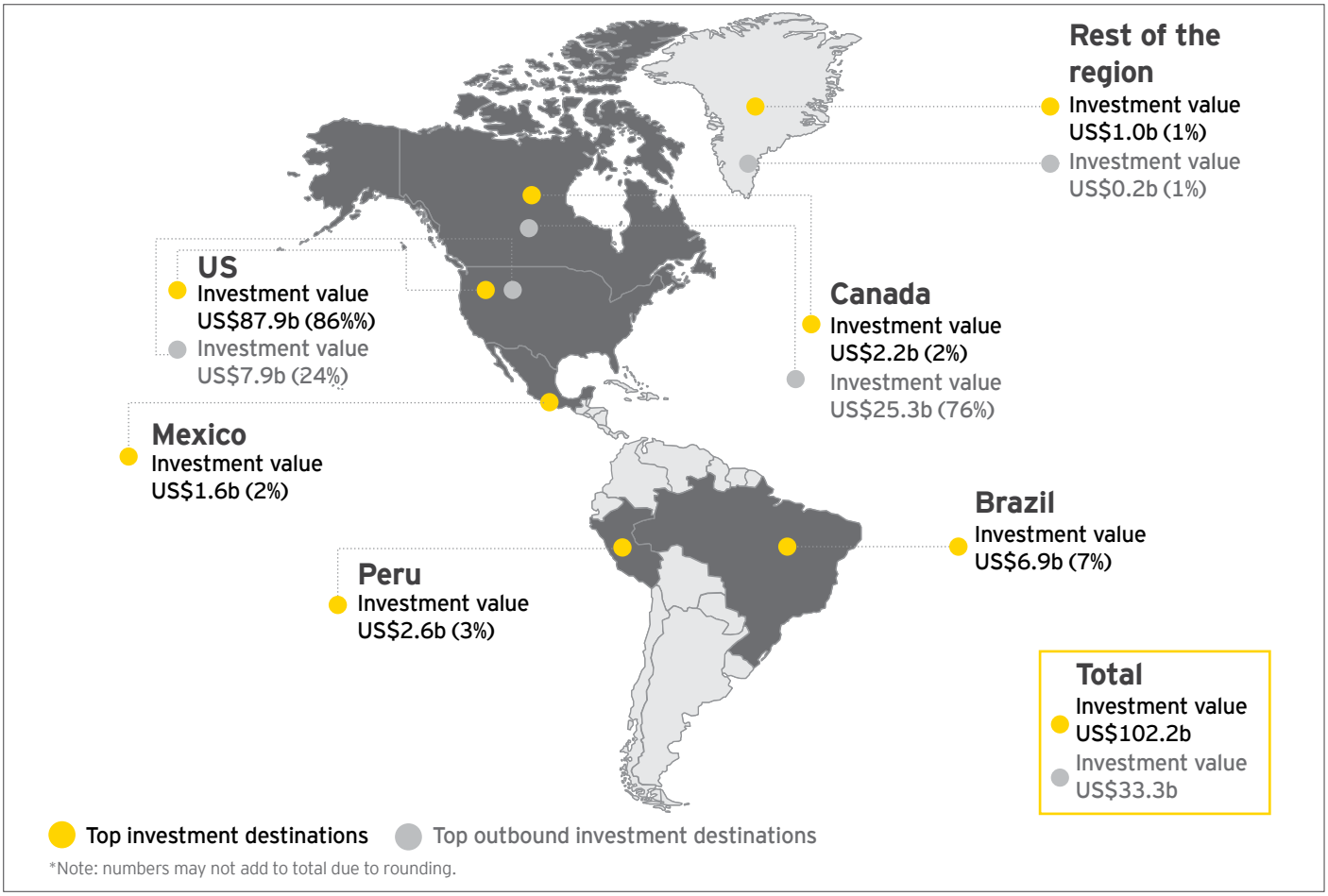
2017 transactional highlights

- **More M&A in generation:** Investment in generation assets rose 62% from US$14.8b in 2016 to US$24b in 2017, with most deals hosted in Q3. Four billion-dollar-plus acquisitions totaled US$20.8b — 94% contributed by financial investors. In Q4, the segment saw eight transactions worth US$2.6b, including including two billion-dollar-plus deals.
- **Renewables remain top of the investment agenda:** Investment in renewables climbed 71% to reach US$14.2b in 2017. This growth in interest was reflected in Q4 where deals in renewables reached 12 — the highest deal volume of all segments in the quarter. These deals totaled US$2.5b.
- **Corporate investors take the lead:** In 2017, regional deal value contributed by corporate investors was double that of financial investors. Corporates acquired T&D and integrated assets worth US$57.3b, attracted by relatively stable returns. Financial investors focused on generation and renewables, acquiring US$30.2b of these assets.
- **Coal to gas switching continues:** In the US, continued low natural gas prices are driving decisions to retire coal plants or to convert them to gas-fired generation. In 2018, 5.8 GW of coal capacity has been announced to retire. In July, Southern Company and Mississippi Power converted a 582 MW clean coal power plant — the US's largest — into a natural gas power plant. US-based integrated utility Alliant Energy has announced plans to convert a coal generation unit to gas and phase out all coal generation by 2025.
- **Latin America attracts US$11b from foreign investors:** Almost all (US$10b) of Latin America's deal value in 2017 occurred in Brazil, Mexico and Peru. Most investors were from China (State Grid Corporation of China, China Three Gorges Corporation and China Gezhouba Group Company) and financial buyers from the UK, US and Canada (Actis LLP, Brookfield Infrastructure Partners, Caisse de dépôt et placement du Québec and I Squared Capital).



Americas regional capital flows

Image 4: Investment activity in Americas by country, (2017)*



*Note: numbers may not add to total due to rounding.

Top five Americas deals (Q4 2017)

All deals are announced deals, and the values indicated are disclosed enterprise values comprising equity and debt components.

Announcement date (2017)	Target	Target country/ bidder country	Bidder	Deal value (US$)	Bidder rationale	Segment
30 October	Dynegy Inc.	US/US	Vistra Energy Corp.	10.6b	Helps Vistra Energy expand in the ERCOT market by acquiring retailers in five states, including market-leading positions in three of these	Others: integrated
30 November	CPFL Energia S.A. (45.36% stake)	Brazil/China	State Grid Corporation of China	4.0b	Deal is part of a mandatory offer to acquire remaining stake in CPFL by State Grid	Others: integrated
16 October	Elizabethtown Gas Company Inc.	US/US	South Jersey Industries (SJI)	1.7b	Enables SJI to expand its New Jersey presence and support its strategy of growing earnings through high-quality regulated businesses	T&D: gas
22 December	InterGen (Mexico assets)	Mexico/UK	Actis LLP	1.3b	Aligns with Actis's strategy of increasing investment in Latin America	Generation
26 November	Inkia Energy Ltd. (Latin American and Caribbean businesses)	Peru/US	I Squared Capital	1.2b	Supports I Squared Capital's strategy of further investment in Latin America	Generation

Sources: EY analysis based on Mergermarket data.

Valuations snapshot

The Americas P&U sector is trading at a two-year forward EV/EBITDA (enterprise value by earnings before interest, tax, depreciation and amortization) ratio of 8.5x, a 3.3% premium to the 2016 average of 8.4x and a 0.6% premium to the long-term average of 8.5x. The P/E (price to earnings) ratio saw significant movement, trading at 21.8x, a 16.1% premium to the long-term average of 18.7x and a 13.1% premium to 2016.

T&D assets traded at a two-year forward EV/EBITDA ratio of 8.9x, representing a discount of 1.2% to Q3 and a discount of 8% to the long-term average of 9.8x. The two-year forward P/E ratio decreased to trade at 17.0x from 17.4x in Q3 but a premium of 7% to the long-term average of 15.9x. In Q4, Brookfield Infrastructure Partners acquired a 59.06% stake in Gas Natural SA for US$630m, which is a transaction multiple of 7.3x EBITDA – a discount to the current 10.1x EV/EBITDA multiple for T&D assets in the region.

Valuations of **integrated utilities** showed no movement from Q3, trading at a two-year forward EV/EBITDA average of 7.9x, a discount of 1% to the long-term average of 8.0x. The two-year forward P/E ratio was 12.8x, a decline of 1.2% from Q3 and a 3% discount to the long-term average of 13.3x. This signals an expectation of a slight earnings increase. The US$10.6b acquisition of Dynegy Inc. by Vistra Energy Corp. at a premium of 18%, based on Dynegy's closing share price on the trading day prior to the deal's announcement, indicated bullish investor sentiment for these assets.

Renewable energy assets traded at a two-year forward EV/EBITDA of 9.0x in Q4, barely moving from Q3, and at a 21% premium to the long-term average of 7.5x. The P/E ratio declined to 20.0x compared with 20.6x in Q3, a discount of 3% but a premium of 3% to the long-term average of 19.4x. These long-term premiums signal that, despite a lack of federal support for renewables, investors remain bullish around the earnings potential of these assets and are prepared to pay huge premiums to acquire them. In Q4, Innergex Renewable Energy Inc. announced it would buy Alterra Power Corp. for US$640m, a premium of 62.8% over Alterra's closing price one day prior to the announcement.

IPP asset valuations decreased 0.7% to trade at a two-year forward EV/EBITDA of 8.2x, a further 4% discount to the long-term average of 8.5x. In contrast, P/E ratios accelerated, trading at 45.0x compared with the long-term average of 26.4x. The bullish sentiment of investors for merchant assets is encouraged by IPPs' efforts to cut debt and rationalize portfolios and purported support by the US Government for thermal power generation.

Chart 13: Average EV/EBITDA trading multiples for select utilities
(on FY2 consensus earnings-per-share estimates, 2013–Q4 2017)

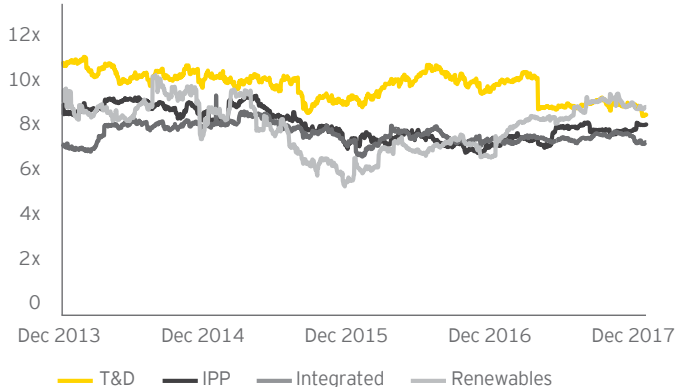
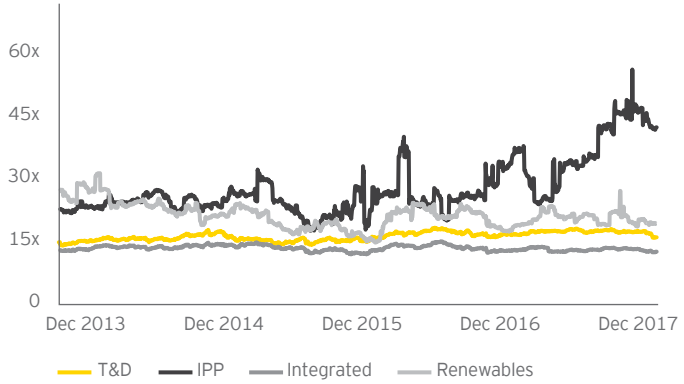


Chart 14: Average P/E trading multiples for select utilities
(on FY2 consensus earnings-per-share estimates, 2013–Q4 2017)



Note: the valuations analysis only contains pure-play publicly listed companies in each relevant market segment.
Sources: Bloomberg and EY analysis.

M&A capital outlook and investment hotspots

We expect investments in 2018 to flow into new and emerging technologies. Renewables will remain attractive due to ongoing support from state policies. Generation assets may get an uplift due to federal support and a recovering US economy, which may encourage interest from deep-pocketed financial investors seeking opportunities to decrease leverage and capitalize on a potential market recovery.

- **Energy storage investment to increase:** Several US state governments are giving strong support to energy storage technology. New York is launching an initiative to deploy 1,500 MW of energy storage by 2025. Massachusetts has doubled its commitment to develop a state energy storage market by awarding US$20m in grants to 26 projects. The Washington Utilities and Transportation Commission has issued a policy statement advising the state's investor-owned utilities to consider storage in meeting their resource requirements.
- **New projects in offshore wind:** Twenty-eight offshore wind projects totaling 23,735 MW of potential installed capacity have been announced in the US. New York plans to develop about 2.4 GW of offshore wind energy by 2030 – enough to generate power for 2.4m homes.
- **US and Brazil to remain investment hotspots:** The US continues to be the region's top investment destination. Recent investment highlights include a November announcement by Duke Energy to invest US$3b in grid modernization in South Carolina and a December announcement by NextEra Energy Resources that it proposes to build a 156 MW wind farm in Michigan. Also in December, the Brazilian Government auctioned a US$2.7b tender to build, operate and maintain 4,919km of transmission lines and substations with a capacity of 10,416 MVA. The country is planning to hold four rounds of auctions to award 5,000km of power transmission lines worth US$2.7b and 3 GW of new generation capacity.

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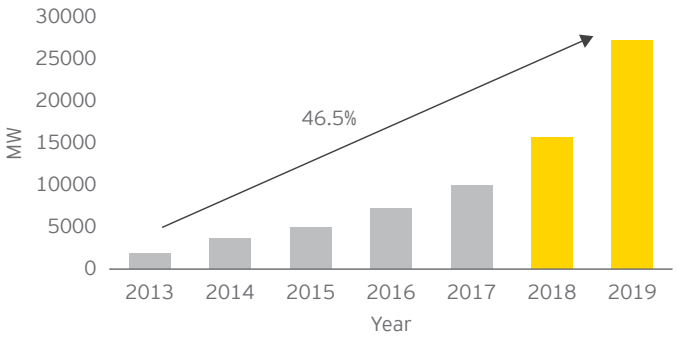
Africa and the Middle East

Renewable energy dominates the investment agenda

In 2017, electrification remained the biggest issue facing Africa's power and utilities (P&U) sector. Some analysts estimate that another US$40b to US$70b per year through 2020 is needed to meet the electrification agenda; however, attracting capital to the region remains difficult. Weak macroeconomic factors and an unstable political environment create risks for investors, and the year saw only six deals in Africa, with these totaling just US$1b, and focused on renewable energy, water and wastewater, and energy services.

Multilateral banks are attempting to encourage investors by offering support such as political risk guarantees, which offer cofinancing as coverage against specifically defined political or sovereign risks, to companies setting up independent power producers (IPPs) in the region. Similarly, in December, German development bank KfW and the African Trade Insurance Agency launched a US$74.2m Regional Liquidity Support Facility – a cash liquidity instrument designed to provide renewable IPPs with up to 50 MW of coverage for power purchase agreements (PPAs) if an off-taker delays payments beyond the grace period. This is designed to help renewable energy projects reach financial close. The African Development Bank also announced plans to invest US$12b in renewable energy through 2020.

Chart 15: Africa and the Middle East installed solar capacity



Source: Bloomberg New Energy Finance.

US$67b

planned investment in energy by Saudi Arabia by 2022

5 GW

of solar and wind capacity to come online in Sub-Sahara Africa by 2019

Investment in renewable energy, both distributed generation and greenfield development of utility-scale generation, will continue to support the electrification agenda. The installed capacity of solar energy in Africa is expected to increase at a compounded annual growth rate of 46.5%, with an expected increase of 2.7x in capacity from 10 GW in 2017 to 27.4 GW in 2019.

In the Middle East, the sector's focus in 2017 was on energy reform, with several governments aiming to reduce subsidies and enable private ownership of assets. For example, the Saudi Government has commenced the unbundling of the state-run Saudi Electricity Company and announced plans to create and privatize four generation companies. As part of the reform, the Government will introduce cost-reflective pricing through tariff increases to 2020. Israel has also announced plans to privatize five power plants (total capacity of 4 GW).

Africa and the Middle East will continue to offer opportunities to the astute investor in 2018. As interest rates increase globally, Africa will appeal to those buyers prepared to take on additional risks for the prospect of higher returns.

2017 transactional highlights

- **Greenfield development continues in Africa:** In November, Italy's oil group Eni announced plans to build 20 MW of solar photovoltaic (PV) generation in the north of Ghana. French company VINCI Energie is investing US$32.9m to build eight PV plants in Senegal. In March, the European Commission announced plans to contribute US$368m to the Africa Renewable Energy Initiative, which is expected to invest US$5.9b in building an additional 1.8 GW of renewable energy generation in Africa.
- **European players make small investments:** The Nordic Development Fund and Norfund, a Norwegian private equity firm, agreed to acquire a 14% stake (US$19m) in responsAbility Renewable Energy Holding (rAREH), a company dedicated to increasing renewable energy in sub-Saharan Africa. With an eye on expanding its footprint in small-scale solar energy, France's Engie acquired Fenix International, a Ugandan home solar systems company.
- **Smart technologies offer opportunities to assist with electrification:** In June, InfraCo Africa, an infrastructure development facility based in the UK, and US-based Standard Microgrid Initiatives agreed to invest US$3.5m in setting up six microgrids in Zambia. The World Bank has reported an investment of US$155m enabling the Ministry of Energy, Kenya Power and Lighting Company and Rural Electrification Authority to build and operationalize microgrids that will enable Kenyan households without electricity to access solar power.

Top five investment deals, Q4 2017

Bidder company/country	Target country	Project description	Segment
The Government of Morocco/Morocco	Morocco	Investing US$4.6b to build a gas generation plant	Generation: gas
Quercus Investment Partners/UK	Iran	Investing US$594m to set up a 600 MW solar plant	Renewables: solar
International Islamic Trade Finance Corporation (ITFC)/Saudi Arabia	Senegal	Investing US$135m in Senegal National Power Company to enhance the country's power system efficiency	T&D
Scatec Solar/Norway	Egypt	Raised US$335m debt to develop 400 MW of solar projects	Renewables: solar
Ministry of Energy and Mineral Resources of Jordan/Jordan	Jordan	Plans to issue tender for a US$30m 30 MW energy storage project to be developed by 2019	Others: energy storage

M&A capital outlook and investment hotspots

- **Expanded energy reforms:** In addition to Middle Eastern energy reforms in Egypt, Israel and Saudi Arabia, many African countries, such as Angola, Ghana, Kenya, Nigeria and Zimbabwe, have announced sector reforms. Angola has said it will unbundle its energy sector and introduce IPPs and public-private partnerships from 2021 through 2025. Ghana has announced plans to restructure the government-owned Electricity Company of Ghana during 2018. Kenya's Energy Bill 2017 was submitted for debate at the end of 2017. It includes plans to unbundle Kenya Power with a view to eventually introduce retail competition.
- **Greenfield renewables to continue:** Kuwait is expected to issue a tender during the first quarter of 2018 to construct a US$1.2b solar power plant with an installed capacity of 1 GW. In February, Kuwait National Petroleum Company will commence a clean energy project aimed at supporting the country's vision to generate 15% renewable energy by 2030. In Iran, UK-based renewables investment firm Quercus will invest US$594m to build a 600 MW solar PV plant by 2021.
- **More investment in nuclear:** Russia is planning to invest an estimated $US20b in building nuclear power plants in Nigeria. Saudi Arabia has announced plans to install two 3.3 GW nuclear power plants by 2027. In December, Russia and Egypt agreed to build a 4.8 GW nuclear power plant in Egypt.
- **Foreign investment will grow:** Investors from Europe and China have emerged as strategic investors in the region, a trend set to continue. In October, Acciona Energía entered into a joint venture with renewable energy platform Enara Bahrain to set up a 50 MW solar power plant in Egypt. The Exim Bank of China is planning to provide US$287m of debt to the Government of Uganda to help electrify rural areas.
- **Egypt attracts greenfield investors:** In December, Egypt issued a 600 MW tender to set up solar power projects in the country. In November, BPE Partners, Infinity Solar Energy and Germany's ib vogt GmbH agreed to invest US$190m to set up three Egyptian solar plants with a total capacity of 130 MW. In October, Orascom Construction, Engie, Toyota Tsusho Corp. and Eurus Energy Holdings Corp. agreed to invest US$400m to build a 250 MW wind farm in the country.
- **Increased focus on new technology:** In September, Dubai announced incentives to promote the uptake of electric vehicles, including free parking, free recharging, free vehicle registration and toll exemptions. Jordan announced plans to tender for 30 MW/60 MWh of battery storage to help integrate renewable energy into the country's energy mix.

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The EY analysis and perspectives within *Power transactions and trends* are based on global financial releases and Mergermarket data, as well as global engagements conducted by EY member firms over the period 2012 to 2017. They provide an up-to-date assessment of outcomes and trends in the global utilities industry. For more information on the methodology employed in the preparation of this report, please contact:

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