Capital outlook: power and utilities
Investing in the power and utilities sector
Capital outlook: power and utilities

Using data from multiple sources, this report examines the trends and drivers for global power and utilities transaction activity, highlighting those regions and sub-sectors we believe will be attractive to investors.

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“Power and utilities” covers electricity generation, networks and retail, gas networks and retail, and water wholesale, networks and retail organizations. It also includes renewable energy companies.

For more information on the methodology employed in the preparation of this report, please contact Cara Graham, Director, Global TAS Power & Utilities.

Capital outlook responds to requests from our clients for detailed data regarding current power and utilities (P&U) asset valuations, and for deep insight into the trends behind these valuations and the likely impacts on future transaction activity. This level of comprehensive data is needed now more than ever, to guide capital investment during one of the most challenging periods of our sector’s history.

The utilities sector is undergoing rapid transformation. Technology and digitization; infrastructure renewal and expansion; renewables and distributed generation; empowered customers; market and regulatory reforms; and new market entrants have created an environment of constant change. Amid such monumental change, it can be difficult to make informed, strategic decisions about capital investment in the sector.

For the transmission and distribution (T&D) sub-sector, megadeals – particularly in the US – are pushing valuations to peak levels. We are seeing T&D assets in the US trading at 15.2x on two-year forward (FY2) or 2015 consensus earnings-per-share (EPS) estimates – a level about 25% above the historical average. Investors are prepared to pay premiums of between 15% and 35% for these assets, attracted by their ability to provide stable returns amid continuing commodity price volatility and electricity demand stagnation in mature markets. Expect to see a wave of T&D deals in Asia-Pacific, driven by forecast high demand growth, potential market reforms allowing private investment and relatively low valuations for these assets compared with other regions.

Meanwhile, the generation sub-sector faces significant headwind in most regions, particularly in mature markets, due to low power prices, stricter environmental regulations for fossil-fuel-based plants and increasing competition from renewables. Integrated utilities, especially in the US, are selling these assets to focus instead on their regulated operations. Similarly, European utilities are reevaluating assets and shifting their attention to long-term sustainable businesses. We believe high-growth emerging markets, such as China, remain attractive
to the first edition of

Capital outlook: power and utilities

targets for generation investment as fuel security improves and
generation demand stays strong. Historically, base-load-independent
power producers (IPPs) in China have traded at an average
multiple of 8.5x on FY2 consensus earnings before interest, taxes,
depreciation, and amortization (EBITDA) estimates, with this group
currently trading at a 20% discount to those levels.

For integrated and diversified utilities in Europe, slow domestic
growth and weak power prices have cut valuations and increased the
push toward emerging markets such as Mexico, Brazil and Turkey,
where reforms are opening up investment opportunities. Selective
international investments and divestments of non-performing
businesses in domestic markets may unlock significant value for
integrated utilities in mature markets.

The renewables sub-sector is facing a drop in valuations and
challenges to greenfield projects, particularly in mature markets
such as Europe and the US. The UK and Germany are slowly phasing
out their feed-in tariffs (FITs) for solar generation, while other
countries, including Spain and the Czech Republic, have abruptly
halted these incentives altogether. Still, the rapid decline of costs
continues to drive renewables toward grid parity, and new financing
structures such as yieldcos – publicly-traded companies that include
predictable operating assets with power purchase agreements
(PPAs) that produce cash flow – are gaining in popularity. Yieldcos
typically offer 5% to 6% dividend yield and trade at a significant
premium to traditional P&U companies. For example, NRG Yield Inc.
(a US-based yieldco), trades at about a 50% premium to its parent

It can be difficult to monitor the diverse and fast-changing set of
economic, political and social conditions that impact on utilities
valuations – let alone understand and capitalize on these complex
drivers. Capital outlook cuts through this complexity, using the
experience of our global network of more than 700 senior client-
facing P&U professionals, to make sense of key valuation trends.

Using a series of detailed multiples and valuation metrics,
this report is tailored specifically for the P&U sector. We will update
Capital outlook every six months to highlight the areas and sub-
sectors we consider to be the most likely source of transaction
activity over the short to medium term. In this way, whether you
are buying, selling or considering a shift in the focus of your capital
agenda, we hope that this provides a reference and guide for trends,
metrics and comparisons.

We look forward to your feedback and encourage you to please get
in touch with your local contact (listed on page 32) to discuss your
own capital agenda goals.

Key findings:

• Transmission and distribution companies are trading
  above average, driven by stable earnings and relatively
  high dividend yields, and attracting M&A premiums of up
to 35%.

• Generation and independent power producer valuations
  have improved in the US, but companies in Asia-Pacific
  and EMEIA are trading at a 20% to 30% discount.

• Integrated and diversified utilities valuations in Europe
  have been hit hard and companies in the region are
  shifting their focus to the emerging markets.

• Renewables are attracting the most attention in the US,
  China, Germany and Japan where demand is strong and
  regulatory support is relatively solid.
Global risk/reward valuation profile

US
Sub-sector focus:
T&D (northeast region)
Renewables (southwest region)

Mexico
Sub-sector focus:
Generation (post reforms)

Brazil
Sub-sector focus:
Renewables (wind)

Nigeria
Sub-sector focus:
Generation, renewables

Saudi Arabia
Sub-sector focus:
Generation
Notes on framework:

- The valuation represents current levels versus historic group levels for the sub-sector.
- Risk/reward is based on volatility of earnings and expected risks for the sub-sector.
Section 1

Americas

While valuations for most of the region’s companies, especially in the US, remain at near-historic highs, low interest rates and an improving commodities outlook should see asset valuations in some sub-sectors rise even higher. For many US utilities, the significant capital requirements of complying with new US Environmental Protection Agency (EPA) regulations continue to have an impact. And while regulated utilities are likely to pass these investments onto ratepayers, expect to see many merchant generators continue to retire coal-fired plants, rather than fund costly retrofits.

1.1 Transmission and distribution

Valuation data

Since 2007, regulated T&D utilities in the US have traded at an average price-to-earnings (P/E) multiple of 12.3x on FY2 EPS, between the range of 7.8x to 15.9x. However, the group is currently trading at an average of 15.2x on FY2 EPS, implying a 25% premium to historical averages. We believe further multiple expansion for the regulated group is unlikely for the reasons outlined in the Valuation drivers section.

Based on M&A deals in the US over the last two to three years, transaction multiples imply that investors are willing to pay a 15% to 35% premium for these companies over current group valuations. Despite the stretched valuations, we believe consolidation will continue as T&D companies look to acquire assets to increase their rate base amid declining demand growth and returns. While much of the Southeast is already consolidated, we consider the Northeast to be well-placed for consolidation due to the presence of many small- to mid-cap utilities.

Figure 1: Average P/E trading multiples on FY2 consensus earnings estimates, 2007-14

Source: S&P Capital IQ, EY analysis

Figure 2: Transaction P/E multiples for major M&A deals, since 2012

Source: S&P Capital IQ, EY analysis

Format: Target/acquirer (announcement date). Transaction multiple calculated using price paid and FY2 earnings estimates for targets.
Valuation drivers

Rising interest rates provide headwinds for utility valuations: While the US 10-year Treasury yield bottomed out in mid-2012 at an average near 1.5%, it has since increased by approximately 75% to average near 2.5%. This trend of increasing yield will put pressure on regulated utilities’ valuations, given the declining attractiveness of dividend levels, which average near 4% to 5%.

Significant rate base growth opportunities for T&D businesses: T&D capital expenditure, which accounts for nearly 50% of the planned spending by electric utilities over the next three years, is expected to remain relatively steady. T&D infrastructure investments are driven by the need to:

• Replace aging infrastructure
• Connect the increasing renewable capacity to the grid
• Modernize the existing grid to incorporate smart meters
• Improve the overall reliability of the system

Additionally, despite challenges to the rates of return authorized by the Federal Energy Regulatory Commission (FERC), the level of return allowed for transmission investment remains higher than returns authorized by state commissions (which regulate distribution businesses) in traditional proceedings. Pure-play transmission companies such as ITC Holdings Corp. trade at a 15% to 20% higher multiple than other regulated utilities. Confidence in these regulated businesses is driven by their relatively stable earnings and solid dividend yields.

Weak demand, declining allowed returns and increasing regulatory challenges weigh on earnings: As shown in Figure 3, the allowed returns for US regulated utilities are on the decline. This, combined with the current environment of weak electricity demand growth, means that utilities will face bigger challenges in passing on capital investment costs to ratepayers. However, new constructive regulatory policies that aim to help utilities better recover their true costs, such as the Reforming Energy Vision under consideration in New York state, are likely to become more commonplace.

![Figure 3: Allowed returns (ROE) for regulated electric and gas utilities in the US, 1998-2013](source: SNL Energy, EY analysis)
1.2  Generation and independent power producers

Valuation data

Historically, base-load-IPPs in the Americas have traded at an average of 8.2x on FY2 EBITDA forecasts, as shown in Figure 4. The 2008 economic crisis saw IPP valuations drop significantly, while the 2012 decline of US natural gas and power prices prompted another, smaller, dip. Valuations have since improved, with current trading multiples nearing 9.2x.

The last few years have seen many asset-level generation deals where IPPs and other financial investors have acquired base-load plants, mostly from diversified utilities, as low natural gas and power prices saw many discounted power plants come to market. Diversified utilities, on the other hand, have focused on optimizing assets and growing their regulated businesses.

Valuation drivers

Improving commodity outlook will drive valuations higher: As shown in Figure 5, US natural gas prices have rebounded significantly since their mid-2012 low of less than US$2/MMBtu. Current forward prices, as shown in Figure 6, indicate that natural gas will reach near US$4.6/MMBtu by 2020, implying an increase of approximately 15% to 20% from current levels. Since natural gas prices drive the power prices in most states, this trend of increasing prices is set to improve the valuations for conventional sources of generation.

New environmental regulations weigh on the future of coal capacity: Based on industry estimates, power companies in the US plan to retire nearly 28GW of coal-fired generating capacity.

Figure 4: Average EV/EBITDA multiples for IPPs on FY2 consensus estimates, 2007-14

![Figure 4: Average EV/EBITDA multiples for IPPs on FY2 consensus estimates, 2007-14](image)

Source: S&P Capital IQ, EY analysis

Figure 5: Natural gas day-ahead prices, Henry Hub, US$/MMBtu, 2011-14

![Figure 5: Natural gas day-ahead prices, Henry Hub, US$/MMBtu, 2011-14](image)

Source: SNL energy
between 2014 and 2022, with the majority of these retirements planned in the Midwest region. In 2013, about 6.3GW of coal-fired generation was retired, with nearly 2.8GW of additional capacity expected to be retired by the end of 2014. While this 2014 number may seem relatively low, the majority of planned shutdowns are slated to occur in 2015, when the Mercury and Air Toxics Standards (MATS) rule takes effect. Other regulations, including the EPA’s long-awaited proposed carbon regulation and the recently finalized Cooling Water Intake Structures rule, provide further incentives to retire coal-fired plants.

**Valuation for assets will increase in tighter power markets:** Resource adequacy in regions such as Texas (managed by the Electric Reliability Council of Texas (ERCOT)) and the Midwest (managed by the Midcontinent Independent System Operator (MISO)) will fall below reserve margin targets within the next few years. For example, ERCOT is expected to remain below the target reserve margins over the next 10-year period, while MISO will fall below targets during the 2015 summer season. In this scenario of low capacity availability, we expect power prices to spike, improving the economics of existing plants.

**Figure 6: Natural gas average yearly forward prices, Henry Hub, 2014-20, US$/MMBtu**

Source: SNL energy
1.3 Integrated and diversified

Valuation data
Integrated and diversified utilities in the Americas have traded at an average of 7.9x on FY2 EBITDA forecasts. After hitting a low of 5.7x in 2009, these utilities have rebounded with current trading multiples nearing 9.0x.

The move to increase exposure to regulated earnings, through divestiture of merchant plants or acquisitions of regulated assets, is driving valuations higher for these companies. However, higher long-term valuations, especially for companies with significant leverage to power markets, depend on the upside for natural gas prices from current levels.

Figure 7: Average EV/EBITDA trading multiples on FY2 consensus estimates, 2007-14

Source: S&P Capital IQ, EY analysis

Valuation drivers
The recent trend of US diversified utilities selling their non-regulated power plants, in order to focus solely on regulated businesses, is re-setting their trading multiples. In 2013, Missouri-based Ameren Corp. sold its merchant coal plants to Dynegy while California-based Edison International sold its non-regulated subsidiary, Edison Mission Energy. Other large caps, including Duke Energy and American Electric Power, have announced sales of Midwest power plants.

Diversified companies, which are significantly levered to generation businesses, are acquiring regulated utilities to de-risk their asset bases. A notable example is PPL Corp. The company’s acquisitions of regulated utilities in the US and UK over the last few years have transformed its business mix from 80/20 merchant/regulated to a 20/80 ratio. Also, the company recently announced plans to spin off merchant assets into a separate IPP, making PPL a purely regulated company. Similarly, Exelon Corp. recently acquired Pepco Holdings, a regulated utility, in a move that will see regulated operations contributing about 60% to 65% of Exelon’s total earnings over 2015-16 (up from expectations of 55% to 60% pre-deal).
1.4 Renewables

Valuation data

Most M&A deals in this sub-sector involve assets. Valuations vary widely depending on the type of renewables technology and the project stage (i.e., planning, constructing or operating). In the US, the transaction multiples for wind projects acquired over the last few years averaged around US$700/kW to US$750/kW.

Historically, as shown in Figure 8, wind deals dominated the overall M&A landscape in the US renewables sub-sector although activity within solar has recently picked up. While wind capacity under construction is currently low — driven down by the end of certain tax credits — new solar capacity could keep M&A momentum high, as shown in Figure 9.

Valuation drivers

A number of factors are currently impacting the availability of new renewable projects in the US, including:

Renewable Portfolio Standards (RPS): RPS, adopted by many US states, support long-term demand for renewable energy, although capacity requirements vary across states, and some are voluntary rather than mandated. For example, California requires its utilities to derive 33% of their retail electricity sales from renewable sources by 2020 — the highest percentage of any state. However, existing state RPS programs require annual renewable energy additions of only 3GW to 5GW per year between 2013 and 2020, lower than the recent annual renewable additions.

1 The adoption of RPS has been mandated in 29 states - Arizona, California, Colorado, Connecticut, Delaware, Hawaii, Illinois, Iowa, Kansas, Maine, Maryland, Massachusetts, Michigan, Minnesota, Missouri, Montana, Nevada, New Hampshire, New Jersey, New Mexico, New York, North Carolina, Ohio, Oregon, Pennsylvania, Rhode Island, Texas, Washington, Wisconsin — and the District of Columbia. The standards have been voluntarily adopted by an additional eight states - Indiana, North Dakota, Oklahoma, South Dakota, Utah, Vermont, Virginia, and West Virginia —.
Tax credits: Production Tax Credits (PTC) expired in 2013, creating uncertainty for the development of new renewable projects, especially wind-based projects. Investment Tax Credits (ITC), used mostly by solar developers, are scheduled to expire by 2016. Limited funding availability remains a key constraint for the industry in the US, driven by expiration of the 1603 Treasury cash grants, limited availability of tax equity in the market and declining venture capital investments. Despite these difficulties, the entry of non-traditional tax-equity players such as utilities and technology companies, as well as the introduction of possible new investment vehicles (such as master limited partnerships and reverse auction mechanisms) could help offset the limited availability of capital in the market.

Levelized cost of energy (LCOE): LCOE for renewables is decreasing fast as technology improves. However, low natural gas and power prices are still weighing heavily on this sub-sector’s cash flow and returns, especially for solar projects. After topping out at nearly US$70/MWh in 2009, the average levelized long-term price for wind PPAs signed in 2011-12 fell to around US$40/MWh in the US, almost matching the lows of 2000-05, which is notable considering that installed project costs have not returned to the levels of this period. We are seeing wind PPA prices generally lowest in the interior region, highest in the west and somewhere in the middle everywhere else.

Carbon regulations: A potential introduction of carbon tax in the US could drive further growth for renewables. The recently released EPA draft regulations for carbon dioxide emissions by coal plants propose a 30% reduction in greenhouse emissions in the US by 2030, as well as Mexico’s new carbon tax (introduced in January 2014), look set to boost the relative cost-competitiveness of renewable energy in the region.
1.5 The capital outlook: Americas

Over the past few years, low natural gas and power prices have seen many US diversified utilities looking to sell their non-regulated plants, creating a pipeline of discounted assets. Pure-play IPPs, especially in the US, have acquired most of these assets, with the expectation that energy and capacity prices will increase in the long term. As US regulated businesses continue to attract megadeals, we expect focus to shift to Northeast natural gas companies where infrastructure bottlenecks still exist.

The US and Brazil are the most active M&A destinations in the Americas, in terms of deal volume, over the last 12-months. The renewables sub-sector is most active in terms of deal volume, with significant interest in wind and solar technologies.

Our expectations regarding the capital outlook for the Americas appear in Map 1.

Map 1: Key trends in the Americas capital outlook

- New renewable capacity will continue to drive M&A in the US. While California leads in terms of capacity under development, other states including North Carolina, Florida, Kentucky and Nevada also maintain a healthy pipeline.
- Mexico’s recent energy reforms, including opening the electric generation sector to full private participation and investment, marks a fundamental change from the previous regime. As state-owned utility CFE undergoes major transformation, we expect it to shed multiple assets. The introduction of retail competition for Mexico’s largest customers also provides investment opportunities.
- Acquisitions in the renewable energy space in Brazil are expected to heat up as the country’s wind portfolio moves from construction projects to developed assets. Further, after agreeing to sell power at record low rates in the recent auctions, wind farm developers will need scale to remain profitable, which in turn is likely to drive M&A in the sector.
- The majority of the integrated utilities in the US are looking to divest their merchant generation businesses, to reduce exposure to natural gas price volatility. The Midwest region in particular has seen most of the asset sales. Major companies like Edison International, Ameren Corp., Duke Energy, American Electric Power and PPL Corp. have sold or have announced the sale of their non-regulated plants.
- Following last year’s market reform, utilities in Brazil are reconsidering their strategies and rebalancing portfolios. Electrobras, Brazil’s state-run utility, reported losses in its quarterly and annual results in 2013, and has embarked on a restructuring program. The company is seeking approvals from the government to sell its six distribution units, which lost a combined R$1.33b (US$587m) in 2012. We anticipate these assets to come to the market in 2014.
Valuations for utilities in Asia-Pacific are attractive compared with other regions, especially in the generation sub-sector. Asian P&U companies benefit from strong demand and the potential introduction of positive regulatory reforms. China leads in terms of M&A activity, with significant deals in both the generation and renewables sub-sectors.

2.1 Transmission and distribution

Valuation data
Since 2010, key T&D utilities in the Asia-Pacific traded at an average P/E multiple of 13.5x on FY2 EPS, in the range of 11.5x to 15.0x. The group is currently trading at an average of 14.0x on FY2 EPS, implying a modest premium of 4% on historical averages.

Valuation drivers
A number of key factors are impacting the valuations of T&D assets in Asia-Pacific:

- High demand growth supports earnings growth: Electricity and gas demand in the Asia-Pacific will continue to grow, largely driven by above average GDP growth in the region. As shown in Figure 12, Asian utilities are expected to face, on average, 4% year-on-year growth in electricity demand through to 2035.
- Reforms in key countries such as Australia and China will present long-term investment potential for investors.

Figure 11: Average P/E multiples on FY2 consensus estimates, 2010-14

Figure 12: Electricity demand growth (year-on-year) by region, current policies scenario, 2011-35

Source: S&P Capital IQ, EY analysis
Source: International Energy Agency
Specifically:

- **Increased regulatory visibility in Australia.** As per Moody’s Investors Service, the outlook for the Australian regulated networks industry is currently stable. This rating reflects the increased visibility of the process by which networks’ revenue is determined, based on details recently released by the Australian Energy Regulator regarding its new rate-of-return framework. In addition, the New South Wales and Queensland Governments in Australia have announced plans to privatize their transmission and distribution assets.

- **Potential reforms to break monopolies in China.** In 2014, China’s National Energy Administration submitted plans to the State Council, advising the break up of grid operators’ monopoly in the distribution and retail of electricity. These reforms will potentially open the power market to private capital and other investments.

- **Incremental capital spending opportunities will drive earnings higher.** Regulated companies, deriving their earnings from the returns on infrastructure capital spending, will benefit from growing demand. For example, high growth in China is leading the country’s largest state-owned utility, State Grid Corporation of China, to build eight new ultra-high-voltage lines between 2013 and 2021, at an estimated cost of more than US$150b.
2.2 Generation and independent power producers

Valuation data
Current multiples for major generation companies in the Asia-Pacific are mostly dominated by large Chinese companies. Historically, the base-load IPPs in China traded at an average of 8.5x on FY2 EBITDA forecasts, as shown in Figure 13. The valuations for these companies have declined steadily since 2010, and the group is currently trading at about 7.0x, implying a discount of approximately 20% to historic averages. These low valuations create investment opportunities for larger IPPs to expand their market share by acquiring the under-valued smaller players.

In Australia, AGL Energy Limited announced in February 2014 that it would acquire Macquarie Generation from the Government of New South Wales for about US $1.4b — implying an EV/EBITDA multiple of 6.7x on last full-year EBITDA. While the deal was the subject of significant regulatory scrutiny on anti-competitive grounds, the Australian Competition Tribunal cleared the sale in June 2014.

Valuation drivers
Key factors impacting upon Asia-Pacific valuations in this sub-sector include:

Higher generation output driving earnings higher in select countries: IPPs, especially in China, continue to witness strong growth in generation output. For example, Huaneng Power International, a large-cap thermal power IPP based in China, disclosed that the company’s total power generation within China amounted to 317.5b kWh, representing an increase of about 5% over the same period last year. The increase was largely driven by the stable growth of the nationwide electricity consumption, above-normal summer temperatures and increased sales efforts.

Declining commodity prices favor margins but potential tariff cuts loom: In China, the thermal coal price has stabilized at low levels of around RmB535 (US$87)/ton, with no indication of any significant upward movement. However, the National Resources Defense Council of China (NDRC) has a price link mechanism between coal and electricity prices, which lifts tariffs if the thermal coal price rises more than 5% over the year and reduces the IPPs’ cost-bearing ratio to 10% (versus 30% previously used). While this mechanism does provide better earnings visibility for IPPs by allowing them to pass on costs to grid companies, the current environment of declining coal prices is likely to mean lower tariffs for Chinese IPPs.

Overhang of potential carbon tax: The Chinese Government plans to implement a tax on carbon emissions in addition to a planned emissions trading scheme. However, to date, neither of these proposals has been clearly outlined. And while coal-based Chinese IPPs continue to face this overhang of a potential carbon tax regime, the Australian senate recently voted to remove that country’s carbon tax.

Threat of over-capacity: Between 2000 and 2011, electricity generation in China grew, on average, by 12% year-on-year, before falling to less than 6% growth in 2012. Despite this moderation in demand growth, China is pushing ahead with plans to add significant new thermal and renewable capacity, which may result in a mismatch in demand and capacity additions that could weigh on future valuations for this sub-sector.

Figure 13: Average EV/EBITDA multiples for Chinese IPPs on FY2 consensus estimates, 2010-14

Source: S&P Capital IQ, EY Analysis
2.3 Integrated and diversified

Valuation data
Since 2009, key integrated and diversified utilities in the region have traded at an average EV/EBITDA multiple of 8.2x on FY2 estimates, between the range of 7.0x to 9.6x. The group is currently trading at an average of 7.4x on FY2 estimates, which is near the low-end of the range.

Valuation drivers
This sub-sector is exposed to the same valuation drivers as regulated utilities and power producers. The valuation differences between these companies is driven by the level of exposure to the regulated versus merchant businesses, and the overall macro-economic environment of their respective countries.

Figure 14: Average EV/EBITDA trading multiples of FY2 consensus estimates, 2009-14
2.4 Renewables

Most Asia-Pacific governments are continuing the push for more renewable projects. While overall deal flow has been lower than expected over the last 12 months, we see positive signs in several countries regarding new construction by local generators. International developers are also increasingly attracted to local projects, primarily to take advantage of government and market incentives, as well as the increase in the region’s overall electricity demand.

Figure 15: Renewables deal volume and value for Asia-Pacific, 2011-14

- Declining costs of technology increases attractiveness for renewables: The costs of renewable technologies, especially solar PV, have declined drastically over the last few years. Solar PV module unit costs have fallen by over 75% since 2006. As shown in Figure 16, system prices are expected to drop even further in the future.

- Anti-dumping duties impact manufacturing companies: In 2011-12, the US filed a case with the World Trade Organization (WTO) that claimed China’s anti-competitive subsidies were supporting solar sector growth. The case was followed, in June 2014, by an announcement by the US Department of Commerce that imports of Chinese solar panels would now attract preliminary duties of 18.56% to 35.21%. The decision may cause financial difficulties for Chinese solar manufacturers, especially considering that some have already defaulted on previous debts, mostly due to over-ambitious expansion plans. In 2013, Suntech Power defaulted on US$541m of convertible bonds while LDK Solar also defaulted on an equally large bond that matured.

Valuation drivers

A number of factors are currently impacting the development and valuations of new renewable projects in Asia-Pacific, including:

- Renewable targets support continuing growth: While Asia-Pacific is largely still dependent on fossil fuels, the focus on renewable energy is increasing fast. Most countries in the region have a target of around 20% renewable energy by 2020, with renewables currently generating less than 15% of total production on average. An exception to this average is seen in New Zealand, which already sources more than 75% of its electricity needs from renewable energy, mostly through hydropower and geothermal energy. New Zealand aims to meet 90% of its electricity needs through renewable sources by 2025.

Figure 16: Expected solar PV system prices, US$/Watt, 2010-20

Source: Bloomberg New Energy Finance
2.5 The capital outlook: Asia-Pacific

China continues to dominate inbound M&A deals within Asia-Pacific’s P&U sector, with more than 50% of the region’s deals taking place in that country over the past year. Most transactions are in the renewables and generation sub-sectors. Elsewhere, deal flow for renewable energy projects in Southeast Asia have improved over the last year, with notable solar projects in Thailand, the Philippines and Malaysia, and geothermal projects in Indonesia. Our expectations regarding the capital outlook for Asia-Pacific appear in Map 2.

Map 2: Key trends of the Asia-Pacific capital outlook

In March 2014, China’s National Energy Administration (NEA) submitted a new plan to the State Council for reform of the country’s power sector. Under the proposed reform, grid operators will gradually withdraw from electricity sales, allowing large-end users to purchase electricity directly from power producers at prices negotiated freely. Several provinces, such as Hunan, Sichuan, Shanxi and Gansu, have already begun to pilot direct power purchase for large users, with NEA publicizing the average power transmission and distribution cost by monitoring 10 provincial power grids.

Australian infrastructure funds are continuing to increase their presence within P&U. Macquarie is reportedly looking to expand its portfolio of power assets and invest in continental Europe, where utilities are closing significant gas and coal deals. Cheap distressed generation assets are on the shopping list of financial investors, who foresee profits once European energy supply and regulatory concerns are clarified.

Privatization of the sector in New Zealand and Australia is progressing. The New Zealand Government has announced it will sell up to 49% of Genesis Energy in a sale tipped to generate as much as US$684.5m. Following the sale of its generation assets, the New South Wales Government has announced that it will enter into a long-term lease of 49% of the state’s network assets. Similarly, the Queensland Government has also foreshadowed plans to privatize the state’s generation and network assets.

Case study: Envestra, the Australian natural gas retailer, recently announced its takeover by a consortium comprising Cheung Kong (Holdings) Limited, Cheung Kong Infrastructure (CKI) and Power Assets (PAH). The deal involves a cash consideration of A$1.32 (US$1.23) per share (a total of A$1.96b (US$1.81b) after taking into account CKI’s current 17.46% stake in Envestra), which represents 11x to 12x EV/EBITDA.
3.1 Transmission and distribution

**Valuation data**

Since 2010, key T&D utilities in EMEIA have traded at an average P/E multiple of 11.1x on FY2 estimated EPS, between the range of 9.2x to 14.7x. However, the group is currently trading at the high-end of the range (near 14.7x), implying a premium of approximately 35% to historical averages. We believe that any further increases in the P/E ratio are unlikely.

**Figure 17: Average P/E multiples of FY2 consensus earnings estimates, 2010-14**

![Average P/E multiples graph](source: S & P Capital IQ, EY Analysis)

Source: S & P Capital IQ, EY Analysis

**Valuation drivers**

Market reforms and regulatory changes have had the biggest impact on valuations in this sub-sector. EMEIA’s regulatory environment is dynamic, with many countries focusing on opening their power sectors to competition and private investments. Key country updates include:

- **Saudi Arabia:** The Saudi Government is planning to restructure the country’s leading electricity company, Saudi Electricity Company (SEC), into four firms overseeing electricity generation, transmission, distribution and supply separately. In addition, in a bid to include private investors in the electricity development, the SEC has already tendered five plants using the IPP model, which requires the utility to enter into a take-or-pay agreement with the developer.

- **Israel:** Between 2015 and 2018, the Israeli Government plans to sell up to 15% of its stakes in state-owned electricity utility, Israel Electric, in a bid to reduce debt and boost competition.

- **Tanzania:** In May 2013, Tanzania’s Minister of Energy and Minerals, Professor Sospeter Muhongo, announced plans to restructure the state-owned electric utility, TANESCO, by unbundling it into separate generation, transmission and distribution companies.

- **Greece:** Energy reform in Greece will result in the sale of 30% of the installed generation capacity of Public Power Corporation (PPC), the sale of 66% of the Independent Power Transmission Operator (ADMIE) and the sale of government’s minority stake of PPC.
Regulatory stability will also drive certainty of cash flows and returns in select markets. Specifically:

- **UK**: Energy regulator Ofgem set new controls for electricity and gas transmission and distribution charges that came into effect from April 2013 under a framework set to continue until March 2021. These price controls are based on the assumption that equity investors require at least a 6.7% to 7.0% real-after-tax return on their investment (plus inflation), and that companies which outperform peers operationally should be able to earn incremental returns. However, Ofgem’s recent call to the Big Six retailers to explain to customers how falls in wholesale costs will impact bills indicates that the sector is not immune to political and regulatory pressures.

- **India**: India’s T&D segment is currently government-controlled, with the Power Grid Corporation of India (PGCIL) the country’s largest central transmission utility. An increase of tariffs in many states since 2012 has improved the health of the State Electricity Boards (SEBs) and provided momentum for higher realized returns for PGCIL. We anticipate that India’s newly elected and stable government, as well as expected power sector reforms, have the potential to improve cash flows and returns for SEBs and transmission companies in the country.

![Figure 18: Electricity demand growth (year-on-year) by region, current policies scenario, 2011-35](source: International Energy Agency)
3.2 Generation and independent power producers

Multiples for major generation companies in the area are mostly dominated by large companies in India, Italy and Spain.

Valuation data

Historically, the base-load-IPPs in the EMEIA region have traded at an average multiple of 8.4x on FY2 EBITDA forecasts, as shown in Figure 19. The valuations for these companies have declined significantly from a 2010 high of 12.5x to 13.0x to near 9.0x levels, a decline of approximately 30% in multiple levels.

Valuation drivers

Valuations in this sub-sector are currently impacted by diverse and dynamic factors:

The economics of natural gas generation in Europe are weak: Renewable energy subsidies and energy efficiency goals across the European Union are depressing power prices and impacting the margins of power generators. As the US faces an abundance of natural gas, Europe is flooded with cheap coal, which, in addition to the rise of renewables, has reduced demand for gas.

Closure of nuclear capacity impacts Germany and Belgium: According to the European Commission’s report EU Energy, Transport and GHG Emissions: Trends to 2050, net European nuclear generating capacity was 131.3GW in 2010, will decline to 96.9GW in 2025 and will rise to 122GW in 2050. The decline to 2025 is largely due to phase-out policies in Germany and Belgium. In Belgium, where nuclear currently represents about 30% of total capacity, a phase-out plan will take out 6GW of nuclear capacity by 2025. Meanwhile, plants currently closed for testing are facing barriers to planned restarts.

Fuel supply security may increase confidence in emerging markets: For countries such as India, that depend heavily on imported fuel, availability of fuel is a key factor in valuations. For example, recent measures taken by National Thermal Power Corporation (NTPC), India’s largest IPP, to lock in a stable coal supply are seen as a positive sign for the company. NTPC is developing multiple coal blocks with the first coal mine (Pakri-Barwadih) likely to be operational very soon. The company also has the flexibility to increase imported coal blending from current levels and source coal via e-auctions. However, the recent decision by the Supreme Court of India to scrap nearly all coal block allocations previously allocated to power companies creates some uncertainty.
New environmental regulations impact the future of fossil fuel-based capacity: EU countries are currently bound by the 20-20-20 energy goals introduced in 2007. These goals stipulate that, by the year 2020, the region must achieve a 20% reduction in carbon dioxide emissions and a 20% increase in energy efficiency, as compared to a 1990 baseline. In addition, 20% of overall energy must be supplied by renewable energy sources. The long-term goal is 80% decarbonization by the year 2050.

Potential new reforms protect conventional generation: The possible introduction in key European countries of long-term capacity remuneration markets, a well-known mechanism in the US, will provide additional incentives for base-load power capacity. In June 2014, Germany’s Economy Minister announced plans to introduce a market for spare power capacity, aimed at helping loss-making coal and gas-fired power stations stay open as backup for wind and solar plants.

Figure 20: Average electricity generation growth (year-on-year) in key EMEIA countries, %, 2011-15 average

Source: IHS Global Insights
3.3 Integrated and diversified

EMEIA is home to some of the world’s largest P&U companies and most European diversified utilities operate globally.

**Valuation data**

Europe’s diversified utilities are currently focused on selling non-core assets and cutting costs. Post-financial crisis, European utilities were hit hard by declining energy demand, uncertain policies, over-leveraged balance sheets and a mandate to unbundle. These factors pushed utilities to divest assets, particularly regulated grids, which attracted significant premiums. E.ON, RWE and GDF Suez emerged as the most aggressive sellers. In March 2014, RWE sold its oil and gas unit for about €5b (US$6.7b), as part of its €7b (US$9.4b) divestiture plan aimed at funding new investments or paying down debt. Some of E.ON’s largest recent divestments include the €2.8b (US$3.7b) sale of Open Grid Europe, the sale of a 50% stake in the Horizon nuclear project and the €1.3b (US$1.7b) stake sale in Slovakian energy company SPP.

Large integrated utilities in EMEIA, dominated by European companies, are currently trading at 7.8x on FY2 EBITDA estimates – approaching the highest levels of the past five to seven years.

**Figure 21: Average EV/EBITDA multiples on FY2 consensus estimates, 2008-14**

Average: 6.3x  
High: 7.8  
Low: 5.0

Source: S&P Capital IQ, EY analysis
Valuation drivers

This sub-sector is exposed to most of the valuation drivers for regulated utilities, as well as those affecting power producers. Key factors include:

Geographical diversification into high-growth areas: Expansion into high-growth markets is critical for large integrated companies currently pressured by struggling domestic economies and low power prices. Notable examples of this expansion include:

- Plans by Iberdrola SA, Spain's largest integrated utility, to invest about US$5b in Mexico over the next four years, encouraged by broad reforms in that country's energy industry.
- Announcements by Enel, Italy's largest utility, that it will cut costs at home and focus new investment in emerging markets and renewable energy – the company plans to invest about €25.7b (US$34.4b) over 2014-18, of which 57% will be spent in growth markets.

Relative attractiveness of dividend yields versus current interest rates: Investors in the traditional utilities sector typically look for sustainable dividends and high yields. These yields are now even more attractive, especially in Europe, given the sluggishness of the Eurozone economic recovery. In June 2014, the European Central Bank lowered its main interest rate by 10 basis points to a historic low of 0.15% to spur growth and inflation. As shown in Figure 22, the average dividend yield for European utilities is significantly higher than the bank interest rates.

Figure 22: Average dividend yield for large European utilities, 12 trailing months

Source: Thompson One
3.4 Renewables

While growth of renewable energy remains strong in Europe, many countries in the region are now withdrawing their financial incentives for renewable generation. The next wave of opportunities will come in emerging economies, such as Nigeria and India, where the governments have ambitious plans to develop renewable projects.

Valuation drivers

A number of factors are currently impacting the development of new renewable projects in the EMEIA region, including:

Mixed support in Europe: Concerns over high energy costs in Europe are undermining support for binding renewable targets in the EU. While countries such as Germany and the UK are slowly reducing their renewable feed-in tariffs (FITs), others such as Spain and the Czech Republic are bringing their tariffs to abrupt ends. Key updates include:

- **Spain**: According to the most recent renewable regulatory details, it appears recent subsidy changes will hit wind technology hardest, absorbing about 65% of the total cuts to remuneration. The revised regulations mean that all wind assets commissioned before 2005 (about 40% of the 23GW total wind capacity) will now sell only at the wholesale market price, without any incentive on top of the pool price.

- **Germany**: Germany’s “Energiewende” or “energy transformation” requires electric utilities to generate 35% of their electricity from renewable sources by 2020, 50% by 2030, 65% by 2040 and 80% by 2050. While Germany has one of the world’s largest solar capacities, the country has been reducing its FIT incentives over the past few years. Now a new draft proposal will see FITs paid to renewable power generators cut to an average across all technologies of US$0.12/kWh by 2015, down from the current US$0.17/kWh.

- **France**: The European Commission has cleared the way for France’s new FIT, following the overturning of its previous regime.

- **Greece**: New legislation in Greece has lifted a ban on new large-scale solar projects, in place since August 2012, allowing projects totaling 250 MW to receive FITs annually until 2020.

Large supply/demand gap in some countries: Some countries, such as India, face a large energy demand-supply gap due to rapid industrial growth, population growth and urbanization. India’s new government is focused on achieving “Power for All” and overall energy security. Other drivers of growth within the Indian market include the abundance of untapped renewable energy resources and issues related to availability of coal for thermal projects. India also benefits from strong policy impetus, including the launch of the National Solar Mission, part of the National Action Plan on Climate Change (NAPCC), that aims to achieve 20GW solar installed capacity by 2022. Meanwhile, State Electricity Boards have been mandated to source a proportion of their total energy from renewable sources, and the government continues to provide Generation-Based Incentives (GBI) for wind-based projects.

**Figure 23: Breakdown of renewable M&A deals in EMEIA, last 12 months**

![Pie chart showing renewable M&A deals in EMEIA](source: Merger Markets, EY analysis)

* Others include biomass, geothermal technologies, and deals including multiple technologies
Europe has clearly dominated the region’s inbound M&A activity, due mostly to divestments within the T&D sub-sector by large diversified utilities under pressure from weak domestic economies. Going forward, India will emerge as the next destination for power sector investments, given the availability of cheap assets and the new government’s focus on market reforms and incentives, especially for the renewable sector. MENA will also continue to remain appealing to investors, attracted by high growth and potential privatization and unbundling opportunities.

Our expectations regarding the capital outlook for EMEIA appear in Map 3.

Map 3: Key trends of the EMEIA capital outlook

Interest in Africa’s energy assets was highlighted during Nigeria’s recent US$2.5b privatization process that saw local players emerge as winners of most projects. As the country moves to privatize 10 gas-fired power plants, expect to see more involvement from foreign investors on the lookout for M&A opportunities. Nigeria is also planning to amend investment rules to channel more of the country’s US$26b of pension funds into corporate bonds, to ensure long-term funding of power and infrastructure projects. We expect that strong renewable growth will also drive M&A as Nigeria works toward achieving targets of 14% renewable capacity by 2020 and 20% by 2030.

Saudi Arabia is considering the potential breakup of state-owned utility Saudi Electricity Co. The country’s industry regulator, the Electricity & Cogeneration Regulatory Authority, plans to offer as much as 25% in each unbundled company to international investors. Saudi Arabia requires a US$100b investment over the next decade to achieve its goal of boosting power generation capacity in the Kingdom by 50%.

India is likely to receive more interest in 2014-15, as foreign investors line up to acquire a number of distressed renewable assets.
Section 4

Japan

While Japanese utilities are trading at historically normal levels, the upcoming market deregulation, which will break up Japan’s vertically integrated utilities and introduce full retail competition, is set to unlock significant value for currently undervalued businesses. Solar generation, backed by best-in-class incentives, has seen prolific growth over the last few years, but we expect to see other technologies, including off-shore wind, receive major interest going forward.

4.1 Integrated and diversified

The Japanese power sector is dominated by 10 privately owned, vertically integrated utilities, each operating in a defined geographic region in Japan. Spurred on by the significant market reforms outlined by the Japanese Government, some of these companies have commenced plans to offer electricity outside their traditional regions. For example, in May 2014, Tokyo Electric Power Company (TEPCO) announced plans to sell electricity nationally, mainly in the service areas of its peers Kansai Electric Power and Chubu Electric Power.

Valuation data

Between 2007 and March 2011, diversified utilities in Japan traded at an average EV/EBITDA multiple of 8.8x on FY2 EBITDA. However, following the 2011 tsunami, valuations for these companies spiked as analysts cut estimates for those companies with significant nuclear exposure. Since then, the group has traded at an average multiple of 10.4x, which is about 17% higher than historic averages. As shown in Figure 24, the group is currently trading at pre-tsunami levels, declining from highs of about 15.0x to near 9.0x levels.

Figure 24: Average EV/EBITDA trading multiples for diversified utilities on FY2 estimates, 2007-14

Source: S&P Capital IQ, EY analysis

Valuation drivers

Amid regulatory reform and ongoing debate regarding nuclear, valuations of Japan’s integrated and diversified utilities are impacted by various, complex factors:

Regulatory risk and significant costs of nuclear restarts: The closure of Japan’s nuclear power stations, following the Fukushima incident in 2011, had a huge impact on the country’s electric power companies. In 2012, the Japanese Government was forced to take a controlling stake in TEPCO to save the company from insolvency, while other utilities have also sought various forms of government backing. For example, Kyushu Electric Power Company is lobbying for an almost US$1b bailout in equity financing from the Government-affiliated Development Bank of Japan, while Hokkaido Electric Power is seeking similar support.

For these and other electric power companies, restarting the idled nuclear reactors is critical but they face the need to first fund significant investment to update safety measures. At present, 16 of Japan’s 48 nuclear reactors are subject to the Nuclear Regulation Authority’s screening process regarding safety measures. But even as utilities undergo this process, they have no guarantee of approval to restart their nuclear reactors. Despite this uncertainty, the Japanese Government seems committed to nuclear power remaining an important part of the energy mix. In April 2014, the Japanese Cabinet approved the new Basic Energy Plan, which states that nuclear power will be positioned as an “important base-load power source” and that the nuclear fuel cycle will continue to be promoted.
Expected deregulation and entrance of new players: The incident at Fukushima highlighted a number of weaknesses in Japan’s power distribution system and sent power prices skyrocketing to among the world’s highest. These challenges were the catalyst to significantly transform the country’s power market, with plans now underway to unbundle the 10 integrated utilities into separate power generation, transmission, distribution and supply companies over the next few years. In June 2014, Japanese lawmakers voted to open up the residential electricity market to full competition. The change allows new companies to sell electricity and other services to almost 77m households and 7.4m small businesses from around 2016.

Stagnant electricity demand slows valuation expansion: Overall, even with the third largest economy in the world, Japan has witnessed flat-to-negative growth in GDP in the past decade. While the strong manufacturing sector supports the overall energy consumption levels, growing government and social support for energy efficiency implies limited upside for the nation’s electricity consumption. As shown in Figure 25, the total generation by Japan’s 10 largest utilities in 2013 is even lower than the 2000 levels.

Increasing reliance on imported fuels drives up costs: As nuclear reactors remain shut, Japanese utilities have been stepping up plans to increase the electricity output from coal and natural gas. According to the Federation of Electric Power Companies in Japan, the country’s 10 integrated power utilities consumed about 59.9m tons of coal in the fiscal year ended 31 March 2014, up 19.3% from the previous year and adding to the cost burden on utilities. This has been exacerbated by a weak yen which has driven up the cost of fuel import costs. Despite this trend, we anticipate only minimal increases in coal imports going forward, considering most capacity is at peak utilization and no new coal-fired power plants are scheduled to come online this year.

Japan is the largest importer of liquefied natural gas (LNG) in the world, consuming about 37% of global LNG in 2012 in the wake of the Fukushima disaster. In a bid to alleviate fuel supply issues and reduce import costs, Japanese utilities are establishing interests in natural-gas-rich countries, especially in Australia and the US. Japanese companies have taken small equity stakes in Australia’s liquefaction projects and signed contracts with various large Australian LNG projects. Japan is also in discussions with US exporters to secure additional natural gas supply, although these negotiations are subject to approved US export licences. In May 2013, the US Department of Energy (DOE) gave approval for its Freeport LNG terminal in the Gulf of Mexico to ship LNG to countries that do not hold free trade agreements with the US. Japan’s Chubu Electric and Osaka Gas took advantage of the decision, signing preliminary agreements to import over 100 Bcf/y each for 20 years from this terminal starting in 2017, which could drive a potential reduction in the high LNG prices.

Even when nuclear does restart in Japan, the country’s lack of indigenous uranium supply will result in its continued dependence on imports from countries such as Australia, Canada and Kazakhstan.

Figure 25: Electricity generated by 10 largest diversified utilities in Japan, GWh, 2000-13

![Figure 25: Electricity generated by 10 largest diversified utilities in Japan, GWh, 2000-13](source: The Federation of Electric Power Companies in Japan)
4.2 Generation and independent power producers

Japan currently has only a limited number of pure-play IPPs, with Electric Power Development Company (or J-Power) the sole listed large-cap IPP. J-Power sells electricity to regional power companies, using largely hydroelectric and coal-fired plants. While the company is currently building its first nuclear power plant, the start-up date is unclear. J-Power is aggressively targeting overseas markets, with IPP projects currently underway in Thailand and Indonesia.

**Valuation data**

Since 2007, J-Power traded at an average EV/EBITDA multiple of 10.9x on FY2 EBITDA, in the range of 9.4x to 12.8x. The company currently trades at 10.9x, in line with historic averages.

**Figure 26: Average EV/EBITDA trading multiples on FY2 consensus estimates, 2007-14**

Source: S&P Capital IQ, EY analysis

**Valuation drivers**

J-Power’s valuation is likely to rise as Japan continues to increase its use of thermal power amid the ongoing nuclear shutdown. Potential expansion of overseas IPP businesses by Japanese companies will drive higher earnings, while we may also see the growth of IPP’s domestic power business through the construction of new thermal plants.
4.3 Renewables

Valuation drivers

With uncertainty surrounding nuclear and current record usage of fossil fuels, it seems assured that renewable energy will remain a key focus for Japan. While current renewable output is dominated by hydropower, most new development is focused on solar, with wind running a distant second. Recent policy drafts released in Japan envision reaching 25% to 35% renewable generation by 2030. Specific drivers include:

Strong incentives push solar growth: The FIT, which has been in effect since 2012, sets fixed prices that utilities must pay for renewable generation. The initial tariff for solar (about ¥42/kWh (US$ 0.39/kWh) over a 10-year period for small systems and over 20 years for those larger than 10 kW) was about twice that for wind projects (¥23.10/kWh (US$0.21/kWh)). While this price was reduced in April 2013 to ¥36/kWh to ¥38/kWh (US$0.33-0.35/kWh) and in April 2014 to ¥32/kWh to ¥37/kWh (US$0.29-0.34/kWh), industry experts believe that the lower price is still very attractive to IPPs. This subsidy, which is substantially higher than prices in other renewable-friendly countries like Germany and Sweden, is driving strong solar growth in Japan.

Offshore wind provides a promising option: Wind generation has seen limited growth in Japan, with current installed capacity of only 2.3GW (or less than 1% of total capacity). Wind projects require lengthy and complex environmental assessments and incorporation of expensive seismic safeguards for certain large plants. Despite the technological challenges, experts believe floating wind power (or offshore wind) may have substantial potential for Japan. In March 2014, the industry regulator (Ministry of Economy, Trade and Industry (METI)), decided to increase the FIT that utilities pay for electricity from offshore wind farms, from ¥22/kWh to ¥36/kWh (US$0.20-0.33/kWh), while cutting prices for solar projects.

Figure 27: Cumulative renewable power generation capacity certified by the FIT regime in Japan, GW, 2012-13

Source: Japan Renewable Energy Foundation, EY analysis
4.4 The capital outlook: Japan

As shown in Figure 28, Japan has seen only very limited inbound M&A over the last 12 to 16 months. While the renewable sector received some interest in terms of M&A, the other P&U sub-sectors remained largely inactive. However, the ongoing reform of Japan’s energy sector, including the unbundling of its 10 largest diversified utilities and the introduction of retail competition, will create significant transaction opportunities.

Our expectations regarding the capital outlook for Japan appear in Map 4.

Figure 28: Number of M&A deals by subsector in Japan, last 18 months

Map 4: Key trends of the Japan capital outlook

Despite declining FIT for solar, Japan is fast becoming a renewable energy hub with a large number of solar projects and offshore wind projects in the pipeline. Foreign investors are increasing their focus in the region. Goldman Sachs, for example, has committed about ¥50b (US$487m) to Japanese renewables projects.

As market reforms take shape, expect new players to enter the P&U space, especially in retail. We are already seeing new entrants position themselves for retail competition in Japan, with an aim to become registered power producers and suppliers (PPS). As at June 9 2014 there were 244 registered PPS, compared with about 100 in September last year.
1. **Power and utilities sub-sector classifications**

<table>
<thead>
<tr>
<th>Sub-sector</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Transmission and distribution (T&amp;D) companies</td>
<td>These companies largely own network assets, including electric T&amp;D wires and natural gas distribution assets. They feature commission-regulated rate structures that may or may not include decoupling provisions.</td>
</tr>
<tr>
<td>Generation companies and independent power producers</td>
<td>Generation companies and IPPs are companies whose primary business is the generation and sale of wholesale power. These companies may feature other businesses, such as retail and trading.</td>
</tr>
<tr>
<td>Diversified and integrated utilities</td>
<td>These companies feature a diverse portfolio of power services, including regulated and unregulated components. Unregulated businesses might include merchant power, international businesses and non-utility ventures such as mining or construction as part of their portfolio.</td>
</tr>
<tr>
<td>Renewable companies</td>
<td>The renewable sub-sector includes two types of companies: (1) generation companies deriving their power units from solar, wind, hydro, biomass or geothermal technologies, and (2) providers of material and supporting services that include finance, construction and maintenance of renewable projects.</td>
</tr>
</tbody>
</table>

2. **Methodology**

- **Trading multiples:** We use two-year forward (FY2) consensus earnings/EBITDA estimate to calculate the historic trading multiplies for P&U companies. Using these company level estimates, we estimate the sub-sector level averages. For example, regulated utilities traded at an average P/E multiple of 12.3x on FY2 EPS estimates. To shortlist the companies for inclusion in trading multiples analysis, we use multiple criteria, including: (1) listed on a major stock exchange and (2) with a market size of approximately US$1b and above.

- **Transaction multiples:** We analyze the available EV/EBITDA multiples for the M&A deals announced over recent years, to estimate the premium/(discount) paid by investors versus the historic trading multiplies for the respective P&U sub-sectors.

3. **EY’s area classification**

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<thead>
<tr>
<th>Area</th>
<th>Countries/regions</th>
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<tbody>
<tr>
<td>Americas</td>
<td>Canada, Mexico, South America, USA</td>
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<tr>
<td>Asia-Pacific</td>
<td>Australia, Brunei, Cambodia, Greater China, Guam, Indonesia, Laos, Malaysia, Maldives, North Mariana Islands, Oceania, Philippines, Singapore, South Korea, Sri Lanka, Thailand, Vietnam</td>
</tr>
<tr>
<td>EMEIA</td>
<td>Africa, Austria, Bangladesh, Belgium, CIS, CSE, FRaMaLux, Germany, India, Italy, Liechtenstein, MENA, Netherlands, Nordics, Portugal, Spain, Switzerland, UK and Ireland</td>
</tr>
<tr>
<td>Japan</td>
<td>Japan</td>
</tr>
</tbody>
</table>
Notes and methodology
The EY global power and utilities community comprises around 700 senior client-facing advisers at EY member firms around the world. Please contact your local EY Power & Utilities leader for assistance.

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