

Power Deals

2012 outlook and 2011 review

*Mergers and acquisitions
activity within the global
power and utilities market*



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Methodology and terminology

Power Deals includes analysis of all global crossborder and domestic power utilities deal activity. It is the latest in our *Power Deals* annual series. We include deals involving power generation, transmission and distribution; natural gas transmission, distribution and storage; and energy retail. Deals involving operations upstream of these activities, including upstream gas exploration and production, are excluded. Renewable energy deals are covered in our sister publication, *Renewables Deals* and therefore excluded. The analysis is based on published transactions from the Dealogic 'M&A Global database' for all power and gas utility deals. It encompasses announced deals, including those pending financial and legal closure, and those which are completed. Comparative data for prior years may differ to that appearing in previous editions of our annual analysis or other current year deals publications. This can arise in the case of updated information or methodological refinements and consequent restatement of the input database. Deal values are the consideration value announced or reported including any assumption of debt and liabilities. The Russian Federation is treated as a geographic entity in its own right. We have considered Asia Pacific as a region including Australasia, except if otherwise explicitly stated. All presented numbers of deals are inclusive of those deals with no reported value, unless specified.

Introduction

Welcome to Power Deals, PwC's annual analysis of deal activity in the power utilities sectors. We publish our outlook on the prospects for dealmaking in the year ahead. We also take a look at what's been happening in the last 12 months and in the different main markets around the world.

The report is the latest in our annual series on dealmaking. It examines activity in all parts of the sector except for renewables. In our companion report, *Renewables Deals*, we separately look at the trends and dynamics in the renewable energy deal sector. Together the two reports provide a comprehensive global analysis of M&A activity in the power utilities sector.

This year, for the first time, we open our report with our discussion of the outlook for the year ahead and identify some of the main themes we expect to be at work. In our last report, we correctly forecast the release of pent-up US deal demand into the big deal flow we saw in the previous 12 months.

We also highlighted the interest of Chinese buyers which has now manifested itself in a number of large deals.

Looking ahead, much will rest on the continuing eurozone crisis story and the extent to which economic growth signals can provide the confidence to support eurozone strategies. The crisis has halted some of the strong rebound in deal flow that we saw earlier last year. The underlying fundamentals for a resumption in deal flow remain in place but confidence in the wider economic outlook will be pivotal to whether it happens or not.



Manfred Wiegand
Global Power & Utilities Leader



John McConomy
Partner US
Power & Utilities Transaction Services



Andrew McCrosson
Partner UK
Power & Utilities Transaction Services

Report highlights

Deal pickup is put on hold

A mix of divestment, repositioning and market growth imperatives continue to make for potentially buoyant power deal conditions. But a pickup remains stalled as concerns about the eurozone crisis and economic growth persist. Deal values had been heading back towards those seen around the 2006-7 peak of M&A activity. As we enter 2012 they are nearer the credit crunch lows experienced in 2009. Two important confidence factors – economic growth signals and the regulatory treatment of recent big US deals – will hold the key to the timing and extent of 2012 deal flow.

The power deal world heads in new and different directions

In the past, Europe and the US were the dominant influence on deal activity. Now two other important influences are coming right to the fore – the involvement of very active Asia Pacific investors and the pace of growth markets such as Brazil. We're also seeing markets move at different speeds and in different directions. Growth in emerging markets is contrasting with recession in Europe. These different speeds will provide opportunities for buyers able to exploit cross-continental value opportunities. Any softening of European valuations, for example, will further heighten the interest of Asia Pacific buyers, already helped by exchange rates. Chinese companies are stepping up their 'go abroad' strategies. The US and Europe also provide contrasts. Often, in years when Europe power deal value totals are up, the US is down and vice versa. These opposite directions were very notable in 2011. Target deal value in North America more than doubled year on year to US\$107.5bn while European target value plummeted 43% (US\$30.5bn) to stand at US\$39.8bn.



New partnerships and a strengthening of financial buyers' visibility

Given the scale of capital required and market constraints, we are likely to see more examples of companies exploring alternative options for the big investments needed in power infrastructure. One of these is more strategic partnerships with organisations that have got large pools of capital, such as sovereign wealth funds. Another is joint venture project and investment relationships across the energy chain, such as between upstream gas and downstream utilities. Also, financial buyers are likely to compete more strongly on power deals investments. Their 2011 share of deal value was at its lowest for five years for a variety of reasons (see page 13). But we expect them to be competitive in the market in 2012 bolstered by additional pools of capital seeking investment opportunities.

Energy affordability will become an important deal factor

Deal makers and investors will increasingly need to weigh up price and social pressures in the utilities marketplace. Concerns about energy prices in some European countries are creating a 'trilemma' in the triangle that has to be balanced between affordability, sustainability and security of supply. This is adding to the social pressures on governments. Any weakening of the drive to meet the 2020 low carbon and renewable energy targets could disrupt investment assumptions in Europe. Meanwhile, in the US, wider social and job factors are also at play. State regulators are increasingly moving towards a wider 'net benefit' standard rather than the previous 'no harm' approach to deal approvals.

2012 deal outlook: economic signals hold the key

Strong momentum in power deal value has been stalled by market uncertainty. A big upswing in total deal value in the first half of 2011 came plummeting downward in the second half as the sovereign debt crisis and market volatility put the brakes on dealmaking. But the underlying fundamentals for a resumption in deal flow remain in place. A mix of divestment, repositioning and market growth imperatives continue to make for potentially buoyant conditions.

As 2012 gets underway, these contrasts are also reflected in different economic growth outlooks in the different world markets. While Europe considers the extent of its recession, signals in the US look more positive and growth in the Far East and South America continues, albeit at a lower pace. These regional contrasts will continue in 2012. Indeed, different market speeds will provide opportunities for buyers able to exploit cross-continental value opportunities. Similarly, market volatility could provide opportunities for deal leverage. Euro weakness against the yen and renminbi is giving an advantage to Japanese and Chinese buyers. Looking ahead, we expect a number of existing themes and new ones to assert themselves. These include:

The eurozone crisis

The crisis in the eurozone will continue to cloud the deal environment in 2012. The uncertainties that intensified in July and August 2011 put a brake on deal momentum. Worries about a further recession, constraints on financing and fears of a worst case collapse caused dealmakers to reassess their options. Some form of eurozone realignment and sovereign debt default seems possible. A climate of 'rolling uncertainty' looks set to continue into much of 2012 in the absence of clear sustained growth signals or more dramatic policy shifts. A collapse or confidence-draining realignment process cannot be ruled out. But if economic growth signals turn positive then 'rolling uncertainty' could transition into a 'growing confidence'. The strength of any major pick-up in deal activity will hinge on these economic uncertainties. Some deals will flow from the crisis itself. While debt markets remain constrained, raising capital from disposals will remain an important priority. Also, further government sell-offs, following the lead of Portugal's auction of EDP, are possible in countries such as Ireland and Italy (see Europe section).

Economic growth signals will decide whether there is a transition from 'rolling uncertainty' into 'growing confidence' or whether worse events unfold.

Different market speeds will provide opportunities for buyers able to exploit cross-continental value opportunities.

Divestments to raise capital strength

This is a strong theme in Europe which will intensify in 2012. The major European power utilities need to strengthen their balance sheets to make the big investments required in their core markets while retaining the flexibility to seek out growth markets. The German government's decision, in the wake of the Fukushima emergency, to phase out nuclear power by 2022 has increased the pressures being faced by the country's power giants, RWE and Eon. Both were involved in significant asset disposals in 2011 and are committed to further sales in 2012. Other companies, such as Vattenfall, are committed to disposals as they focus on consolidation in core markets or on core parts of the fuel mix or value chain.

US power companies' quest for scale and balance will continue

2011 saw a rush of big deals as US companies sought to gain enhanced balance sheet strength, rebalance regulated versus non-regulated returns and address territorial and fuel footprint issues (see deal review and North America sections). These deal imperatives will continue into 2012 and there remains scope for a continued flow of deals in the US. But the strength of such deal flow will be dependent on the stance of the various state utility regulators. As we move into 2012, the big 2011 US deals are still to get over the finish line in terms of regulatory clearance. Companies will be looking closely at the reaction of regulators before weighing up their next moves.

'Buy versus build' will remain the mantra for US generation

Generation asset transactions are likely to remain a theme in the US. Current market conditions are such that it is more economic to buy rather than build. Supply-demand imbalances mean that a number of gas-fired power stations built at a time of better supply-demand balance and a stronger economy are now less economic to run, bringing down valuations to a point where they are attractive versus the cost of adding new build capacity.

Environmental legislation will spur M&A

A capital push as a result of environmental imperatives is becoming a major feature of the US power deals market. Companies have been adjusting portfolios and spending capital on upgrades in anticipation of the recently enacted, and currently court stayed, Cross-State Air Pollution Rule, designed to curb air pollution in states downwind from coal-fired power stations, and the new Mercury and Air Toxics Rule. These changes are expected to lead to additional announcements of closure of coal-fired plants in cases where the necessary compliance upgrades would be uneconomic. Environmental policy will also have an effect on generation in Australia with the implementation of a carbon price on the highest emitters from July 2012.

New sources of strategic financing

Utility companies have a relative advantage over companies in some other sectors when it comes to bank financing and the debt markets. But given the scale of capital required and market constraints, we are likely to see more examples of companies exploring alternative options. One of these is strategic partnerships with organisations that have got large pools of capital such as sovereign wealth funds. In 2011, for example, Iberdrola agreed a US\$2.8bn 5.8% equity stake with Qatar Holding, a subsidiary of the Qatar sovereign wealth fund. GDF Suez is involved in a partnership with Chinese sovereign wealth fund China Investment Corporation (see Asia Pacific section). As well as sovereign wealth funds, other counterparties might include hedge funds, infrastructure funds, pension funds and Chinese state-owned enterprises.

The need for balance sheet strength and capital programme funding will remain a strong factor driving non-core asset disposals in 2012.

The Fukushima emergency and the impact on the nuclear power market has increased the pressure for asset disposals.

New kinds of partnerships across the energy chain

Joint venture project and investment relationships are well established in the independent power generation market involving companies in different parts of the energy chain – for example, between International Power and Mitsui. We are likely to see this spread to more parts of the power sector. During 2011, RWE held talks with Gazprom about the possibility of a joint venture covering gas and coal-fired generation plant in Germany, the UK and the Netherlands. They failed to reach a conclusion. Such a move would have given Gazprom access to downstream generation and eased balance sheet risk for RWE. The prospect of such a move, involving a different pairing, remains a distinct possibility in 2012.

Financial buyers' profile will strengthen

Financial buyers, such as infrastructure funds, pension funds and private equity companies, have been relatively quiet during 2011. Several large fund investors were in fundraising mode or were focused on buying infrastructure assets outside the power sector. Others were actively seeking deals but did not reach agreement with sellers. The Canada Pension Plan Investment Board (CPIB), for example, was reported as a bidder in the recent sales of EDF and Eon UK power network assets. We expect financial buyers to be competitive in the market in 2012 bolstered by additional pools of capital seeking investment opportunities.

East-west deal momentum will continue to strengthen

Chinese buyers will continue to compete actively for assets in western markets. Cheung Kong Infrastructure (CKI), the investment vehicle of Hong Kong billionaire Li Ka-shing, has been an active bidder for UK network assets. Having bought EDF's UK network business in 2010, CKI missed out on a similar purchase of Eon's in 2011. Elsewhere, China Three Gorges Corporation won the auction for a stake in Energias de Portugal, giving it access to the growth market of Brazil. The company beat competition from Eon and from Brazilian companies. State Grid Corporation of China has also been an active bidder. We expect to see further interest from Chinese entities, including the state generating companies, in western assets in 2012.

Post Fukushima pressure

Tokyo Electric Power Company (Tepco) faces enormous fundraising pressure following the Japan nuclear emergency. As the company and the government continue to consider all of the available strategic options, asset sales have started and are likely to accelerate in 2012. The pressure wave from Fukushima has spread far and wide. The German government's decision to phase out nuclear power by 2022 has increased the challenges being faced by the country's power giants, RWE and Eon. The additional expenses of an accelerated phase-out and the costs of replacement generation capacity come on top of already large capital expenditure programmes at a time of economic downturn, lower electricity margins and pricy gas supply contracts. Concerns about the nuclear generation market were also a factor in EDF increasing its exposure to gas-fired generation with its planned takeover of Italy's Edison, unveiled at the very end of 2011.

Chinese and Japanese entities are stepping up their 'go abroad' strategies.

The role of government becomes even more pivotal

Power markets continue to tread a sometimes ambiguous line between market operation and government direction. Governments have long moved away from directing demand but are the key influence on supply through decarbonisation policies. The scale of the capital spending required has led to measures such as feed-in tariffs and other guarantees of long-term subsidies playing a pivotal role in investment decisions. In the UK, electricity market reform is under consideration as the government assesses how the big capital spending requirement can best be supported. But delays and questions on overall market design and specific subsidies are creating another uncertainty for dealmakers.

Capital raising constraints in Europe

The major European power utilities continue to face significant future capital expenditure requirements. At the same time, equity and debt financing has become increasingly difficult. We have conducted an analysis of leading European power utility companies. It shows that between 2010 and 2011 many companies have seen larger share price falls than the market average. On the debt side, issuances have declined from 75.6bn euros in 2009 to 14.6bn euros in 2011 as debt markets contracted. In addition, across the whole European utilities sector, 15 groups have suffered downgrades in 2011 and 30% are on negative watch or facing downgrade reviews. This reduction in capital raising options will continue to drive divestments by the major European power utilities.

Energy affordability worries create a 'trilemma'

Energy prices have become a hot issue in some European countries as the cost of decarbonisation bites and the economic situation puts pressure on customer budgets. Concerns about energy prices are creating a 'trilemma' in the triangle that has to be balanced between affordability, sustainability and security of supply and adding to the social pressures on governments. Again, this adds to the uncertainty faced by investors and dealmakers. Increasingly, they will need to weigh up the significance of social and pricing pressures. Any weakening of the drive to meet the 2020 low carbon and renewable energy targets could disrupt investment assumptions.

Weakening of the drive to meet the 2020 low carbon and renewable energy targets could disrupt investment assumptions.

Perspective: 'Rolling uncertainty' – to deal or not to deal?

It's tempting to draw parallels between the crisis of 2008-9 and that of 2011-12. But there are important differences. The credit crunch had a definite focus, centred around the Lehman crash. The current crisis lacks an equivalent 'big event focus' – a 'rear view mirror event' that can be seen as a turning point. Instead, there is ongoing material uncertainty. We've called it 'rolling uncertainty' in this report. This makes the deal environment much more difficult. The liquidity landscape is fragmented. The time horizon for an easing of debt issuance and bank finance remains uncertain. The wider market conditions for business plan 'J curves' cannot be assumed.

The advice in the first half of 2009 was 'if you don't have to be in the market, stay out of the market. Wait a few months until things improve and confidence and a sense of calm is restored. Then go with your deal.' But that all assumes you have a 'rear view mirror event'.

In 2012 there is no equivalent. Instead, there is great uncertainty about whether things will be better or worse in six months time. In this environment, perhaps paradoxically, a complete brake on dealmaking makes less sense. If a deal is highly strategic and mission critical, then parties may feel it is worth doing

if it can get done. With the uncertainty over how long the constraints will persist, it's quite a brave bet to stay out of the markets just in the hope that things will improve.

Confidence about economic growth, the European banking system and the ability of governments to have a coordinated and convincing policy response are all critical if a more optimistic outlook is to emerge. On the political front, there are many potential minefields to be negotiated during 2012, both at the inter-governmental level and, domestically, between parties and with electorates. The potential for further destabilisation cannot be ruled out.

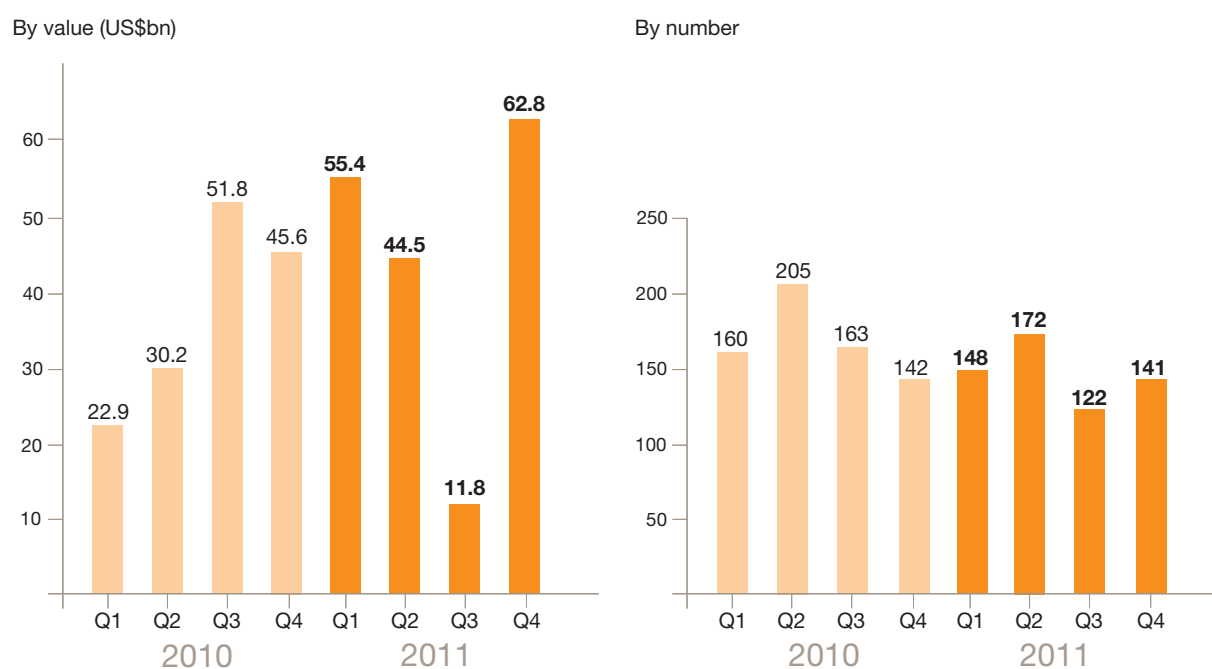
2011 deal review: deals blow hot and cold

Power deal value flow had been heading back up towards levels approaching those seen around the 2006-7 peak of M&A activity. First half deal value was very strong (figure 1). But the trend reversed sharply in the third quarter of the year. Deal value flow fell back down to the levels of the credit crunch lows experienced in 2009 and would have stayed there in the last three months of 2011 if it were not for the US\$37.9bn Kinder Morgan/El Paso deal in the US.

The surge in US dealmaking gave a boost to total power deal value. At US\$174.4bn, the 2011 worldwide total was up 16% year on year with deal numbers down 13% (figures 2 and 3). The focus on domestic deal activity continues. Domestic deals, boosted by the flow of US consolidations, accounted for three quarters of the power deal count and total value in 2011 (figure 4).

Not only was 2011 a year of two halves but it was also a year of contrasts on either side of the Atlantic. Even before the uncertainties from the European sovereign debt crisis intensified in July and August, the upward growth in deal value was largely coming from a flow of purchases by US power and utility companies. While the US power and utility deal market was blowing hot, Europe was getting a chill. European utility companies were mainly in divestment mode and the big acquisition moves that had buoyed deal totals in previous years were firmly off the table.

Figure 1: Quarterly tracking of deals – 2010 and 2011



Note: Due to rounding, values may not sum exactly.

Source: PwC, Power Deals

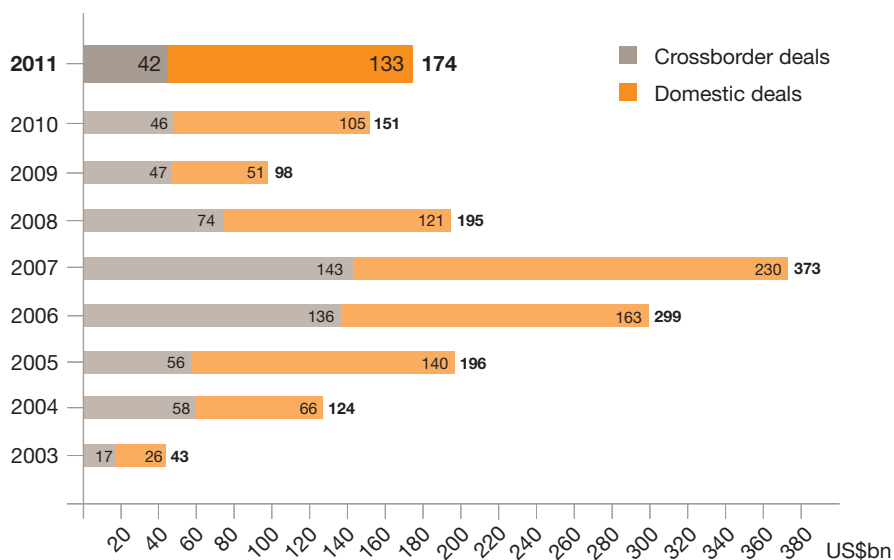
Figure 2: All electricity and gas deals by value (US\$bn) – 2010 and 2011

	Number	2010	Number	2011	Change in 2011	
		Value		Value	% number	% value
Power	670	US\$150.5bn	583	US\$174.4bn	(13)%	16%
of which: Electricity	573	US\$132.0bn	468	US\$112.2bn	(18)%	(15)%
Gas	97	US\$18.5bn	115	US\$62.3bn	19%	237%

Note: Due to rounding, values may not sum exactly.

Source: PwC, *Power Deals*

Figure 3: Total sector deal activity (US\$bn)



Note: Due to rounding, values may not sum exactly.

Source: PwC, *Power Deals*

Figure 4: Crossborder and domestic deals – 2010 and 2011

	Number	Value	% number	2010	Number	Value	% number	2011
				% value				% value
Domestic	537	US\$105.0bn	80%	70%	436	US\$132.8bn	75%	76%
Crossborder	133	US\$45.5bn	20%	30%	147	US\$41.6bn	25%	24%
Total	670	US\$150.5bn	100%	100%	583	US\$174.4bn	100%	100%

Note: Due to rounding, values may not sum exactly.

Source: PwC, *Power Deals*

2011 deal review: deals blow hot and cold

American deals dominated the top ten table (figure 5) as US companies moved to gain scale. The year opened with the announcement of the US\$25.8bn merger between Duke Energy and Progress Energy and was followed by a strong flow of other deals, including a proposed merger between Exelon and Constellation and two mega mergers in the gas pipeline sector (see below). It is the first time ever in our series of power deal reports that all-US deals accounted for six out of the ten largest deals (figure 5).

New sources of unconventional gas are transforming the gas sector in the US. They are creating capital investment challenges as well as growth opportunities for gas pipeline operators. The result has been a quest for greater scale which was exemplified by the decision of Kinder Morgan (KM) and El Paso (EP) to merge in a US\$37.9bn deal which heads our top ten table. Both bidder and target have upstream exploration and production assets but the deal's focus is the integration of EP's regulated interstate natural gas pipeline assets with KM's, hence our inclusion of it in *Power Deals*. Following the closing of the transaction, EP will become a subsidiary of KM with KM intending to sell the exploration and production assets of EP.

The combination creates the largest natural gas pipeline network in the US. The two sets of pipeline systems are very complementary, mainly serving different supply sources and markets in the US. This mega deal follows an earlier contest between Williams and Energy Transfer for Southern Union with Energy Transfer's US\$9.4bn bid set to deliver another large integration of gas pipelines (see North America section).

Figure 5: Top ten – crossborder and domestic deals 2011

No.	Value of transaction (US\$bn)	Date announced	Target name	Target nation	Acquirer name	Acquirer nation
1	37.9	16 Oct 11	El Paso Corp	United States	Kinder Morgan Inc	United States
2	25.8	10 Jan 11	Progress Energy Inc	United States	Duke Energy Corp	United States
3	11.2	28 Apr 11	Constellation Energy Group Inc	United States	Exelon Corp	United States
4	9.4	16 Jun 11	Southern Union Co (Bid No 1)	United States	Energy Transfer Equity LP	United States
5	6.5	01 Mar 11	E.ON UK plc	United Kingdom	PPL Corp	United States
6	6.3	27 Dec 11	Edison SpA (30%)	Italy	Electricite de France SA - EDF	France
7	5.6	05 Dec 11	Mid South TransCo LLC (Entergy)	United States	ITC Holdings Corp	United States
8	4.7	20 Apr 11	DPL Inc	United States	AES Corp	United States
9	3.5	22 Dec 11	Energias de Portugal SA - EDP (21.349%)	Portugal	China Three Gorges Corp	China
10	2.9	19 Jan 11	Elektro Eletricidade e Servicos SA (99.68%)	Brazil	Iberdrola SA	Spain

Source: PwC, *Power Deals*

The combination of Duke and Progress will create the largest US utility group and put the combined company in a better position to undertake the new construction and other capital investment that lies ahead. The combination will have around 7.1 million electricity customers in North Carolina, South Carolina, Florida, Indiana, Kentucky and Ohio. It has approximately 57GW of domestic generating capacity from a diversified mix of coal, natural gas, oil, renewable resources, and the largest regulated nuclear fleet in the US.

Duke and Progress had originally targeted a deal close date by the end of 2011 but this has now moved back to March 2012 at the earliest. An earlier US\$4.3bn merger between NStar and Northeast Utilities, announced in October 2010, is also yet to close. This is also the case as we enter 2012 with the proposed US\$11.2bn merger between Exelon and Constellation (see North America section). It remains to be seen whether earlier optimism that this latest wave of deals will clear the various regulatory hurdles will be vindicated.

We look closer at the other US deals in the North America section. The largest European deal saw US buyer PPL buy Central Networks from Eon. The deal, worth US\$6.5bn, was the outcome of an auction in which PPL saw off competition from Hong Kong's CKI. MidAmerican Energy Holdings, owned by Warren Buffett's Berkshire Hathaway, was also reported to be among the interested parties.

The deal continues the trend of network divestment by the major power utilities in Europe. Eon had acquired Central Networks as part of its purchases of Powergen and Midlands Electricity in 2002 and 2004. For PPL, the acquisition adds further regulated assets to its existing Western Power network business which serves adjoining parts of the Midlands, Wales and the south west of England.

European companies have been more active on divestments rather than acquisitions. EDF's US\$6.3bn takeover of Italy's Edison, unveiled at the very end of 2011, was a notable exception to this (see sections on post Fukushima and Europe). Also, expansion in the fast growing Brazilian market was an important focus for both Eon and Iberdrola. Eon participated in the auction for Energias de Portugal (EDP), attracted in part by its extensive generation and distribution presence in Brazil.

The auction was won by China Three Gorges (CTG) with a bid worth US\$3.5bn. CTG and EDP have announced a strategic partnership to become worldwide leaders in renewable energy generation, with EDP leading in Europe and the Americas and CTG in Asia markets. One of their main competitors will be Iberdrola whose US\$2.9bn purchase of Brazilian distribution company Elektro added to its existing interests in Brazil. Eon's disappointment at missing out on EDP was offset at the beginning of 2012 when it entered into an agreement to take a 10% stake in Brazil's MPX Energia. The deal is expected to lead to major investment by both parties into new power generation capacity.

Financial buyer acquisitions were down from US\$68bn in 2010 to US\$28bn in 2011. At just 16% of total deal value, their share of deal activity was at its lowest for six years (figure 6). As we discussed earlier, several funds were on the sidelines while scheduled fundraising took place or were focused on buying infrastructure assets outside the power sector.

Figure 6: Utility deal activity vs financial and other deal activity by value (US\$bn) and (% share)

	2003	2004	2005	2006	2007	2008	2009	2010	2011
Utilities	26 (60%)	81 (65%)	169 (86%)	247 (83%)	289 (78%)	147 (76%)	70 (71%)	82 (55%)	146 (84%)
Financial and other	17 (40%)	43 (35%)	28 (14%)	52 (17%)	83 (22%)	48 (24%)	28 (29%)	68 (45%)	28 (16%)

Source: PwC, *Power Deals*

Deal places: a focus on markets worldwide

North American bidders and targets provided the majority of power deal value. Bidders from the region accounted for 67% of the worldwide total. Targets were not far behind – comprising 62% of total value. One in five deals involved a North American bidder.

It's the region's biggest share of worldwide value since the beginning of our *Power Deals* series in 1999. The highest before that came in 2004, when Exelon's US\$26bn attempt to buy PSEG (which ultimately failed) and a number of inbound purchases pushed up the region's total target deal value to 47% of the worldwide total.

While target deal value in North America more than doubled (by 119% or US\$58.5bn) year on year, European target value plummeted 43% (US\$30.5bn) to stand at US\$39.8bn. This is the lowest total since 2003 and is less than a quarter of the target value transacted during the peak year of M&A in Europe in 2006. Europe also recorded its lowest share of worldwide power deal value in our series.

Even so, European buyers and sellers remained busy, involved in more deals than their North American counterparts, albeit for smaller values. In another first, it was Asia Pacific buyers and sellers who topped the share of deal numbers. But the biggest year on year change in bidder and target value came in South America, buoyed in part by the US\$2.9bn Elektro deal (see deal review). The US\$9.1bn target value was more than double the 2010 total and moved total South American deal value towards the US\$10.8bn total transacted in 2008.

Figure 7: Deals by continent

North America	2010	2011	% change
By target value of deals (US\$bn)	49.0	107.5	119%
By bidder value of deals (US\$bn)	50.9	117.0	130%
Number of deals			
By target	110	117	6%
By bidder	118	126	7%
South & Central America			
By target value of deals (US\$bn)	4.4	9.1	107%
By bidder value of deals (US\$bn)	2.2	4.2	85%
Number of deals			
By target	39	58	49%
By bidder	30	38	27%

Europe

	2010	2011	% change
By target value of deals (US\$bn)	70.3	39.8	(43)%
By bidder value of deals (US\$bn)	56.6	29.5	(48)%
Number of deals			
By target	190	142	(25)%
By bidder	190	149	(22)%

Russian Federation

	2010	2011	% change
By target value of deals (US\$bn)	6.8	3.7	(45)%
By bidder value of deals (US\$bn)	6.5	3.7	(44)%
Number of deals			
By target	158	101	(36)%
By bidder	153	104	(32)%

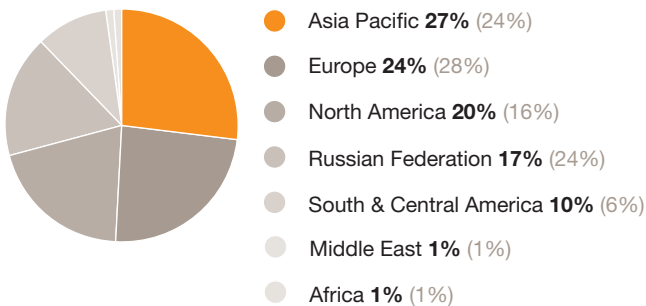
Asia Pacific

	2010	2011	% change
By target value of deals (US\$bn)	19.7	14.1	(29)%
By bidder value of deals (US\$bn)	33.2	16.4	(51)%
Number of deals			
By target	160	156	(3)%
By bidder	170	156	(8)%

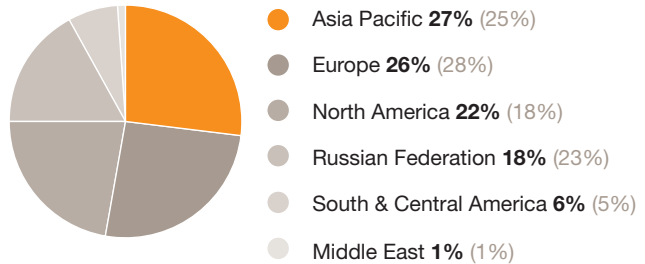
Source: PwC, *Power Deals*

Figure 8: 2011 deal percentages by continent
(2010 percentages shown in parenthesis)

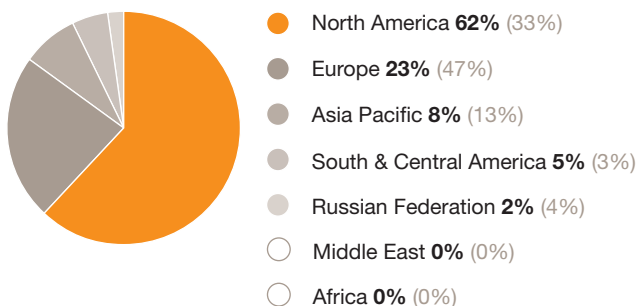
Deal number by target



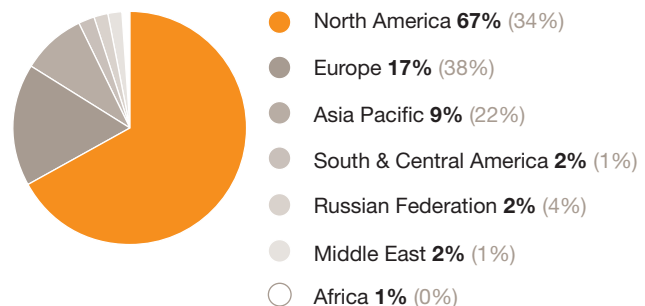
Deal number by bidder



Deal value by target



Deal value by bidder



Source: PwC, *Power Deals*

North America

The flow of big deals in the US led to a big increase in electricity target value in the region year on year – from US\$39.1bn in 2010 to US\$58bn in 2011. The value of gas targets multiplied more than fivefold – from US\$9.9bn to US\$49.5bn. US power and gas pipeline companies' moves to broaden and to diversify their businesses are producing one of the biggest periods in US power M&A. Acquisition of scale has been accompanied by deals to optimise the amount of revenues covered by regulated returns.

The changed gas landscape led to two big gas pipeline integrations with the biggest deal of 2011 – Kinder Morgan's US\$37.9bn deal with El Paso – taking place soon after Energy Transfer fended off competition from Williams to land a US\$9.4bn deal for Southern Union. We discuss these deals in the deal review section and also later in this section.

The landmark utilities deal is the proposed Duke/Progress merger which is also covered in the deal review section. Close behind it is Exelon's proposed US\$11.2bn merger with Constellation Energy Group. Also announced in the same month was AES Corporation's purchase of DPL. At the time of writing, the AES deal is the only one that has cleared all its regulatory hurdles. DPL remains as a standalone business but gains from the greater financial strength and operational synergies that come from the global AES business while AES gains presence in one of its target growth markets.

The deals involving Duke/Progress and Exelon/Constellation join the 2010 announced Nstar/Northeast merger which is still awaiting full regulatory clearance. The Nstar deal has seen the Massachusetts Department of Public Utilities (DPU) move away from the previous 'no harm' standard – that the public interest wouldn't be harmed by a merger approval – onto a tougher 'net benefit' standard that the merger will provide benefits for customers and the regional economy. Massachusetts DPU is not alone in adopting this wider standard.

Exelon is familiar with the difficulties of getting deals over the finish line, notably with its aborted 2004 US\$26bn bid for PSEG which finally had to be abandoned in 2006. But its Constellation merger has gained approval, as the result of further negotiations, from the State of Maryland, the City of Baltimore and other parties. But the deal still requires approval by the Maryland Public Service Commission (PSC) and other key regulators.

The companies expect the deal to gain the remaining approval in early 2012. EDF had expressed concern that Exelon's nuclear projects would get future priority over the programmes in EDF's own nuclear joint venture with Constellation. But the French company dropped its opposition to the deal in January 2012 after it reached agreement to protect the operating independence of the joint venture.

In the only big deal for a target outside North America, the quest for a bigger regulated rate base took PPL across the Atlantic as it added Eon's Central Networks to its existing UK network business (see deal review). A big network deal announced at the end of the year will see ITC, the largest independent electric transmission company in the US, acquire Entergy's transmission networks in a US\$5.6bn deal. Entergy had been facing a US\$400m to US\$525m capital investment programme for the networks in the immediate period to 2014. ITC's independent transmission business model means that, unlike Entergy which is primarily covered by state regulation, it is regulated by the Federal Energy Regulatory Commission, which has jurisdiction over interstate transmission.

Figure 9: North America deals by target

	Value	Number	% change in 2011	
			Value	Number
Power	US\$107.5bn	117	119%	6%
of which: Electricity	US\$58.0bn	92	48%	3%
Gas	US\$49.5bn	25	399%	19%

Source: PwC, *Power Deals*

The gas supply glut in the US, arising from the development and expansion of shale gas and other sources of unconventional gas, has changed the economics of power generation and gas transportation. Low gas prices combined with lower power demand have put strains on power generation. Many generation plants are underutilised in a changed supply/demand and price environment. Sales of gas-fired plant have added to smaller deal flow.

The changed gas environment has created opportunities for but has also put strains on gas pipeline operators. Pipeline businesses deliver stable cash flows, often high yield, but the inter-regional differences that are the basis of pipelines flows have been altered in a different supply and price environment. At the same time, more sources of supply have required more pipeline investment. As a result, greater spread and size is being sought by companies. The US\$37.9bn Kinder Morgan/El Paso deal highlighted this trend. The US\$9.4bn purchase of Southern Union by Energy Transfer also creates one of the largest operators in the US and gives greater access to some of the new sources of gas. The acceptance of Energy Transfer's proposal followed a period of competing bids from rival pipeline operator Williams.

New environmental legislation – the Cross-State Air Pollution Rule and the Mercury and Air Toxics Rule – is exerting an influence on deal activity. It is a factor in some of the larger mergers where greater balance sheet strength puts companies in a better position to finance the technological changes that are required. In some cases, companies have been selling business units including generation and transmission assets that have been on their books for a while to raise capital to address the environmental compliance issues on their coal facilities. There has also been some realignment of portfolios to get a better balance between coal, gas and other generation.

Deal dialogue: Managing uncertainty in today's commodity markets

Shale gas has been a game changer for the US commodity markets, causing natural gas prices to drop to levels not seen since 2002. Many long-term forecasts project sustained US\$4-\$5/MMBtu US natural gas prices. But a number of factors could put upward pressure on natural gas prices. Companies must be aware of these uncertainties and factor them in when developing their strategic objectives, evaluating deals in the marketplace, and determining the value of their assets.

The following factors could exert upward pressure on currently low US gas prices:

- **Increased regulation/legislation:** There is still debate about the impact of hydraulic fracturing ('fracking') on drinking water safety, the safe disposal of drilling fluids, the potential for increased earthquake activity, as well as the level of lifecycle greenhouse gas emissions from shale gas. Stricter regulation is being considered, and in some cases enacted, at both a state and federal level. Depending on the nature of the regulation, this could cause a significant increase in permitting time and overall costs.
- **Increased fees/taxes:** States are still considering the revision of drilling fees and taxes.

- **Infrastructure costs:** Significant investment in gas pipelines is needed in order to gather, process and move the natural gas to market, including the ability to reverse the flows of existing long-haul pipelines.
- **Increased demand:** Domestic demand could increase significantly. Some forecasts project an 85% increase in natural gas consumption in the power sector by 2025. Additionally, there could be a shift to more natural gas vehicles, natural gas heating and increased manufacturing utilising natural gas. Developers are also considering additional LNG liquefaction export terminals which would cause increased demand as a result of international access.

- **Uncertainty regarding reserves:** Shale gas reserves and the economics of fracking are based on models yielding wide-ranging projections largely related to limited available historic data.

As companies contemplate shifts to natural gas generation, it is important that they consider the impact that changes in natural gas prices could have on them. For rate-based utilities already facing rate increases from capital investment, what would increases in gas prices mean for ratepayers? For merchant companies, what will potential volatility in gas prices and power prices mean for liquidity?

Investors demand a vetted strategy and thorough evaluation of capital deployments. PwC has in-depth market expertise and is able to assist clients to evaluate the risks of commodity volatility on their generation portfolios as well as provide proactive advice on strategies to help mitigate exposures to natural gas price volatility.

Deal places: a focus on markets worldwide

Europe

Even before the intensification of the eurozone crisis in July and August 2011, it was always set to be a quieter period for European deal activity as power companies tilted more towards disposals and balance sheet strengthening. European target and bidder value is down to levels last seen before the wave of busy M&A activity that built up from 2004 onwards. But, although deal value is significantly lower, the number of deals is still considerable and companies remain on the look out for opportunities.

The largest European deal was Eon's US\$6.5bn sale of Central Networks to US company PPL Corporation (see deal review). The sale comes as part of Eon's 15bn euros divestment target which it aims to achieve by the end of 2013. Both the big German power utilities are committed to large disposal programmes. RWE's 9bn euros divestment programme includes plans to sell Net4Gas, its Czech gas-grid operator, its stake in Berlin water company Berlinwasser, as well as all or parts of its Dea upstream gas and oil business. In September 2011, RWE completed the sale of a 74.9 % stake in the German electricity transmission system operator Amprion.

In Eon's case, the sales are designed to give it greater financial flexibility to expand in growth markets outside Europe. It hopes that such growth will account for a quarter of earnings by 2015. South America is a target but its hopes of gaining presence through the purchase of Energias de Portugal were dashed when the auction for EDP was won by China Three Gorges. But in January 2012 Eon was able to announce its success in gaining a 10% stake in Brazil's MPX Energia. Earlier in the year, Spain's Iberdrola agreed the US\$2.9bn purchase of Elektro in Brazil. We comment on both of these transactions in the deal review section. Looking ahead, Eon's disposal of Open Grid Europe, its gas transmission operation in Germany, will be one of Europe's principal deals in 2012.

Sweden's Vattenfall is pursuing a consolidation strategy, reshaping its portfolio to achieve the twin goals of focus on three core markets of Sweden, Germany and the Netherlands and CO2 reduction. The result is a programme of divestment that looks set to include assets in countries including the UK, Belgium, Finland and Poland. These got underway in the second half of 2011 with an agreement for the sale of Nuon in Belgium to Italian company Eni and the purchase of Vattenfall's heat, electricity distribution, network services and electricity sales interests in Poland by Polish companies PGNiG and Tauron. In addition, just before the end of 2011, Vattenfall announced its agreement to sell its electricity and heating distribution assets in Finland to a Goldman Sachs/3i consortium for 1.54bn euros.

The sale of European assets has attracted worldwide interest from buyers, including Chinese, US and Canadian entities. Canadian pension funds, and also Dutch funds, have been increasingly visible as direct investors in power utilities. Cheung Kong Infrastructure (CKI) competed for Central Networks to try to add to the network assets they had bought from EDF in the previous year. At the beginning of 2012, the Portuguese government announced it had accepted a bid from the State Grid Corporation of China for a 25% interest in Portuguese power grid company REN (Redes Energeticas Nacionais). This inbound appetite for Europe is set to continue in 2012.

Figure 10: Europe deals by target

	Value	Number	% change in 2011	
			Value	Number
Power	US\$39.8bn	142	(43)%	(25)%
of which: Electricity	US\$32.3bn	107	(50)%	(31)%
Gas	US\$7.5bn	35	47%	3%

Note: Excluding Russian Federation
Source: PwC, *Power Deals*

At the end of 2011, EDF announced a US\$6.3bn preliminary agreement to increase its stake in Italian company Edison from just under half to give it a 78.95% controlling interest. In a quiet year for European bidders, the deal boosted the continent's 2011 bidder totals by more than a quarter. Negotiations on the arrangements between the main shareholding parties had been going on for much of 2011. The deal will give EDF a degree of diversification away from nuclear generation in the wake of the Fukushima nuclear emergency and subsequent government policy reviews.

Looking ahead, the eurozone crisis will have an impact on prices and uncertainty will continue to make agreement on valuation more difficult. But it is unlikely to halt the divestment programmes of the major utility companies. The underlying fundamentals for such deals remain strong. Companies need to continue to reposition their fuel and value chain mix and to seek out growth markets. They have big investment requirements and need to manage leverage. Debt markets remain constrained and, as RWE's late 2011 share sale showed, the equity markets are likely to only provide a part answer. Raising capital from disposals remains an important priority and is likely to remain a strong feature of power deals in 2012.

In addition, the eurozone crisis itself will act as a spur to dealmaking. Further government sell-offs, following the lead of Portugal's auction of EDP, are likely in countries such as Ireland and Italy. The Irish government is committed to selling off 2bn euros of state assets, including a minority stake in the state electricity company ESB. The Irish state gas company, Bord Gais, is also likely to be part privatised.

In a move unrelated to austerity programmes, the Dutch government has announced its intention to privatise state power and gas grid operators with gas grid operator Gasunie and power grid operator TenneT being prime candidates for sell-offs. Both have major infrastructure investment needs which are expected to be boosted by minority share sales. In the case of TenneT, the infrastructure challenges include the connection of a growing pipeline of offshore windfarms to the Dutch and German grid.

Deal dialogue: Country risk in uncertain times

Country risk is a measure of the risks inherent to investing in different sovereign territories. Broadly speaking, it can be attributed to variations in the degree of economic, political, financial and institutional stability in different countries. Given the current financial and economic volatility in global markets, adequately accounting for country risk is essential to successful business planning and investment appraisal.

Historically, country risk has been negligible for most developed economies and, in general, higher and more volatile for emerging markets. However, following the onset of the eurozone sovereign debt crisis and subsequent ratings downgrades for previously AAA rated countries, country risk is now more widely spread and less predictable.

In order to account for this volatility in business valuations and investment appraisals, country risk needs to be included in any quantification of risk. This is typically done by including a country risk premium (CRP) in discount rate calculations.

During 2011, we saw a number of events, such as the 'Arab Spring' and the eurozone sovereign debt crisis, which resulted in significant economic, financial and political volatility. Some of this volatility manifested itself in sovereign bond markets and as a result has impacted measures of country risk.

With 'safe-haven' debt securities such as US Treasuries and German Bunds with historically low yields, investors are clearly sensitive to the heightened risk associated with different countries. Factoring country risk into the calculation of investment value is a vital step to mitigate these concerns.

Investors also need to consider ways of mitigating country risk, for example, through contractual terms, minimising government influence and legal corporate structures.

The economics team at PwC maintains a comprehensive CRP model with global coverage. This is combined with macroeconomic insight to support investors in appraising country risks.

Our CRP model is updated quarterly and has historic data going back to 1997. As well as investment appraisal, we also help clients use country risk assessment in business valuations and divisional performance assessment.

Deal places: a focus on markets worldwide

Asia Pacific

For the first time ever in Power Deals, Asia Pacific entities accounted for the largest number of deals in a year, with buyer and seller numbers just above those involving European dealmakers. But Asia Pacific target and bidder values were significantly down year on year.

Deals included some significant expansionist moves by Chinese and Japanese entities. Most notable among these was China Three Gorges US\$3.5bn bid for a 21.35% stake in Energias de Portugal, giving it access to the growth market of Brazil and creating an important new strategic partnership (see deal review).

The deal is symptomatic of increased interest in expansion into overseas power markets by Chinese generating companies. Such markets can offer better margins than the domestic market in China. The companies are also keen to acquire international utilities management experience. The relative weakness of the euro and the British pound against Asian currencies is helping buyers. Any softening of valuations as the crisis in Europe develops is likely to reinforce this outbound deal interest.

The start of 2012 saw the Portuguese government accept an offer for a 25% interest in Portuguese power grid company REN (Redes Energeticas Nacionais) from China's State Grid Corporation. As well as being the only bidder to state an interest in acquiring a full 25% from the government in Lisbon, State Grid will also offer funding support for the group's expansion of its Mozambique and Colombian operations. State Grid already owns power transmission and distribution assets in Brazil, acquired in December 2010, and in the Philippines. These deals are part of the general 'go abroad' strategy of Chinese state-owned power companies, who seek investment in countries with high growth and often lighter regulation.

The Europe-bound Chinese appetite is also being matched with an appetite for international partnerships in the region. In October 2011 GDF Suez entered into a partnership with Chinese sovereign wealth fund China Investment Corporation to explore joint investment opportunities in existing and new energy-related projects among others in the Asia Pacific region, financing cooperation in new projects in

the region, and the delivery of commercial sponsorship and support. The initial US\$3.2bn deal is in the upstream exploration and production area and so not included in our *Power Deals* data. It was also accompanied by a regasification deal with Chinese state-owned energy company CNOOC.

The second largest 2011 deal involving Asia Pacific companies was the distress sale by Griffin Energy's administrators of the Bluewaters 1 and 2 coal-fired power stations in Australia to Japanese power companies Kansai Electric Power and Sumitomo Corporation. The deal value was widely reported as US\$1.2bn. Another US\$1bn plus deal also arose from a distress situation. Canadian utility company Atco bought Western Australia Gas Networks (WAGN) for US\$1.1bn from WestNet Infrastructure Group, a holding company of Brookfield Infrastructure Partners. The price included the assumption of approximately US\$666m of debt. WAGN serves more than 620,000 connections through 12,800 km of natural gas pipelines and associated infrastructure. The deal adds to Atco's existing power generation presence in Australia and gives it access to gas growth potential.

Figure 11: Asia Pacific deals by target

	Value	Number	% change in 2011	
			Value	Number
Power	US\$14.1bn	156	(29)%	(3)%
of which: Electricity	US\$10.0bn	122	(40)%	(10)%
Gas	US\$4.1bn	34	40%	42%

Source: PwC, *Power Deals*

The end of 2011 saw more inbound deal activity for Australian gas assets. Japan's Marubeni Corporation and infrastructure fund RREEF announced a US\$512m deal for a 40% stake in Queensland gas distribution network Allgas from gas transmission and distribution firm APA Group. The deal adds further scale to Marubeni's existing interest in energy infrastructure in Australia. At the same time, APA Group announced a US\$1.3bn hostile takeover bid for the Hastings Diversified Utilities Fund securities it does not already own. The fund's assets include Epic Energy's three natural gas transmission pipeline systems. A combination of APA and HDF would have more than 15,000 km of gas transmission pipelines across Australia.

Japanese trading company Itochu Corporation was an active acquirer with five smaller deals during 2011, including the acquisition of a 33% stake in Belgian electricity generating company T-Power from International Power. This deal was a prerequisite to the completion of the merger of GDF Suez and International Power. In Japan itself, all attention has been focused on the impact of the earthquake and tsunami on Tokyo Electric Power Company (Tepco).

Tepco requires major fundraising for its reconstruction and compensation tasks. The extent of consequent deal activity will depend on deliberations between the company and the government.

Towards the end of the year the Australian government passed its long-debated carbon legislation. The new law sets a fixed carbon tax of A\$23 a tonne on the 500 highest emitters from July 2012. The price will increase by 2.5% per annum before moving to an emissions trading scheme from July 2015. The legislation gives the prospect of greater carbon certainty and, longer term, is expected to change the generation mix. This may lead companies to consider disposals, partnerships or refinancing of some coal-fired assets.

The clean energy legislation in Australia also included the Contract for Closure (CFC) programme, which seeks to negotiate the closure of around 2000MW of highly emissions-intensive coal-fired generation capacity by 2020. Specific criteria have been published, with brown coal-fired power stations in Victoria and South Australia heading the list of applicable plants for closure.

This is expected to lead a significant change in the generation mix, as coal gives way to gas or renewables as a fuel source for new greenfield investment. It could also potentially lead to deal activity as owners of affected plant consider their competitive position in the market.

Transactions arising from the earlier sale of New South Wales' government energy retailers were completed during 2011. Subsequently, there has been a change of state government. In November 2011, the new government announced that it would be putting its remaining power generation stations up for sale. While the timing of any transaction remains uncertain, prospective bidders will no doubt be reaching for the spreadsheets to value them. The current intention is for the state to keep transmission and distribution assets but it is widely rumoured that the sale of these assets may follow in future government election terms.

Deal dialogue: Japan power deals after the earthquake

Most Japanese energy or energy-related companies were forced to reconsider their investment strategy following the 11 March 2011 earthquake. In particular, the major power companies who own nuclear power stations had to refocus their resources on the reinforcement and maintenance of those plants and consequently had to cease new investments. The only exceptions are the trading houses, sogo shosha, who have continued to show a strong appetite for traditional IPPs, renewable, and natural resources around the world.

Looking ahead, in the medium term, the power companies will need to consider their existing portfolio composition. This could be achieved in several ways:

- Switching from the model of closed integrated power assets (i.e. generation, transmission, distribution and maintenance together) to open single assets. A separation of functions may help address challenges and can eliminate barriers to enter the market. For example, Tepco may have to sell their generation plants to compensate the victims of the disaster.

- Repositioning from fossil fuels to renewables. Every type of fossil fuel generation in Japan faces challenges due to high import costs, CO2 and supply security. The government has established a new law for renewables, including a feed-in tariff to be introduced during 2012. Many Asian solar players and non-utility players such as telecoms/home builders have been keeping a careful eye on the Japanese renewable markets.

- Moving from diversification to specialisation. The electric power companies have built a portfolio of major non-power assets such as real estate, IT, communication and other services. In particular, Tepco has started to sell these types of assets and will likely continue in this direction. Other major electric power companies may accelerate their moves in new growth areas such as renewables and/or smart grid technologies.

In contrast, the trading houses are constantly shuffling their diverse portfolios. Their infrastructure assets have become increasingly diversified, not only covering power and renewables but also water, logistics and smart grids. They also have considerable wider portfolios including natural resource and metals interests. This model looks set to remain highly durable.

Contacts

Global Power Deals Team

Manfred Wiegand
Global Power & Utilities Leader
Telephone: +49 201 438 1517
Email: manfred.wiegand@de.pwc.com

Mark Hughes
Telephone: +44 20 7804 5767
Email: mark.v.hughes@uk.pwc.com

John McConomy
Telephone: +1 267 330 2184
Email: john.mcconomy@us.pwc.com

Rob McCeney
Telephone: +1 713 356 6600
Email: rob.mcceney@us.pwc.com

Andrew McCrosson
Telephone: +44 20 7213 5334
Email: andrew.mccrosson@uk.pwc.com

Peter Munns
Telephone: +61 3 8603 4464
Email: peter.munns@au.pwc.com

Andy Welsh
Telephone: +61 3 8603 2704
Email: andy.welsh@au.pwc.com

Olesya Hatop
Global Energy, Utilities & Mining Marketing
Telephone: +49 201 438 1431
Email: olesya.hatop@de.pwc.com

Anja Cavunt
Central Cluster Power & Utilities Marketing
Telephone: +49 201 438 1433
Email: anja.cavunt@de.pwc.com

Territory Contacts

Africa
Stanley Subramoney
Telephone: +27 11 797 4380
Email: stanley.subramoney@za.pwc.com

Australasia
Jock O'Callaghan
Telephone: +61 3 8603 6137
Email: jock.ocallaghan@au.pwc.com

Austria
Michael Sponring
Telephone: +43 1 501 88 2935
Email: michael.sponring@at.pwc.com

Brazil
Guilherme Valle
Telephone: +55 21 3232 6011
Email: guilherme.valle@br.pwc.com

Canada
Scott Bolton
Telephone: +1 403 509 7502
Email: scott.r.bolton@ca.pwc.com
Alistair Bryden
Telephone: +1 403 509 7354
Email: alistair.e.bryden@ca.pwc.com

China
Gavin Chui
Telephone: +86 10 6533 2188
Email: gavin.chui@cn.pwc.com

Denmark
Per Timmermann
Telephone: +45 3945 3945
Email: per.timmermann@dk.pwc.com

Finland
Mauri Hätönen
Telephone: +358 9 2280 1946
Email: mauri.hatonen@fi.pwc.com

France
Philippe Girault
Telephone: +33 1 5657 8897
Email: philippe.girault@fr.pwc.com

Germany
Norbert Schwieters
Telephone: +49 211 981 2153
Email: norbert.schwieters@de.pwc.com

Greece

Socrates Leptos-Bourgi
Telephone: +30 210 687 4693
Email: socrates.leptos.-bourgi@gr.pwc.com

India

Kameswara Rao
Telephone: +9140 6624 6688
Email: kameswara.rao@in.pwc.com

Ireland

Ann O'Connell
Telephone: +353 11 792 8512
Email: ann.oconnell@ir.pwc.com

Italy

Giovanni Poggio
Telephone: +39 06 570252588
Email: giovanni.poggio@it.pwc.com

Japan

Koji Yamasaki
Telephone: +81 80 3731 5101
Email: koji.k.yamasaki@jp.pwc.com

Latin America

Jorge Bacher
Telephone: +54 11 5811 6952
Email: jorge.c.bacher@ar.pwc.com

Middle East

Paul Navratil
Telephone: +973 1754 0554
Email: paul.navratil@bh.pwc.com

Netherlands

Jeroen van Hoof
Telephone: +31 88 792 1328
Email: jeroen.van.hoof@nl.pwc.com

New Zealand

Craig Rice
Telephone: +64 9 355 8641
Email: craig.rice@nz.pwc.com

Norway

Ståle Johansen
Telephone: +47 9526 0476
Email: staale.johansen@no.pwc.com

Poland

Piotr Luba
Telephone: +48 22 523 4679
Email: piotr.luba@pl.pwc.com

Russia & Central and Eastern Europe

Michael O'Riordan
Telephone: +7 495 232 5774
Email: michael.oriordan@ru.pwc.com

Singapore

Paul Cornelius
Telephone: +65 6236 3718
Email: paul.cornelius@sg.pwc.com

Spain

Inaki Goiriena
Telephone: +34 915 684 469
Email: inaki.goiriena@es.pwc.com

Sweden

Martin Gavelius
Telephone: +46 8 5553 3529
Email: martin.gavelius@se.pwc.com

Switzerland

Marc Schmidli
Telephone: +41 58 792 1564
Email: marc.schmidli@ch.pwc.com

Turkey

Faruk Sabuncu
Telephone: +90 212 326 6082
Email: faruk.sabuncu@tr.pwc.com

United Kingdom

Steve Jennings
Telephone: +44 20 7802 1449
Email: steven.m.jennings@uk.pwc.com

United States

David Etheridge
Telephone: +1 415 498 7168
Email: david.etheridge@us.pwc.com

United States

Jeremy Fago
Telephone: +1 415 498 7031
Email: jeremy.fago@us.pwc.com

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