Bloomberg NEW ENERGY FINANCE

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INTRODUCTION

2010 - Global financial investment in clean energy rebounds to signal recovery from recession

After a modest increase in 2009, total financial investment in 2010 reached heights of \$243bn – a rise of 30% and surpassing all previous levels.

The recovery in 2010 was driven largely by substantial growth from China and the wind sector. Investment in China was up 30% to \$51.1bn in 2010 – by far the largest figure for any country. Wind also enjoyed a healthy year rising up to \$96bn, representing an increase of 31% from the previous year. This growth was primarily due to onshore wind farm development in China and offshore wind projects in Europe. In addition, energy smart technologies such as smart grid, energy management, electric vehicles and power storage caught up, with financing of companies in this sector soaring up by 27% on 2009 to reach \$23.9bn.

Looking across asset classes, venture capital and private equity investment had a strong year, with growth of 28% from 2009 to achieve \$8.8bn. Public market investment bounced back from its recession-driven lows in 2008 and 2009, up 18% to \$17.4bn. The largest investment asset class in 2010 was – as usual – asset finance of utility-scale projects such as wind farms, solar parks and biofuel plants, rising by 19% to \$127.8bn.

Now in its sixth year, Bloomberg New Energy Finance's Clean Energy League Tables is an essential guide to activity in the sector. Produced annually, the report is the most transparent and comprehensive benchmark for identifying the most active and innovative clean energy investors, project financiers, investment banks, funds, carbon offtakers and law firms.

Over the following chapters, our league tables rank the respective leading market players during 2010 in six asset classes defined by Bloomberg New Energy Finance:

- · Venture capital & private equity
- Public markets
- Mergers & acquisitions
- Project finance
- Funds
- Carbon markets

This will shed light on the leading firms investing in, and advising, clean energy companies during 2010.

The main reason why Bloomberg New Energy Finance produces this annual report is to honour the role these organisations play in helping the world make the necessary shift towards a low-carbon economy. We trust you will find great interest and value in the results.

VENTURE CAPITAL & PRIVATE EQUITY



1. VENTURE CAPITAL AND PRIVATE EQUITY

Venture capital and private equity investment had a strong year, up 28% from 2009 to reach \$8.8bn. This was purely driven by venture capital investors, who showed confidence in 2010 by committing \$4.6bn – the highest level since 2004 and an impressive increase of 71% on 2009. Private equity investors remained cautious, however, providing a similar amount of expansion capital as in the previous year.

The historical high of \$4.6bn venture capital investment in 2010 represents an increase of 71% from 2009, in contrast to unchanged private equity investment of \$4.1bn from 2009. Demand for clean energy is still modest in 2010 due to several factors including feed-in tariff cuts and subsidy revisions in all the world's major clean energy markets. This may indicate that investors have become more positive about the long-term fundamentals of the clean energy sector but remained concerned about the potential for near-term expansion.

The US was again the primary source of venture capital across all regions, being responsible for some 90% of this type of investment. This equates to 221 of the 293 deals and \$4.1bn out of the total \$4.6bn.

Regarding clean technology types, energy smart technologies, solar and bioenergy accounted for 90% of total venture capital investment with a combined value of \$4.2bn. In particular, energy smart technologies doubled to \$2.0bn from 2009 and reached the highest level since 2004 to account for nearly 50% of the total investment figure.

Our first venture capital/private equity league table, ranked by number of investments (Table 1), shows the most active venture capital investors. As becomes clear from Table 1, the US was the primary source of venture capital in 2010 as seven of the top 10 investors are based in the US. 2009's winner, Draper Fisher Jurvetson, once again claims top spot by investing in 17 venture rounds, three more rounds than in 2009. US venture firm

Vantagepoint Venture Partners and Swiss clean energy investment specialist Good Energies, finish second and third making 15 investments each. Having shown caution in 2009, the two made impressive progress in 2010 with two-thirds of their investments targeting the US market and energy smart technologies.

In order not to exclude private equity investors, which conventionally make fewer rounds of investment but of a larger size, the second venture capital/private equity league table ranks investors by disclosed \$ amount invested (Table 2).

Compared to Table 1, Table 2 shows more changes to 2009, as only three of last year's top 10 seat holders managed to stay in the rankings.

New York-based private equity partnership Riverstone Holdings, which finished fifth last year, takes the lead this year through investing at least \$260m in a California-based onshore wind developer.

Particular mention should be given to the two publicly funded financial institutions – Caixa Economica Federal in Brazil and the European Bank for Reconstruction & Development – which came second and fifth respectively by investing expansion capital in biomass and wind energy companies. Publicly funded agencies stepping into private equity investment is an encouraging sign for the clean energy sector overall. It was particularly important in 2010 when private equity investment in clean energy experienced some stagnation.

VC & PE METHODOLOGY

- The Venture Capital & Private Equity League Tables rank investors that participated in at least one clean energy venture capital and/or private equity fundraising round during 2010 (see Appendix for "clean energy" definition).
- A private equity investment is defined as a financial institution acquiring an equity stake in a separate legal entity company or assets with a view to exit for high investment return. Private investments in public equities (PIPE), and bridge/interim loans are excluded.
- If the nominal amount of the fundraising is undisclosed, the deal will be included in the tables ranked by total number of deals, but will not bear any value in the tables ranked by total amount.
- · Only wholly-owned subsidiary investment rounds will be included under the ultimate parent organisation.
- When more than one investor is involved in a round, amounts are specifically allocated only where the amount invested by each party is disclosed. Otherwise, they are allocated on a pro-rata basis. For example, if there are two investors on a \$4m deal, where one party placed 75% while the other placed 25%, they will get \$3m and \$1m credit each. If allocations are not disclosed, each party will receive \$2m. The calculation is performed taking into account only deals where the involved parties have been confirmed. As many transactions only disclose total amount invested and number of participants, the tables ranked by amounts may over or understate an individual investor's actual placement in a fundraising.
- Only investments where more than 50% of the investment is deemed to finance clean energy-related activities have been included.

TAB	TABLE 1: VC/PE - ALL INVESTORS BY NUMBER OF INVESTMENTS							
Rank	Company	No. of deals	Disclosed amount invested (\$m) *	Deal Description: company (country, sector, investment round, total \$m deal value)				
1	Draper Fisher Jurvetson	17	83.5	Glycos Biotechnologies (US, Biofuels, Series B, 4.2m), Nano Tune Technologies (US, EST, Series B, undiscl.), Widetronix (US, EST, Series A, 1m), Tang Energy (US, Wind, Series C, undiscl.), Intematix (US, EST, Series D, 11.4m), Carbon Micro Battery (US, EST, Series A, 1.6m), Power Assure (US, EST, Series A, 12.8m), Pentalum Technologies (Israel, Wind, Series A, 9m), SolarCity (US, Solar, Exp. Captl., 21.5m), Scientific Conservation (US, EST, Series A, 9m), D.light Energy (India, EST, Series B, 5.5m), BrightSource Energy (US, Solar, Series D, 150m), EdenlQ (US, Biofuels, Series B, 12.4m), Solar Junction (US, Solar, Series C, 13.3m), Prudent Energy (China, EST, Series C, 22m), Luminus Devices (US, EST, Series B, 19.5m), Oasys Water (US, EST, Series A, 10m).				
2	Vantagepoint Venture Partners	15	135.1	TEOS (US, EST, Series B, 6m), 1366 Technologies (US, Solar, Series B, 6m), REAC Fuel (Sweden, Biofuels, Series A, 4.5m), Tendril Networks (US, EST, Series D, 23m), Miasole (US, Solar, Exp. Captl., 106m), AlertMe (UK, EST, Series B, 23.8m), Light Based Technologies (Canada, EST, Series B, 7.5m), glo (Sweden, EST, Series C, 25m), Trilliant Networks (US, EST, Exp. Captl., 106m), BrightSource Energy (US, Solar, Series D, 150m), AlertMe (UK, EST, Series A, undiscl.), Adura Technologies (US, EST, Series B, 12m), Better Place (US, EST, Series B, 350m), FloDesign (US, Wind, Series B, 34.5m), Bridgelux (US, EST, Series D, 50m).				
3	Good Energies	15	90.3	SolarReserve (US, Solar, Exp. Captl., undiscl.), AZZURRO Semiconductors (Germany, EST, Series A, 19.3m), Sage Electrochromics (US, EST, Exp. Captl., undiscl.), Champlin Windpower (US, Wind, Exp. Captl., 50m), Tendril Networks Inc (US, EST, Series D, 23m), Ice Energy (US, EST, Series C, 24m), Microstaq (US, EST, Series C, 10.2m), AlertMe (UK, EST, Series B, 23.8m), Power Assure (US, EST, Series A, 12.8m), Agile (US, Solar, Series A, undiscl.), AlertMe (UK, EST, Series A, undiscl.), 3TIER (US, Services & Support, Series C, 3m), Nexamp (US, Services & Support, Series A, 6.5m), Enecsys (UK, Solar, Series A, 4.2m), Enviromena Power Systems (UAE, Solar, Series B, 15m).				
4	Khosla Ventures	11	95.8	Ciris Energy (US, Carbon Capture and Storage, Series B, 23.9m), LS9 (US, Biofuels, Exp. Captl., 30m), Soladigm (US, EST, Series C, 30m), PVT Solar (US, Solar, Series B, 13.7m), EcoMotors International (US, EST, Series B, 23.5m), Stion (US, Solar, Series D, 70m), TerraPower (US, Nuclear Power, Series B, 35m), Coskata (US, Biofuels, Series D, 23.8m), Sakti3 (US, EST, Series B, 7m), Amyris (US, Biofuels, Series C, 19m), Nordic Windpower USA (US, Wind, Series C, 38m).				
5	Kleiner Perkins Caufield & Byers	10	130.9	OPOWER (US, EST, Series C, 50m), Miasole (US, Solar, Exp. Captl., 106m), Enphase Energy (US, Solar, Series D, 28m), EdenlQ (US, Biofuels, Series B, 12.4m), Amonix (US, Solar, Series B, 25m), Primus Power (US, EST, Series A, 2m), Amyris (US, Biofuels, Series C, 19m), Upwind Capital Partners (US, Wind, Series B, 22.8m), FloDesign (US, Wind, Series B, 34.5m), Fisker Automotive (US, EST, Exp. Captl., 115.3m).				
6	Rockport Capital Partners	10	80.2	Luxim (US, EST, Series D, 22m), Exclara (US, EST, Series C, 10m), Aspen Aerogels (US, EST, Exp. Captl., 21.5m), Recurve (US, EST, Series B, 8.1m), THINK Global (Norway, EST, Exp. Captl., 47m), EcoFactor (US, EST, Series A, 3.5m), Enphase Energy (US, Solar, Series D, 40m), Qnovo (US, EST, Series A, 1m), THINK Global (Norway, EST, Series B, 11.7m), Achates Power (US, EST, Series B, 19.2m).				
7	Chrysalix Energy	10	24.9	Akermin (US, Fuel Cells, Series C, 4m), Epyon BV (Netherlands, EST, Series B, 9.7m), Light Based Technologies (Canada, EST, Series B, 7.5m), ENBALA Power Networks (Canada, EST, Exp. Captl., 7.8m), Brammo (US, EST, Series B, 12.5m), GlassPoint Solar (US, Solar, Series A, 1.9m), Primus Power (US, EST, Series A, 2m), Light Based Technologies (Canada, EST, Series A, 2m), Epyon BV (Netherlands, EST, Series B, undiscl.),Bridgelux (US, EST, Series D, 50m).				
8	General Electric	9	48.4	Ciris Energy (US, Carbon Capture and Storage, Series B, 23.9m), Soladigm (US, EST, Series C, 30m), Alta Devices (US, Solar, Series B, undiscl.), Tendril Networks (US, EST, Series D, 23m), Cool Planet Biofuels (US, Biofuels, Series B, 3m), SynapSense (US, EST, Series C, 5m), Trilliant Networks (US, EST, Exp. Captl., 106m), Consert (US, EST, Exp. Captl., 17.7m), Ciris Energy (US, Carbon Capture and Storage, Series A, undiscl.).				
9	SET Venture Partners	9	16.2	CrystalQ (Netherlands, EST, Series B, undicl.), NGenTec (UK, Wind, Series A, 3m), PhotoSolar (Denmark, Solar, Series C, 4.8m), Epyon (Netherlands, EST, Series C, 9.7m), AlertMe (UK, EST, Series B, 23.8m), O-Flexx Technologies GmbH (Germany, Solar, Series A, 2.6m), AlertMe (UK, EST, Series A, undicl.), Epyon (Netherlands, EST, Series B, undicl.), General Fusion (Canada, Fusion, Series B, 1m).				
10	New Enterprise Associates	7	45.4	OPOWER (US, EST, Series C, 50m), Azuray Technologies (US, Solar, Series A, 5m), Pervasive (US, EST, Series A, 6m), Glacier Bay (US, EST, Series C, 15m), Solar Junction (US, Solar, Series C, 13.3m), One Block Off the Grid (US, Solar, Series A, 5m), Nordic Windpower USA (US, Wind, Series C, 38m).				

Note: *Pro rata if investment percentages unknown. Deals which have undisclosed values and/or investees are included in 'No. of deals', but not in 'Disclosed amount invested (\$m)'. If Investors have an equal number of investments, Disclosed Amount Invested (\$m) is taken into account.



TABLE 2: VC/PE - ALL INVESTORS BY DISCLOSED \$ AMOUNT INVESTED							
Rank	Company	Disclosed amount invested (\$m) *	No. of deals	Deal description: company (country, sector, investment round, total \$m deal value)			
1	Riverstone Holdings	260.0	1	Pattern Energy (US, Wind, Exp. Captl., 400m. At least \$260m of equity was drawn during 2010.)			
2	Caixa Economica Federal (Brazil)	253.9	2	Energias Renovaveis do Brasil (Brazil, Biomasse, Exp. Captl., 69.8m), Energimp (Argentina, Wind, Exp. Captl., 219m).			
3	Terra Firma Capital Partners	247.8	1	Novera Energy (UK, Wind, Exp. Captl., 247.8m).			
4	Eton Park Capital Management	200.0	1	Hydro Chile (Chile, Small Hydro, Exp. Captl., 200m).			
5	European Bank for Reconstruction & Development	181.2	2	Iberdrola Renovables Polska (Poland, Wind, Exp. Captl., 108.7m), Iberdrola Renovables Magyarorszag Kft (Hungary, Wind, Exp. Captl., 72.5m).			
6	Vantagepoint Venture Partners	135.1	14	TEOS (US, EST, Series B, 6m), 1366 Technologies (US, Solar, Series B, 6m), REAC Fuel (Sweden, Biofuels, Series A, 4.5 m), Tendril Networks (US, EST, Series D, 23m), Miasole (US, Solar, Exp. Captl., 106m), AlertMe (UK, EST, Series B, 23.8 m), Light Based Technologies (Canada, EST, Series B, 7.5 m), glo (Sweden, EST, Series C, 25m), Trilliant Networks (US, EST, Exp. Captl., 106m), BrightSource Energy (US, Solar, Series D, 150m), Adura Technologies (US, EST, Series B, 12m), Better Place (US, EST, Series B, 350m), FloDesign (US, Wind, Series B, 34.5 m), Bridgelux (US, EST, Series D, 50m).			
7	Kleiner Perkins Caufield & Byers	130.9	10	OPOWER (US, EST, Series C, 50m), Miasole (US, Solar, Exp. Captl., 106m), Enphase Energy (US, Solar, Series D, 28m), EdenIQ (US, Biofuels, Series B, 12.4m), Amonix (US, Solar, Series B, 25m), Primus Power (US, Power Storage, Series A, 2m), Amyris (US, Biofuels, Series C, 19m), Upwind Capital Partners (US, Wind, Series B, 22.8m), FloDesign (US, Wind, Series B, 34.5m), Fisker Automotive (US, EST, Exp. Captl., 115.3m).			
8	HSBC	122.5	1	Better Place (US, EST, Series B, 350m).			
9	Denham Capital Management	108.0	1	Gradient Resources (US, Geothermal, Exp. Captl., 108m).			
10	Warburg Pincus	104.5	2	Omega Energia (Brazil, Small Hydro, Exp. Captl., 203m), EnStorage (Israel, EST, Series B, 15m).			

PUBLIC MARKETS



2. PUBLIC MARKETS

Last year saw public market investment bounce back from its recession-driven lows in 2008 and 2009, reaching \$17.4bn – an increase of 18%. It is one of the best places to assess key investment themes during 2010 – China and wind.

Public markets are back – or more precisely the IPO market is back, strongly driven by the Chinese stock exchanges. Of the \$17.4bn fundraising from the world's stock markets in 2010, \$10.5bn was from IPOs, \$4.4bn from follow-on share offerings, and \$2.5bn from convertible notes and other transactions. Compared with previous years, capital raised through IPOs in 2010 nearly tripled the levels seen in the preceding two years, only falling behind the peak in 2007 by \$2.5bn. In contrast, funds raised through follow-on share offerings dropped 50% from 2009 and convertible notes slid marginally.

The Chinese stock markets consisting of stock exchanges in Shanghai, Shenzhen and Hong Kong saw total capital of \$5.9bn flow into China-based clean energy companies, representing one-third of the capital raised in the world's stock markets in 2010. US stock markets, comprising mainly NASDAQ and NYSE, were left far behind with \$2.9bn raised.

Companies based in China also raised \$0.9bn from overseas stock markets, which helped the total capital raised for Chinese companies reach \$6.8bn - 40% of the total clean energy public market investment. In contrast, companies operating in the US raised only \$1.5bn - half of all capital raised in the US stock markets. In other words, half of the money raised in the US stock markets was to support foreign companies' growth.

Investment in the wind sector also grew significantly, from \$5.2bn in 2009 to \$8.2bn in 2010. This rise was thanks to the \$3.5bn IPO of Enel Green Power in Italy, the largest IPO in 2010's global clean energy sector.

However, investment in solar and energy smart technologies dropped.

The large established solar manufacturers such as First Solar, Suntech, LDK, Yingli, GT Solar, Motech, Sunpower, Solarworld, and JA Solar appeared modest, with some raising only small amounts (less than \$100m).

Looking through Bloomberg New Energy Finance's public markets league table (Table 3), the investment banks involved in the two key themes of 2010 – China and wind – were the biggest winners. By co-underwriting Italian wind power generator Enel Green Power's \$3.5bn IPO in Italy, and Chinese wind manufacturers Xingjiang Goldwind's \$1.1bn IPO in Hong Kong, Goldman Sachs moves to top of the league table from last year's rather modest ranking of seventh. As the first western investment bank to successfully acquire trading licences for all kinds of investment banking businesses in China, Goldman Sachs was bound to benefit from the country's growing clean energy industry.

Credit Suisse – also one of the first western investment banks in China – gained a similar market position to Goldman Sachs. This has helped escalate the firm to second place. As well as participating in underwriting the IPO of Italian wind power generator Enel Green Power, the bank led the IPOs of two Chinese wind companies China Datang Renewable Power and China Ming Yang Wind Power, worth \$643m and \$350m respectively.

In the category for 'Legal Advisors to the Issuers' (Table 4), the three law firms Chiomenti Studio Legale, Cuatrecasas Goncalves Pereira, and Sullivan & Cromwell shared the award by advising Enel Green Power on its giant IPO. Clifford Chance, last year's winner, advised China Datang Renewable Power on its \$681m IPO in Hong Kong.

PUBLIC MARKETS METHODOLOGY

- The Public Markets League Tables rank the organisations that advised an issuing clean energy company on at least one public offering of shares or other financial instruments in a stock exchange during 2010 (see Appendix for "clean energy" definition). Transaction types include IPO, secondary offerings, convertible notes (that convert into equity) and others
- The tables rank depending on total offering size which includes investor exit through public offerings if any.
- Values are attributed on a pro-rata basis. For example, if there were two Lead Managers on a \$400m deal, each will be allocated \$200m. The calculation is performed taking into account only deals where the involved parties have been confirmed.
- Only deals involving companies that are deemed to derive more than 50% of revenue from clean energy-related activities are included.

Rank	Company	Total amount (\$m)	No. of deals	Deal Description: Company (country of domicile, exchange, deal type, total \$m deal value)
1	Goldman Sachs	1,463.9	11	Enel Green Power (Italy, Borsa Italiana, IPO, 3,503m), Q-Cells SE (Germany, Deutsche Börse, Convertible, 180m), Q-Cells SE (Germany, Deutsche Börse, Issue of Warrants/Rights/Options, 177.3m), Xinjiang Goldwind Science & Technology (China, Hong Kong Stock Exchange, IPO, 1,053.6m), Elster Group SE (Germany, NYSE, IPO, 242.2m), Amyris (US, NASDAQ, IPO, 97.5m), Orient Green Power (India, National Stock Exchange, IPO, 199m), China High Speed Transmission Equipment Group (Hong Kong, Hong Kong Stock Exchange, Private Investment in Public Equity, 418.9m), Tesla Motors (US, NASDAQ, IPO, 260.3m), STR Holdings (US, NYSE, Secondary, 150.9m), Trina Solar (China, NYSE, Secondary, 184m).
2	Credit Suisse	1,379.0	13	China Datang Corp Renewable Power (Hong Kong Stock Exchange, IPO, 681.5m), Enel Green Power (Italy, Borsa Italiana, IPO, 3,503m), JinkoSolar Holding (China, NYSE, Secondary, 126m), Green Plains Renewable Energy (US, NASDAQ, Convertible, 90m), China Ming Yang Wind Power Group (China, NYSE, IPO, 350m), GT Solar International (US, NASDAQ, Secondary, 86.1m), JinkoSolar Holding (China, NYSE, IPO, 64.2m), STR Holdings (US, NYSE, Secondary, 150.9m), Codexis (US, NASDAQ, IPO, 78m), Trina Solar (China, NYSE, Secondary, 184m), GT Solar International (US, NASDAQ, Secondary, 139.4m), Motech Industries (Taiwan, Taiwan OTC, OTC Secondary/PIPE, 193m), Roth & Rau AG (Germany, Deutsche Börse, Private Investment in Public Equity, 49.3m).
3	JP Morgan	1,201.9	11	China Datang Corp Renewable Power (Hong Kong, Hong Kong Stock Exchange, IPO, 681.5m), Silex Systems (Australia , Australian Stock Exchange , Private Investment in Public Equity, 88.4m), Westport Innovations (Canada , Toronto Stock Exchange, Secondary, 121.8m), Enel Green Power (Italy, Borsa Italiana, IPO, 3,503m), Xinjiang Goldwind Science & Technology (China, Hong Kong Stock Exchange, IPO, 1,053.6m), Trony Solar Holdings (Hong Kong, Hong Kong Stock Exchange, IPO, 266.8m), Elster Group SE (Germany, NYSE, IPO, 242.2m), Amyris (US, NASDAQ, IPO, 97.5m), Green Energy Technology (Taiwan, Taiwan Stock Exchange, Secondary, 86m), Tesla Motors (US, NASDAQ, IPO, 260.3m), Broadwind Energy (US, NASDAQ, Secondary, 99.2m).
4	Morgan Stanley	1,021.0	9	Westport Innovations (Canada, Toronto Stock Exchange, Secondary, 121.8m), Solarfun Power Holdings (China, NASDAQ, Secondary, 82.8m), Enel Green Power (Italy, Borsa Italiana, IPO, 3,503m), China Suntien Green Energy (China, Hong Kong Stock Exchange, IPO, 424.6m), Daqo New Energy Corp (China, NYSE, IPO, 87.4m), China Ming Yang Wind Power Group (China, NYSE, IPO, 350m), Amyris (US, NASDAQ, IPO, 97.5m), Tesla Motors (US, NASDAQ, IPO, 260.3m).
5	Essence Securities	719.4	3	Shanghai Taisheng Wind Power Equipment (China, Shenzhen Stock Exchange, IPO, 139.2m), Risen Energy (China, Shenzhen Stock Exchange, IPO, 28m), Zhejiang Narada Power Source (China, Shenzhen Stock Exchange, IPO, 300.2m).
6	Bank of America	704.0	7	Enel Green Power (Italy, Borsa Italiana, IPO, 3,503m), Fuel Systems Solutions (US, NASDAQ, Secondary, 69m), China Ming Yang Wind Power Group (China, NYSE, IPO, 350m), GT Solar International (US, NASDAQ, Secondary, 86.1m), Semileds Optoelectronics (US, NASDAQ, IPO, 102.9m), Ameresco (US, NYSE, IPO, 90.4m), Renova Energia SA (Brazil, São Paulo (BOVESPA), IPO, 98.2m).
7	CITIC Securities	553.9	2	Shanghai Chaori Solar Energy Science & Technology (China, Shenzhen Stock Exchange, IPO, 358.2m), Xiamen Changelight (China, Shenzhen Stock Exchange, IPO, 195.7m).
8	UniCredit	469.4	3	Enel Green Power (Italy, Borsa Italiana, IPO, 3,503m), Q-Cells SE (Germany, Deutsche Börse, Convertible, 180m), Q-Cells SE (Germany, Deutsche Börse, Issue of Warrants/Rights/Options, 177.3m).
9	Citigroup	456.8	4	Q-Cells SE (Germany, Deutsche Börse, Convertible, 180m), Q-Cells SE (Germany, Deutsche Börse, Issue of Warrants/Rights/Options, 177.3m), Xinjiang Goldwind Science & Technology (China, Hong Kong Stock Exchange, IPO, 1,053.6m), Suzlon Energy (India, Mumbai Stock Exchange, Exercise of Warrants/Rights/Options, 254m).
10	Barclays Capital	445.9	3	Enel Green Power (Italy, Borsa Italiana, IPO, 3,503m), Semileds Optoelectronics (US, NASDAQ, IPO, 102.9m), Trina Solar (China, NYSE, Secondary, 184m).

TABL	TABLE 4: PUBLIC MARKETS - LEGAL ADVISOR TO ISSUER						
Rank	Company	Total amount (\$m)	No. of deals	Deal description: company (country of domicile, exchange, deal type, total \$m deal value)			
	Chiomenti Studio Legale	1167.7	1	Enel Green Power (Italy, Borsa Italiana, IPO, 3,503m)			
1	Sullivan & Cromwell	1167.7	1	Enel Green Power (Italy, Borsa Italiana, IPO, 3,503m)			
	Cuatrecasas Goncalves Pereira	1167.7	1	Enel Green Power (Italy, Borsa Italiana, IPO, 3,503m)			
4	Clifford Chance	681.5	1	China Datang Renewable Power (Hong Kong, Hong Kong Stock Exchange, IPO, 681.5m)			
5	DLA Piper	637.2	2	Xinjiang Goldwind Science & Technology (China, Hong Kong Stock Exchange, IPO, 1,053.6m), China Hydroelectric (China, NYSE, IPO, 110.4m)			

MERGERS & ACQUISITIONS

3. MERGERS & ACQUISTIONS

Total clean energy M&A activities saw around \$55bn* invested in the clean energy sector last year – a similar level to 2009. This figure includes corporate M&As, acquisitions of manufacturing and power generating assets, and private equity buyouts. This was the result of increased asset acquisition activities being offset by reduced corporate M&A and private equity buyouts.

The level of M&A activity last year may have been similar to 2009 but different countries experienced different trends: Asia and Europe both witnessed substantial drops in corporate M&A activities in 2010, whereas the Americas' transaction value increased. This was principally driven by increased competition in Brazil's ethanol industry and the US and Canada's solar and wind industries. The largest two corporate M&A deals took place in the region – a \$1.2bn acquisition of bioethanol producer Equipav SA in Brazil and \$860m acquisition of wind project developer Exelon Wind in the US.

The Americas not only observed soaring acquisition activities in the corporate world but also on the project side.

In contrast, although Asia saw a substantial drop in corporate M&A activities, its transaction value of asset acquisition rose by 70% to \$3.3bn. Of these deals, nearly one-third was from China's wind sector, one-third from the acquisition of a geothermal project in Philippines, and the remaining from other countries in the region.

A note of caution: M&As, project acquisitions and private equity buyouts are excluded from Bloomberg New Energy Finance's new investment totals. This is because they show money changing hands – rather than new investments into the sector. Since such activities are another indicator of how the clean energy sector is being developed, we present the following tables to recognise relevant financial service providers' contribution to the sector:

- M&A Financial advisors to targets (Table 5)
- M&A Financial advisors to acquirers (Table 6)
- M&A Legal advisors to targets and/or acquirers (Table 7)

In the table for M&A financial advisors to targets, Spanish bank BBVA claims top spot by advising Spanish biomass and waste energy business Endesa Generación on the

sale to Italian renewable energy company Enel Green Power. Goldman Sachs ranks second by advising on the second largest corporate M&A deal in 2010 – acquisition of US wind project developer Exelon Wind – on behalf of the target company, and the acquisition of US wind turbine manufacturer Clipper Windpower.

In the table for M&A financial advisors to acquirers, the winner is also a Spanish bank. Banco Santander advised the acquirer in the Endesa deal, against BBVA on the target company side. Barclays Capital finishes second, mainly by advising the acquirer Exelon Generation. In addition, it advised MetLife, Voight & Collegen and Fondaco on its acquisition of SunRay's Montalto di Castro PV Plant in Italy.

Credit Suisse, despite only ranking third, was involved in five acquisition deals. These are a good example of Credit Suisse's efforts and global network in the clean energy sector, as they each took place in a different country – China, the Netherlands, Switzerland, Australia and the US.

As for the legal advisors participating in clean energy M&A transactions, the UK law firm Slaughter & May finishes top by providing legal advice on the acquisition of Climate Exchange, China Power Dafeng Wind Power, and Novera Energy. Foley & Lardner finishes a close second mainly for its legal advisory service to Exelon Wind, while Shearman & Sterling comes third.

*Current number being revised



M&A METHODOLOGY

- The M&A League Tables rank organisations that advised the target or acquirer in at least one clean energy M&A transaction during 2010 (see Appendix for "clean energy" definition).
- Values are attributed on a pro-rata basis. For example, if there were two Advisors to the same party in a \$400m transaction, each will be allocated \$200m.
 The M&A League Tables track acquisitions made by non-investors only, and include equity acquisitions of private companies as well as strategic acquisitions of private & public companies. Private equity-sponsored buyouts by financial institutions are excluded (but included in the VCPE tables). Asset acquisitions are also included.
- The calculation is performed taking into account only deals where the involved parties have been confirmed.
 Only deals involving companies that are deemed to derive more than 50% of revenue from clean energy-related activities are included.

Rank	Company	Total amount (\$m)	No. of	Deal Description: Company (country, sector, acquisition type, total \$m
1	Banco Bilbao Vizcaya Argentaria	1,145.0	deals 2	deal value) Enel Green Power acquisition of Endesa Cogeneracion (Spain, Biomass & Waste, Equity, 434m), Enel Green Power acquisition of Endesa Cogeneracion (Spain, Biomass & Waste, Equity, 711m).
2	Goldman Sachs	1104.5	3	Exelon Generation acquisition of Exelon Wind (US, Wind, Equity, 860m), Unitech Technologies Corp acquisition of Clipper Windpower (US, Wind, Equity, 268.3m), Unitech Technologies Corp acquisition of Clipper Windpower (US, Wind, Equity, 110.3m).
3	Morgan Stanley	718.1	3	NRG Energy acquisition of Green Mountain Energy (US, Services & Support, Equity, 350m), Sharp acquisition of Recurrent Energy (US, Solar, Equity, 305m), Canon acquisition of Tokki Corp (Japan, Efficiency: Built Environment, Equity, 63.1m).
4	JP Morgan	674.3	2	IntercontinentalExchange acquisition of Climate Exchange PLC (UK, Carbon Markets, Equity, 540.1m), Unitech Technologies Corp acquisition of Clipper Windpower (US, Wind, Equity, 268.3m).
5	Jefferies	295.3	1	Solutia acquisition of Etimex Solar (Germany, Solar, Equity, 295.3m).
6	Capital Concepts International	284.4	1	Meyer Burger acquisition of 3S Industries AG (Switzerland, Solar, Equity, 284.4m).
7	UBS	164.3	2	BP acquisition of Verenium's biofuels assets (US, Biofuels, Asset, 98.3m), MEMC acquisition of Solaicx (US, Solar, Equity, 66m).
8	Sumitomo Mitsui Financial Group	127.4	3	Mitani Corp acquisition of Windpower Ibaraki (Japan, Wind, Equity, 0.2m), Swedfund and Vattenfall acquisition of Buchanan Renewables Fuel (Liberia, Biomass & Waste, Equity, 37.2m), Geoglobal Energy acquisition of EnergySource (US, Geothermal, Equity, 90m).
9	Greentech Capital Advisors	106.6	1	China Ruifeng Galaxy acquisition of Power Full (China, Wind, Equity, 106.6m).
10	Canaccord Financial	47.9	1	Mascoma acquisition of SunOpta BioProcess Inc (Canada, Biofuels, Equity, 47.9m).
10	Rabobank	47.9	1	Roth & Rau acquisition of OTB Solar BV (Netherlands, Solar, Equity, 47.9m).

TABL	TABLE 6: M&A - FINANCIAL ADVISOR TO ACQUIRER (BY TOTAL \$M AMOUNT)						
Rank	Company	Total amount (\$m)	No. of deals	Deal Description: Company (country, sector, acquisition type, total \$m deal value)			
1	Banco Santander	1,145.0	2	Enel Green Power acquisition of Endesa Cogeneracion (Spain, Biomass & Waste, Equity, 434m), Enel Green Power acquisition of Endesa Cogeneracion (Spain, Biomass & Waste, Equity, 711m).			
2	Barclays Capital	1,120.4	2	Exelon Generation acquisition of Exelon Wind (US, Wind, Equity, 860m), MetLife, Voight & Collegen and Fondaco acquisition of SunRay's Montalto di Castro PV Plant (Italy, Solar, Asset, 260.40m).			
3	Credit Suisse	779.1	5	China Power New Energy acquisition of China Power Dafeng Wind Power Co Ltd (China, Wind, Equity, 75.9m), Roth & Rau acquisition of OTB Solar BV (Netherlands, Solar, Equity, 47.9m), Meyer Burger acquisition of 3S Industries AG (Switzerland, Solar, Equity, 284.4m), Meridian Energy acquisition of Mount Millar Wind Farm (Australia, Wind, Asset, 170.9m), Valero Energy acquisition of ASA Energy Holding (US, Biofuels, 2 Assets, 200m).			
4	Motilal Oswal Financial Services	670.9	3	Shree Renuka acquisition of Vale do Ivai SA (Brazil, Biofuels, Equity, 82m), Shree Renuka acquisition of Equipav SA (Brazil, Biofuels, Equity, 1,176.1m), Mongolia Growth acquisition of ReNvision Biofuels Inc (Canada, Biofuels, Equity, 0.8m).			
5	Itau Unibanco	588.1	1	Shree Renuka acquisition of Equipav SA (Brazil, Biofuels, Equity, 1,176.1m).			
6	Morgan Stanley	558.4	2	IntercontinentalExchange acquisition of Climate Exchange PLC (UK, Carbon Markets, Equity, 540.1m), New Energy Systems acquisition of Shenzhen NewPower Technology (China, Power Storage, Equity, 18.3m).			
7	UBS	389.4	1	Hanwha Chem Corp acquisition of Hanwha SolarOne (China, Solar, Equity, 389.4m).			
8	Mizuho Financial	305.0	1	Sharp acquisition of Recurrent Energy (US, Solar, Equity, 305m).			
9	Deutsche Bank	297.9	2	Solutia acquisition of Etimex Solar (Germany, Solar, Equity, 295.3m), Viridis Energy acquisition of Cypress Pacific Marketing Inc (Canada, Biomass & Waste, Equity, 2.6m).			
10	JP Morgan	277.0	1	SunPower acquisition of SunRay Renewable Energy (US, Solar, Equity, 277m).			

TABLE	TABLE 7: M&A - LEGAL ADVISOR TO TARGET AND/OR ACQUIRER (BY TOTAL \$M AMOUNT)						
Rank	Company	Total amount (\$m)	No. of deals	Deal description: company (country, sector, acquisition type, total \$m deal value)			
1	Slaughter & May	863.8	3	IntercontinentalExchange acquisition of Climate Exchange PLC (UK, Carbon Markets, Equity, 540.1m), China Power Dafeng Wind Power (China, Wind, Equity, 75.9m), Novera Energy (UK, Biomass & Waste, Equity, 247.8m)			
2	Foley & Lardner	860.0	1	Exelon Generation acquisition of Exelon Wind (US, Wind, Equity, 860m)			
3	Shearman & Sterling	669.9	2	IntercontinentalExchange acquisition of Climate Exchange PLC (UK, Carbon Markets, Equity, 540.1m), Hanwha Chem acquisition of Solarfun Power Holdings (China, Solar, Equity, 389.4m)			
4	Crawford Bayley	588.1	1	Shree Renuka acquisition of Equipay Acucar e Alcool (Brazil, Biofuels, Equity, 1176.1m)			
4	Veirano Advogados	588.1	1	Shree Renuka acquisition of Equipav Acucar e Alcool (Brazil, Biofuels, Equity, 1,176.1m)			

PROJECT FINANCE

4. PROJECT FINANCE

Project finance advanced 19% in 2010 after a decline of 6% in 2009, to record an historic high of \$127.8bn. China and the US played the major role in driving this growth, while the UK and Spain both experienced sizeable drops. Regarding technologies, the wind and geothermal sectors were the only two that contributed to the growth.

China and the US were the main drivers of the 2010 project finance record, growing 40% and 76% respectively. Increasing substantially from a combined value of \$45.5bn in 2009 to \$68bn in 2010, the two countries accounted for more than half of all project finance deals. Over the same period, the UK and Spain fell to \$6.8bn from \$21bn.

Wind assets were the primary target of project finance. Around 70% of all project financings – \$89.7bn – was used to develop wind power generation projects in 2010. This was an increase of 33% (\$67.3bn) compared with 2009. China and the US were also the main countries that saw strong growth in wind project finance in 2010, 49% and 66% respectively.

In our project finance league tables, we rank the top 10 lead arrangers (LAs) of clean energy project financing, and the law firm advising the LAs in 2010 (Table 8 and 9), both according to total transaction value.

Development banks continue to be the top arrangers in financing clean energy projects since 2009, thanks to their strong commitment to the clean energy sector and financial strengths to develop large projects.

For the first time, the European Investment Bank (EIB) finished top of the project finance league table. Through increased financing for climate action projects totalling

\$26bn, or 30% of its total lending in the EU, this sector is clearly a focus area for the EIB, continuing its significant contribution to the European recovery. Around \$10bn was ear-marked for renewable energy and energy efficiency projects.

BNDES ranks second with its continued strong efforts in financing Brazilian bioenergy, wind and small hydro projects, while the US Federal Financing Bank finishes third, partly by arranging the giant Abengoa Solar Solana STEG plant of \$2bn.

Among private banks, Banco Santander, Banco Bilbao Vizcaya Argentaria and BNP Paribas maintain their places in the league tables compared to 2009. New entrants include Japanese Mitsubishi UFJ Financial (fifth), Italian Unicredit (seventh), and Belgian Dexia (eighth). These banks are some of the largest private banks in their respective countries or regions and have a broad international presence.

In the legal advisors league table (Table 9), which ranks law firms advising the LAs, Milbank retains the first position for the fifth consecutive year, advising on 18 US project financing deals. Simpson Thacher & Bartlett finishes second with six deals in the US, while Clifford Chance comes third with 14 global deals.

PROJECT FINANCE METHODOLOGY

- The Project Finance League Tables rank the Lead Arrangers (LAs) and leading law firms advised on clean energy project finance transactions during 2010. Project finance is broadly defined here as financing assets for development, construction and acquisition of clean energy power generation projects (see Appendix for definition of "clean energy"). Financing methods include project loans/debt, construction loans/debt, and bridge financing.
- Scores are attributed on a pro-rata basis. For example, if there were two LAs on a \$400m deal, each will be allocated \$200m.
- The tables rank according to total disclosed transaction values, including all tranches of debt finance as well as equity portions.
- Only projects where more than 50% of revenue is deemed to derive from clean energy-related activities are included.



TAB	ABLE 8: PROJECT FINANCE - LEAD ARRANGERS (BY TOTAL \$M AMOUNT)					
Rank	Company	Total amount (\$m)	No. of deals	Deal description: project name (country, total \$m deal value)		
1	European Investment Bank	5,409.0 *	11*	* The European Investment Bank's Press Release on 22 February 2011, identifies nearly \$10bn of Renewable Energy and energy efficiency project financings. Bloomberg New Energy Finance received a detailed transaction list, outlining that at least \$5.4bn qualifies as "clean energy" according to our definition. The 11 Project Financings that we can disclose at this point, are: KenGen Olkaria I and IV Geothermal Projects (Kenya, 355.4m), Thornton Bank Offshore Wind Farm - Phases I,II & III (Belgium, 1,724m), Elering Fingrid Finland Estonia Estlink-2 Transmission Line Project (Estonia, 443m), Cabeolica Cape Verde Wind Farm (Cape Verde, 90.5m), Margonin Wind Farm - Refinancing (Poland, 229.7m), Lahti Energia Oy Lahti Waste-to-Energy Plant (Finland, 201.2m), London Array Offshore Wind Farm Phase I - DONG Refinancing II (UK, 380m), Green Power Pomorze Wind Farm (Poland, 370m), London Array Offshore Wind Farm Phase I - DONG Refinancing I (UK, 386.7m), Iberdrola La Venta III Wind Farm (Mexico, 100m), ENEOP 2 Portuguese Wind Farm Portf Phase I (Portugal, 1,151.1m).		
2	Banco Nacional de Desenvolvimento Economico e Social (BNDES)	3,164.8	18	CPFL Baia Formosa Power Plant - Expansion (Brazil, 74.2m), LDC-SEV Passa Tempo Ethanol & Power Plant - Expansion (Brazil, 87m), Ecopart Gargau Wind Farm (Brazil, 86.4m), Certel Rastro de Auto Small Hydro Plant (Brazil, 19.4m), PCH Rio do Braço Small Hydro Plant (Brazil, 41.3m), Cosan Sao Paulo Power Plant Facilities - Portf. (Brazil, 400m), Eletrosul Cerro Chato Wind Farm Portf. (Brazil, 216m), ETH Bioenergia Ethanol & Power Portf Expansion (Brazil, 605.2m), Cargill Uberlandia Biomass Plant (Brazil, 91.7m), Tonon Brilhante Vista Alegre Ethanol & Power Plant - Expansion (Brazil, 84.5m), Abengoa Sao Paulo Power Plant Portf. (Brazil, 337.5m), CPFL Rio Grande do Norte Wind Farm Portf. (Brazil, 475.3m), Vale do Paracatu Agroenergia Ethanol & Power Plant (Brazil, 70.1m), Cargill Cevasa Power Plant - Expansion (Brazil, 103.8m), Ceara Wind Farm Portf Refinancing (Brazil, 243.6m), São Manoel Ethanol & Power Plant - Expansion (Brazil, 48.5m), Oleoplan Veranopolis Biodiesel Plant - Expansion (Brazil, 34.1m), Sao Martinho Boa Vista Ethanol & Power Plant - Expansion (Brazil, 268m).		
3	US Federal Financing Bank	2,119.2	3	Abengoa Solar Solana STEG Plant (US, 2000m), Beacon Power Corp Stephentown Power Storage Project (US, 69m), First Wind Kahuku Wind Farm (US, 50.2m).		
4	Banco Bilbao Vizcaya Argentaria	1,968.1	29	HydroChile San Andres Small Hydro Plant (Chile, 121.5m), Hydrochile El Paso Small Hydro Plant (Chile, 121.5m), Caithness Energy Shepherds Flat Wind Farm (US, 2,000m), Top of the World Wind Farm - Refinancing (US, 231m), Fowler Ridge Wind Farm Phase II - Refinancing (US, 348.3m), Oaxaca I Wind Farm (Mexico, 215m), Laredo Ridge Wind Farm (US, 200m), Esquilvent Wind Farm Portf. (Spain, 298.2m), Ibereolica Moron de la Frontera I & II STEG Plants (Spain, 309.5m), Cova Da Serpe and La Vega Wind Farms - New build (Spain, 16.7m), Cova Da Serpe and La Vega Wind Farms - Acquisition (Spain, 40.2m), OPDE Valtierra PV Project - Phase III (Spain, 9.1m), Green Frontier Wind Farm Portf Refinancing (US, 377.3m), EDF Gabardan PV Project I (France, 60.6m), EDF Gabardan PV Project IV (France, 62.5m), Parideras and Monclues Wind Farm (Spain, 182.8m), Central States Wind Farm Portf Refinancing (US, 254.9m), Dioxipe Astexol II STEG Project (Spain, 397m), San Lorenzo C Wind Farm (Spain, 59.2m), San Lorenzo D Wind Farm (Spain, 71.1m), La Rabia Wind Farm (Spain, 43.8m), Cedro Hill Wind Farm (US, 477.1m), Acciona Waubra Wind Farm - Refinancing (Australia, 304.4m), ENEOP 2 Portuguese Wind Farm Portf Phase I (Portugal, 1,151.1m), Fotosolar Casatejada PV Project (Spain, 69.3m), Ophelia II Wind Farm (Spain, 62.3m), Glen Dhu Wind Farm (Canada, 156.9m), Cedar Creek II Wind Farm (US, 502.9m), Montegordo Wind Farm (Spain, 118.1m).		
5	Mitsubishi UFJ Financial	1,939.5	18	Caithness Energy Shepherds Flat Wind Farm (US, 2,000m), Top of the World Wind Farm - Refinancing (US, 231m), Rollcast Piedmont Biomass Plant (US, 208m), Wild Prairie Wind Farm Portf Refinancing (US, 296.8m), Comber Wind Farm (Canada, 431.4m), Cedar Creek II Wind Farm (US, 502.9m), Budduso Wind Farm (Italy, 415.5m), Fowler Ridge Wind Farm Phase II - Refinancing (US, 348.3m), Idaho Wind Farm Portf. (US, 306.4m), Laredo Ridge Wind Farm (US, 200m), Goshen North Wind Farm (US, 208.4m), Abengoa "Solaben II, III" Logrosan STEG Projects (Spain, 779.2m), Hudson Ranch Power I Salton Sea Geothermal Project- Term Financing (US, 400m), Central States Wind Farm Portf Refinancing (US, 254.9m), Cedro Hill Wind Farm (US, 477.1m), Alta Wind Energy Center - Phase I (US, 478.6m), CPV Keenan II Wind Farm (US, 336m), CPV Keenan II Wind Farm (US, 336m).		

TAB	TABLE 8 (cntd): PROJECT FINANCE - LEAD ARRANGERS (BY TOTAL \$M AMOUNT)					
Rank	Company	Total amount (\$m)	No. of deals	Deal description: project name (country, total \$m deal value)		
6	Banco Santander	1,817.1	27	T-Solar Cuence & Cordoba PV Portf. (Spain, 93.6m), T-Solar Cuence & Cordoba PV Portf. (Spain, 93.6m), SunEdison Rovigo PV Project (Italy, 444m), Milford Wind Corridor Project - Phase II (US, 312m), Eurus Energy Avenal PV Portf. (US, 220m), Cedar Creek II Wind Farm (US, 502.9m), Acciona EcoGrove I Wind Farm - Refinancing (US, 100m), Oaxaca I Wind Farm (Mexico, 215m), Laredo Ridge Wind Farm (US, 200m), Esquilvent Wind Farm Portf. (Spain, 298.2m), Ibereolica Moron de la Frontera I & II STEG Plants (Spain, 309.5m), Ibereolica Moron de la Frontera I & II STEG Plants (Spain, 309.5m), Cova Da Serpe and La Vega Wind Farms - New build (Spain, 16.7m), Cova Da Serpe and La Vega Wind Farms - New build (Spain, 16.7m), Cova Da Serpe and La Vega Wind Farm Serman Portf Refinancing (US, 377.3m), Parideras and Monclues Wind Farm (Spain, 182.8m), San Lorenzo C Wind Farm (Spain, 59.2m), San Lorenzo D Wind Farm (Spain, 71.1m), Cyopsa Sisocia Malpartida PV Plant (Spain, 59.2m), La Rabia Wind Farm (Spain, 43.8m), Suntech/GSF Puglia PV Portf. (Italy, 238.1m), Cedro Hill Wind Farm (US, 477.1m), Alta Wind Energy Center - Phase I (US, 478.6m), FRV & Solesa Fiumicino PV Plant (Italy, 60m), Montegordo Wind Farm (Spain, 118.1m), ENEOP 2 Portuguese Wind Farm Portf Phase I (Portugal, 1,151.1m).		
7	UniCredit	1,406.9	17	Borkum West II Offshore Wind Farm - Phase I (Germany, 1,130.2m), Voiotia Kedros Wind Farm (Greece, 50.5m), Wild Prairie Wind Farm Portf Refinancing (US, 296.8m), Eurus Energy Avenal PV Portf. (US, 220m), Margonin Wind Farm - Refinancing (Poland, 229.7m), FVE Czech Novum Veprek PV Plant (Czech Rep, 137m), Budduso Wind Farm (Italy, 415.5m), 9REN Puglia & Lazio PV Portf.s (Italy, 120.2m), Colexon Czech PV Portf. (Czech Rep, 38.61m), Skopies Wind Farm and Xirokambi PV Plant - Refinancing (Greece, 80m), NextEra Peace Garden Wind Portf Refinancing (US, 78m), Central States Wind Farm Portf Refinancing (US, 254.9m), AES Cellino San Marco PV Project (Italy, 270.7m), Vantage Wind Farm (US, 116.3m), TRM Gerbido Waste-to-Energy Plant (Italy, 680.5m), Maestrale Enna Wind Farm (Italy, 50.2m), Eolica Bulgaria Balkars Suvorovo Wind Farm (Bulgaria, 155.8m).		
8	Dexia	1,132.0	14	Borkum West II Offshore Wind Farm - Phase I (Germany, 1,130.2m), AES Solar II Terzo PV Portf. (Italy, 162m), Thornton Bank Offshore Wind Farm - Phases I,II & III (Belgium, 1,724m), Gryphon Energy Villanueva de la Serena PV Plant - Refinancing (Spain, 49m), Laredo Ridge Wind Farm (US, 200m), EDF EN St Isidore Solar Project (Canada, 66.8m), EDF Gabardan PV Project I (France, 60.6m), EDF Gabardan PV Project IV (France, 62.5m), AES Cellino San Marco PV Project (Italy, 270.7m), Cedro Hill Wind Farm (US, 477.1m), Veronagest Sicily PV Portf. (Italy, 115.7m), Vantage Wind Farm (US, 116.3m), Eurowatt Pas de Calais Wind Farm Portf. (France, 107.9m), EDF Arnprior PV Project (Canada, 130.2m).		
9	BNP Paribas	1,047.5	12	EDD Les Mees PV Project (France, 149.6m), RES Kelburn Wind Farm (UK, 118.3m), Energy 21 Czech Rep PV Portf. (Czech Rep, 105m), Abengoa Solacor I & II STEG Portf. (Spain, 661m), Novera Glenkerie Wind Farm (UK, 61m), EDF Gabardan PV Project IV (France, 62.5m), AES Cellino San Marco PV Project (Italy, 270.7m), Acciona Yeong Yang Wind Farm - Refinancing (Korea (Republic), 62.2m), Hill of Towie Wind Farm (UK, 80.9m), Eurowatt Pas de Calais Wind Farm Portf. (France, 107.9m), TRM Gerbido Waste-to-Energy Plant (Italy, 680.5m), Bicker Fen & Walkway Wind Farm (UK, 65.9m).		
10	World Bank	1,046.2	9	Zorlu Jhimpir Wind Farm - Phase II (Pakistan, 36.8m), San Jacinto Geothermal Project - Phase II (Nicaragua, 177m), China WindPower & Guohua Guazhou Ganhekou No.8 Wind Farm (NC Gansu) - Refinancing (China, 140m), NREA Kom Ombo PV Project (Egypt, 714m), EDF La Ventosa Wind Farm - Refinancing (Mexico, 58.50m), EDF La Ventosa Wind Farm - Refinancing (Mexico, 58.5m), Acciona Eurus Wind Farm - Refinancing (Mexico, 375m), SIIPL Sivagangai PV Project (India, 20m), AME Kanyakumari Biomass Plant (India, 16.3m).		



TABL	E 9: PROJECT FINANCE - LE	GAL ADVISORS	S TO ARF	RANGERS (BY TOTAL \$M AMOUNT)
Rank	Company	Total amount (\$m)	No. of deals	Deal description: project name (country, total \$m deal value)
1	Milbank Tweed Hadley & McCloy	3,826.8	18	Caithness Energy Shepherds Flat Wind Farm (US, 2,000m), Hatchet Ridge Wind Farm - Refinancing (US, 143m), Brea Landfill Gas Plant - Expansion (US, 65m), Johnston Landfill Gas Plant - 27.8MW Expansion (US, 80m), Johnston Landfill Gas Plant - Macquarie Acquisition (US, 17.5m), Brea Landfill Gas Plant - Macquarie acquistion (US, 14m), Eurus Energy Avenal PV Portfolio (US, 220m), Dover SUN Park (US, 60m), Cedar Creek II Wind Farm (US, 502.9m), First Wind Cohocton Wind Project - Refinancing IV (US, 79m), Fowler Ridge Wind Farm Phase II - Refinancing (US, 348.25m), Idaho Wind Farm Portfolio (US, 306.32m), First Wind Kahuku Wind Farm (US, 50.22m), Laredo Ridge Wind Farm (US, 200m), Cedro Hill Wind Farm (US, 477.13m), Ridgewind Wind Farm (US, 42.35m), CPV Keenan II Wind Farm (US, 336m), Vantage Wind Farm (US, 116.3m)
2	Simpson Thacher & Bartlett	2,649.6	6	Wild Prairie Wind Farm Portfolio - Refinancing (US, 296.75m), Dixie Valley Geothermal Plant - Refinancing (US, 286m), Alta Wind Energy Center - Phase II (US, 1,205.2m), NextEra Peace Garden Wind Portfolio - Refinancing (US, 78m), Nextera Northern Colorado and Elk City Wind Farm Portfolio - Refinancing (US, 305m), Alta Wind Energy Center - Phase I (US, 478.6m)
3	Clifford Chance	2,523.4	14	Caithness Energy Shepherds Flat Wind Farm (US, 2,000m), Winch Energy Puglia PV Portfolio (Italy, 56.08m), Solar Power Sakon Nakhon & Nakhon Phanom PV Portfolio (Thailand, 100m), Margonin Wind Farm - Refinancing (Poland, 229.7m), FVE Czech Novum Veprek PV Plant (Czech Republic, 137m), Idaho Wind Farm Portfolio (US, 306.32m), Ytterberg Wind Farm (Sweden, 73.65m), Gryphon Energy Villanueva de la Serena PV Plant - Refinancing (Spain, 49m), Yavuz and Midilli Small Hydro Plants (Turkey, 83.47m), Acciona Eurus Wind Farm - Refinancing (Mexico, 375m), NED Lop Buri PV Project (Thailand, 247.5m), EDF Gabardan PV Project I (France, 60.6m), Fotosolar Casatejada PV Project (Spain, 69.25m), Tymien Wind Farm - Phase II (Poland, 36.3m)
4	Vieira de Almeida & Associados	1,151.1	1	ENEOP 2 Portuguese Wind Farm Portfolio - Phase I (Portugal, 1,151.1m)
5	Latham & Watkins	1,128.7	4	Top of the World Wind Farm - Refinancing (US, 231m), Milford Wind Corridor Project - Phase II (US, 312m), Goshen North Wind Farm (US, 208.38m), Green Frontier Wind Farm Portfolio - Refinancing (US, 377.33m)

CLEAN ENERGY FUNDS



5. CLEAN ENERGY FUNDS

Clean energy stocks were generally more volatile than the broader market due to policy uncertainties. In the first half of 2010, the Wilderhill New Energy Global Innovation Index (NEX) that tracked the performance of 87 clean energy equities worldwide fell by 27.1%. Despite some recovery in the second half of 2010, the NEX ended the year with an annual return of -14.6%.

As observed in earlier years, there remained significant disparity in the performance of different sub-sectors. Energy efficiency companies witnessed a rise of 19%, the best among NEX sub-sectors. Wind and solar companies were affected the most by policy uncertainty and the austerity measures adopted by governments throughout Europe. They fell by 37% and 25% respectively largely due to concerns about feed-in tariff cuts in Europe and the lack of clarity on the policy front in the US.

Bloomberg New Energy Finance analysed the performance of public equity funds that are particularly focused on the clean energy and environment/cleantech sectors. There were in total 36 funds covered in the analysis. The average trailing 12-month return of the funds declined 6.6% in 2010. The total assets managed by these funds at the end of 2010 was \$14.1bn – a 17% decline from the year-end total of 2009.

Bloomberg New Energy Finance has compiled a league table of the best-performing clean energy equity funds on an annual basis (Table 10). The ranking is based on the performance measured as a percentage change in dollar amount of net asset value.

The best performer in 2010 was the PowerShares Cleantech Portfolio (PZD), an exchange traded fund that tracks the Cleantech IndexTM with a return of 7.6%. Winslow Green Growth, a US-based specialist environment-themed fund, gains the second spot with a dollar return of 7.4%. This was followed by DnB Nor Miljøinvest, a Norwegian clean energy fund that ended the year with a dollar return of 4.5%.

CLEAN ENERGY FUNDS METHODOLOGY

- The Clean Energy Funds League Table ranks fund managers according to their performance during the 2010 Calendar Year. Specifically, the league table ranks priced funds according to the absolute percentage change in Net Asset Value (in \$) between 31 Dec 2000 to 31 Dec 2010.
- For a comprehensive comparison of the clean energy funds, Bloomberg New Energy Finance has applied its unique ratings system to this League Table, and only includes funds that are >50% exposed to clean energy. (See Appendix for "clean energy" definition.)

TABLE 10: FUNDS - CLEAN ENERGY FUND PERFORMANCE				
Rank	Fund	Fund Manager / Index Tracked	Sector focus	Return (\$)
1	PowerShares Cleantech	The Cleantech Index	Environment / Cleantech	7.6%
2	Winslow Green Growth	Winslow Management Company	Environment / Cleantech	7.4%
3	DnB Nor Miljoinvest	DnB Nor ASA	Clean Energy	4.5%
4	IMPAX	Impax Asset Management	Environment / Cleantech	4.2%
5	Schroder Global Climate Change	Schroder Investment Management	Climate Change	4.0%
6	DWS Invest New Resource	DWS Investments	Environment / Cleantech	2.5%
7	Parvest Environmental Opportunities	Impax Asset Management	Environment / Cleantech	2.2%
8	Fortis L Fund Green Future	BNP Paribas Asset Management	Environment / Cleantech	1.3%
9	Sarasin Oekosar	Sarasin Investmentfonds	Climate Change	0.9%
10	Pioneer Funds - Global Ecology	Pioneer Investments	Environment / Cleantech	0.4%

CARBON MARKETS



6. CARBON MARKETS

2010 was a solid year for the carbon markets, registering 5% growth in value and trading □93bn worth of transactions, despite political stagnation and the economic downturn. As industrial production slowly picked up again after the recession, demand for carbon offsets ramped up, and this directly benefitted the Kyoto Protocol's flexible mechanisms – the Clean Development Mechanism (CDM) and Joint Implementation (JI).

2010 saw an 11% year-on-year rise in the number of projects entering the UNFCCC pipeline. We expect investments in 2011 in UN offset projects to maintain that pace, for two key reasons – high certainty on the continuation of the CDM and JI mechanisms post 2012 and increased clarity on quality restrictions for credit imports into the EU Emissions Trading Scheme (EU ETS) from 2013.

CONTINUATION OF CDM/JI POST 2012 CONFIRMED

International climate policy development started slowly in 2010, following the less-than-ideal outcome of the UN climate talks in Copenhagen in late 2009. Parties failed to agree on a formal decision, with the Copenhagen Accord merely outlining tentative targets on mitigation and financing. Over the year, cap-and-trade legislation suffered setbacks in national parliaments around the world: in the US, prospects for a federal climate bill all but vanished as a bill was rejected on the Senate floor and the November elections unveiled a House of Representatives dominated by Republicans. In Japan and Australia, where there was strong momentum for emissions trading a year ago, the situation now suggests that the implementation of a carbon price in the next few years has become more uncertain again. The only country where cap-and-trade legislation progressed was South Korea.

Nevertheless – and against all the odds – the UN climate summit in Cancun in December succeeded in restoring trust in the international climate process. Parties formalised key aspects of the Copenhagen Accord on mitigation and financing pledges. Most importantly, they showed strong support for the continuation of the CDM/JI mechanisms post 2012 – even if the Kyoto Protocol does not enter a second commitment period. The Cancun Agreements further strengthened the CDM and JI with the addition of carbon capture and storage as an eligible technology under the CDM and the introduction of standardised baselines.

QUALITY RESTRICTIONS FOR THE EU ETS

In November 2010, the European Commission proposed to ban EU ETS participants from using credits for compliance for Phase III (2013–20) from projects targeted at the destruction of HFC-23 and N2O in adipic acid production. The ban was motivated by concerns over environmental integrity and profit potential and the lack of associated technology transfer for these projects. Historically, HFC and N2O projects have represented close to 70% of the total volume of credits issued despite there being only 18 and 22 issuing HFC and N2O projects respectively.

As the largest carbon market in the world, the EU ETS is the marginal buyer for these offsets and the primary impact of eligibility restrictions will be a substantial cut in the supply of credits available to EU ETS installations for compliance. According to our projections for demand from the European scheme and the current pipeline of projects, there will be a shortfall of some 150Mt in supply of eligible credits over 2013-20. This deficit will support new investments in eligible technologies including renewable energy, energy efficiency and agriculture projects. In addition, the deficit in credit supply out to 2020 will be significantly greater when taking into account projected demand from buyers outside the EU ETS such as EU member state governments and Japan. This will require further project investment over forthcoming years to satisfy demand.

NEW MONEY FOR THE CDM

High levels of uncertainty around a post-2012 agreement, the continuation of the CDM/JI and future demand for international offset credits had previously dampened new investment flowing into the primary CDM market. As a result, carbon funds have raised little new capital in the last two years. However, we expect this sentiment to turn around in 2011. Both the added confidence resulting from Cancun and the increased clarity on quality restrictions in the EU ETS will strengthen investors' confidence in

the idea of purchasing credits with delivery post 2012. We anticipate investment in the post-2012 market to pick up in 2011. For example, the International Financing Corporation launched a new post-2012 carbon fund in February, with a value of up to 150m.

CARBON LEAGUE TABLES

As per previous years, the Bloomberg New Energy Finance carbon league tables acknowledge private players who have been most active in the CDM and JI primary market in the previous calendar year. We exclude from our analysis public and government bodies as well as companies legally bound to reduce emissions. The companies represented in our league tables are market intermediaries, who either invest directly in CDM/JI project development or contract generated credits from project owners with a view to selling them on to the secondary market. Therefore, carbon intermediaries often take on risks both upstream – in relation to project performance and the UNFCCC approval process – and downstream – with regards to the volume of demand in the secondary market.

With the largest number of projects (34) entering the pipeline in 2010 and some 11Mt credits forecast to be issued by 2020, Carbon Resource Management is the unequivocal winner of our carbon league tables this year. All projects submitted by Carbon Resource Management bar one are wind energy projects based in China. These have performed relatively well in the past and are at low risk of becoming subject to eligibility constraints.

Taking second place, EcoSecurities and Climate Change Capital are head to head, with 8.6Mt of projected riskadjusted credits [1]. Interestingly, their volumes may be similar but they differ in terms of the number of submitted projects - 22 for EcoSecurities and 10 for Climate Change Capital. Projects included in the latter's portfolio have large expected abatement volumes. Indeed one of the largest projects submitted last year has already been registered which reduces the overall risk on the portfolio significantly. All projects in EcoSecurities' 2010 portfolio are located in China and deploy renewable energy technologies. Three of the projects submitted for validation in 2010 for which EcoSecurities is listed as a buyer have already successfully registered with the UN - also decreasing the overall risk associated with the approval process.

Eco Asset takes fourth place in this year's tables with a risk-adjusted credit volume of 7.2Mt. From offices in Tokyo, Beijing and Shanghai, this CDM intermediary is focusing project development activities exclusively on the Chinese market. Hydro projects make up more than two-thirds of the 26 projects submitted by Eco Asset in 2010. All projects are still at validation and therefore still face high risks of rejection by the UN, causing discounts on the expected issuance volume.

[1] This section has been updated since the report's first publication to put right an error. The results shown here are correct as of 11 March 2011.

CARBON MARKETS METHODOLOGY

Our analysis excludes:

- Government buying, and buying by the World Bank on behalf of Kyoto-compliant governments.
- Buying from speculative entities such as trading arms of utilities.

For carbon market intermediaries, our assessment is based exclusively on publicly available data, and includes all project submissions to the UNFCCC in the calendar year 2010.

Our carbon league table results are based on the volume of risk-adjusted credits which will be issued by the projects. The risks to which the projects are exposed include:

- registration risk, determining whether the project will be registered by the UN Executive board,
- delay risk estimating how long the process to issuance will take,
- and yield risk evaluating how well the project will perform in terms of emissions reduction.

Each of these risks is assessed using a representative sample of projects with similar characteristics. The volume estimate is based on 2000 Monte-Carlo simulations. For projects with multiple purchasers, the number of credits assigned to each credit buyer was pro-rated based on the number of buyers.

TABLE 11: CARBON OFFTAKERS			
Rank	Offtaker	Risk-adjusted contracted CDM/JI credits in MtCO2e (issued CERs/ERUs to 2020, from projects submitted for validation in 2010)	
1	Carbon Resource Management	11.1	
2	Climate Change Capital	8.7 *	
2	EcoSecurities	8.6 *	
4	Eco Asset	7.2	
5	Carbon Asset Management	6.5	
6	Noble Carbon Credits	5.1	

^{*} Note: Climate Change Capital and EcoSecurities are ranked joint second based on statistical analysis. The difference in estimated risk-adjusted credits between the two portfolios is smaller than one standard deviation.

APPENDIX

APPENDIX - CLEAN ENERGY DEFINITIONS

Bloomberg New Energy Finance specialises in five major markets - clean energy, energy smart technologies, carbon capture & storage, nuclear, and the global carbon markets. We provide independent research and analysis to investors in all of the renewable energy and low-carbon markets.

CLEAN ENERGY

Biofuels

Liquid transportation fuels including biodiesel and bioethanol. These can be derived from a range of biomass sources, including sugar cane, rape seed (canola), soybean oil or cellulose. Our database excludes producers of base biomass, but includes suppliers of everything from the processing technologies and equipment, through the logistics of distribution, to manufacturers of energy systems which are specially adapted for the use of biofuels and products, and the services on which they depend.

Biomass, solid waste and biogas

Production and consumption of solid and gaseous fuels derived from biomass. Solid biomass for the energy sector can include a number of specially-grown crops, such as elephant grass or coppiced willow, but it can also consist of crop residues such as straw. We include in this sector processors of other waste matter for energy generation, such as sewage waste, chemical by-products and biogas produced from municipal waste, as their exploitation often involves the same technologies as grown-for-purpose biomass. Increasingly we are seeing developers, generators and utilities enter this sector.

Geothermal

The geothermal sector covers technologies used to produce electricity from heat in deep subsurface geological formations. This heat can be extracted as part of a naturally occurring hydrothermal resource, or as an engineered geothermal system (EGS), which holds much potential but is still in early development stages. Exploration, drilling, and power plant technologies are all critical to geothermal resource development.

Small hydro (<50MW)

There may seem little new about hydroelectric power. Indeed at Bloomberg New Energy Finance we don't cover large-scale hydroelectric power projects. However, there are interesting developments in small-scale and low-head hydro power, and even very small scale hydro solutions. Hydro power is undergoing a renaissance and has a lot to contribute to the deployment of renewable energy globally.

Marine

The Marine sector covers all technologies relating to extraction of energy from the sea. Possibilities include waves and tide, either via tidal barrages or tidal flow generators. Note that exploitation of marine biomass would be categorised in biomass, rather than in this sector.

Solar

The Solar sector covers all technologies which capture energy directly from the sun. These include direct production of electricity using semiconductor-based photovoltaic (PV) materials, use of concentrated sunlight to heat fluid to drive power generation equipment (solar thermal electricity generation or STEG), and passive methods which use solar to replace fossil fuel energy, for example to heat water. The photovoltaic sector is the largest of these in terms of investment volume, while passive is the largest in terms of fuel saved and carbon dioxide emissions reduced globally. However, PV is expected to dramatically reduce costs through new technologies and increased manufacturing scale, and is expected to break into new areas of energy demand over the coming decades.

Wind

Wind is the renewable technology that has had the biggest impact on our energy usage patterns over the



past decade. The next decade will see continued activity, particularly in developing countries and offshore. The Wind sector includes components and subassemblies for wind turbines as well as manufacturers of turbines themselves. A big part of this sector, however, consists of the various developers, generators, utilities and engineering firms that have sprung up to exploit opportunities to build wind farms around the world.

Other Sectors

Services & support

The rapid growth of the clean energy industry will require the development of a complete sector of service companies dedicated to serving the needs of technology and equipment suppliers, owners of renewable energy and biofuels assets, and so on. In this sector we put providers of information and research (such as ourselves), specialised clean energy financial services companies, consultants and the like.

In addition to these 14 sectors, which make up the clean energy industry itself, the Bloomberg New Energy Finance Intelligence includes details of other active and important organisations of two types: the general financial services industry, and the Governments, NGOs and policy-makers.

ENERGY SMART TECHNOLOGIES

Energy efficiency

This sector covers technologies and practices aimed at improving efficiency both on the supply side – in generation, transmission and distribution – and on the demand side, including the built environment and industry. From CHP and superconducting transmission to efficient lighting, building materials, industrial processes and HVAC, a range of technologies exist that can capture the low-hanging fruit of efficiency.

Digital energy

Digital energy encompasses a web of technologies and services that use information and communications technology to improve energy efficiency, security and reliability, starting with the smart power grid. The smart grid includes systems to balance supply and demand, automate grid monitoring and control, flatten peak consumption and communicate in real-time with consumers. Supply and demand data will flow between power producers and customers, and automated demand-side management and virtual power plants will become reality.

Power storage

Many renewable energy and emerging energy technologies are either intermittent, or have response curves that are unable to follow the dynamic demands that will be put on them when deployed. Batteries and other energy storage technologies therefore become key enablers for any shift to these technologies. Within this sector we include compressed air, flywheels, capacitors and a range of battery technologies, including flow batteries.

Hydrogen and fuel cells

This sector covers the production, storage and direct applications of hydrogen as a fuel, as well as the associated market for fuel cells. Although they have been around for 150 years and their performance is not in doubt, the high manufacturing costs and infrastructure needs of fuel cells mean that they have yet to capture the mass market. A large number of companies and research initiatives are hoping to change that over the coming decade. We draw a distinction between the hydrogen industry and the fuel cell sector: fuel cells can burn a variety of hydrocarbon fuels, and hydrogen can be used by other systems, such as internal combustion engines.

Advanced transportation

Transport presently accounts for a quarter of world energy consumption. Advanced Transportation covers technologies that reduce the use of energy associated with all types of transportation. Key technologies include electric and hybrid vehicles, plug-in vehicle charge infrastructure, transportation-suitable fuel cells, and combustion efficiency technologies.

CARBON CAPTURE & STORAGE

CCS comprises technologies that directly capture, transport and store CO2 emissions from fossil-fuelled power and industrial facilities. The sector is still young but important technologies include pre-combustion, post-combustion, and oxy-combustion CO2 capture. The captured CO2 can be stored in deep subsurface geological formations, or utilised in enhanced oil recovery (EOR) or reacted with other compounds to produce marketable products -these efforts to reuse the CO2 is known as carbon capture usage and storage (CCUS).

NUCLEAR

Nuclear provides 70% of the carbon-free electricity generated in the world today. With global energy consumption projected to increase 160 percent by 2050, an expanding nuclear energy industry will provide the world's economies a cost-effective solution to base load electricity generation without large new emissions of carbon dioxide.

CARBON MARKETS

The Carbon Markets division of Bloomberg New Energy Finance produces regular price forecasts and risk and policy analysis across the following markets:

- EU Emissions Trading Scheme (EUAs)
- Kyoto Protocol and its successor (CERs, ERUs, AAUs)
- North America (RGGI allowances, Canadian allowances)
- Australia (CPRS allowances).
- Voluntary Market (VCS, GS CER, CAR, ACR, CCX)

ABOUT US



ABOUT US

Bloomberg New Energy Finance (BNEF) is the world's leading independent provider of news, data, research and analysis to decision-makers in renewable energy, renewable energy certificates, energy smart technologies, carbon markets, carbon capture and storage, and nuclear power. BNEF has staff of more than 180, based in London, Washington D.C., New York, San Francisco, Beijing, Tokyo, Hong Kong, New Delhi, Cape Town, São Paulo, Singapore, and Sydney.

BNEF Insight Services provide deep market analysis to investors in wind, solar, bioenergy, geothermal, carbon capture and storage, energy efficiency, nuclear power and renewable energy certificate markets. In addition, the group offers Insight Services for each of the major emerging carbon markets: European, Global Kyoto, Australia, and the US, where it covers the planned regional markets as well as potential federal initiatives and the voluntary carbon market. Bloomberg New Energy Finance's Industry Intelligence Service provides access to the world's most comprehensive database of investors and investments in clean energy and carbon. The News and Briefing Service is the leading global news service focusing on clean energy investment. The group also undertakes applied research on behalf of clients and runs senior-level networking events.

For more information on our services please visit www.bnef.com. Further enquiries should be directed to:

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