Renewable Energy Group

Q2 2007

Renewable Energy Country Attractiveness Indices

Ernst & Young

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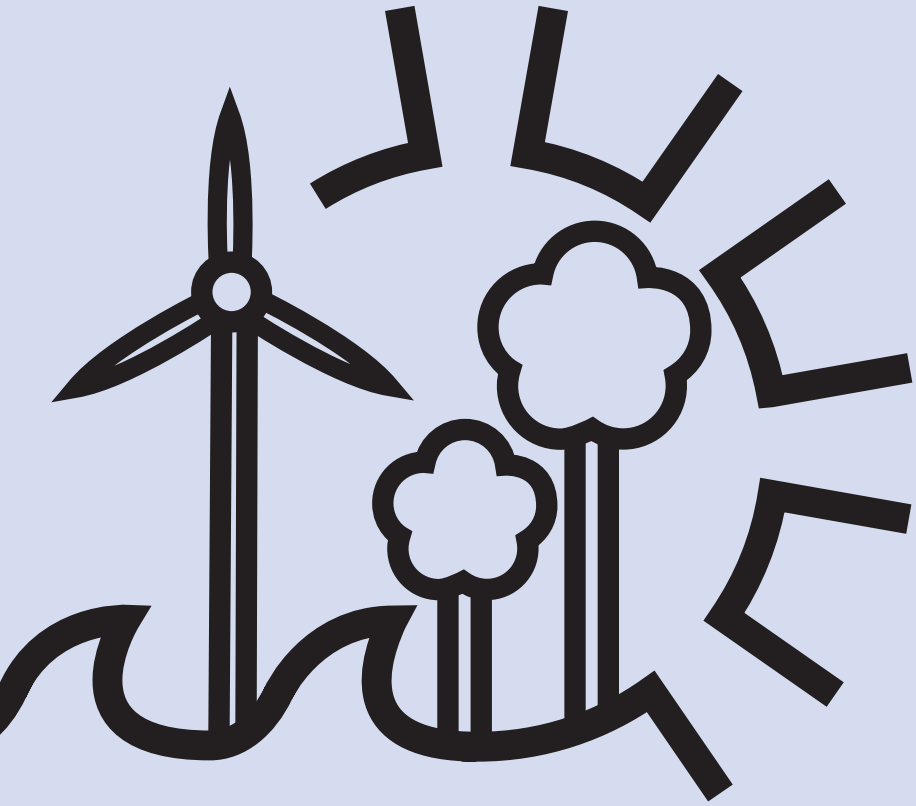

The Ernst & Young Country Attractiveness Indices provide scores for national renewable energy markets, renewable energy infrastructures and their suitability for individual technologies. The indices are updated on a regular basis.

Ernst & Young Renewable Energy Group

With a dedicated 45-strong team of international advisors operating from our UK firm, supported by a network of over 60 experienced professionals from our member firms worldwide, Ernst & Young's Renewable Energy Group helps clients to maximize value from renewable energy activity. Members of the Group provide advice and services in the following areas::

- Financial advisory and valuation
- Financial modeling and structuring
- Taxation
- Finance raising
- Asset value optimization
- M&A
- Market entry strategy
- Procurement strategy
- PPA tendering
- Feedstock strategy
- Transaction support
- PE advice
- IPO advice
- Carbon economy advice
- Strategic partnering
- Strategy review

Technologies

- Onshore and offshore wind
- Biomass
- Biofuels
- Energy from waste
- Wave and tidal
- Solar
- Fuel cells
- CHP
- Landfill gas
- Hydro
- Geothermal

Contact

For further information on our services, and for future copies of the Indices, please contact Jonathan Johns, Andrew Perkins, or Ben Warren;

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Overview of Indices

The Ernst & Young Country Attractiveness Indices provide scores for national renewable energy markets, renewable energy infrastructures, and their suitability for individual technologies. The Indices provide scores out of 100 and are updated on a regular basis.

The main Indices (All Renewables and Long-term Wind) are referred to as the 'Long-term Indices'. The Near-term Wind Index takes a two-year view with slightly different parameters and weightings (see below).

The Country Attractiveness Indices take a generic view and different sponsor/financier requirements will clearly affect how countries are rated. Ernst & Young's Renewable Energy Group can provide tailor-made studies to meet specific corporate objectives. It is important that readers refer to the guidance notes set out on pages 15 and 16 when referring to the Indices.

Long-term Indices

The Long-term Indices are forward looking and take a long-term view, hence the UK's high ranking in the Wind Index, explained by the large amount of unexploited wind resource, strong offshore regime, and attractive tariffs available under the ROCs system. Conversely, although Denmark has the highest proportion of installed wind capacity to population level, it scores relatively low because of its restricted grid capacity and reduced tariff incentives.

All Renewables Index

This Index provides an overall score for all renewable energy technologies. It combines Individual Technology Indices as follows:

- Wind Index – 85% (Comprising Onshore Wind Index and Offshore Wind Index)
- Solar Index – 5%
- Biomass and Other Resource Index – 10%

Note that in Q3 2007 these weightings are to be revised to reflect greater capacity installed in technologies other than wind.

Individual Technology Indices

These Indices are derived from scoring:

- General country specific parameters (the Renewables Infrastructure Index), accounting for 35%
- Technology specific parameters (the Technology Factors), accounting for 65%

Renewables Infrastructure Index

An assessment by country of the general regulatory infrastructure for renewable energy (see page 15).

Technology Factors

These provide resource specific assessments for each country (see page 15).

Long-term Wind Index

These Indices are derived from scoring:

- The Onshore Wind Index - 70%
- The Offshore Wind Index - 30%

Near-term Wind Index

The Near-term Wind Index takes a forward-looking two-year view based on the parameters of most concern to a typical investor looking to make an investment in the near term. The Index gives scores for onshore and offshore separately. For parameters and weightings see page 16.

Comments and Suggestions

We would welcome your comments or suggestions on any aspect of the Indices, in particular regarding the weightings of technologies in the All Renewables Index.

Tailor-made attractiveness surveys and market reports can be provided taking account of specific corporate objectives. Please contact the Renewable Energy Group for further details.

Glossary

AET	Average Energy Tariff (Spain)
CHP	Combined Heat and Power
CDM	Clean Development Mechanism
CREBs	Clean Renewable Energy Bonds
EPC	Energy Performance Commitment
ETS	Emissions Trading Scheme
GW	Giga Watt (1,000MW)
GC	Green Certificate
IASB	International Accounting Standards Board
IPO	Initial Public Offer
JI	Joint Implementation
Long-term Indices	Refers to both All Renewable Index and Long-term Wind Index
MEP	Milieukwaliteit Electriciteits Produktie
MW	Mega Watt (1,000kW)
MWh	Mega Watt hour (1,000,000Wh)
PE	Private Equity
PPA	Power Purchase Agreement
PTC	Production Tax Credit (US)
PV	Photovoltaic
RO	Renewables Obligation (UK)
ROC	Renewables Obligation Certificate (UK)
RPS	Renewables Portfolio Standard (US)
SEZ	Special Economic Zone
TWh	Tera Watt hour (1,000,000MWh)
WPPI	Wind Power Production Incentive (Canada)

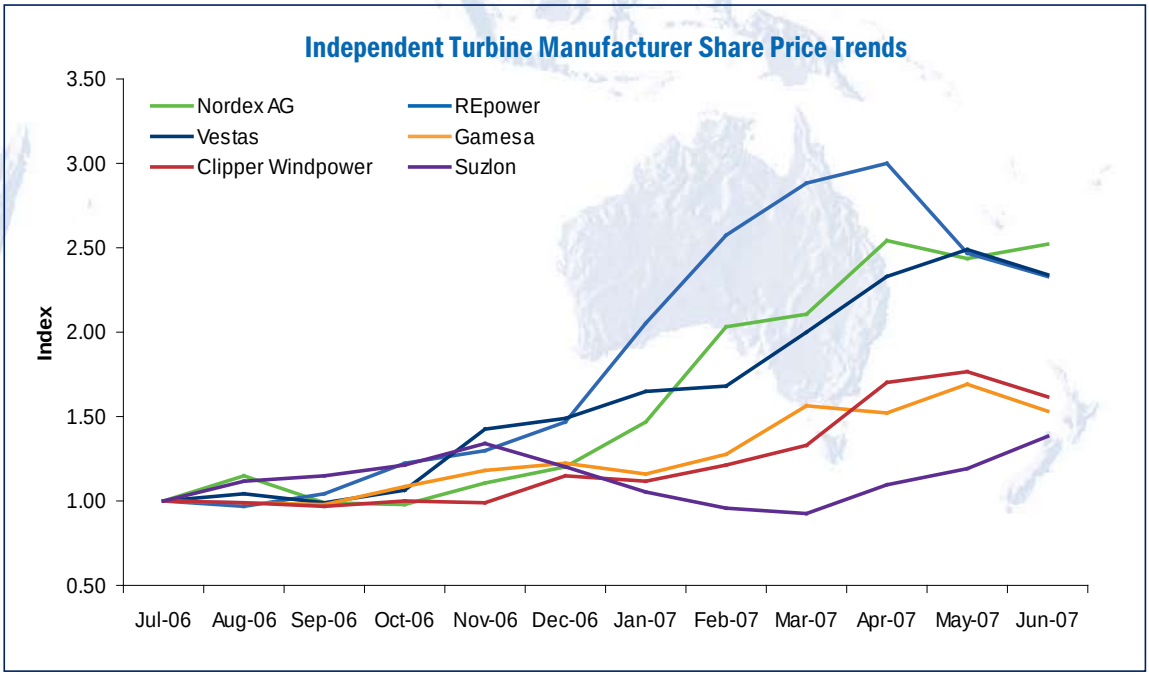
Climate Change: Chained to Supply

Demand for renewable energy is growing at unprecedented rates, requiring significant investment throughout the supply chain driven by competing government incentive mechanisms. The US has a 'twenty in ten' target, China has a 10% target for renewables by 2020, India has a 10% target by 2012, and EU countries have recently signed up to a 20% mandatory target for energy consumption from renewable sources. This latter target is particularly significant given the relative immaturity of renewable heat and transport markets, as the onus will be on renewable power to make up any shortfall (some commentators argue that the true target for renewable power is closer to 30%). Indeed, Germany's announcement that it is looking at increasing its 2020 target for renewable power generation from 20% to 27% and implement a 45% target for 2030, is evidence that some countries recognize the challenging nature of the EU mandatory target.

In 1997, Ernst & Young predicted global investment in renewable energy would reach US$70b by 2006. At the time, this figure was considered ambitious, but in fact, investment in the renewable and clean energy sector reached just over US$100b in 2006 and could rise to over US$750b by 2016 at current rates of growth.

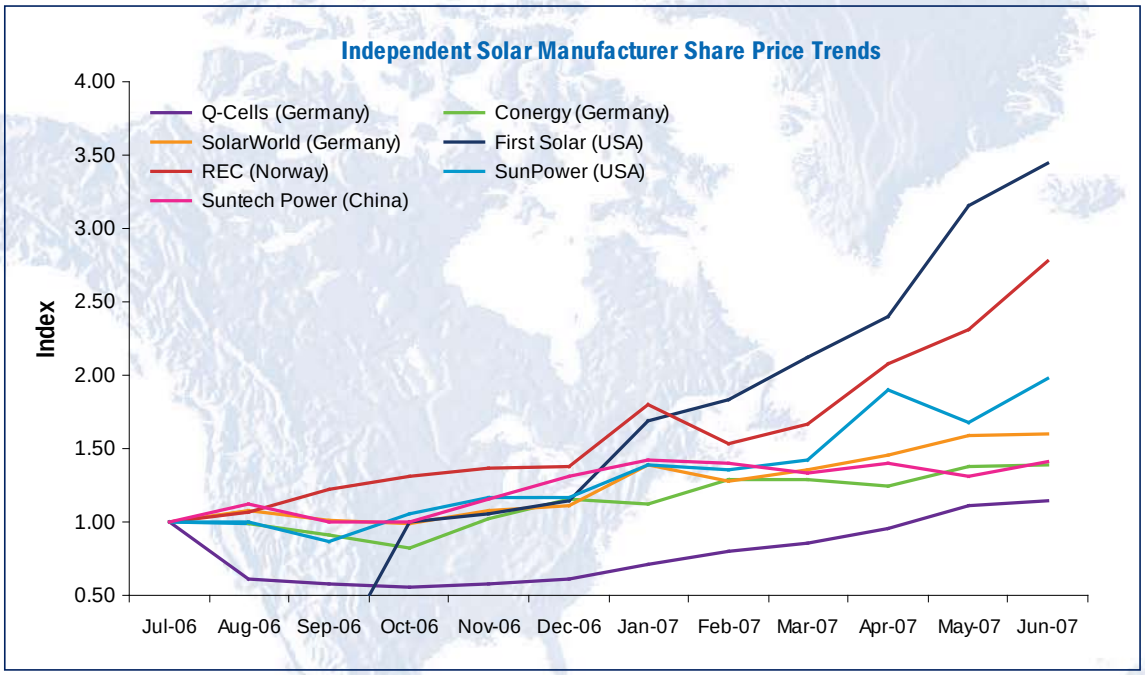
Competition for assets is intense. Trade players are battling for supply chain presence. Significant deals in the last five years include: GE's US$325m acquisition of Enron Wind in May 2002; Siemens' acquisition of Bonus Energy in December 2004; Seimens AG's US$1.5b acquisition of gearbox manufacturer Flender Holdings GmbH in March 2005; Suzlon's €460m acquisition of Hansen Transmissions in March 2006 and recent acquisition of REpower in June 2007 valued at €1.35b; and more recently Alstom's acquisition of Ecotecnia in Spain for €350m. Further takeover speculation has fueled share price rises in the last six months, as shown by the graph below.

Given current rates of industry growth of 20% to 30% and manufacturers' focus on profitability, supply chain constraints are likely to continue in the medium term notwithstanding new future entrants from China, South Korea, India, and possibly Japan. As a consequence, mergers and acquisition (M&A) activity is likely to filter down the supply chain, placing a premium for key players such as gearbox and bearing manufacturers.



Source: Ernst & Young LLP – Rebasing of stock exchange data

Climate Change: Chained to Supply



Source: Ernst & Young LLP – Rebasing of stock exchange data

In the solar sector, activity is no less intense. Share prices have been equally buoyant for many players in the supply chain. Renewable Energy Corporation (REC), in particular, has shown strong growth over the last 12 months (see graph above), owing to its presence in polysilicon manufacturing – a key bottleneck in the supply chain – as Q-Cells increased its shareholding in a bid to secure supply for its own factories. Interest in thin-film PV, which uses less silicon than conventional PV, has also proved a popular way of skirting the silicon supply bottleneck. First Solar, the world's largest thin-film PV producer, has consequently seen its share price rise rapidly against other solar producers.

However, certain pinch points within the supply chain may not be so easily overcome. Solar companies compete with the semiconductor industry for raw materials; turbine manufacturers compete with other users of steel, aluminium, and metals. Tight supply encourages technological advances, pursued through investment in R&D, such as bigger, more efficient wind turbines, advances in thin-film solar PV, and hydrogen-based technologies. New developments like these could cut through supply difficulties and ultimately alter the balance of power among supply chain participants.

Critical mass is becoming an imperative. Very significant buyers are emerging in the renewable energy industry, with companies such as Iberdrola, Acciona, BP, and infrastructure funds, acting on a global basis. The ability to quickly acquire and commercialize new technologies, enter new markets, and diversify across the industry requires a strong balance sheet, a track record of raising finance for new acquisitions, and a dynamic approach to the market. The biomass industry lags in this respect and is perhaps ripe for consolidation.

For governments, one of the key issues is to continue supporting projects through financial incentives such as tariffs and tax incentives. But to focus on this alone is short-sighted. The most successful markets for growth, such as India, China, and the US (for new technologies) are placing equal emphasis on supporting the supply chain. Without this investment, growth in generating capacity is continuously under threat from a lack of supply, putting a market's ability to reap the rewards from renewable energy at risk. The next five to ten years will be just as much about supply chain as policy.

Jonathan Johns
Ernst & Young Renewable Energy Group, Exeter, UK

Global Highlights

All Renewables Index

The **US** retains top position following a quarter of high legislative activity at federal and state level.

India and **Spain** are joined by the **UK** in second following the release of two important white papers, a move that demotes **Germany** to fifth. Germany's position may well improve if it drives through its new renewable energy targets.

China continues to increase its score and reduce the gap with the top five countries.

Note: The bunching of countries in the Indices indicates the strong competition between jurisdictions for renewables. We anticipate rebasing the Indices, giving more emphasis to biomass and solar, may increase stratification as not all countries have comprehensive renewable energy policies.

Near Term Wind Index

China moves to fourth above **Germany** and the **UK** as market analysts revise near term build forecasts in **China,** while the **UK's** white papers are not expected to have a significant impact in the near term.

Market Activity, Q2 2007

Major renewable energy company and Spanish utility Iberdrola has announced its intention to list 20% of its renewables business, to take place later in 2007. The decision comes as the group also announces further expansion in the US, through its proposed acquisition of US utility Energy East for €3.4b. The deal, approved by the Energy East board but subject to shareholder approval, is expected to complete in 2008.

Consolidation of the supply chain continues this quarter. Indian wind turbine manufacturer Suzlon has out-bid French nuclear group Areva to acquire German wind turbine manufacturer REpower for €150 per share; an investment totalling €1.35b. New entrant to the wind market Alstom announced its acquisition of Ecotecnia for €350m, demonstrating the high demand for wind turbine manufacturing businesses.

Babcock & Brown Wind Partners refinanced its c.1.6GW global wind farm portfolio with a €1b package from Bank of Scotland, Millennium BCP, Dexia Credit Local, and Espirito Santo Investment.

HgCapital has acquired a majority stake in UK wind farm developer Ridgewind, which has an onshore wind development portfolio of over 200MW. This increases HgCapital's wind portfolio to 120MW under construction and operation, and 700MW in development.

Acciona Energy has acquired development rights to 1,300MW of wind assets in Illinois, Wisconsin, and Iowa in the US from EcoEnergy LLC. Acciona also began construction of a 350MW turbine manufacturing plant in Iowa, to supply these and other sites throughout North America.

Englefield Capital has sold its 33.3% stake in Zephyr Investments for GBP154m (US$308m). Buyers were Infracapital Partners and JP Morgan Asset Management, each taking 50% of the shares. Zephyr comprises 391MW of UK wind assets, including the 60MW North Hoyle offshore wind farm.

Abengoa is securing finance for c.€450m from Banco Santander, Caja Madrid, Calyon, Natixis, and Société Générale for the construction of two 50MW solar facilities in southern Spain. Abengoa has also won the contract to construct a €469m thermal solar power station in Morocco.

PV Crystalox Solar listed on the London Stock Exchange at 130p (US$2.6) per share, valuing the company at GBP542m (US$1b) and raising c.GBP50m (US$100m) new equity. This is the largest IPO a renewable company has achieved to date on the UK markets. PV Crystalox Solar intends to use IPO proceeds to finance a new polysilicon manufacturing plant in Germany.

Solarie Energia SA, a Spanish solar manufacturer, also listed on the Madrid exchange during Q2 2007, entering the Spanish market at €9.50 per share, valuing the company at €961m.

Morgan Stanley has invested US$60m in Bull Moose Energy to finance a new generation of biomass plant, designed to be sited near urban centres. Bull Moose Energy's first project will be a 20MW green waste facility near San Diego. San Diego Gas & Electric has agreed a Power Purchase Agreement (PPA), helping it meet California's directive of 20% renewable energy from biomass sources

All Renewables Index at Q2 2007

Ranking**		Country	All Renewable	Wind index	Onshore Wind	Offshore Wind	Solar	Biomass/ Other	Infrastruture***
1	(1)	US*	72	73	80	58	75	64	76
2	(2)	India	64	65	75	43	61	55	65
2	(2)	Spain	64	64	71	48	72	58	76
2	(5)	UK	64	65	63	69	50	58	69
5	(4)	Germany	63	63	62	64	73	61	60
6	(6)	China	61	64	67	56	45	42	61
7	(7)	Canada	58	61	66	48	42	47	64
8	(8)	Italy	57	57	63	43	68	53	64
8	(8)	France	57	57	59	53	59	54	58
8	(8)	Portugal	57	58	63	46	62	49	64
8	(8)	Greece	57	59	63	49	59	44	60
12	(12)	Ireland	55	57	58	55	36	46	61
13	(13)	Sweden	52	52	52	52	44	53	53
14	(14)	Australia	50	50	53	42	59	45	54
14	(14)	Denmark	50	51	47	60	44	46	61
14	(14)	Belgium	50	52	50	57	36	36	53
17	(17)	Norway	49	50	50	50	32	48	53
17	(17)	Netherlands	49	51	48	56	45	39	49
19	(19)	Poland	48	50	52	45	42	35	46
20	(21)	Japan	45	46	48	40	48	33	51
21	(22)	New Zealand	44	46	50	37	32	32	44
21	(20)	Brazil	44	45	49	35	45	39	44
23	(23)	Finland	37	36	36	37	27	51	41
24	(24)	Turkey	36	37	38	33	38	26	35
25	(25)	Austria	31	29	41	N/A	48	48	49

Source: Ernst & Young LLP

** This indicates US states with Renewable Portfolio Standards (RPS) and favourable renewable energy regimes.*

*** Ranking in Q1 2007 All Renewables Index in brackets.*

**** Combines with each set of technology factors to generate the individual technology indices.*

The **US** holds on to first place in the All Renewables Index as further state Renewable Portfolio Standards (RPS) are announced, although not all states are accepting proposals in legislation in this area.

India and **Spain** are joined by the **UK** in second place, following the release of the UK's energy white paper (see Commentary High-scoring Countries, page 11).

China gains an index point but retains its overall position, following the issue of a national climate change plan outlining China's continued support for renewable energy, including a national RPS mandating that power companies in China must source 5% capacity from renewable sources by 2010 and 10% by 2020.

Italy retains its position following a new 20-year feed-in solar tariff, giving 1 – 3KW systems a €400 – €490/MWh tariff, 3 – 20KW systems a €380 – €460/MWh tariff and >20KW systems a €360 – €440/MWh tariff. Tariff ranges are dependent on the level of integration with the grid. Optimism following this new tariff is high; industry analysts believe solar PV installation rates could double each year until the tariff cap of 1,200MW is reached.

Japan moves from 21 to 20 and **New Zealand** moves from 22 to 21, displacing **Brazil**, whose score has fallen following recent statements by Brazilian President Lula da Silva that hydro power, nuclear, diesel or gas-fired plants are preferable to wind and solar in Brazil's energy mix. The latest Brazilian auction for power purchase contracts saw no new wind projects gain licenses, whereas 542MW biomass and 97MW hydro licenses were awarded.

Long-term Wind Index at Q2 2007

Ranking**		Country	Wind Index	Onshore Wind	Offshore Wind
1	(1)	US*	73	80	58
2	(2)	India	65	75	43
2	(3)	UK	65	63	69
4	(3)	Spain	64	71	48
4	(5)	China	64	67	56
6	(5)	Germany	63	62	64
7	(7)	Canada	61	66	48
8	(8)	Greece	59	63	49
9	(9)	Portugal	58	63	46
10	(10)	Ireland	57	58	55
10	(10)	Italy	57	63	43
10	(10)	France	57	59	53
13	(13)	Sweden	52	52	52
13	(13)	Belgium	52	50	57
15	(15)	Denmark	51	47	60
15	(15)	Netherlands	51	48	56
17	(17)	Norway	50	50	50
17	(17)	Australia	50	53	42
17	(17)	Poland	50	52	45
20	(21)	New Zealand	46	50	37
20	(21)	Japan	46	48	40
22	(20)	Brazil	45	49	35
23	(23)	Turkey	37	38	33
24	(24)	Finland	36	36	37
25	(25)	Austria	29	41	N/A

Source: Ernst & Young LLP

** This indicates US states with Renewable Portfolio Standards (RPS) and favorable wind regimes.*

*** Ranking in Q1 2007 Long-term Wind Index in brackets.*

The **US** retains the top spot and **India** second place in the Long-term Wind Index from Q1 2007.

The **UK's** position in the Long-term Wind Index rises from third to joint second with India, following the release of two important white papers.

Spain is displaced to fourth by the UK's movement as new tariff changes gaining royal decree were included in Spain's Q1 2007 score.

The **German** WindEnergy Assocation (BWE) has stated that another 9GW of onshore wind capacity could be installed by 2020. The BWE stated that, along with repowering, 20% of German electricity consumption could come from wind energy by 2020. Long-term government targets for offshore wind were identified at 1,500MW until 2011 and 20 – 25GW until 2030.

Portugal's Phase B wind power tender negotiations are underway for between 400MW and 600MW new onshore wind capacity. This will help Portugal meet its ambitious new 45% renewable generation target by 2010, an increase from the previous target of 39%, as set out by the country's prime minister Jose Socrates in January 2007; market analysts believe achieving this target would require up to €6.4b investment in renewables.

Danish long-term prospects could improve if the Danish government acts on a report written by EA Energy Analyses recommending 6GW of wind capacity by 2025. Such an increase would result in **Denmark** having a total installed wind capacity of 9 GW – 10GW (including offshore), estimated to be generating up to 50% of the country's electricity. The project is estimated to cost DK500m (US$90.5m) over 16 years and could save consumers DK40m (US$7.2m) per annum.

Near-term Wind Index at Q2 2007

Ranking**		Country	Wind Index	Onshore Wind	Offshore Wind+
1	(1)	US*	90	90	37
2	(2)	Spain	73	73	31
3	(3)	India	69	69	N/A
4	(5)	China	58	58	33
5	(4)	Germany	57	55	63
6	(5)	UK	56	52	84
7	(5)	Canada	55	56	N/A
8	(8)	France	52	52	46
9	(9)	Italy	50	50	N/A
10	(10)	Portugal	47	47	N/A
11	(11)	Ireland	42	42	45
12	(12)	Greece	41	41	N/A
12	(13)	Australia	41	41	N/A
14	(13)	Brazil	39	34	N/A
15	(15)	Belgium	38	36	44
16	(16)	Denmark	37	26	55
16	(16)	Poland	37	38	25
18	(18)	Netherlands	36	30	49
19	(18)	Norway	35	35	N/A
19	(20)	Sweden	35	34	48
21	(21)	Turkey	32	32	N/A
21	(22)	New Zealand	32	32	N/A
23	(23)	Japan	30	30	N/A
24	(24)	Finland	25	25	N/A
25	(25)	Austria	24	24	N/A

Source: Ernst & Young LLP

** This indicates US states with Renewable Portfolio Standards (RPS) and favorable wind regimes.*

*** Ranking in Q1 2007 Near-term Wind Index in brackets.*

+ Countries with no offshore development expected to reach construction in the next two years have been excluded from the Near-term Offshore Wind Index.

The Near-term Wind Index takes the perspective of an investor looking to make a commitment within the next two years. The methodology and weightings used to produce the Near-term Wind Index are different to that of the Long-term Index so the two are not directly comparable. The Near-term Wind Index places a greater emphasis on market growth and takes into account a narrower range of parameters than the Long-term Wind Index.

The **US** tops the Near-term Index as forecast installations for the next two years are greater here than any other market in the world, and wind turbine supply issues are affecting fewer projects due to domestic manufacturing capabilities and the inherent attractiveness to manufacturers of large onshore wind projects with low planning risk.

There is no change in position for **Spain** and **India**, but **China** moves from fifth to fourth, with ambitious targets for 2010 spurring growth.

Germany is displaced to fifth by China's move and loses two index points following a continued slow down in near-term onshore wind capacity, as reported in Q1 2007.

The **UK** remains at fifth as the new white paper is not expected to provide a significant impact on the near-term outlook.

Canada moves to seventh following the movements above, but its score remains as in Q1 2007.

France, Italy, Portugal and **Ireland** all retain their positions from Q1 2007, however, **Greece** is joined by **Australia** in 12 following revised installation expectations in the near term.

As in the Long-term Wind Index, **Brazil** lost ranking from Q1 2007, losing two index points and falling to 14 as a result of a recent auctioning process, which has placed doubts on the viability of many new wind projects.

Commentary — High-scoring Countries

US – Production Tax Credit

Ranking	Q2 07	Q1 07
All Renewables Index	1	1
Long-term Wind Index	1	1
Near-term Wind Index	1	1

Source: Ernst & Young LLP

A four-year extension to the Production Tax Credit (PTC), continuing federal support to the end of 2012, was passed by the House Committee on Ways and Means (H.R.2776) in June 2007. The bill will then go to the House floor for final passage. A similar bill presented at the Senate in May 2007 (S.1291), which proposed extending the PTC to the end of 2012, was referred to the Committee on Finance as it failed to achieve the crucial 60 votes needed to pass.

Renewable Portfolio Standards (RPS) activity continued at state level during Q2 2007, despite a proposed national RPS bill, proposed in the House of Representatives in February 2007 (H.R. 969), which was then referred to the Committee on Energy and Commerce and is due to be voted on by the House floor in July 2007. Oregon's RPS bill, for 5% by 2011 rising to 25% by 2025, was signed by Governor Ted Kulonosk and written into law. New Hampshire's state Senate and Governor approved an RPS requiring state utilities to source 16% of power from renewable sources by 2016, building up to 24% by 2025. Arizona's Attorney General approved an RPS mandating that 15% of electricity must come from renewable sources by 2025, and that 30% of this must be derived from distributed generators, a requirement which is likely to involve significant levels of new solar PV installations.

Presently, however, Arizona has no net metering laws, which, unless changed, could hold back this market in the near term. Illinois's House of Representatives has approved an RPS bill requiring 2% electricity to be generated from renewable sources by 2008, 5% by 2010, 10% by 2015, and 25% by 2025. The bill must now be approved by the state Senate and Governor before becoming law.

Wind activity saw Mesa Power in the preliminary phase of planning for a 4GW wind farm in Texas; estimated to cost US$6b if this goes ahead. The largest wind farm in the US is currently the 736MW Horse Hollow in Texas.

Solar energy was boosted by Acciona Energy opening a 64MW parabolic thermal plant in Nevada, having taken 16 months to build at a cost of c.US$250m.

Wal-Mart has appointed BP Solar to install 4.3MW of solar systems for seven stores in California. Meanwhile Macy's has agreed a deal with PowerLight to install 8MW worth of rooftop solar systems which will, together with planned energy efficiencies, save 24,000 MWh of electricity.

Geothermal power developer Calpine has announced drilling and repowering plans for its 19 geothermal power plants in California. The cost of this project is expected to be c.US$200m over five years and is planned to add 80MW on an existing 725MW geothermal portfolio.

India – Feed in Tariff

Ranking	Q2 07	Q1 07
All Renewables Index	2	2
Long-term Wind Index	2	2
Near-term Wind Index	3	3

Source: Ernst & Young LLP

The Indian government continued to stimulate growth in the renewable energy sector with the announcement in April that the energy-from-waste-sector would receive fast-track financial assistance of up to 50% of the project cost for projects producing refuse-derived fuel from municipal solid waste. State authorities are also being incentivized to speed up the delivery of such projects.

Continuing a trend of Indian states setting target levels for renewable energy, the Indian state of Maharashtra has announced a five-year plan to increase energy from renewable sources. This includes increasing wind capacity by 600MW per annum to reach 3GW of installed capacity by 2012.

Project activity remains high as wind turbine manufacturer Suzlon announced a 630MW turbine order from US-based Edison Mission Group for delivery over the next two years.

Tata Power Limited has secured funding of US$79m for a 100MW onshore wind facility in the region. Australian developer Roaring 40s, has announced a US$66m 50MW onshore wind project in the state of Maharashtra, with generation expected to come online by 2011.

NTPC Limited, the Indian state utility, plans to invest US$1.5b over the next 10 years to establish a renewable energy generation capacity of over 1,000MW. Investment will primarily be focused on the onshore wind sector, with hydropower, geothermal, biomass, and solar projects also under consideration.

The Indian solar thermal sector is likely to expand significantly in 2007, due to beneficial weather and strong central and local government support. The Indian Ministry for New and Renewable Energy requires that all new public and commercial buildings with hot water systems must have an auxiliary solar-assisted water heating system.

Waste2Energy Holdings Limited has received approval from the government of Punjab for a 550,000 ton per year energy-from-waste plant, utilizing advanced conversion technologies.

Small hydropower is being developed by French Velcan Energy which has been granted two 25MW hydropower concessions in Orissa state.

Spain – Fixed Premium

Ranking	Q2 07	Q1 07
All Renewables Index	2	2
Long-term Wind Index	4	3
Near-term Wind Index	2	2

Source: Ernst & Young LLP

Q2 2007 saw Royal decree 661/2007 passed into law, approving a revised wind feed-in tariff. Wind farm operators may opt for a fixed tariff of €73/MWh during the first 20 years and €61/MWh thereafter. Alternatively, onshore wind operators may receive the market rate (for wholesale electricity) plus a €29/MWh supplement. The market supplement option is subject to a floor of €71/MWh and a cap of €85/MWh. Onshore wind farms in operation by 31 December 2007 may remain on the previous tariff until the end of 2012.

The decree also revises the solar PV tariff to €440/MWh for systems with less than 100kW, €417/MWh for 100kW to 10MW capacity plants and €230/MWh for 10MW to 50MW systems. The tariff is available for 25 years, after which payments continue at 80% of the feed-in tariff. The national cap for solar PV has been revised from 400MW to 371MW, as 29MW is now allocated for solar PV on new energy-efficient buildings.

With such an attractive solar tariff, the 371MW cap is expected to be met quickly. For example, PowerLight, which is partnering with Solarpack Corporacion Tecnologica to develop three solar projects in Spain with a total capacity of 17MW.

Acciona Energy and Ente Regional de la Energia de Castilla y León plan to build a 15MW biomass plant in Navarre, Northern Spain, costing €40m (US$54m), utilizing straw combustion.

Enert-T Global with Grupo Enhol have announced construction of two 50MW solar parabolic trough thermal plants at an estimated cost of US$809m. The joint venture expects the first facility to come online in 2009.

The Valencian regional government has transferred rights to develop wind farms in the Spanish province to Acciona Energía and Enerfin. Plans will develop 318MW of onshore wind capacity between 2007 and 2010.

TIRME, majority owned by Endesa, signed a €590m project financing agreement with BBVA, Caja Madrid, and Royal Bank of Scotland. Finance will be used to expand current capacity at their EfW incineration plant in Majorca, Spain, to 72MW, handling 690,000 tons of solid waste per annum.

UK – Obligation and Traded Green Certificate

Ranking	Q2 07	Q1 07
All Renewables Index	2	5
Long-term Wind Index	2	3
Near-term Wind Index	6	5

Source: Ernst & Young LLP

The UK renewable energy sector could be set to blossom under new proposals by the UK government set out in two new white papers released in Q2 2007.

The Energy White Paper, which puts renewables firmly at the center of future energy policy, proposes significant changes to the UK primary financial support mechanism, the Renewables Obligation, through 'banding' specific renewable energy technologies according to their relative maturity and economics. In particular, the award of 1.5 ROCs per MWh of offshore wind capacity makes such projects much more economic, which is particularly welcome given recent cost rises in the industry. The retention of 1 ROC per MWh of onshore wind should enable momentum in this important market to be maintained. Two ROCs per MWh of emerging technologies such as wave and tidal, biomass CHP, biomass from energy crops, and energy from waste using advanced conversion technologies (ACT), as well as solar PV and geothermal, will undoubtedly unlock the door to many projects which have, until now, been marginal.

The white paper did not raise the UK's 2020 20% renewable electricity target, despite the EU 20% energy target for 2020, in which power projects are expected to make up any shortfall in other energy sectors. The Energy White Paper's consultation period ends in early September 2007.

Meanwhile, the new planning white paper, Planning for a Sustainable Future, proposes reforms to infrastructure planning including establishing an independent commission to speed up the consenting process for large power projects (including wind and energy from waste) of over 50MW onshore and over 100MW offshore. If these proposed changes are given parliamentary approval, industry analysts expect the banding effects to increase renewable plant deployment by 25% between 2009 and 2015 (compared to current expected deployment levels) and generate an extra 8TWh by 2015.

Project activity continues as Airtricity reached financial close on the 30MW Dalswinton wind farm in southern Scotland, and Eco.2 received planning consent on its 36.8MW Mynydd y Betws wind farm in Wales.

The first wind turbine repowering in the UK has been proposed by Good Energy on the Delabole site in Cornwall, South West England. The site's ten 400KW turbines would be replaced by five 2.5MW or eight 1.3MW turbines and could cost GBP12m (US$24m).

E.ON UK has announced plans to build a 25MW biomass plant in Sheffield, England, costing GBP55m (US$110m). The plant would use recycled wood and biomass crops such as willow and elephant grass.

Germany – Feed in Tariff

Ranking	Q2 07	Q1 07
All Renewables Index	5	4
Long-term Index	6	5
Near-term Index	5	4

Source: Ernst & Young LLP

Despite Germany's fall in the All Renewable Index (from third place in February 2003 to fifth where it is currently), the outlook remains positive after a study commissioned by the Federal Ministry for the Environment, Nature Conservation and Nuclear Safety (BMU) in February 2007 proposed that 27% of Germany's power could come from renewable energy by 2020 (compared to the current target of 20%) at current rates of expansion. Germany's Environment Minister Sigmar Gabriel has stated that the results of the study mean that Germany can continue to phase out nuclear power and still meet its emissions reductions targets.

Competition for German onshore wind assets has led wind developer EUPRON to sell 76MW of onshore wind farms in Germany and France to HypoVereinsbank for €107m.

In solar, silicon wafer manufacturer Solarworld AG has announced €1.5b of new long-term contracts supplying cell and module global manufacturers for the next 10 years. Meanwhile Ersol has signed a €230m agreement to supply PV cells to IBC Solar over the next 10 years and €60m contract to supply 3S Swiss Solar Systems with PV cells over the same period. Ersol has also announced the completion of its 40MW production site in Efurt. Aleo Solar has announced a 70MW increase in manufacturing capacity of its Prenzlau solar module site.

Biomass and biogas project announcements include NawaroBioEnergie, that commenced construction of a 20MW anaerobic digestion biogas site in East Mecklenburg-Vorpommern. Wartsila Corporation of Finland has secured US$135m deal to supply six wood burning power plants in Germany with a combined capacity of 34MW.

Offshore Issues

The Federal Maritime and Hydrographic Agency (BSH) in Germany, has approved two significant offshore wind sites. The first being developed by Ventotec, whose Baltic Sea site has a planned capacity of 240MW – 480MW, expected to come online by 2011 and is estimated to cost €600m to €700m. The second site is being developed by Windland in the North Sea. This site has a planned capacity of 288MW – 330MW, expected to come online by 2010 at an estimated cost of €600m.

Canadian offshore projects were boosted by the government designating ocean energy projects for 'flow-through' status. This status allows project developers to issue flow-through shares, allowing equity investors to accrue income tax deductions on new expenditure incurred by the project developers.

In the UK, deepwater offshore wind is in focus following Talisman Energy (UK) Ltd's announcement that the Beatrice demonstration project 25km off the Scottish coast is now producing power. Farm Energy announced a 1,500MW, US$6b (GBP3b) 'Atlantic Array' wind farm, 15km off the coast of South West England in waters 40m deep.

E.ON UK has bought out its partners, Shell, Nuon and Amec, in the GBP4m (US$8m) Blyth offshore wind farm. E.ON plan to repair the damaged offshore power cable that has stopped power being exported to the mainland for over a year.

Belgium saw financial close of the Thornton Bank offshore wind farm this quarter, with a total project value of €153m, comprising €22m equity, €111m 15-year senior debt, and €20m subordinated debt. Sited 28km off the Belgian coast, Thornton Bank will use REpower 5MW turbines, with construction aiming to be complete by October 2008.

In Portugal, Ocean Power Delivery has commenced the installation of tethering and electrical systems for the planned 2.25MW Agucadura project. The project plans to use three 750kW Pelamis wave energy generators. Ocean Power Delivery intends to deploy 30 Pelamis generators, creating a 22.5MW wave farm once testing is complete.

Market Insights: Wind Power in Norway

Wind power accounts for less than 0.4% of the total power production in a country dominated by hydro power. Nevertheless, wind power has a significant potential in Norway, where demographics and weather conditions are well-suited for this activity, both on land and offshore.

An emerging industry

At present, 64 wind power projects are either in the licensing process, or have already started production (see table below). These projects represent a total capacity of 5,970 MW.

Breakdown of wind power projects

Under operation	Licence awarded	Application submitted	Announced	Denied	Total
15	18	31	69	5	138

Renewed government support

In 1999, the Norwegian parliament approved a proposal to reach 3 TWh wind power production by 2010. In November 2006, the government presented a white paper introducing a new financial support scheme for renewable energy. In May 2007, this was followed up by another white paper, which supported the development of wind power, stating that large-scale wind farms should be prioritized in areas with good wind conditions, infrastructure, and where potential conflicts with other stakeholders are at an acceptable level.

The new support scheme, starting from 1 January 2008, offers wind power a tariff of NOK0.08/kWh (US$13.7/MWh) for a period of up to 15 years. Until then, a transition framework will be in place, under which wind projects receive financial support for up to 25% of investment costs. Projects supported under the transition arrangement will not be eligible for support under the new feed-in tariff unless the prior support is repaid in full within one year after the new scheme is effective. Both the transition framework and the new feed-in tariff scheme will be administered by Enova, a government agency.

No grants were announced for wind power by Enova in 2006 due to uncertainty around the future framework for renewable power production. In June 2007 however, Enova announced a NOK218m (US$37m) grant under the transition framework to Jæren Energi for the development of an 80 MW wind farm with 27 wind turbines. The total investment cost for this project is NOK1b (US$171m).

The wind energy industry in Norway is skeptical as to whether the 3 TWh/year target can be reached by 2010 under the new energy policy framework. Compared to some European countries, the feed-in tariffs are significantly lower and profitability remains uncertain. Still, investors are showing an increased interest in renewable energy in Norway, including wind power.

Erik Vatn, Ernst & Young
Stavanger, Norway

Bridging the Gap: Corporate and VC Involvement in the CleanTech Sector

The Clean Technology sector demands radical innovation, large quantities of capital, and a complete transformation of existing infrastructure.

Historically, there has been a gap between innovative, risk-taking entrepreneurs and the corporations who market and sell their products. This is particularly true in the energy sector, where new clean products must compete on the basis of reliability, availability, and product quality with well-known and reliable carbon-based ones.

Venture capitalists and strategists from large corporations can help bridge this gap by working together to: (i) understand needs, expectations, and definition of success of each side; (ii) improve infrastructure; (iii) introduce common technical standards; (iv) lobby government for new policy and financial incentives to accelerate the pace of innovation, R&D, and clean industries; and (v) provide access to capital via public, private, and government-sponsored instruments.

Lessons can be learned from other disruptive technologies in terms of how incumbents collaborated with the new entrants to transform their businesses. For instance, from the 1980s, pharmaceutical companies accelerated the number and size of partnerships with the biotech companies that were threatening the basic chemistry development model. The biotech companies, like Clean Technology, excel at innovation, research, and early product testing, but face significant challenges when bringing new products to market.

Clean Technology will also have to identify new ways to bridge the gap between innovation and market distribution. Ideas for bridging this gap range from government subsidies to funding pools to raise capital.

The Clean Technology market is growing from a niche market to a mainstream one, and corporations are not only becoming more conscious of the public relations benefits of engaging in Cleantech investment, but also of potential profits in the sector.

Corporations should look to assist emerging innovative companies by sharing networks and expertise. The global nature of this industry presents strong opportunities for networking and partnerships, which will be crucial in identifying existing industry challenges, crafting mutually beneficial solutions, and moving companies to successful market exits.

Gil Forer, Global Director, Venture Capital Advisory Group, Ernst & Young

Joe Muscat, Americas Director, Venture Capital Advisory Group, Ernst & Young

Q2 2007 Webcast

Renewable energy generation is developing and evolving at a rapid pace worldwide. Wind and solar energy have experienced double-digit annual growth for the past 10 years, and global investment in the renewable energy sector reached an estimated US$100b last year alone.

Renewable energy markets are highly complex, being dependent on diverse and often changing government support mechanisms. Different renewable energy technologies have achieved various degrees of maturity, and the economic attractiveness of a given technology will vary depending on the markets in which it is deployed and the support it is given.

The Renewable Energy Country Attractiveness Indices have been running since the beginning of 2003 and are distributed exclusively to over 2,800 industry participants each quarter. They provide scores for 25 national renewable energy markets, renewable energy infrastructures, and their suitability for individual technologies, and have been widely quoted by both the industry and national press.

Also featured for Q2 2007 will be the Biofuels Country Attractiveness Indices, which rank the attractiveness of individual markets for biologically-derived renewable fuels incorporating both ethanol and biodiesel.

You are invited to join the Ernst & Young Webcast on 14 September 2007 to hear our panelists discuss:

- The impact of global demand for renewables on the supply chain
- Key movements to the Indices
- Coverage of new entrant markets
- The development of the CleanTech sector
- Movements in the Biofuels Country Attractiveness Indices

You will have the opportunity to raise issues and questions and vote on key issues.

Please contact **Mandy Toy** on +44 [0]1392 284395 or e-mail mtoy@uk.ey.com for further details.

To listen to last quarter's Webcast click **here**.

The Euromoney and Ernst & Young Renewable Energy Awards

Nominations are now open at:
www.euromoneyenergy.com/vote

The 2007 Award categories are:

- IPO of the year
- M&A deal of the year
- Equity deal of the year: infrastructure
- Equity deal of the year: technology
- Senior debt deal of the year
- Entrepreneurial developer of the year
- Corporate developer of the year
- Emerging technology promoter of the year
- Most enterprising new market entrant of the year
- Legal advisor of the year
- Climate change investment program of the year
- Sustainable region/city of the year

Commentary — Guidance Notes

Long-term Index

As stated on page 2, the Individual Technology Indices, which combine to generate the All Renewables Index, are made up as follows:

- Renewables Infrastructure Index — 35%
- Technology Factors — 65%

These Guidance Notes provide further details on the Renewables Infrastructure Index and the Technology Factors.

Renewables Infrastructure Index

The Renewables Infrastructure Index is an assessment by country of the general regulatory infrastructure for renewable energy. On a weighted basis, the Index considers:

- Electricity market regulatory risk — 29%: Markets that are fully deregulated score higher, as they have experienced the 'market shock' on underlying wholesale prices that this transition may exert. While this may not affect current projects, these effects are particularly important when considering long-term investment prospects.
- Planning and grid connection issues — 42%: Favorable planning environments (low failure rates and strong adherence to national targets) score highly. Grid connection scoring is based on the ease of obtaining a grid connection in a cost-effective manner. The score also takes account of the degree of grid saturation for intermittent technologies.
- Access to finance — 29%: A market with a mature renewable energy financing environment, characterized by cheap access to equity and good lending terms, will score higher.

This generic Renewables Infrastructure Index is combined with each set of technology factors to provide the Individual Technology Indices.

Technology Factors

These comprise four indices providing resource specific assessments for each country, namely:

- Onshore Wind Index
- Offshore Wind Index
- Solar Index
- Biomass and Other Resources Index

Other Resources' include' – small hydro, landfill gas, wave, tidal, and geothermal technologies. Energy from waste is not considered. Each of the Indices considers, on a weighted basis, the following::

- Power offtake attractiveness — 19%: This includes the price received, the potential price variation, and length of PPAs granted. Higher scores are also achievable if the government guarantees the power offtake rather than merchant offtakers.
- Tax climate — 11%: Favorable, high-scoring tax climates that incentivize renewable energy generation can exist in a variety of forms and/or structures. The most successful incentives and structures have been direct RE tax breaks or brown energy penalties, accelerated tax depreciation on RE assets, and tax-efficient equity investment vehicles for individuals.
- Grant/soft loan availability — 9%: Grants can be available at local, regional, national, and international levels; and may depend on the maturity of a technology as well as the geographical location of the generating capacity. Soft loans have historically been used in pioneering countries of RE technologies to kick-start the industry. High scores are achieved through an array of grants and soft loans.
- Market growth potential — 18.5%: This considers current capacity compared to published targets. Higher scores are given if ambitious targets have been made and policy framework is in place to accelerate development. The realism of targets is also taken into account as well as the seriousness with which they are being pursued (e.g., penalties in place for non-compliance).
- Current installed base — 8%: High installed bases demonstrate that the country has an established infrastructure and supply chain in place, which will facilitate continued growth and in particular encourage the re-powering of older projects.
- Resource quality — 19%: For example wind speeds and solar intensity.
- Project size — 15.5%: Large projects provide economies of scale and a generally favorable planning environment, which facilitates project development financing.

Commentary — Guidance Notes

Near-term Wind Index

As stated on page 2, the Near-term Wind Index focuses on factors of most immediate concern to near-term investment in wind energy. The scoring follows the same methodology as for the Long-term Wind Index, but with a more focused set of parameters and a tailored weighting. Therefore the Indices consider on a weighted basis the following for both onshore and offshore wind separately:

- Power offtake attractiveness – 27%
- Tax climate – 8%
- Resource quality – 14%
- Market growth potential (mid-2007 to mid-2009) – 40%
- Project size – 11%

In the Offshore Wind Near-term Index, countries with no projects estimated to reach construction in the next two years (to mid-2009) are excluded.

It should be noted that the Market Growth Potential score is based on a view taken on the basis of a range of business analysts' forecasts and Ernst & Young's own market knowledge. There is significant variation between analysts' views on each market and within some markets the variation is greater than in others. The forecasts used are a market view only and the scores in no way guarantee that the forecasted capacity will be built.

While comparisons have been made between scores in the Long-term and Near-term Wind Indices, it should be emphasized that, due to the different weightings and parameters used, these cross-comparisons are of a narrative nature only and in no means indicate any quantitative valuation.

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Ernst & Young
Renewable Energy Group

With a dedicated 45-strong team of international advisors operating from our UK firm, supported by a network of over 60 experienced professionals from our member firms worldwide, Ernst & Young's Renewable Energy Group helps clients to maximize value from renewable energy activity. Members of the Group provide advice and services in the following areas:

- Financial advisory and valuation
- Financial modelling and structuring
- Taxation
- Finance raising
- Asset value optimization
- M&A
- Market entry strategy
- Procurement strategy
- PPA tendering
- Feedstock strategy
- Transaction support
- PE advice
- IPO advice
- Carbon economy advice
- Strategic partnering
- Strategy review

Ernst & Young was ranked the leading project finance advisor in the Americas, Europe, Middle-East and Africa between 2001 and 2006 by Project Finance International

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