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**The Portfolio Hunters**  
Focus on the Acquisition and  
Consolidation of Wind Power Assets

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**May 2007**

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## Summary : Consolidation and High Asset Prices

According to their published strategies and public statements, 20 global owners of wind power generation assets are planning to more than double their total onshore wind portfolios between now and 2012, through the addition of a further 28.9GW of capacity to the 23.5GW currently commissioned and operating.

Yet with installed wind power capacity growing at 25.4% annually for the past five years, the industry has so far resisted consolidation, with new capacity being developed by small and mid-sized players almost exactly counterbalancing the growth efforts of the major owners. All this is about to change. Over the next few years, New Energy Finance expects to see significant consolidation in wind farm ownership at the global level, with the top 20 companies increasing their market share from 32% to approximately 37% in the next five years.

The surge in demand for wind farm assets in the past two years has led to aggressive valuations New Energy Finance believes this is likely to be sustained.

**The Portfolio Hunters— Focus on Acquisition and Consolidation of Wind Power Assets** is one in a series of research reports prepared for subscribers to New Energy Finance's **Wind Insight Service**. This premier member-driven research service combines deep analysis of the global wind market with rapid-response analysis on breaking developments.

For more information on this comprehensive service, please contact: [sales@newenergyfinance.com](mailto:sales@newenergyfinance.com) or call our commercial directors: +44 (0)20 7486 6760 (London) or +1 212 744 1988 (New York).

### Note on Terms Used

Throughout this report we have used specific terms in the following way:

**Electricity Supply Industry (ESI)** – includes power generators, transmission operators and distribution companies

**Equity sponsor/acquirer** – provides the financial and other collateral required to secure financing and/or acquisitions

**Financial investor** – investor which sources funds from institutional and other investors rather than from the cash flows of industry activities

**Independent power producer (IPP)** – companies which sell electricity onto utilities and distribution companies via third party electricity infrastructure

**Power generator** – owns and manages power generation assets (may also own and operate transmission infrastructure and sell electricity to end users)

**Projects/Assets** – the assets of a development in the form of development rights, land agreement, power purchase agreement, wind turbine purchase agreement, O&M agreement, actual turbine plant and capital equipment. According to different stages of development the project might include only a few of the components described above

**Project developers** – the companies which manage and promote a project from first conception through the various stages of development. In the context of this analysis the main assets of a developer are considered to be its development pipeline and existing projects. No attempt is made to quantify the expertise/experience of the company itself although this may have a bearing on the value of its development pipeline. Project developers can own both power generation assets (and therefore also be RE generators) and the rights to develop these assets (see analysis of investor type)

#### **Stages of development**

- **Pre-permitted** projects (also called 'announced/planning begun') – projects for which outstanding permits (environmental, planning, zoning, grid connection) are required before construction can begin
- **Permitted** or consented projects – those which have received all regulatory, planning, zoning and grid connection consents necessary for construction to begin
- **Commissioned** projects – those for which all main contracts (turbine supply, power offtake, construction) have been secured, are under construction or have been commissioned

**Transaction activity** – described in terms of both number of transactions and the MW capacity/\$ value of assets changing hands

**Utility** – distributes and markets electricity to end users

In classifying projects and project portfolios into these types, there is in certain cases substantial uncertainty since it is not always possible to find enough information to precisely define the exact stage of project development. We believe it is useful to make these distinctions since projects and developers are segmented into different groups which can be acquired separately or in aggregate (i.e. when a project developer is acquired the price can reflect the value of the portfolio or only a partial value, such as the equity value of the company)

The following geographical areas have been used: **AMER** for the Americas (North, South & Central); **ASOC** for Asia and Oceania (Australia and New Zealand); **EMEA** for Europe (EU and non-EU), Middle East and Africa

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Version 1.0 – 15/5/07 – First Issue

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# 1. Executive Summary

According to their published strategies and public statements, 20 global owners of wind power generation assets are planning to more than double their total onshore wind portfolios between now and 2012, through the addition of a further 28.9GW of capacity to the 23.5GW currently commissioned and operating (see Figure 1).

Yet with installed wind power capacity growing at 25.4% annually for the past five years, the industry has so far resisted consolidation, with new capacity being developed by small and mid-sized players almost exactly counterbalancing the growth efforts of the major owners. All this is about to change. Over the next few years, New Energy Finance expects to see significant consolidation in wind farm ownership at the global level, with the top 20 companies increasing their market share from 32% to approximately 37% in the next five years.

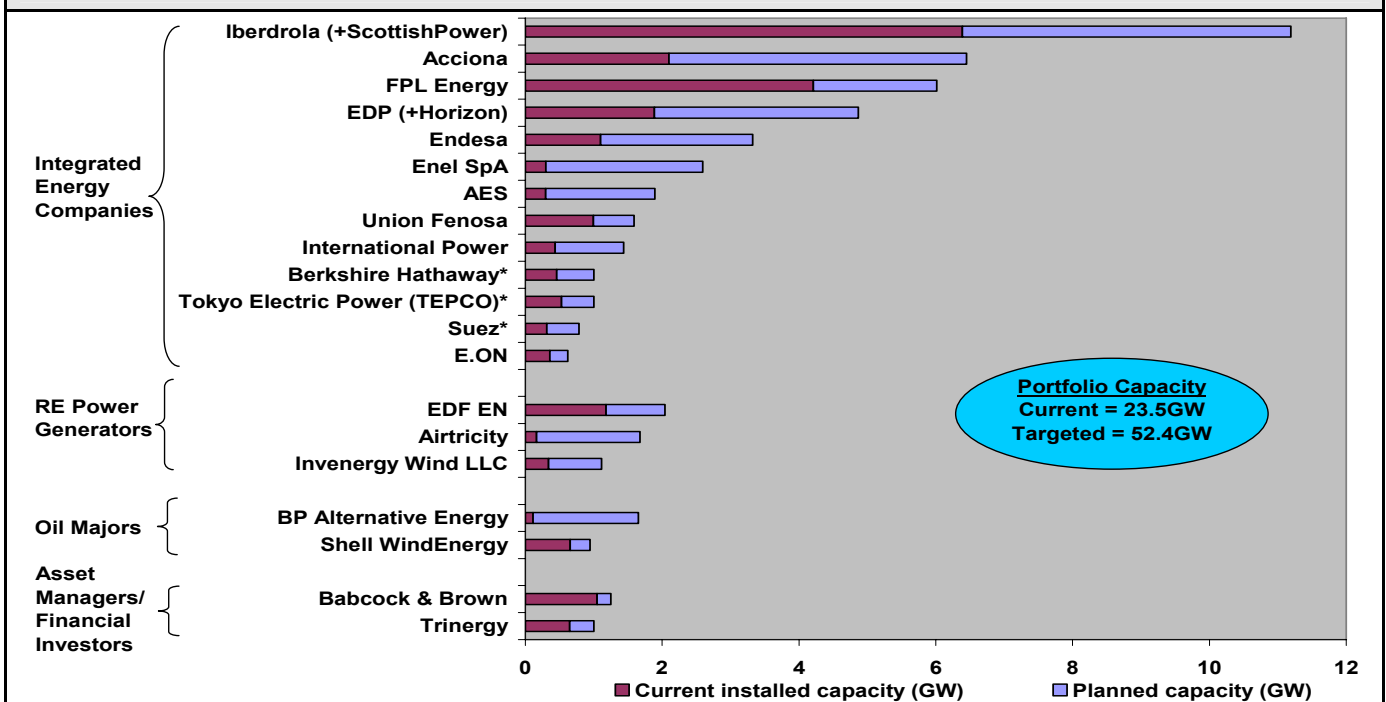
The process of consolidation has already begun at the country level, in particular in the more mature wind markets, where major players are emerging as owners of the majority of the assets. In the Spanish market four companies, Iberdrola, Acciona, Endesa and EDP, already control over 70% of operating wind assets, with Iberdrola leading the way with 32% market share at the end of 2006. In 2006, Acciona bought Corporation Eolica Cesa SA, a wind power generator with over 600MW of capacity installed, increasing its market share to just over 18%.

A number of factors are driving the accelerating trend towards first national, then international consolidation of wind asset ownership. The Electricity Supply Industry is being encouraged to build ever-larger portfolios of wind assets by environmental and regulatory compliance and rising fuel prices; financial investors are attracted by the potential for IRRs into the 20%s, stable long term cash flows and an abundance of cheap debt finance. Project developers, meanwhile, have in general been happy sellers as they either realise profits or recycle funds into new projects, though some plan to maintain ownership of their projects and graduate to Independent Power Purchase (IPP) status. A powerful driver of consolidation at present is the extreme tightness of supply in the turbine supply industry, which has favoured the projects of developers large enough to get a place in suppliers' order pipelines.

All of this is resulting in a gathering wave of acquisition activity. Even major power generators have a limited capacity to develop large wind portfolios in-house. FPL Energy, the most active developer among the top 20 owners, built 760MW in 2006. Almost all of the top owners are expected to supplement their own development activities by entering project development partnerships and by making acquisitions of projects, developers and IPPs. Based on current trends, by 2012 the top 20 wind farm owners will have invested \$41.3bn developing 29.5GW in house, and spent a further \$31.0bn on acquiring capacity at various stages of development.

Between 2001 and 2006 a total of \$19.7bn was spent on acquiring wind project developers and wind projects at various stages of development. In 2005, the sector entered a new phase of activity driven by large market players in Spain and increased project development activity in the United States. This had

Figure 1. Current and Targeted Onshore Wind Portfolio Size, May 2007: GW



Note: The planned capacity includes the current plans as disclosed by companies (generally up to 2009-2010). \*Equity weighted. Some targets may extend beyond 2010. CAPEX based on assumed CAPEX of \$1.4m per MW.

Source: New Energy Finance

an immediate impact on acquisition levels, with 64.8% of total wind M&A activity being recorded in the last two years. On an annual basis acquisition activity varied between 1.6% and 3.7% of global M&A activity in the electricity and gas market.

Europe has been the most targeted market with \$15.2bn (78.2% by value) of acquisitions between 2001 and 2006, followed by the US with \$4.2bn (21.5%). Both Europe and the US reached record levels of M&A activity in 2005, with \$5.1bn and \$2.1bn respectively, with figures for 2006 close to those for 2005. 2007 could potentially be an even larger year driven by private equity exits from investments: by May activity was estimated at \$4.1bn, including Goldman Sach's \$2.9bn sale of Horizon to EDP.

A wide range of investors are targeting the wind market: 29% of acquisitions between 2001 and 2006 (by number) were made by specialist RE power generators, 24% by financial investors and only 19% by conventional power generators and utilities (see Figure 2). Spain tops the list of acquirers, with the US close behind; the UK and Australia compete for third place. Spain's total is considerably boosted by the value of project developers that have been acquired.

In terms of sellers, 77% of all projects/portfolios by value were sold by developers and RE power generators, companies whose core business is the development and ownership of wind power assets. 11% were strategic divestments by power generators and utilities, refocusing their strategies. 10% of total sales were by financial investors, indicating the resale of existing assets after a short holding period to build, restructure or refinance a portfolio.

The surge in demand for wind farm assets in the past two years has led to concerns of aggressive valuation. Fundamentally the value and price of assets remain driven by the following factors:

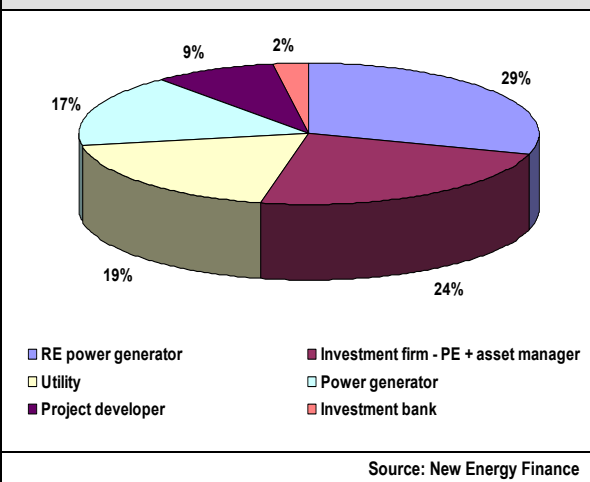
- **Development stage.** Acquisitions of development rights average at \$0.08m/MW. Projects with permitting and grid connection are priced on average at \$0.34m/MW. Projects which have secured turbine contracts or completed commissioning sell for \$0.55m/MW plus any costs of capital expenditure already incurred.
- **Geography and associated power prices.** Wind asset prices vary geographically, depending on regional or national offtake prices or tariff support mechanisms, and also on differing levels of sovereign risk. On a like-for like basis, the highest prices per MW were paid in the UK and Italy, and the lowest prices in France and Germany.
- **Strategic factors.** Higher prices were paid for assets offering a particular fit with the portfolio of the final owners or for developers with sought-after resources or strategic and operating strengths. In particular, higher prices were paid to those offering access to land resources or local market knowledge; technical skills in resource assessment or power plant management; and those which offer improved capital structuring ability or access to capital.
- **Deal-specific factors.** The remaining drivers of acquisition prices were deal-specific, including location and equipment-related yields.

From the raw data it is difficult to perceive a trend in prices paid for wind assets over time, as the mix of different stages of development has shifted from commissioned to planned and announced projects. However, once this shift is accounted for, there is evidence of an upward trend in prices paid per MW in the US, UK and Spain.

Looking towards the future, New Energy Finance expects the consolidation trend to accelerate. The developments we expect to see emerge in the next few years include:

- The continued shortage of wind assets coupled with increasing demand especially from power generators and utilities will sustain the current aggressive acquisition prices of up to \$2.0m/MW.
- Sales of projects and project developers will be dominated by Electricity Supply Industry M&A, and in particular acquisitions by the top 20 owners, rather than stock market floatations. Developers will find the necessary scale required for an IPO difficult to achieve, while prices offered by the portfolio-builders remain attractive.
- PE fund raisings focusing on wind assets will slow due to the overhang of money already raised and the continued tightening of debt markets. Specialist and generalist energy and infrastructure funds will continue to invest in the sector from their existing commitments.
- Pressure will ease on medium sized project developers and IPPs. As the turbine shortage eases, and with support from competing financial investors, they will be able to accelerate their development pipelines and achieve good margins, making them attractive M&A targets.

**Figure 2. Buyers by Type, 2001 – 2006: % number of Transactions**



- There will be a growing demand for merchant wind projects (those built without long-term power purchase agreements), as the shortage of wind capacity in most regulatory regimes keeps wind asset prices high. Larger corporations with strong balance sheets and experienced power trading teams will be particularly tempted.
- Activity will increase in offshore wind development, driven by improvements in regulatory support, planning and grid infrastructure, removal of planning bottlenecks, progress in construction, and increasing operations and maintenance experience. Financial investors will warm to the subsector, as it commoditises, leading to M&A activity and asset price increases.
- Geographic opportunities for investors will broaden. Developing countries, most significantly China, India and Brazil, will constitute 30% of annual global wind power installations by 2008-2009. These countries, together with France and other developed countries currently addressing failed regulatory support schemes, represent substantial opportunities.
- Competition for land capture will increase as developers race each other upstream assets, and non-traditional participants build significant portfolios or earmark land for wind farm development.
- There will be significant investment and acquisition activity related to the repowering of existing wind farms, though planning restrictions will limit the roll out of the most advanced (and largest) turbines in some established locations.

Wind is the most mature of all the non-traditional renewable energy sectors. It was the first technology to deliver meaningful volumes of clean energy to the electricity grid, and over the past five years has matured as a major contributor to the world's electricity supply and a major industry in its own right.

In every rapidly-growing industry, it takes a while for the ultimate leaders to emerge. It will take a few more years before the long-term, unassailable leaders in global wind power generation emerge. However, under the veil of 25% industry growth, it is clear that the process of consolidation has begun, and as the industry's growth rates slow with maturity, consolidation will accelerate at a dizzying pace. Gentlemen, start your turbines.

**Michael Liebreich, Chairman & CEO**

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**New Energy Finance Limited**

**May 2007**

## 10. Appendix IV: About New Energy Finance

New Energy Finance is a specialist provider of information and research to investors in renewable energy, low carbon technology and carbon emission credits. We offer a range of services which include the following:

**New Energy Finance Wind Insight.** NEF's premier member-driven research service combining deep analysis of the Wind Market with rapid-response analysis on breaking developments. Core components of the service include:

- **Analyst Reactions** giving timely insight on market events, political and regulatory changes.
- **Research Notes** analysing long term regional and sectoral trends.
- **Focus Reports** analysing and defining the market for clean energy investment, market size and asset valuation by sector, technology, country and region.
- **Analyst Access** providing rapid response to quick questions about the market, value chain or deal activity.
- **Dedicated Annual Research Presentation** for member-institution boards, staff and/or customer groups.

**New Energy Finance Desktop.** The award winning portal to the world's most comprehensive database of investors, opportunities and transactions in clean energy, covering 15,000 organisations (including start-ups, corporates, venture capital and private equity providers, banks and other investors), 11,000 people and 6,000 transactions.

**New Energy Finance Newswatch & Alerts.** Bundled with the New Energy Finance Desktop, the Newswatch service sends you a daily email with your tailored selection of clean energy investment news. The Alert service allows you to set a flag on any company, fund, person or project you want to track, and receive an alert by email whenever there is any relevant news.

**New Energy Finance Briefing.** The definitive source for clean energy analysis and finance review.

**New Energy Finance Network Events.** Lunches, breakfasts, round-tables and workshops for investors to learn about opportunities and meet each other.

**Wilderhill Global New Energy Index (ticker symbol NEX).** The first global index of clean energy companies to be calculated and quoted in real time.

**New Carbon Finance.** Subscription-based service providing price forecasting for the carbon pricing in the European Emissions Trading Scheme and nascent US markets, based on a fundamental supply / demand / abatement cost-based models that has been proven resource for traders and participants in global carbon markets.

**Analytics.** Customised research into investors, projects and recipients of funds in the clean energy sector worldwide, based on data-mining our Desktop or other analytical means.

**Consulting.** Dedicated consultancy services to help corporate and financial investors make informed decisions when committing funds to the clean energy industry. Types of work include: country, policy and technology assessments; deal-flow development; opportunity screening; economic due diligence; strategic and business planning; policy evaluation. NEF also produces reports or white papers on contract, to support PR activities or fund-raising.

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