

## Trustee MasterClass

### Renewable Energy

In this edition of Trustee MasterClass we provide an introduction to investing in natural energy resources.

Renewable energy can be defined as natural energy resources which are continuously self-regenerated, such as wind, solar, hydro, geothermal heat and biomass. This guide primarily focuses on wind and solar power.

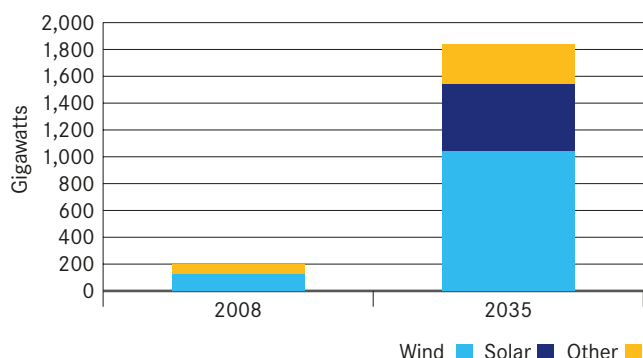
In this guide, we examine how renewable power projects represent a compelling investment opportunity for the investment community by providing access to an asset class that potentially combines sought-after investment characteristics of several different types of investments:

- ▶ Stable and predictable cash flows
- ▶ Potential for enhanced returns
- ▶ Long asset life in excess of 20 years
- ▶ No exposure to the volatility of input prices as wind and sunshine are free
- ▶ Potential for inflation protection

### Renewable Energy – A fast growing sector

Over the past 10 years, renewable power generation has grown from a niche power source to a global industry, in particular wind and solar energy. Continued strong growth is forecast to continue with more than 500 gigawatts (“GW”) estimated to be installed by 2020, representing an investment of approximately \$1 trillion in renewable power assets. Wind and solar power represent 90% of projected new installed renewable capacity (about 28% of total power sector additions). On this basis, it is forecast that renewable power could represent over 15% of global electricity production by 2035.

Projected Growth in Renewable Power



Source: IEA World Energy Outlook 2010 – New Policy Scenario

This growth in renewable power can be explained by a confluence of factors:

- ▶ **Energy Demand** – Global demand for electricity is forecast to increase by more than 60% by 2030, leading to a significant investment in energy infrastructure.
- ▶ **Diversification of Energy Sources** – Utilities have long been subject to the volatility of input prices such as oil and natural gas. Wind and solar generation input prices are free and their availability is highly predictable and reliable.
- ▶ **Renewable Power Targets & Security of Supply** – Governments around the world are imposing aggressive renewable power production targets. For example, the EU Renewable Energy Directive mandates that 20% of the EU’s final energy consumption must be derived from renewable sources by 2020. Renewable power projects are likely to remain in favour as governments use these projects to stimulate job growth, while securing energy supplies and addressing carbon emissions.
- ▶ **Cost** – The price of renewable technologies, particularly wind and solar, has decreased significantly. In some cases, it is already cost competitive with more traditional means of power generation. In some markets, onshore wind generation capacity is currently cheaper to build and operate than natural gas power plants.
- ▶ **Incentives for Investment** – In order to meet these renewable power targets, governments are providing strong financial incentives to promote development, such as fixed electricity tariffs in the EU and tax credits as well as direct subsidies in the US.
- ▶ **Carbon Emissions** – Growing awareness of climate change is encouraging forms of power generation with low carbon dioxide emission. This focus will accelerate with increasing economic penalties for carbon emissions, including the EU Emissions Trading Scheme, which enhances the competitive position of renewable power.

### Proven Mature Technology

Excluding hydro, wind and solar power generation offer the most attractive risk/return profile within the current renewable power universe as well as provide significant opportunities for capital deployment.

Wind power projects use an array of wind turbines to convert wind energy into electricity, which is then distributed through a transmission network. Excluding hydroelectric power, wind technology is the most prominent renewable power platform.

Installed capacity is forecast to grow more than threefold to over 500GW by 2020, representing 8% of global power generation capacity by that time. Steadily improving technology and cost reductions have made onshore wind power highly competitive with conventional power sources.

The solar industry is made up of two core technology offerings: (1) solar photovoltaic (“PV”), which converts sunlight directly into electricity through solar cells, and (2) solar thermal (or concentrating solar power), which uses the heat from the sun to generate electricity. Solar thermal is still a nascent industry whereas the PV sector is enjoying high levels of deployment in multiple markets and is the focus of this report.

Traditionally, PV has been deployed at small scale to provide power for individual households. However, following the significant recent cost, PV is now being deployed in large “utility” scale projects. The improved economics of PV is driving significant demand with some 30GW capacity now installed globally. More than 100GW is forecast to be deployed in total by 2020.

## Investment Profile

Renewable power investments such as wind and solar offer the same level of transparency, longevity and steady cash flows that has driven traditional power and infrastructure investment for decades. They are capital intensive to build. However, once in operation many projects have delivered stable cash flow and high margins through the sale of electricity to investment-grade counterparties. In this way, renewable power projects, particularly wind and solar, have potentially offered several appealing investment attributes:

- ▶ **Attractive Potential Risk-Adjusted Yield and Returns:** High and stable profit margins have the potential to drive attractive risk-adjusted yield and equity returns. This is particularly the case in the current market where the scarcity of capital accessible by project owners and developers has increased the availability of assets for sale and decreased valuations.
- ▶ **Potential for Enhanced Returns:** These attractive returns can potentially be increased further through active portfolio management, including debt refinancing and opportunistic sales. In this regard, projects can be held for the life of the asset or value can be realized at an earlier stage through a sale or trade with financial buyers.

- ▶ **Stable & Predictable Cash Flows:** As the power generating resource is free, renewable power projects are not subject to fuel price volatility. Furthermore, the cost of long-term operation and maintenance (“O&M”) contracts is currently relatively low, leading to high project profit margins (often 70-90%). Solar and wind projects therefore potentially offer a stable and predictable cash flow profile that is backed by long-term contracts with investment grade counterparts.
- ▶ **Inflation Protection:** Although power price contract structures vary on a market-by-market basis, in various geographies renewable electricity tariff agreements include protection against inflation. For example, several tariffs in the EU are indexed to inflation and adjusted on an annual basis. Finally, the assets provide a hedge to energy inflation as they have long useful lives and potentially benefit from scarcity value in the future (i.e. fewer desirable wind/solar sites).
- ▶ **Long Asset Life:** Wind and solar projects are long-term assets. The technologies have an expected useful life of over 25 years with strong warranties from reputable manufacturers and are underpinned by long-term contracts with investment-grade counterparties.
- ▶ **Infrastructure Assets:** Renewable power projects are hard infrastructure assets. Owing to this and their economic profile, project finance banks have continued to provide long-term debt to projects on attractive terms and, most importantly, on a non-recourse basis. This increases returns for equity holders while eliminating mark-to-market exposure.

## Conclusion

Renewable Energy is a significant growth sector and it has been estimated that \$1 trillion of capital will be needed by 2020 for countries to achieve their renewable power goals. Investments in renewable power projects also represent a compelling investment opportunity as the asset class potentially combines sought-after investment characteristics such as: stable long-term cash flows, potential for enhanced returns and inflation protection and no exposure to the volatility of input prices as wind and sunshine are free.

Pension, private equity and infrastructure funds are increasingly recognizing the attractive investment profile of these assets. In addition, there is a dearth of equity capital available to fund projects, thereby creating an opportunity to invest.

Issued by BlackRock Investment Management (UK) Limited, authorised and regulated by the Financial Services Authority. Registered office: 12 Throgmorton Avenue, London, EC2N 2DL. Tel: 020 7743 3000. Registered in England No. 2020394. For your protection telephone calls are usually recorded. BlackRock is a trading name of BlackRock Investment Management (UK) Limited. Past performance is not a guide to future performance. The value of investments and the income from them can fall as well as rise and is not guaranteed. You may not get back the amount originally invested. Changes in the rates of exchange between currencies may cause the value of investments to diminish or increase. Fluctuation may be particularly marked in the case of a higher volatility fund and the value of an investment may fall suddenly and substantially. Levels and basis of taxation may change from time to time. Any research in this document has been procured and may have been acted on by BlackRock for its own purpose. The results of such research are being made available only incidentally. The views expressed do not constitute investment or any other advice and are subject to change. They do not necessarily reflect the views of any company in the BlackRock Group or any part thereof and no assurances are made as to their accuracy. This document is for information purposes only and does not constitute an offer or invitation to anyone to invest in any BlackRock funds and has not been prepared in connection with any such offer. This material is for distribution to Professional Clients (as defined by the FSA Rules) and should not be relied upon by any other persons.

Have you registered for trustee masterclass yet? Go online for more trustee-focused tips and tutorials:  
[www.trusteemasterclass.com](http://www.trusteemasterclass.com)

**BLACKROCK®**