



# Renewable Energy Infrastructure

In an extract from the recent [Preqin Special Report: Renewable Energy Infrastructure](#), Olivia Harmsworth provides an overview of the renewable energy industry.

The global transition from reliance on traditional to alternative energy sources is an important political and economic issue, and one that has a significant impact on the infrastructure asset class. In order to stem the effects of climate change, governments around the world have initiated plans to increase green energy investment. However, with public funding often struggling to cope with the high levels of capital needed, a growing number of private renewable energy-focused infrastructure funds have been launched in recent years.

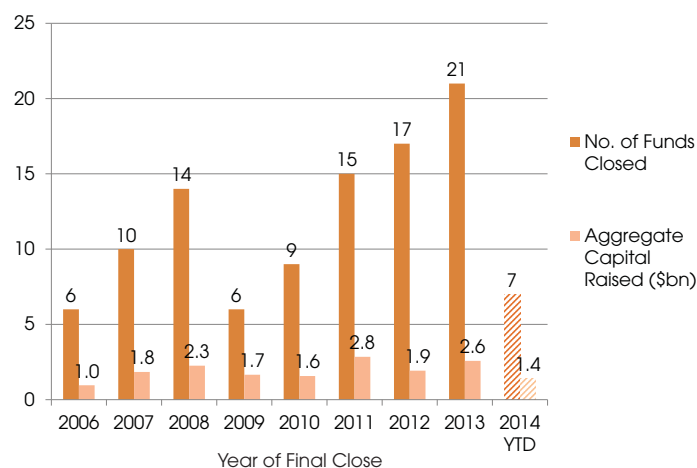
## Fundraising

Fundraising for renewable energy funds has remained at a relatively low level in recent years, with the aggregate capital raised by these funds increasing from \$1.6bn for funds closed in 2010 to \$2.6bn in 2013 (Fig. 1). However, the number of renewable energy funds reaching a final close more than doubled over this time period, from nine to 21, demonstrating that although more funds are able to successfully reach a final close, they are often attracting less capital from investors. In 2014 so far, seven renewable energy-focused funds have reached a final close, raising an aggregate \$1.4bn.

Fund managers raising renewable energy funds have often found it challenging to attract sufficient capital to reach their targets, with the average proportion of target size achieved for such funds remaining below 100% since 2008. In 2014 so far, renewable energy-focused funds have, on average, achieved 87% of their targets. As the industry remains relatively new, the ability for renewable energy investments to produce demonstrable returns is as yet largely unproven, meaning that many investors remain cautious of placing sizeable amounts of capital in funds focusing on the industry. Additionally, many renewable energy funds are spending a considerable length of time on the road, with funds closed in 2013 taking an average of 23 months to reach a final close.

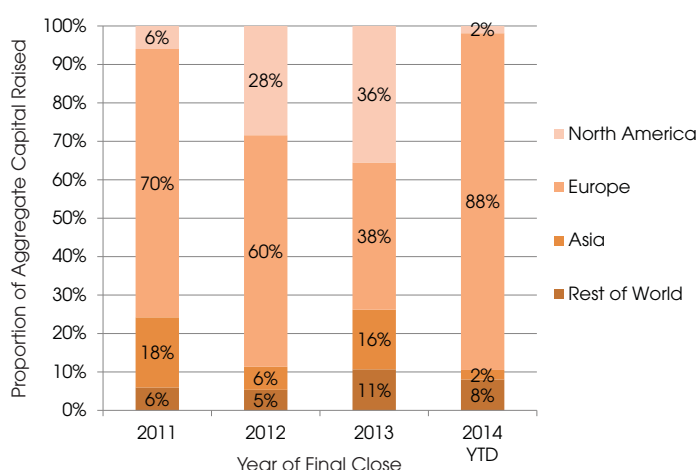
Regionally, Europe has accounted for the largest proportion of aggregate capital raised by renewable energy infrastructure funds closed since 2011, with 88% of capital raised by these funds in 2014 so far focusing on investments in the region, as shown in Fig. 2. In comparison to other regions, Europe has a relatively developed market for renewable energy, with more established and

**Fig. 1: Annual Fundraising by Renewable Energy-Focused Unlisted Infrastructure Funds, 2006 - 2014 YTD (As at 23 September 2014)**



Source: Preqin Infrastructure Online

**Fig. 2: Breakdown of Renewable Energy-Focused Unlisted Infrastructure Fundraising by Primary Geographic Focus, 2011 - 2014 YTD (As at 23 September 2014)**



Source: Preqin Infrastructure Online

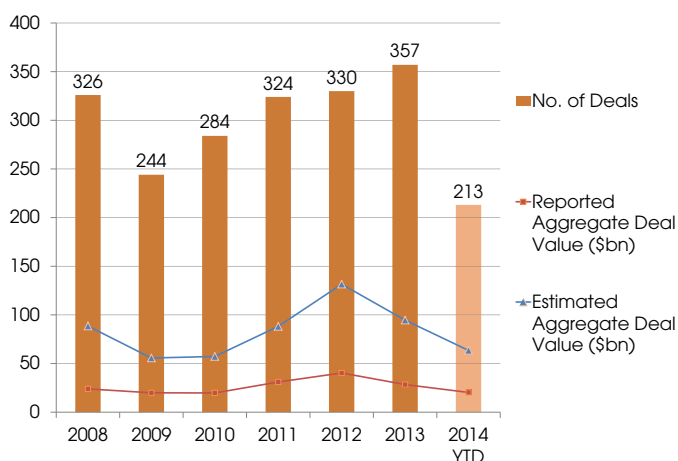
**Fig. 3: Top Five Renewable Energy-Focused Unlisted Infrastructure Funds Closed, 2012 - 2014 YTD (As at 23 September 2014)**

Fund	Firm	Final Size (mn)	Final Close Date	Location Focus
Clean Energy Fund Europe II	Glennmont Partners	500 EUR	Sep-14	Europe
BlackRock NTR Renewable Power Fund	BlackRock	611 USD	Nov-13	North America, West Europe
Zouk Renewable Energy & Environmental Infrastructure Fund II	Zouk Capital	220 EUR	Sep-14	Europe
Capital Dynamics US Solar Energy	Capital Dynamics	282 USD	Jun-12	US
Quercus Renewable Energy	Quercus Assets Selection	200 EUR	Mar-12	Europe

Source: Preqin Infrastructure Online



**Fig. 4:** Number and Aggregate Value of Renewable Energy Infrastructure Deals, 2008 - 2014 YTD (As at 6 October 2014)



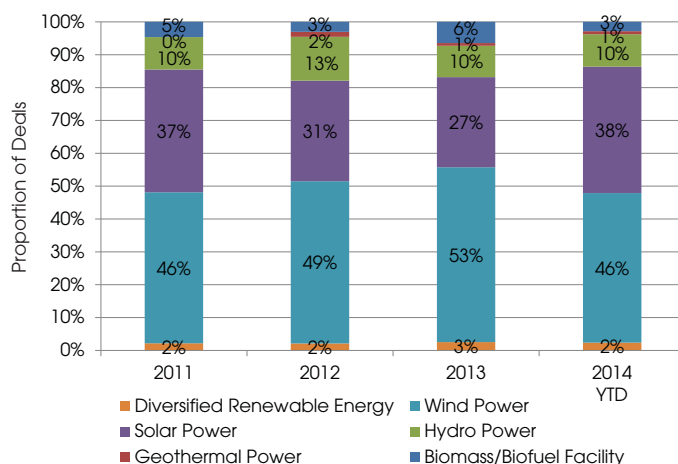
Source: Preqin Infrastructure Online

operational assets than available elsewhere, therefore attracting the bulk of renewable energy investment. However, North America has accounted for a growing proportion of renewable energy capital, increasing from just 6% of capital raised by funds focusing on the region that closed in 2011, to 36% in 2013; however, for funds closed in 2014 so far this has declined to just 2% of capital.

### Renewable Energy Transactions

With the growth of the global renewable energy industry, the number of completed deals focusing on this industry has increased in recent years from 244 in 2009 to 357 in 2013, with the reported aggregate deal value also growing from \$20bn to \$28bn over the period, as shown in Fig. 4. Preqin also produces an estimated deal value, calculated using the total reported value of all deals where this is known, plus the average deal value for transactions where a deal size has not been disclosed. For 2013 this value is \$95bn, compared to a peak of \$132bn for deals completed in 2012. In 2014 so far, 213 renewable energy transactions have been completed at an estimated aggregate deal value of \$63bn, although this is likely to rise as more information becomes available.

**Fig. 5:** Breakdown of Renewable Energy Infrastructure Deals by Industry, 2011 - 2014 YTD (As at 6 October 2014)



Source: Preqin Infrastructure Online

Solar and wind power have historically accounted for the vast majority of renewable energy deals, with Fig. 5 demonstrating that in 2014 so far, 38% and 46% of deals have been solar or wind power transactions respectively, with hydro power accounting for 10%. As demonstrated in Fig. 6, all of the top 10 deals completed in 2014 to date have been in wind, solar or hydro power industries.

Fig. 6 reveals that the largest renewable energy deal completed in 2014 so far is the approval by the UK government of the Rampion Offshore Wind Farm, owned by E.ON. The installation features up to 175 turbines, each with a capacity of 3-7MWs, to be installed about 13km to 20km away from the Sussex coast in the English Channel. Onshore construction is due to commence in 2015, with the project planned to be completed in phases over the following four years. The total investment into the project was estimated at £2bn.

The second largest renewable energy transaction completed in 2014 so far is the \$1.5bn acquisition of Mirfa IWPP by GDF Suez and ADWEA. Mirfa IWPP is a hydro power project comprising a total power capacity of 1,600MW and a seawater desalination capacity of 52.5 MIGD (238,665 m<sup>3</sup>/day), located 120 km from Abu Dhabi.

**Fig. 6:** Top 10 Renewable Energy Deals Completed in 2014 YTD (As at 6 October 2014)

Asset	Transaction Date	Industry	Country	Total Deal Size (mn)	Investor(s)
Rampion Offshore Wind Farm Project	Jul-14	Wind Power	UK	2,000 GBP	E.ON
Mirfa IWPP	Jul-14	Hydro Power	United Arab Emirates	1,500 USD	Abu Dhabi Water & Electricity Authority, GDF SUEZ
Amrumbank West Wind Farm	Jan-14	Wind Power	Germany	1,000 EUR	E.ON
London Array Wind Farm	Feb-14	Wind Power	UK	644 GBP	CDP Capital - Private Equity Group
Cerro Dominador Solar Power Plant	Jan-14	Solar Power	Chile	1,000 USD	Abengoa
Xina Solar Power Plant	Jun-14	Solar Power	South Africa	908 USD	Abengoa, Industrial Development Corporation, Public Investment Corporation
Lake Turkana Wind Power Project	Mar-14	Wind Power	Kenya	870 USD	Aldwych International, Finnfund, IFU, KP&P Africa, Netherlands Development Finance Company (FMO), Vestas Wind Systems
Dudgeon Offshore Wind Farm	Sep-14	Wind Power	UK	525 GBP	Masdar
Ashelim Thermo-Solar Plant	Jun-14	Solar Power	Israel	2,900 ILS	Alstom, BrightSource Energy, NOY Infrastructure
Gode Wind Farm II	Jul-14	Wind Power	Germany	600 EUR	Industry Pension Insurance, Lærernes Pension, Medical Doctors' Pension Fund, Pensionskassernes Administration

Source: Preqin Infrastructure Online



The top five fund managers by the number of renewable energy transactions they have completed from 2012 to 2014 so far are shown in Fig. 7. Canada-based Fiera Axium Infrastructure is at the top of the list, having completed 38 renewable energy deals in this timeframe, with UK-based InfraRed Capital Partners coming second with 25 completed deals. Four of the top 10 managers are based in Canada and three in the UK, demonstrating the prominence of these two countries within the renewable energy fund management industry.

Recent years have seen growing numbers of institutional investors, most notably pension funds, insurance companies and sovereign wealth funds, investing directly in renewable energy assets. Investors choose to access infrastructure assets directly to have greater control over the direction of their capital and to avoid paying fees to fund managers, although typically this route to market is reserved for larger institutions with the resources and expertise to manage a portfolio of assets. Five notable institutional investors in renewable energy assets are shown in Fig. 8. Germany-based

asset manager MEAG Munich Ergo Asset Management and Norway-based government agency Norfund have each undertaken seven renewable energy transactions since 2012.

Alongside fund managers and institutional investors, many other strategic or trade investors seek to invest directly in renewable energy assets. The top 10 strategic investors by the number of renewable energy transactions they have been involved in from 2012 to 2014 so far are shown in Fig. 9. At the top of the list is France-based EDF Group, with a significant 61 such deals completed, including the acquisition of Canada-based Merritt Green Biomass Power Plant in July 2014, valued at CAD 235mn.

### Outlook

While 2014 looks set to see a small decline in the number of transactions when compared with 2013, over the medium term, the demand for private sector investment in renewable energy assets globally is only likely to result in the further growth of the sector.

**Fig. 7: Top Five Fund Managers by Number of Renewable Energy-Focused Infrastructure Deals Completed in 2012 - 2014 YTD (As at 6 October 2014)**

Firm	No. of Completed Deals	Location	Sample Transactions
Fiera Axium Infrastructure	38	Canada	Oregon Wheat Field Wind Farm, \$96.53mn (Sep-13), Vents Du Kempt Wind Farm, CAD 340mn (May-12)
InfraRed Capital Partners	25	UK	Crook Hill Wind Farm, £75mn (Jul-14), Penare Farm Solar Park (Aug-14)
Greencoat Capital	16	UK	Rhyl Flats Wind Farm, £115mn (Mar-13), Maerdy Wind Farm, £52.9mn (Jun-14)
Infigen Energy	14	Australia	Cherry Tree Wind Farm, AUD 200 (Nov-13), Woakwine Wind Farm, AUD 1,000 (Jun-12)
Bluefield	12	London	Hoback Solar Plant, £19mn (Jun-14), Hall Farm Solar Plant, £13.4mn (Dec-13)

Source: Preqin Infrastructure Online

**Fig. 8: Five Notable Institutional Investors by Number of Renewable Energy-Focused Infrastructure Deals Completed in 2012 - 2014 YTD (As at 6 October 2014)**

Investor	No. of Completed Deals	Location	Sample Recent Transactions
MEAG Munich Ergo Asset Management	7	Germany	France Wind Farm Portfolio, €350mn (Jan-13), Asen Wind Farm (May-13)
Norfund	7	Norway	South Africa Solar Projects - 115MW, €300mn (May-13), Kinangop Wind Farm, \$150mn (Dec-13)
Netherlands Development Finance Company (FMO)	5	Netherlands	Lake Turkana Wind Power Project, \$870mn (Mar-14), Salkhit Wind Farm (Apr-12)
Public Investment Corporation	5	South Africa	Xina Solar Power Plant, \$908mn (Jun-14), Boshof Solar Park, ZAR 2.4bn (Nov-13)
Swiss Life	4	Switzerland	Sixpenny Wood Wind Farm, (Aug-14), Yelvertoft Wind Farm (Aug-14)

Source: Preqin Infrastructure Online

**Fig. 9: Top Five Strategic Investors by Number of Renewable Energy-Focused Infrastructure Deals Completed in 2012 - 2014 YTD (As at 6 October 2014)**

Investor	No. of Completed Deals	Location	Sample Recent Transactions
EDF Group	61	France	Merritt Green Biomass Power Plant, CAD 235mn (Jul-14), Natchtigal Falls Hydroelectric Plant, \$814mn (Nov-13)
E.ON	35	Germany	Rampion Offshore Wind Farm, £2bn (Jul-14), Amrumbank West Wind Farm, €1bn (Jan-14)
Duke Energy	18	US	Sunset Reservoir Solar Park (Aug-14), Wildwood Solar I (Mar-14)
DONG Energy	14	Denmark	Gode Wind Farm I, €1.247bn (Nov-13), Westernmost Rough Offshore Wind Farm, £800mn (Jan-13)
RWE Group	11	Germany	Zuidwester Wind Farm, €150mn (Jan-14), Greater Gabbard Wind Farm, £308mn (Oct-12)

Source: Preqin Infrastructure Online