Clean Energy Investment Trends, 3Q 2018

Electric vehicle company fundings are bright spot as clean energy investment slips in third quarter

Jonathan Gardiner

October 9, 2018
Electric vehicle company fundings are bright spot in 3Q 2018

Clean energy investment was $67.8 billion in the third quarter of 2018, down 6% from the same period last year.

- Total investment for the year so far has been $211.4 billion, 2% below that of the first 9 months of 2017.

- Significant contributions for 3Q were from offshore wind financings and from equity raising by electric vehicle companies.

- Public markets investments in clean energy jumped 120% to $3.1 billion, boosted by the initial public offering by NIO, the electric vehicle manufacturer.

- Wind power investments included the $2.6 billion 860MW Triton Knoll in U.K. waters, the Enel Green Power South Africa portfolio, at $1.4 billion for 706MW, and the Guohua Dongtai offshore wind farm phase four in Chinese waters, at $1.2 billion for 300MW.

- Solar investment in China slipped back in the third quarter as government action to cool off the country's solar boom started to have an effect.

- Overall investment numbers shows China as yet again the largest investor in clean energy in 3Q at $26.7 billion, a fraction above the same period of 2017.
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Quarterly Trends, New Investment

Quarterly trends since 1Q 2005
Global New Investment in Clean Energy

1Q 2005 - 3Q 2018

Quarterly Trends, New Investment

Four quarter running average
Global New Investment in Clean Energy, by Region

1Q 2005 - 3Q 2018

Quarterly Trends, New Investment

$bn


AMER  EMEA  APAC
Quarterly Trends, New Investment

Global New Investment in Clean Energy, by Asset Class

1Q 2005 - 3Q 2018

$bn

Asset Finance  Small Scale Solar  Public Markets  VC&PE
Quarterly Trends, New Investment

Global New Investment in Clean Energy, VC/PE

1Q 2005 - 3Q 2018

$bn

PE Expansion  VC Late Stage  VC Early Stage

BloombergNEF
Quarterly Trends, New Investment

Global New Investment in Clean Energy, Public Markets

1Q 2005 - 3Q 2018

$bn

IPO
Secondary & PIPE
OTC
Convertible & Other
Global New Investment in Clean Energy, AMER
1Q 2005 - 3Q 2018

Quarterly Trends, New Investment

$bn

Solar
Wind
Other

BloombergNEF
Quarterly Trends, New Investment

Global New Investment in Clean Energy, EMEA

1Q 2005 - 3Q 2018

$bn

0 5 10 15 20 25 30 35 40 45 50

Solar  Wind  Other

BloombergNEF
Quarterly Trends, New Investment

Global New Investment in Clean Energy, APAC

1Q 2005 - 3Q 2018

$bn

Solar
Wind
Other

BloombergNEF
New Investment in Clean Energy
United States
1Q 2005 - 3Q 2018

Quarterly Trends, New Investment

Four quarter running average
New Investment in Clean Energy
United States, by Sector
1Q 2005 - 3Q 2018

Quarterly Trends, New Investment

$bn

Solar  Wind  Other

BloombergNEF
Quarterly Trends, New Investment

New Investment in Clean Energy Europe
1Q 2005 - 3Q 2018

$bn

Four quarter running average
Quarterly Trends, New Investment

New Investment in Clean Energy Europe, by Sector

1Q 2005 - 3Q 2018

$bn

Solar  Offshore  Onshore  Other
Quarterly Trends, New Investment

New Investment in Clean Energy
China, by Sector

1Q 2005 - 3Q 2018

$bn

Solar
Wind
Other
Quarterly Trends, New Investment

New Investment in Clean Energy Australia

1Q 2005 - 3Q 2018

$bn

Four quarter running average
Quarterly Trends, New Investment

New Investment in Clean Energy
Brazil
1Q 2005 - 3Q 2018

$bn
20
18
16
14
12
10
8
6
4
2
0

Four quarter running average
Quarterly Trends, New Investment

New Investment in Clean Energy France
1Q 2005 - 3Q 2018

$bn

Four quarter running average
Quarterly Trends, New Investment

New Investment in Clean Energy
Germany
1Q 2005 - 3Q 2018

$bn

Four quarter running average
Quarterly Trends, New Investment

New Investment in Clean Energy India

1Q 2005 - 3Q 2018

$bn

Four quarter running average
Quarterly Trends, New Investment

New Investment in Clean Energy
Japan
1Q 2005 - 3Q 2018

$bn

Four quarter running average
Quarterly Trends, New Investment

New Investment in Clean Energy
United Kingdom

1Q 2005 - 3Q 2018

$bn

Four quarter running average
Quarterly Trends, Funds in Circulation

Quarterly trends since 1Q 2005
Quarterly Trends, Funds in Circulation

Global Clean Energy, Funds in Circulation, by Region

1Q 2005 - 3Q 2018

$bn

EMEA  APAC  AMER

BloombergNEF
Global Clean Energy, Funds in Circulation, by Sector

1Q 2005 - 3Q 2018

Quarterly Trends, Funds in Circulation

$bn

Solar | Wind | Other | Biofuels

2005Q1 | 2005Q2 | 2005Q3 | 2005Q4
2006Q1 | 2006Q2 | 2006Q3 | 2006Q4
2007Q1 | 2007Q2 | 2007Q3 | 2007Q4
2008Q1 | 2008Q2 | 2008Q3 | 2008Q4
2009Q1 | 2009Q2 | 2009Q3 | 2009Q4
2010Q1 | 2010Q2 | 2010Q3 | 2010Q4
2011Q1 | 2011Q2 | 2011Q3 | 2011Q4
2012Q1 | 2012Q2 | 2012Q3 | 2012Q4
2013Q1 | 2013Q2 | 2013Q3 | 2013Q4
2014Q1 | 2014Q2 | 2014Q3 | 2014Q4
2015Q1 | 2015Q2 | 2015Q3 | 2015Q4
2016Q1 | 2016Q2 | 2016Q3 | 2016Q4
2017Q1 | 2017Q2 | 2017Q3 | 2017Q4
2018Q1 | 2018Q2 | 2018Q3
Quarterly Trends, Funds in Circulation

Global Clean Energy, Funds in Circulation, by Asset Class

1Q 2005 - 3Q 2018
Top Deals

Top Quarterly Deals for 3Q 2018
<table>
<thead>
<tr>
<th>Project Name</th>
<th>Country</th>
<th>Sector</th>
<th>Type of Transaction</th>
<th>Capacity</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Triton Knoll Offshore Wind Farm</td>
<td>United Kingdom</td>
<td>Wind</td>
<td>Debt</td>
<td>860MW</td>
<td>$2,592</td>
</tr>
<tr>
<td>Enel Green Power South Africa Onshore Wind Portfolio</td>
<td>South Africa</td>
<td>Wind</td>
<td>Debt</td>
<td>706MW</td>
<td>$1,376</td>
</tr>
<tr>
<td>Fryslan Offshore Wind Farm</td>
<td>Netherlands</td>
<td>Wind</td>
<td>Equity</td>
<td>380MW</td>
<td>$578</td>
</tr>
<tr>
<td>Guohua Dongtai Offshore Wind Farm Phase IV H2</td>
<td>China</td>
<td>Wind</td>
<td>Equity</td>
<td>300MW</td>
<td>na</td>
</tr>
</tbody>
</table>
# Top Venture Capital / Private Equity Deals

## 3Q 2018

<table>
<thead>
<tr>
<th>Project Name</th>
<th>Country</th>
<th>Sector</th>
<th>Type of Transaction</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Guangzhou Xiaopeng Motors Technology</td>
<td>China</td>
<td>Electrified Transport</td>
<td>VC - Series C / Third round</td>
<td>$585</td>
</tr>
<tr>
<td>Zhejiang Dianka Automobile Technology</td>
<td>China</td>
<td>Electrified Transport</td>
<td>VC - Further / Pre-IPO round</td>
<td>$294</td>
</tr>
<tr>
<td>Cypress Creek Renewables</td>
<td>United States</td>
<td>Solar</td>
<td>PE - Expansion capital</td>
<td>$200</td>
</tr>
<tr>
<td>Fred Olsen</td>
<td>United Kingdom</td>
<td>Wind</td>
<td>PE - Expansion capital</td>
<td>$155</td>
</tr>
<tr>
<td>Guzman Energy</td>
<td>United States</td>
<td>Low carbon services &amp; support</td>
<td>PE - Expansion capital</td>
<td>$130</td>
</tr>
<tr>
<td>Sunpower Group</td>
<td>China</td>
<td>Solar</td>
<td>PE - Expansion capital</td>
<td>$120</td>
</tr>
</tbody>
</table>
# Top Public Market Deals

## 3Q 2018

<table>
<thead>
<tr>
<th>Project Name</th>
<th>Stock Exchange</th>
<th>Sector</th>
<th>Type of Transaction</th>
<th>New Equity Raised</th>
</tr>
</thead>
<tbody>
<tr>
<td>China Everbright International</td>
<td>Hong Kong Stock Exchange</td>
<td>Biomass &amp; Waste</td>
<td>Exercise of Rights</td>
<td>$1,269</td>
</tr>
<tr>
<td>NIO</td>
<td>New York Stock Exchange</td>
<td>Electrified Transport</td>
<td>IPO</td>
<td>$1,002</td>
</tr>
<tr>
<td>Bloom Energy Corp.</td>
<td>New York Stock Exchange</td>
<td>Energy smart technologies</td>
<td>IPO</td>
<td>$311</td>
</tr>
<tr>
<td>Jiangsu New Energy Development</td>
<td>Shanghai Stock Exchange</td>
<td>Wind</td>
<td>IPO</td>
<td>$159</td>
</tr>
<tr>
<td>Boralex</td>
<td>Toronto Stock Exchange</td>
<td>Wind</td>
<td>Secondary</td>
<td>$158</td>
</tr>
</tbody>
</table>
Annual Trends, New Investment

Annual trends since 2005
Global New Investment in Clean Energy
2005 - 2017

$bn

Annual Trends, New Investment

88.0 129.2 182.2 205.2 206.8 276.1 324.0 290.7 268.6 321.3 360.3 330.1 343.2
Global New Investment in Clean Energy, by Region

2005 - 2017

$bn

Annual Trends, New Investment
Global New Investment in Clean Energy, by Sector
2005 - 2017

$bn


Solar  Wind  Other  Biofuels
New Investment in Clean Energy
United States
2005 - 2017

Annual Trends, New Investment

$bn
New Investment in Clean Energy
United States, by Sector
2005 - 2017

Annual Trends, New Investment

$bn

Wind
Solar
Other
New Investment in Clean Energy Europe, by Sector
2005 - 2017

$bn
New Investment in Clean Energy
China
2005 - 2017

$bn

Annual Trends, New Investment
New Investment in Clean Energy China, by Sector
2005 - 2017

Annual Trends, New Investment

$bn

Solar
Wind
Other
Definitions and FAQs

How Bloomberg NEF defines clean energy
Definitions and FAQs

Definitions

Asset Classes

Venture capital and private equity (VCPE)
Early and late stage venture capital funding rounds of pure play clean energy companies as well as funds raised privately for the purposes of expansion.

Public markets (PM)
Funds raised by publicly quoted or OTC quoted pure play clean energy companies on the capital markets. This may be through IPOs or follow-on offerings like secondary offerings, private investment in public equity or PIPEs, convertibles etc.

Asset finance
The new build financing of renewable energy generating projects as well as smart metering and energy storage projects - smart metering and energy storage investment are only reported annually. Renewable energy generating projects includes both electricity generating and biofuels producing assets. Projects may be financed off the owner’s balance sheet, or through financing mechanisms such as project finance, syndicated equity from institutional investors, or project bonds underwritten by banks.

Re-invested equity
Isolates values for balance sheet-financed project investments by companies who have raised money privately or publicly over the past 12 months. The purpose of this category is to prevent double counting of money raised publicly or privately that has been invested in clean energy assets.

Small scale solar
Given the technical limitations in tracking small-scale solar projects, BNEF’s asset finance database excludes projects below roughly 1MW. Unlike utility scale asset investment, small-scale solar investment is based on top-down analyst estimates.

Government r&d
Government r&d figures are sourced from the IEA, IMF, OECD, and various government agencies.

Corporate r&d
The Bloomberg Terminal is used to source corporate r&d figures for key quoted companies in all clean energy sectors.
Definitions

Sectors

**Wind**
Electricity generation using wind turbines. Included in this sector, are players across the entire value chain of both onshore and offshore developments. From manufacturers of turbines, components and subassemblies to developers, generators, utilities and engineering firm.

**Solar**
All technologies which capture energy directly from the sun. These include production of electricity using semiconductor-based photovoltaic (pv) materials, use of concentrated sunlight to heat fluids that drive power generation equipment (solar thermal), and passive methods which use sunlight to heat water. Whilst company level investment of passive methods is recorded, investment in passive projects is not.

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

**Biomass & waste**
Electricity and/or heat produced with bio-based feedstocks, typically through incineration but also through more advanced processes like gasification or anaerobic digestion. This sector also includes waste-to-energy which includes energy produced through landfill gas projects and incineration of municipal and industrial waste.

**Energy smart technologies**
This sector covers technologies like digital energy, smart grids, power storage, hydrogen and fuel cells, advanced transportation and energy efficiency on both the demand and supply side.

**Other renewables**
Includes small hydro - hydro projects with capacities smaller or equal to 50MW; geothermal - extraction of useful power from heat stored in the earth; marine - the extraction of tidal, wave and thermal energy from the ocean.
**Q1: Why is there a difference between the sum of the quarterly figures and the annual figures?**
Quarterly figures do not include certain asset classes which we only produce annually. These asset classes are corporate and government r&d and asset finance for energy smart technologies, in other words, smart meters and energy storage investment.

**Q2: Which countries are included in Europe?**
Europe includes all 28 EU countries, and non-EU countries like Switzerland, Norway, Turkey and Russia. The majority of clean energy investment stems from the EU though.
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Log onto BNEF.com, hover over "Flagship" and click "Clean Energy Investment"
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