

# Clean Energy Investment Trends, 2018

Clean energy investment exceeds \$300 billion once  
again in 2018

January 16, 2019



BloombergNEF

# Clean energy investment exceeds \$300bn in 2018

Global clean energy investment totaled \$332.1 billion in 2018, down 8% on 2017. Last year was the fifth in a row in which investment exceeded the \$300 billion mark.

- Total investment in solar dropped 24% to \$130.8 billion due to declining capital costs as well as a sharp change in policy in China in mid-year.
- Offshore wind projects featured strongly, attracting \$25.7 billion, up 14% from 2017. The largest of which was the 950MW Moray Firth East array, at an estimated \$3.3 billion.
- The biggest solar projects to be financed included the 800MW NOORm Midelt PV and solar thermal portfolio in Morocco, at an estimated \$2.4 billion, and the 709MW NLC Tangedco PV plant in India, at a cost of about \$500 million.
- Europe saw clean energy investment leap 27% to \$74.5 billion, helped by the financing of five offshore wind projects in the billion-dollar-plus category.
- Global venture capital and private equity investment jumped 127% to \$9.2 billion, the highest since 2010. The biggest deals were \$1.1 billion of expansion capital for U.S. smart window maker View, and \$795 million for Chinese electric vehicle firm Youxia Motors.

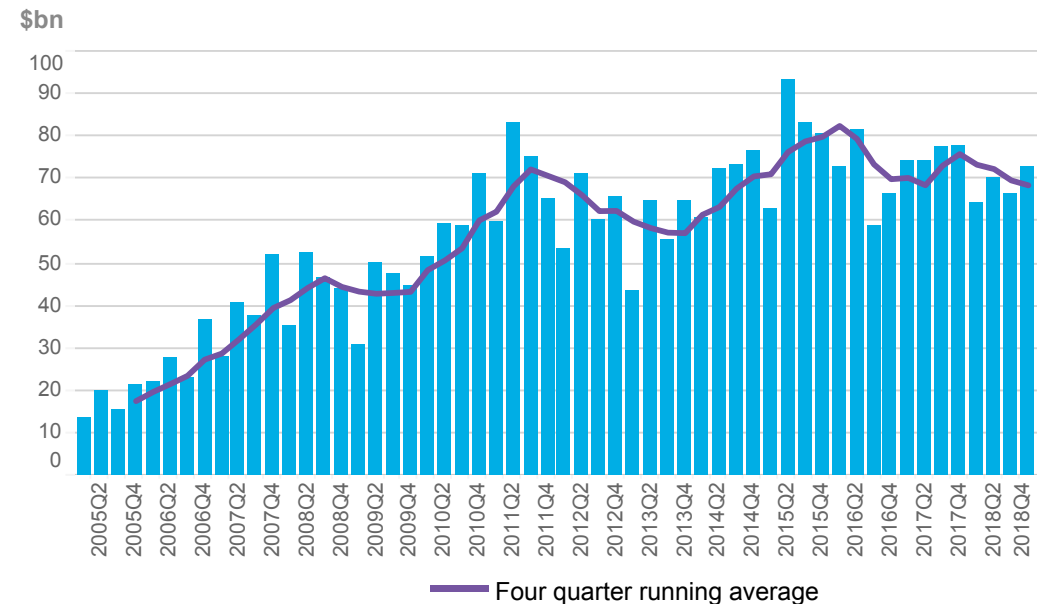
**\$332.1bn**

Global clean energy investment in 2018

**27%**

Increase in European clean energy investment compared to 2017

## Global new investment in clean energy

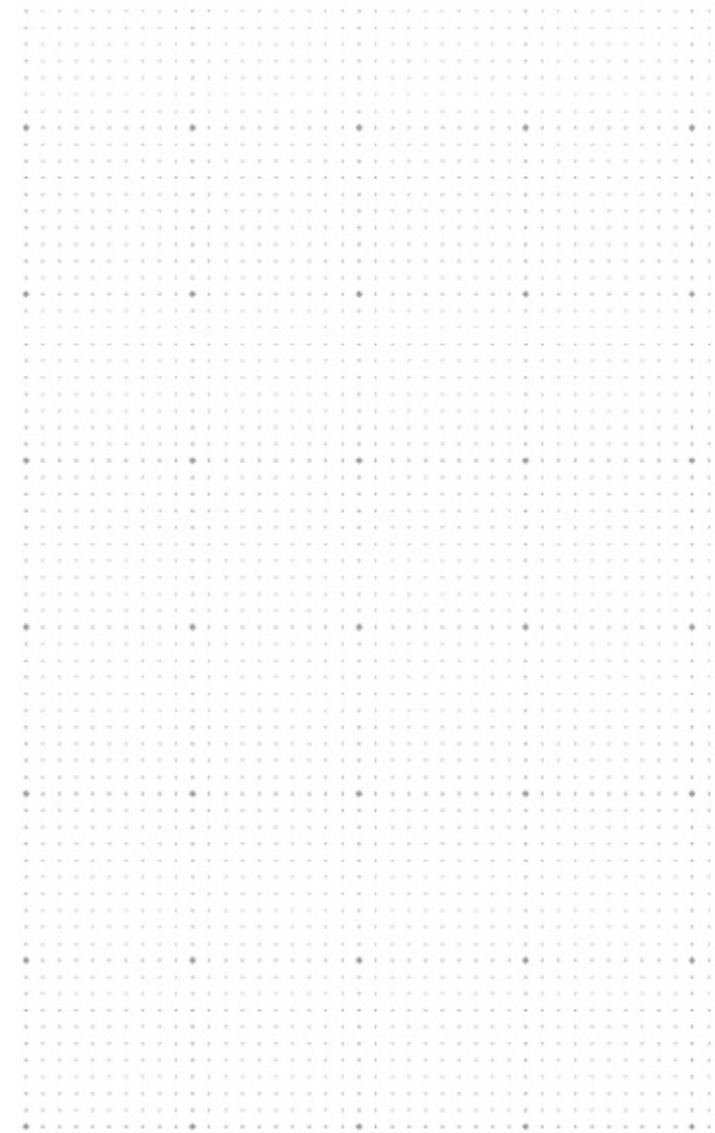


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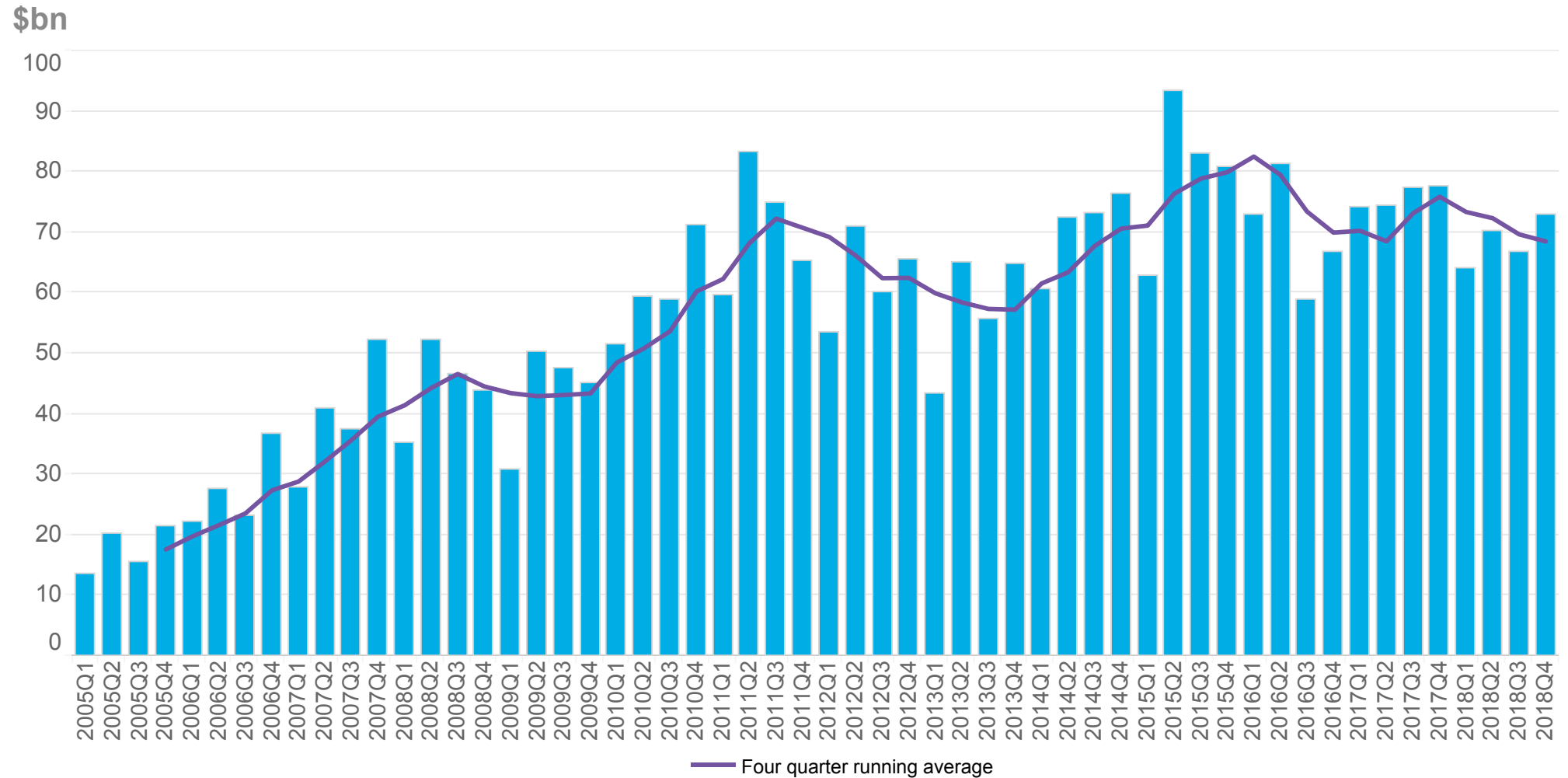
# Quarterly Trends, New Investment

Quarterly trends since 1Q 2005



# Global New Investment in Clean Energy

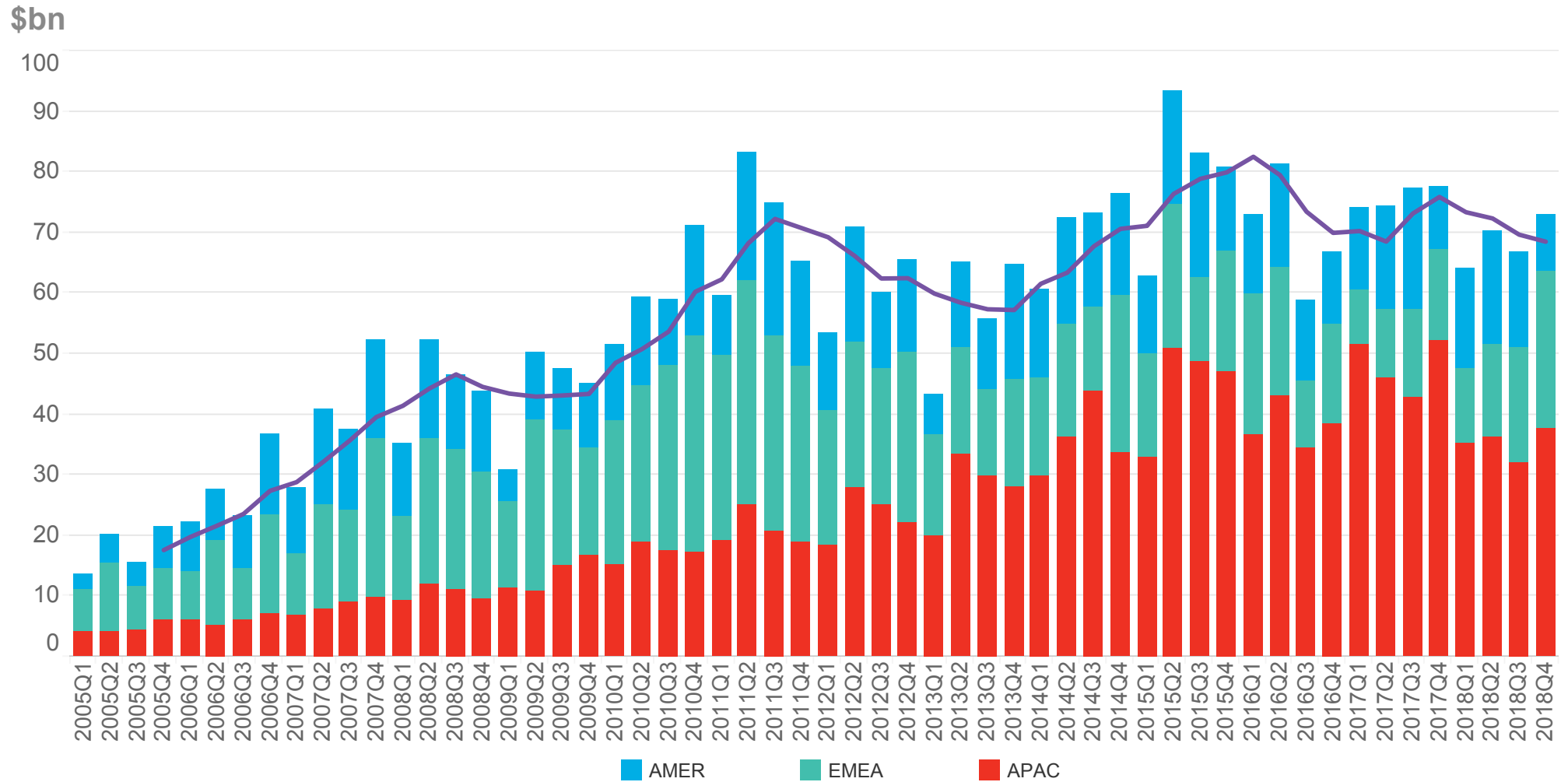
1Q 2005 - 4Q 2018



Quarterly Trends, New Investment

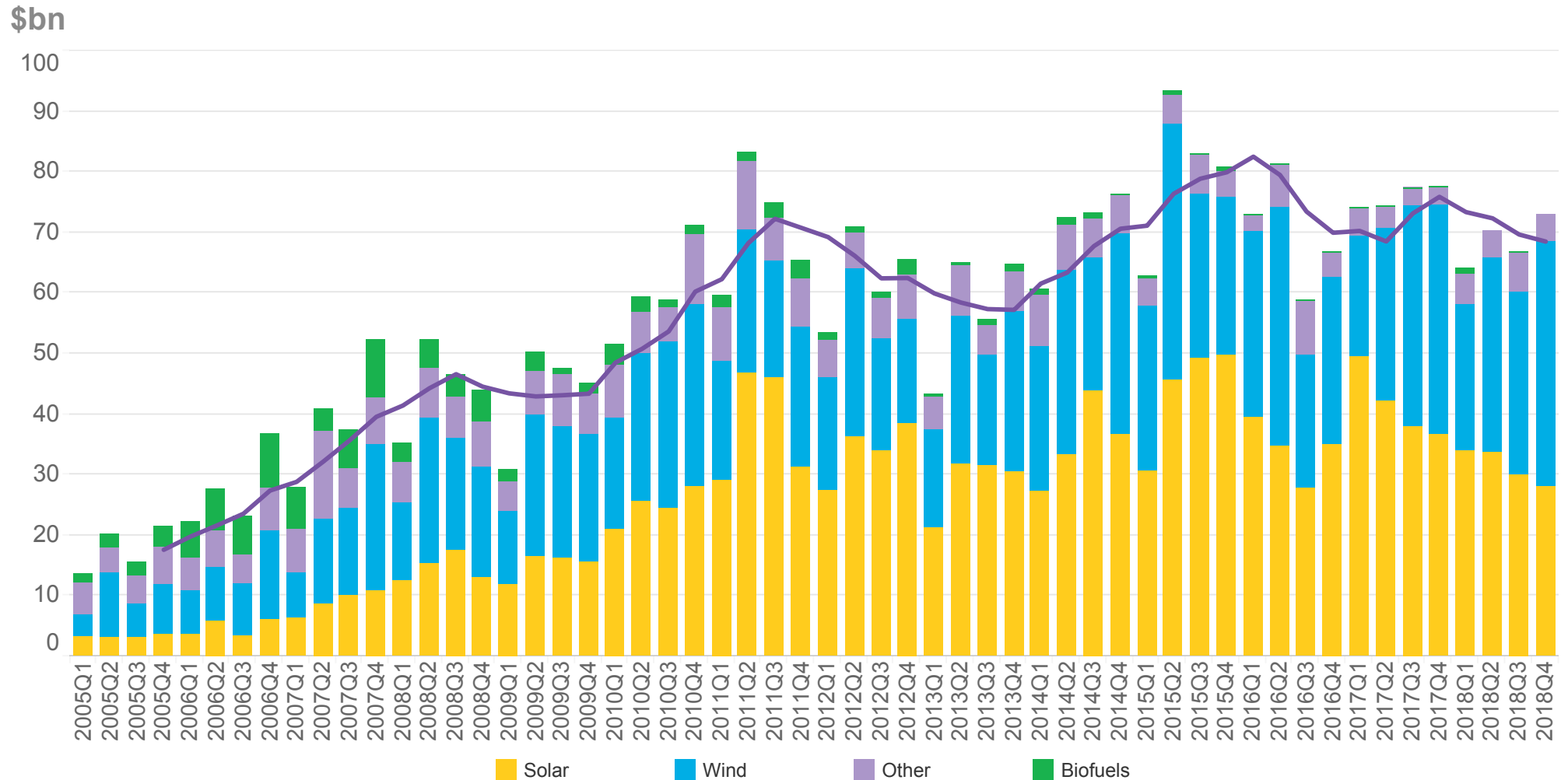
# Global New Investment in Clean Energy, by Region

1Q 2005 - 4Q 2018



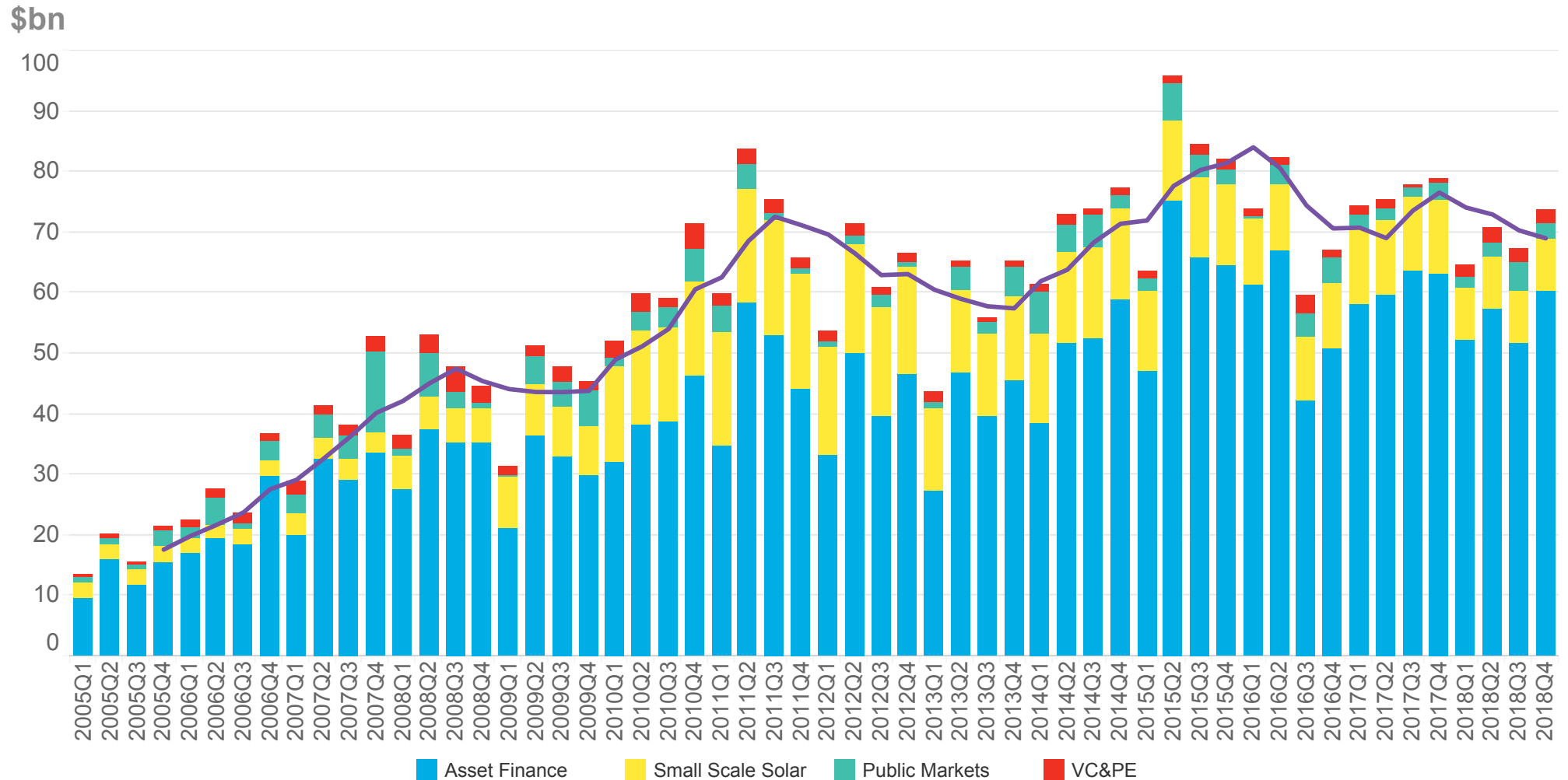
# Global New Investment in Clean Energy, by Sector

1Q 2005 - 4Q 2018



# Global New Investment in Clean Energy, by Asset Class

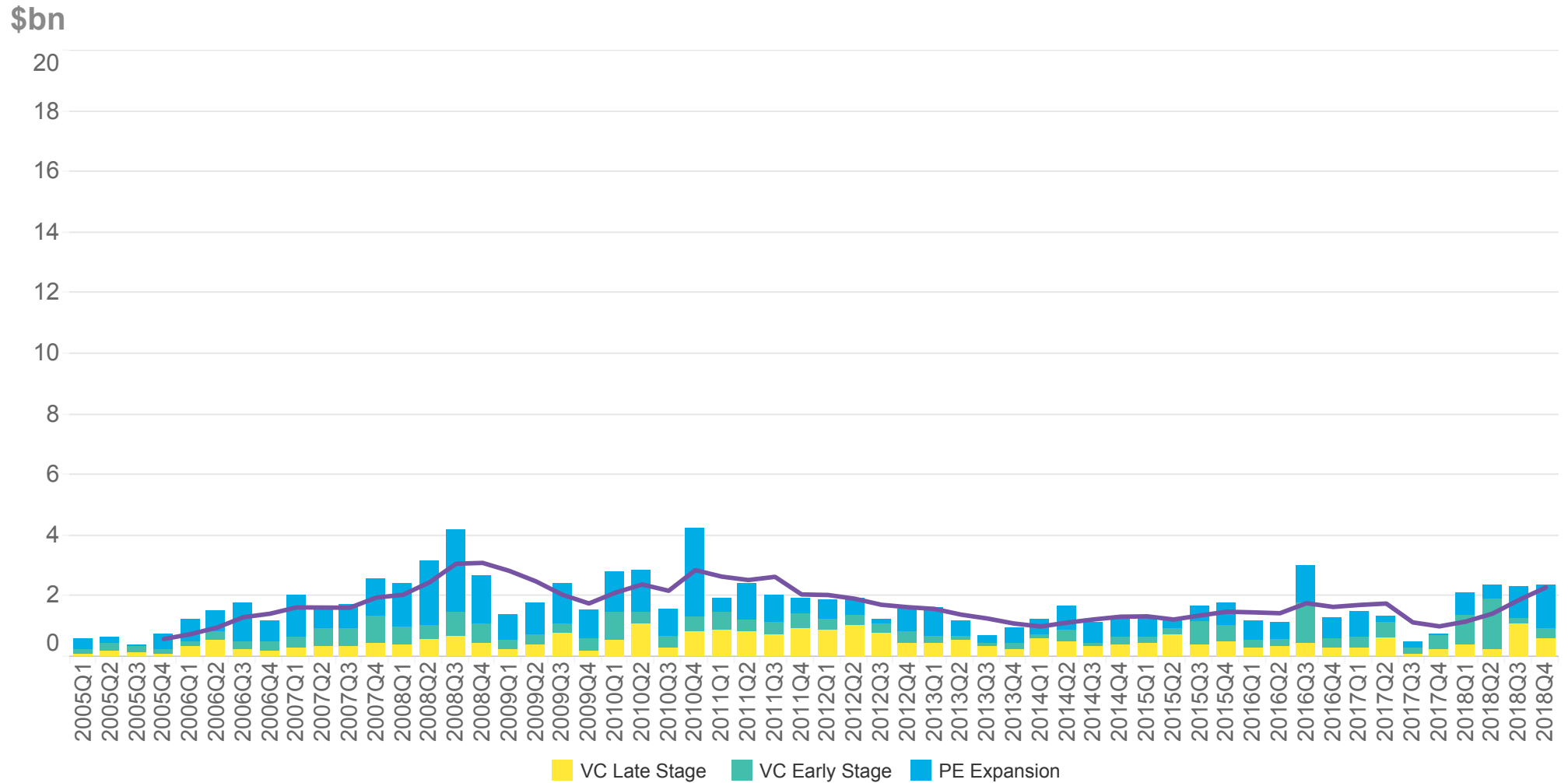
1Q 2005 - 4Q 2018





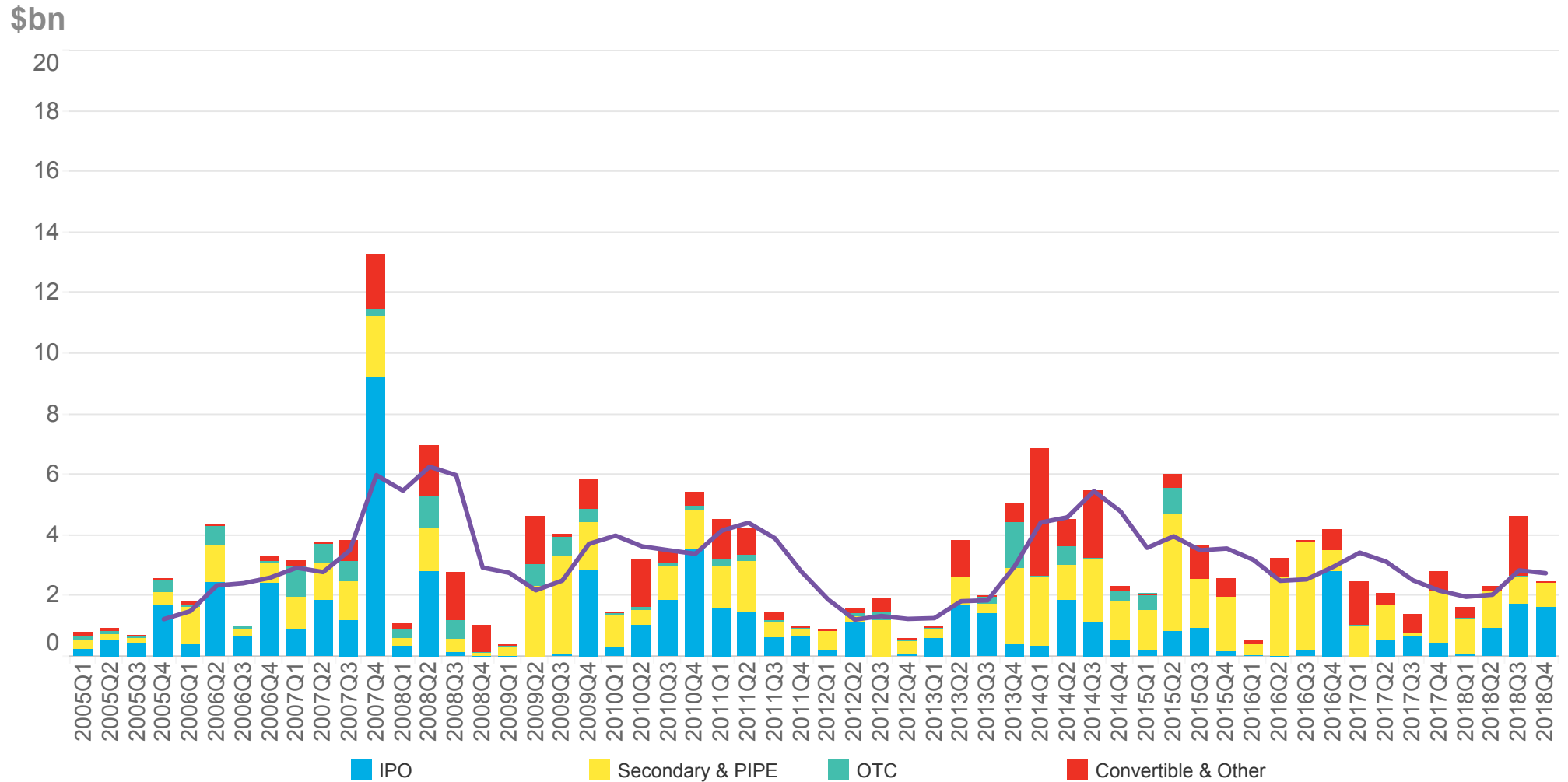
# Global New Investment in Clean Energy, VC/PE

1Q 2005 - 4Q 2018



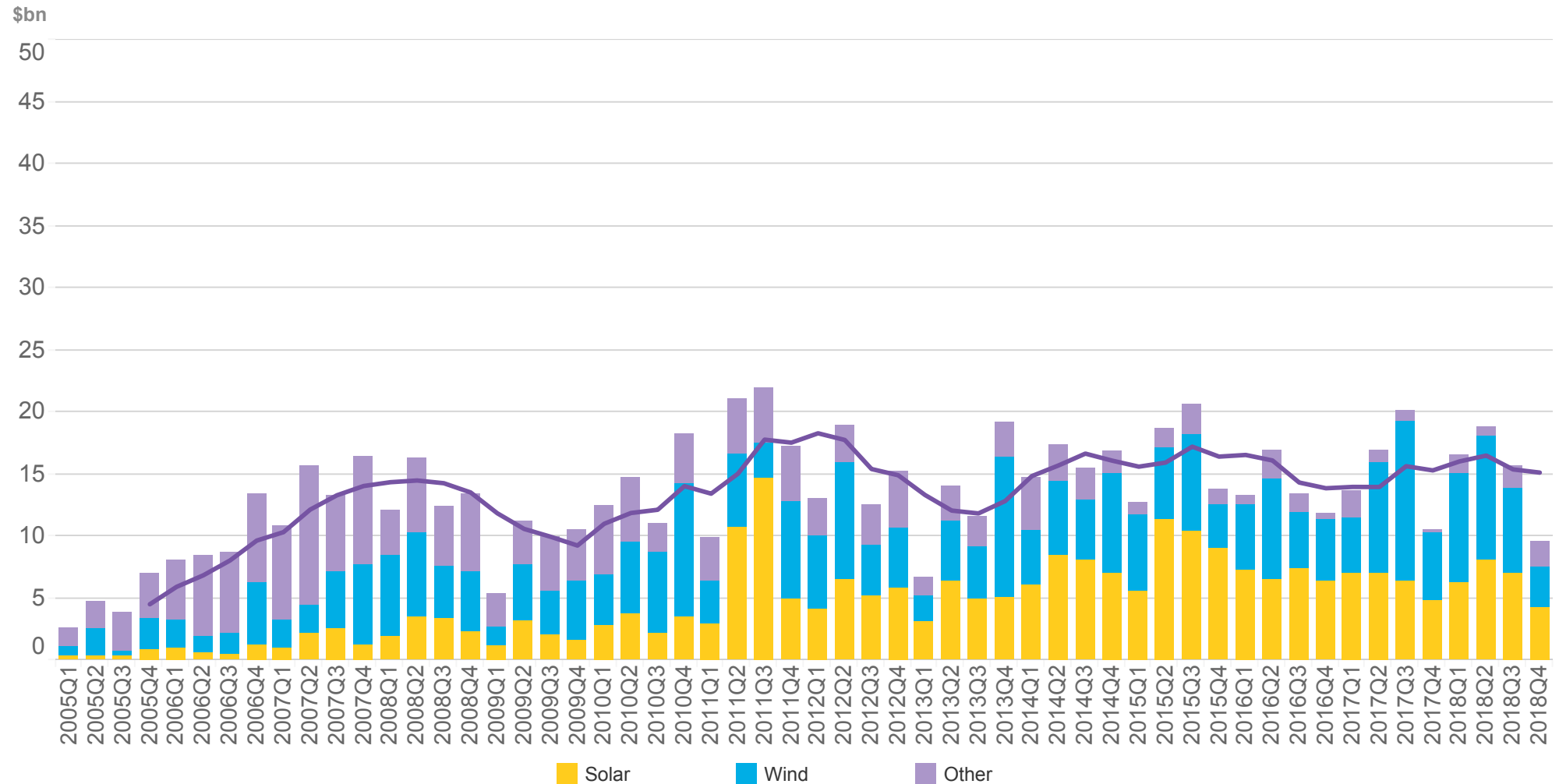
# Global New Investment in Clean Energy, Public Markets

1Q 2005 - 4Q 2018



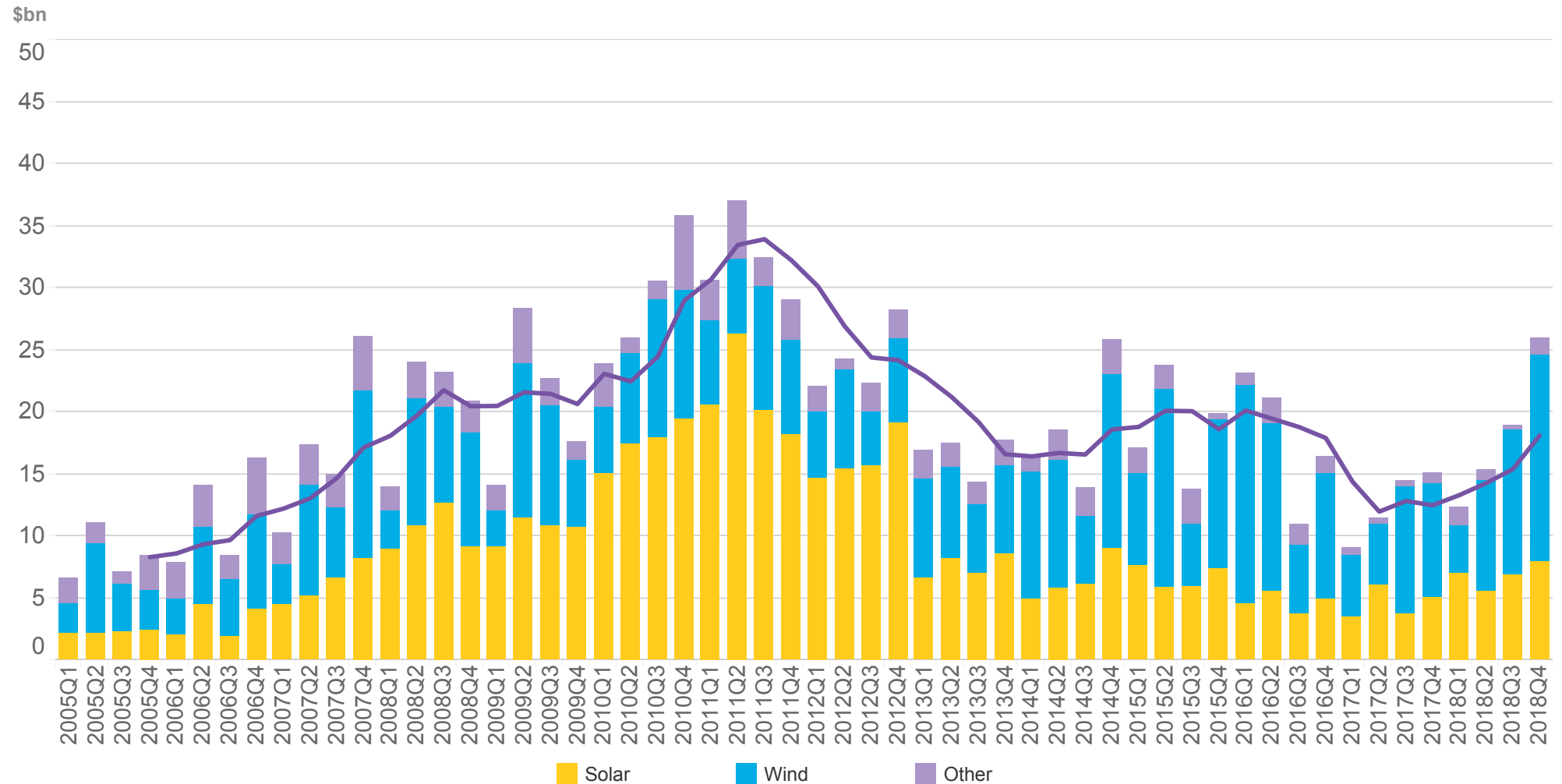
# Global New Investment in Clean Energy, AMER

1Q 2005 - 4Q 2018



# Global New Investment in Clean Energy, EMEA

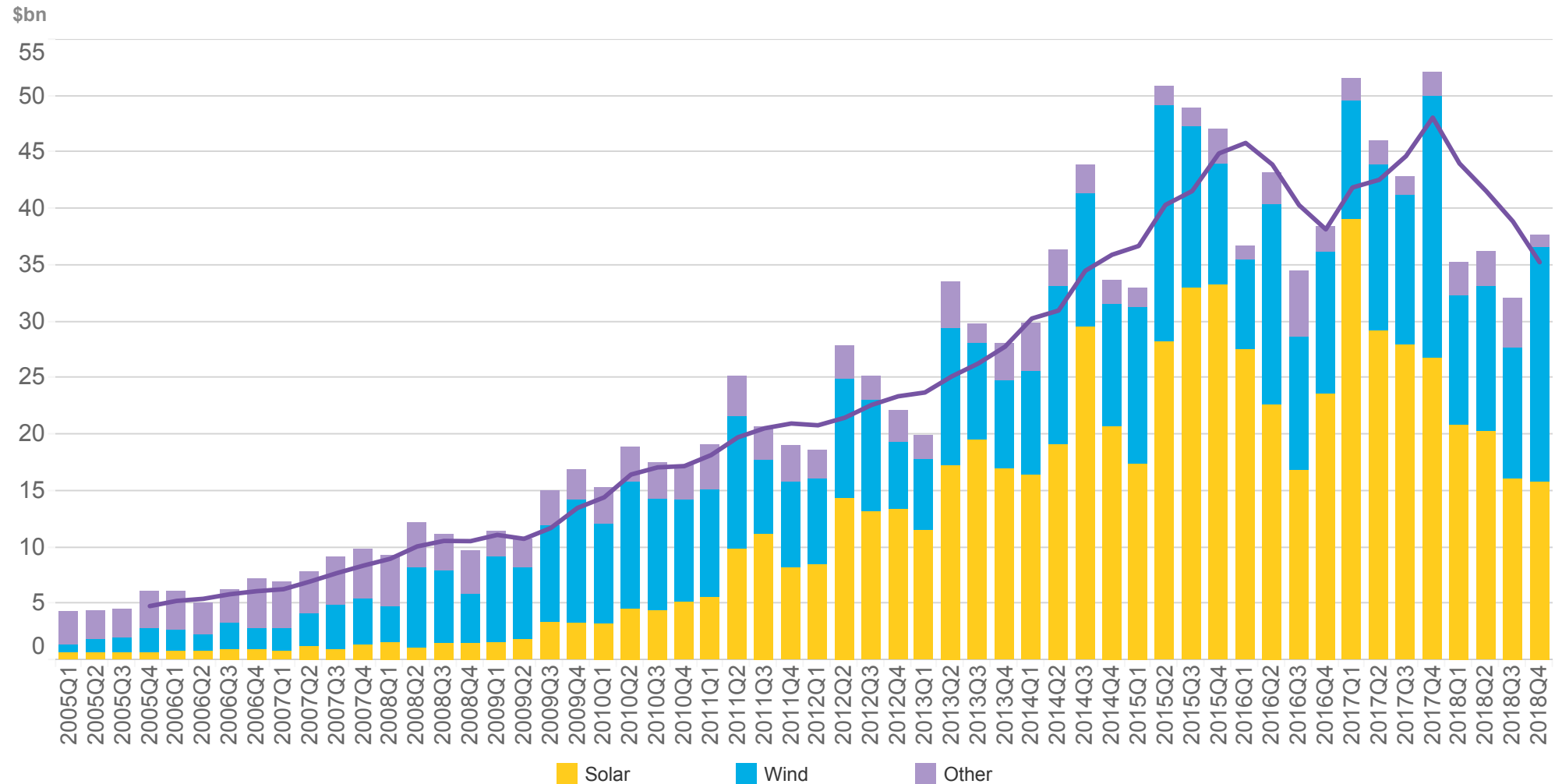
1Q 2005 - 4Q 2018



Quarterly Trends, New Investment

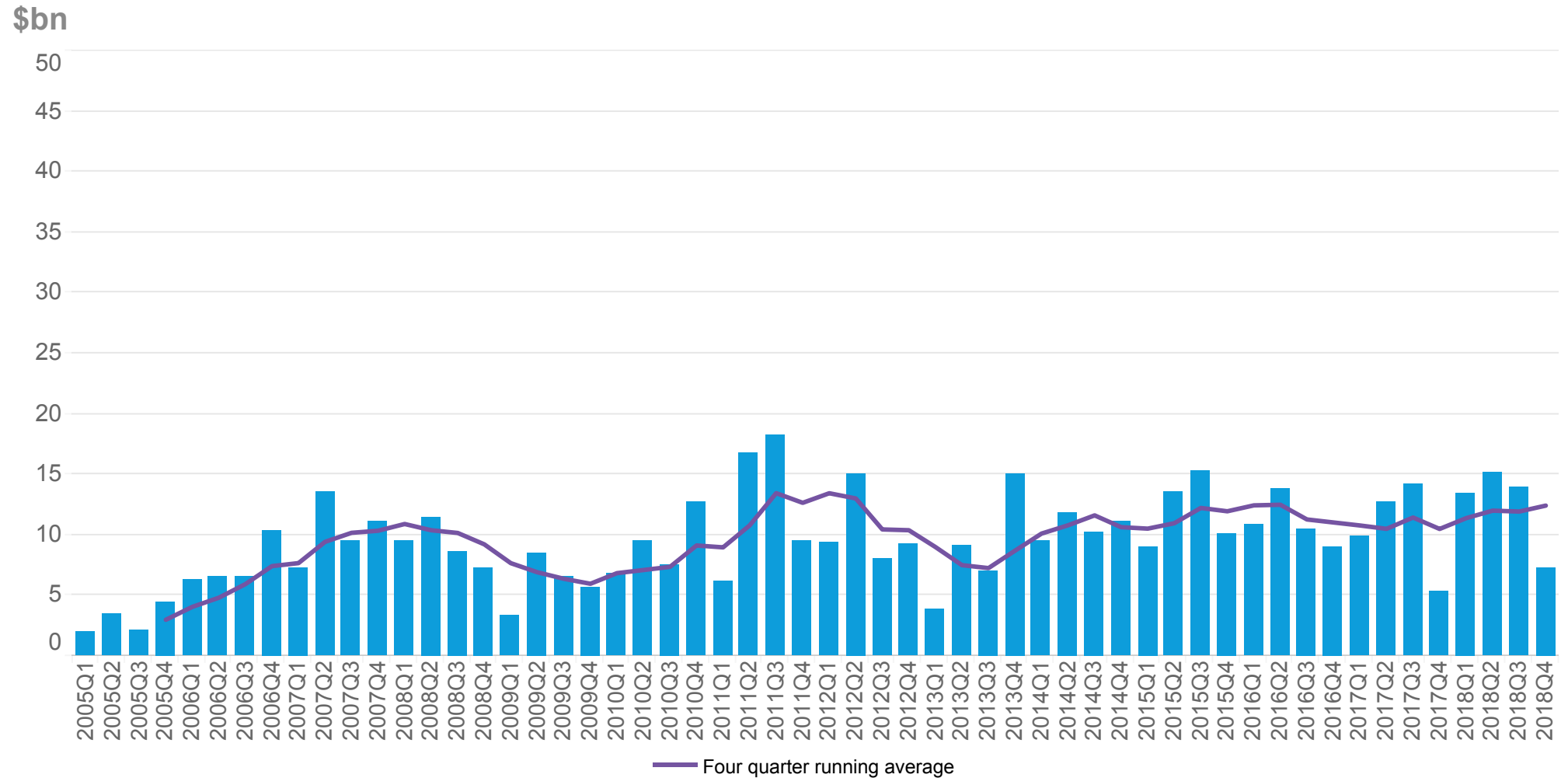
# Global New Investment in Clean Energy, APAC

1Q 2005 - 4Q 2018



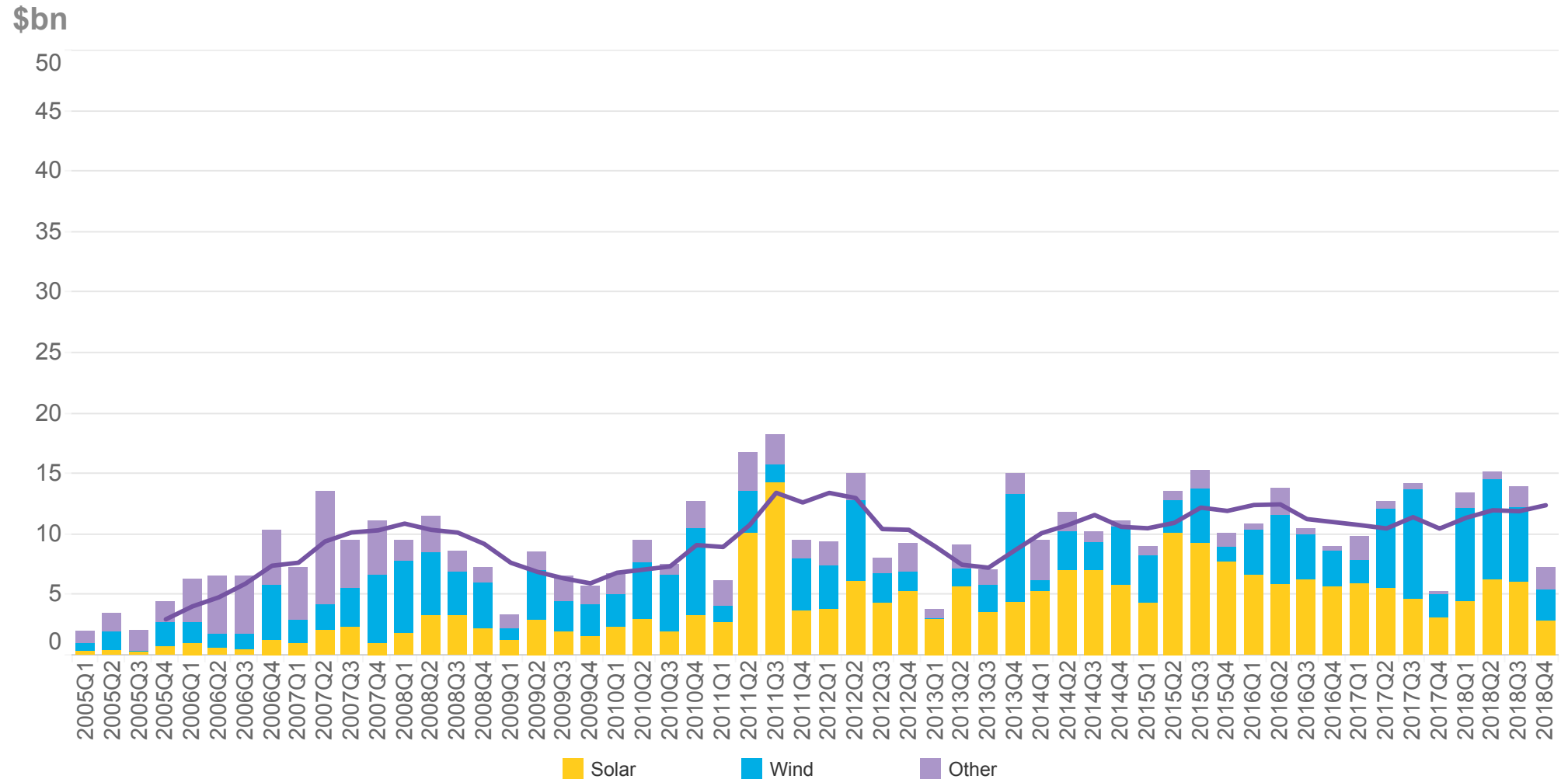
# New Investment in Clean Energy United States

1Q 2005 - 4Q 2018



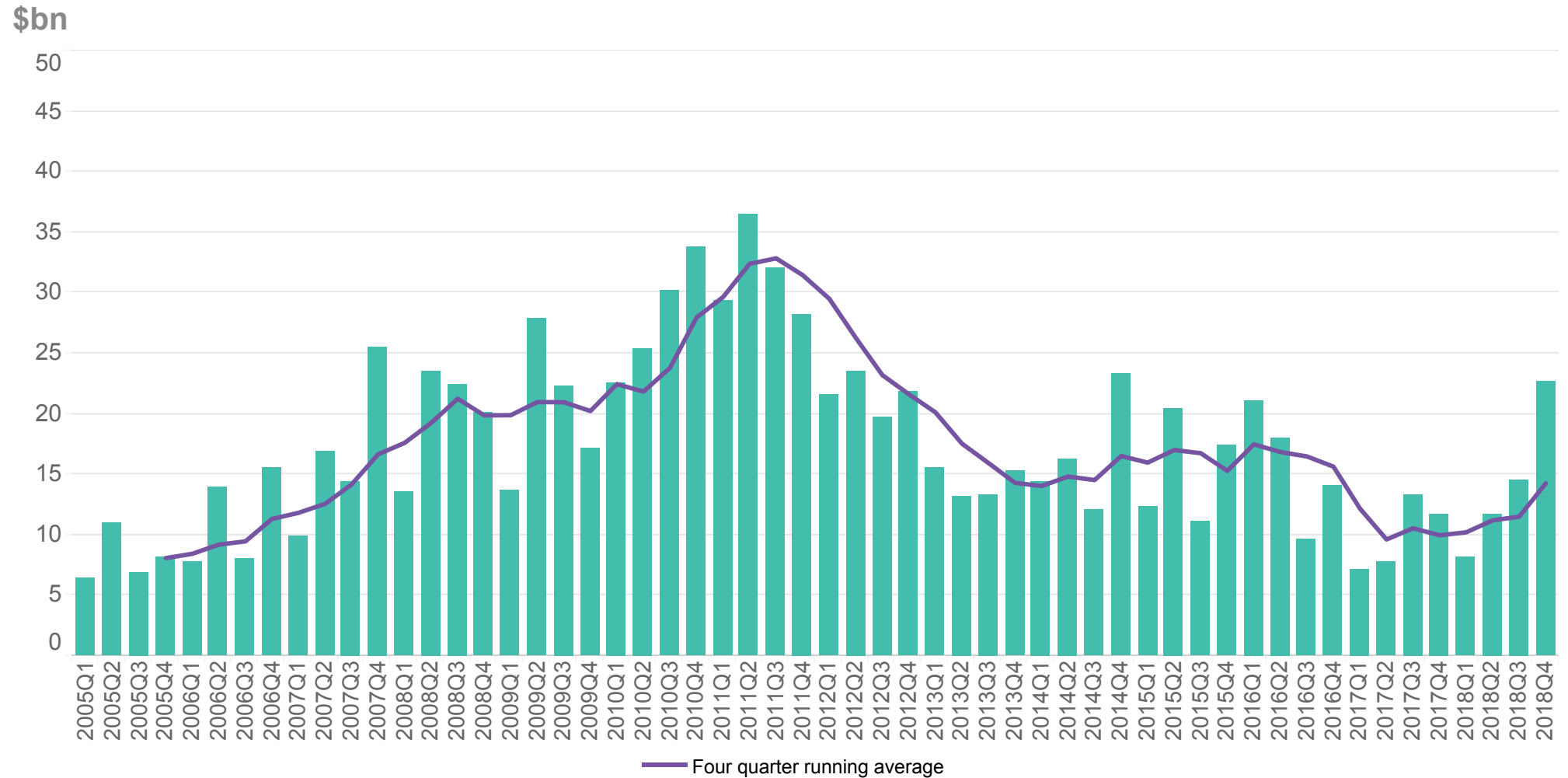
# New Investment in Clean Energy United States, by Sector

1Q 2005 - 4Q 2018



# New Investment in Clean Energy Europe

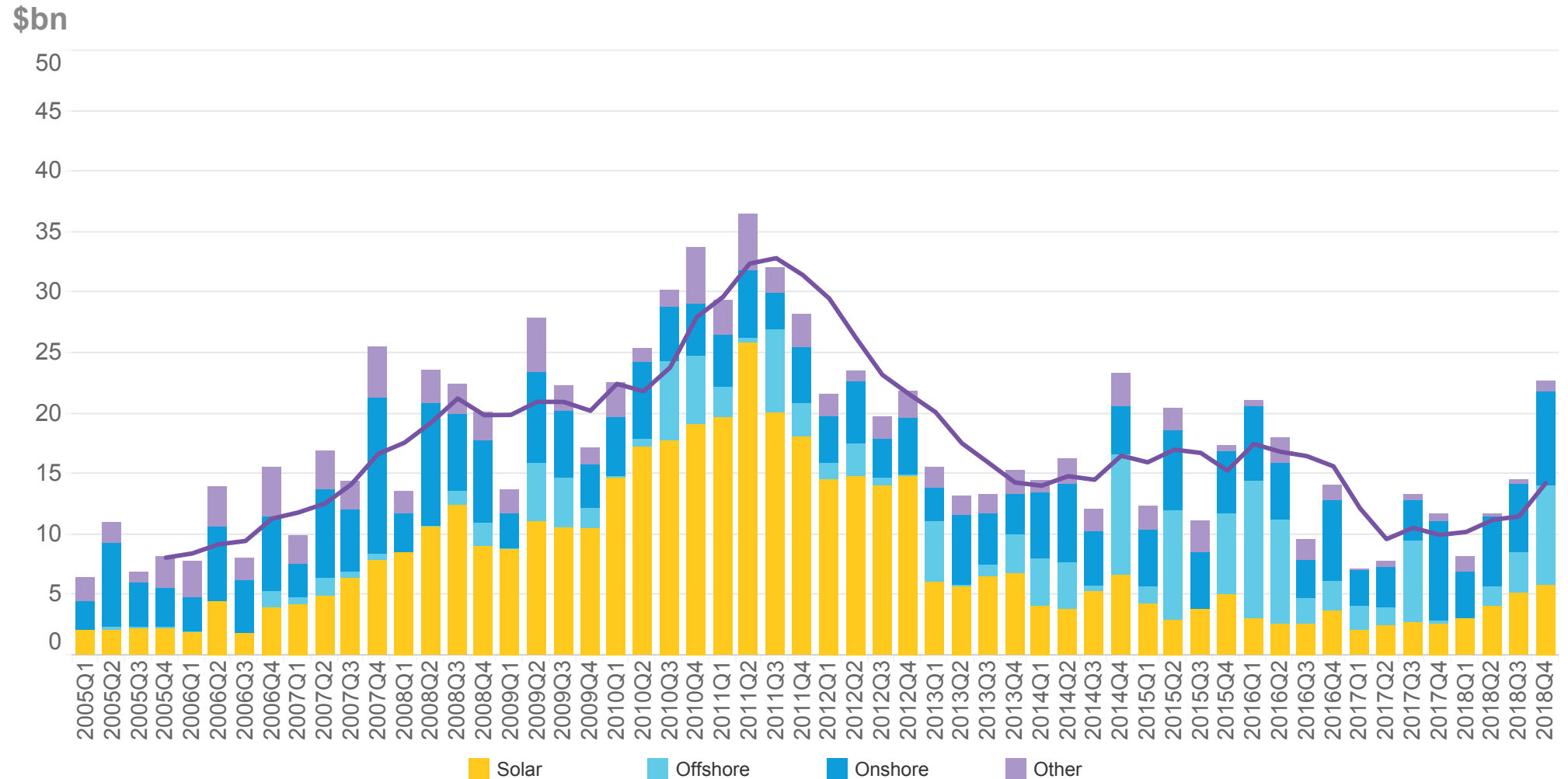
1Q 2005 - 4Q 2018





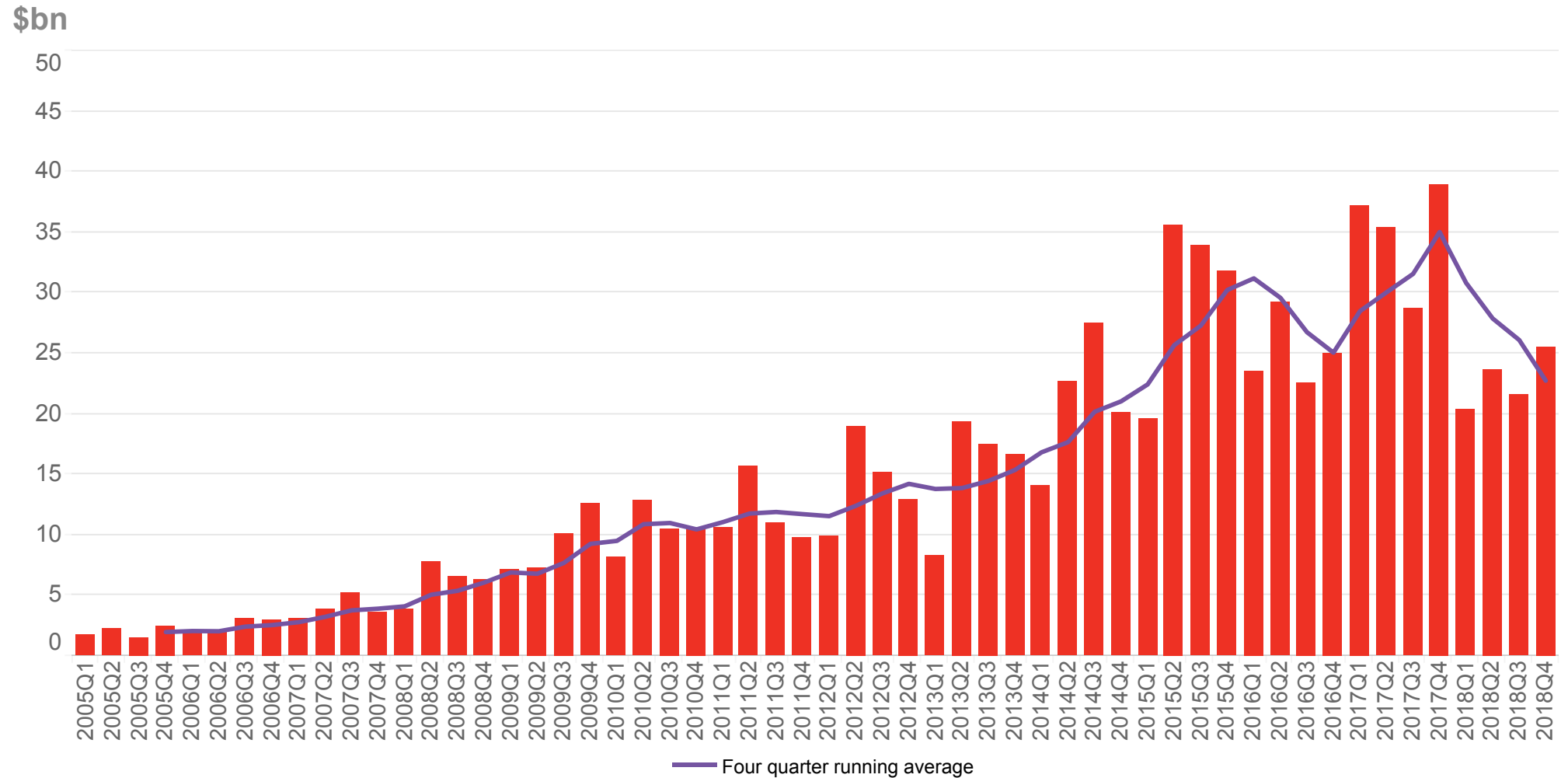
# New Investment in Clean Energy Europe, by Sector

1Q 2005 - 4Q 2018



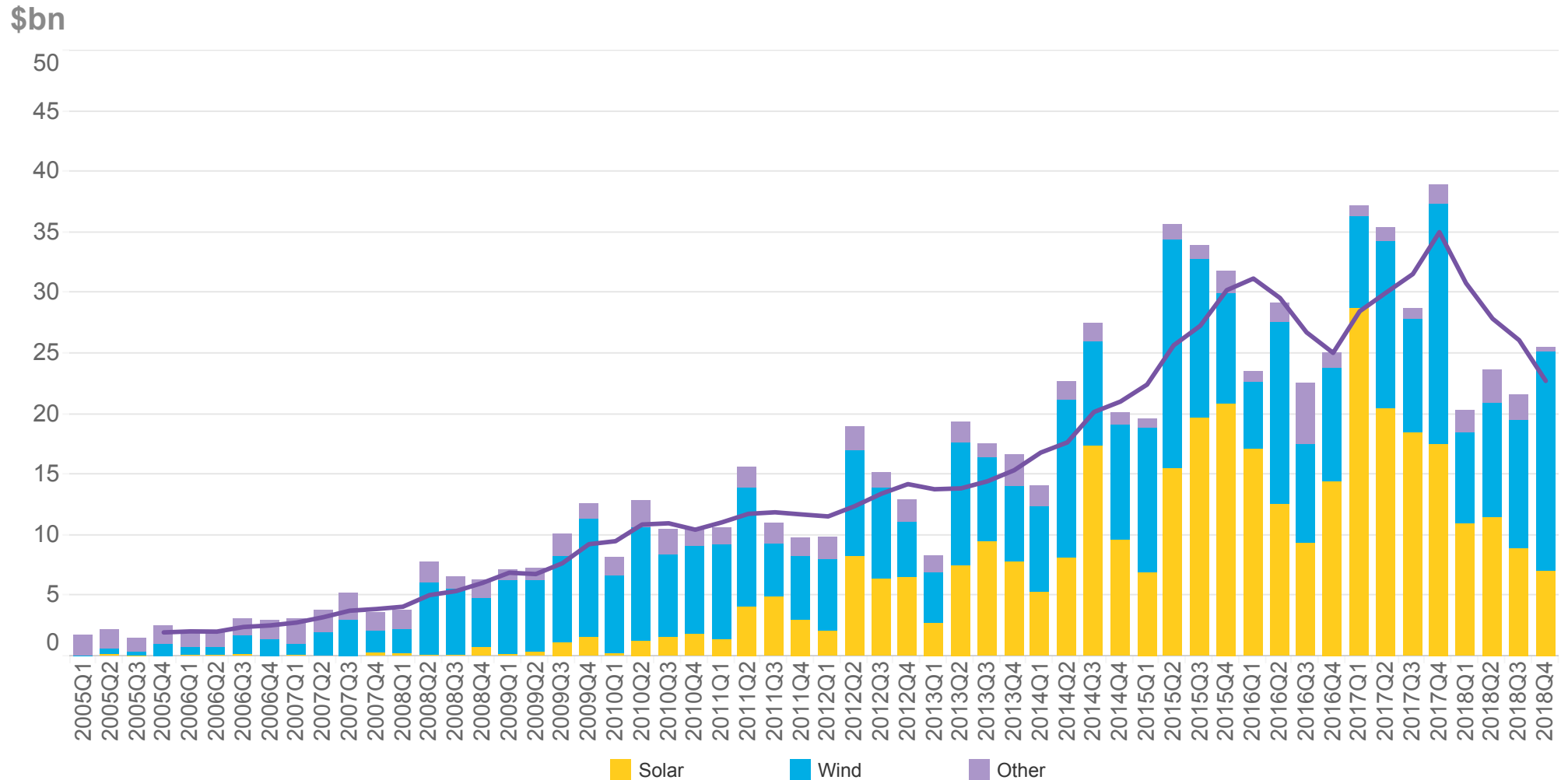
# New Investment in Clean Energy China

1Q 2005 - 4Q 2018



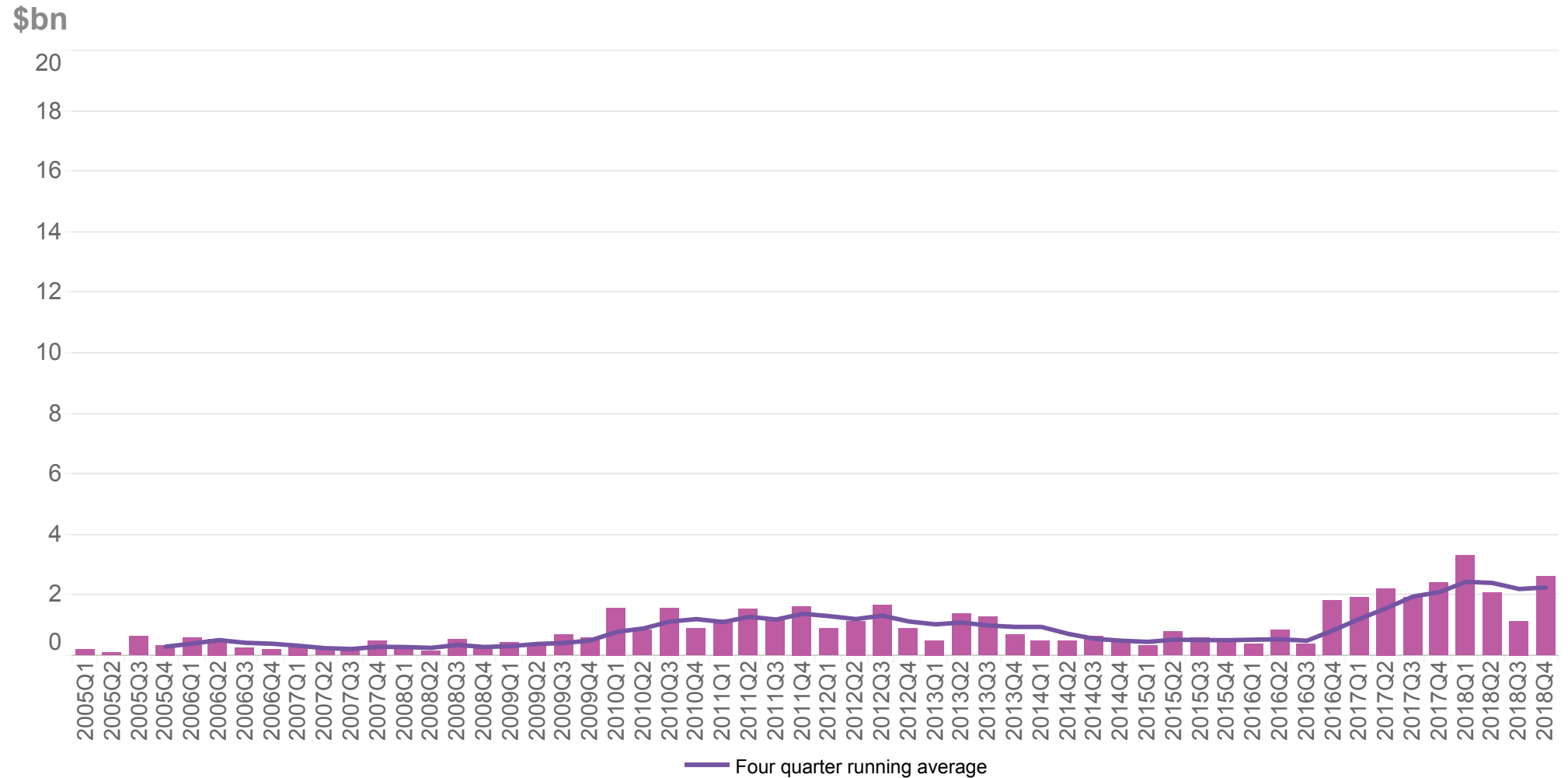
# New Investment in Clean Energy China, by Sector

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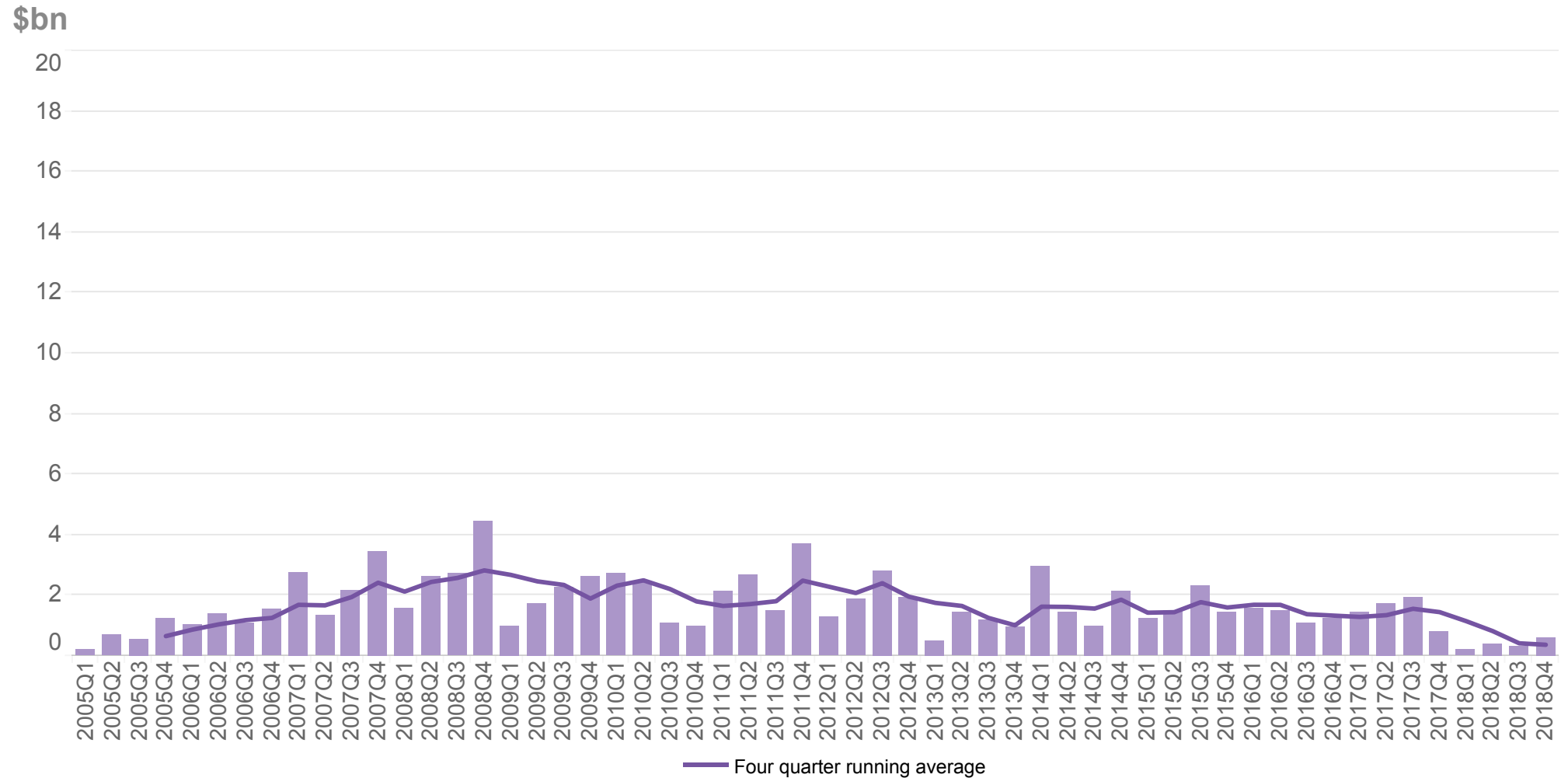
# New Investment in Clean Energy Australia

1Q 2005 - 4Q 2018



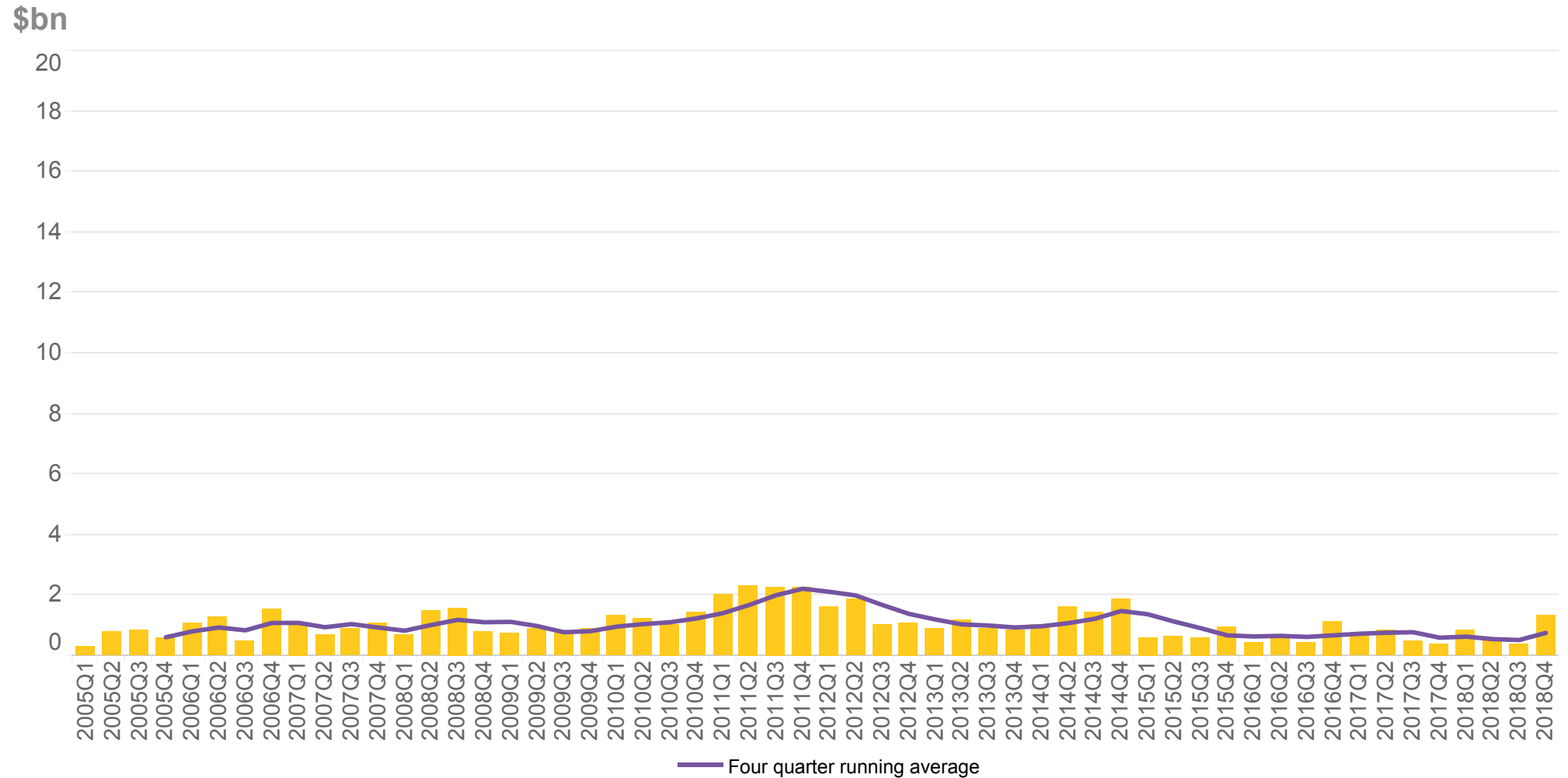
# New Investment in Clean Energy Brazil

1Q 2005 - 4Q 2018



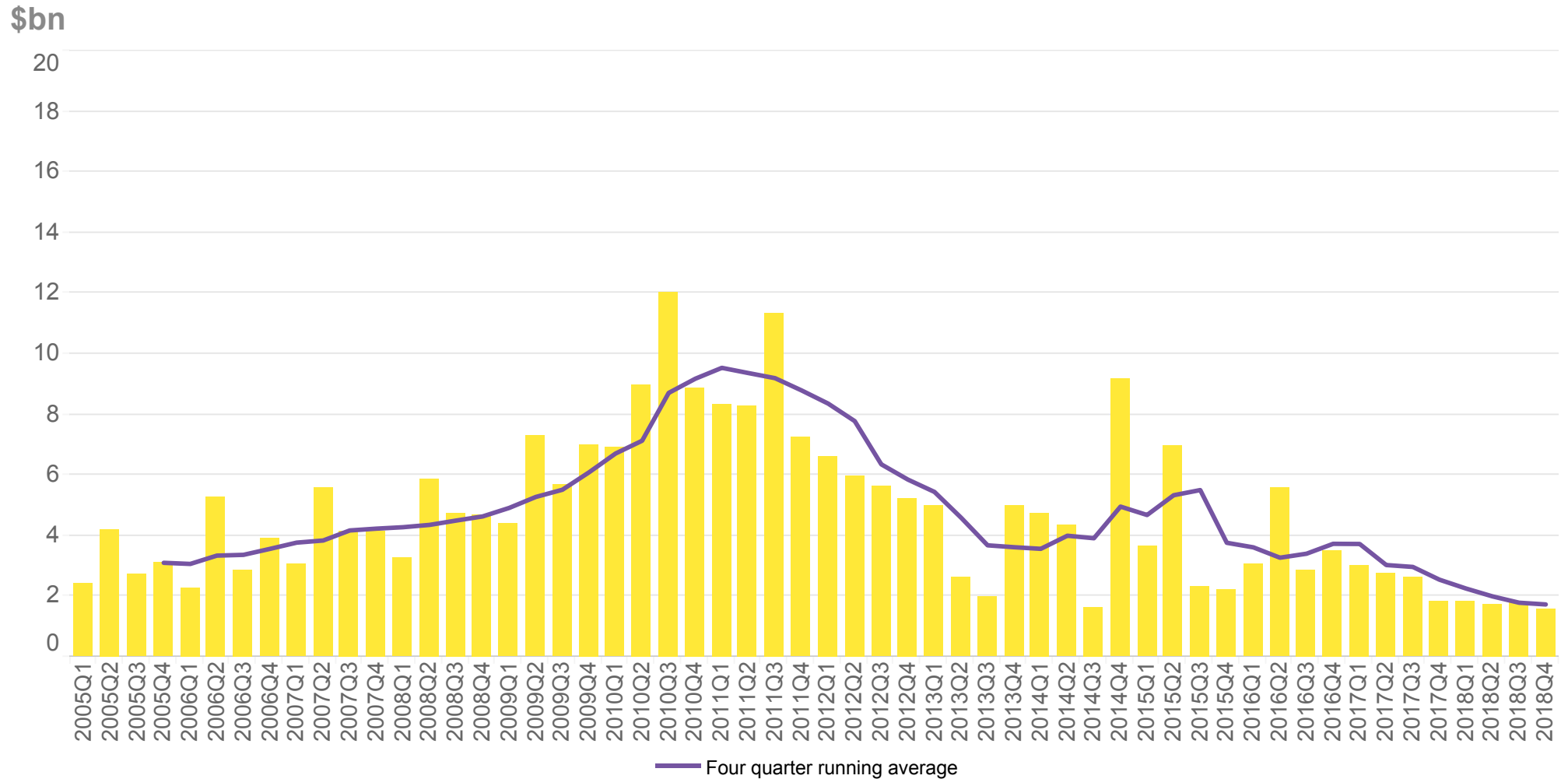
# New Investment in Clean Energy France

1Q 2005 - 4Q 2018



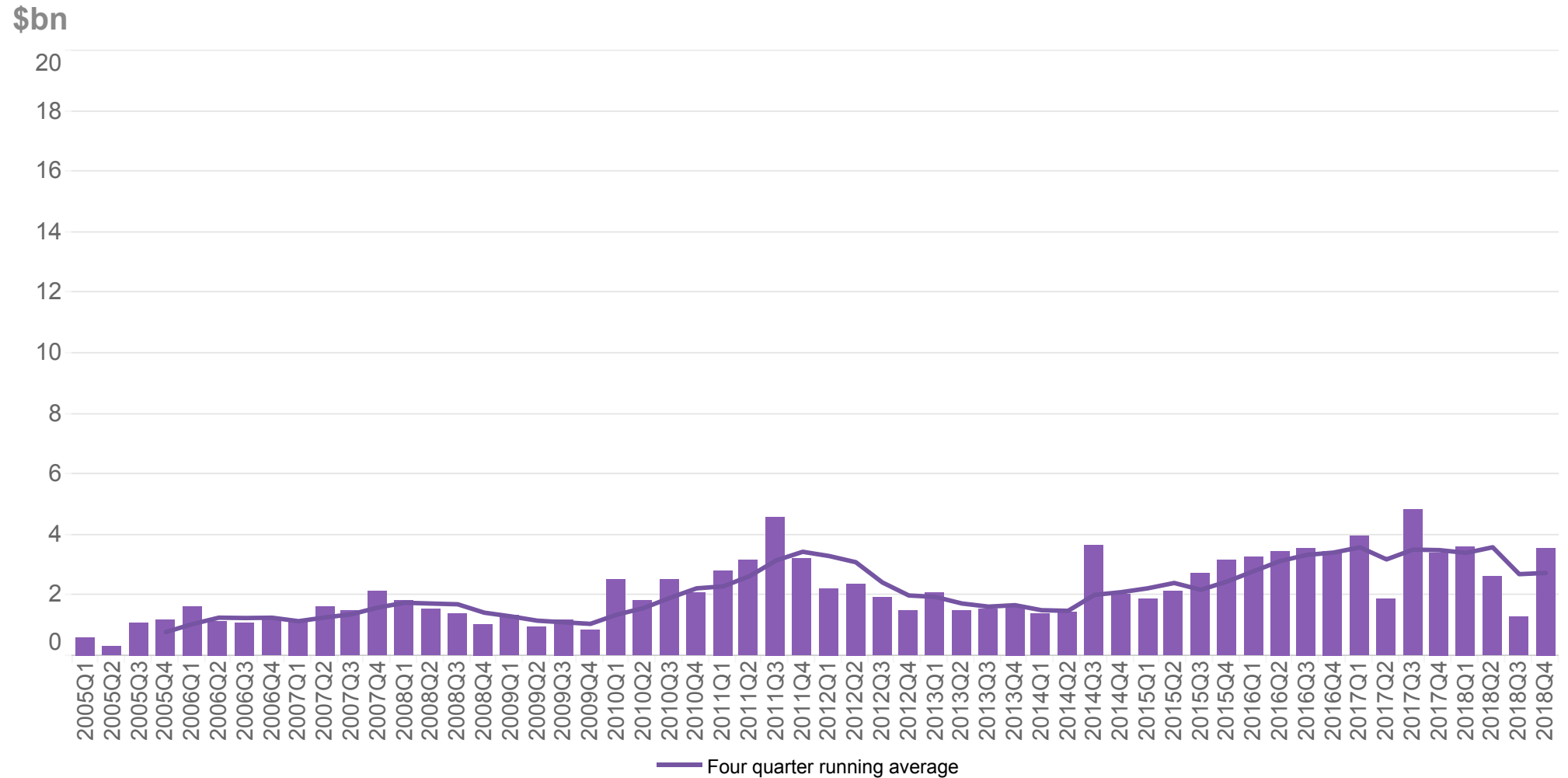
# New Investment in Clean Energy Germany

1Q 2005 - 4Q 2018



# New Investment in Clean Energy India

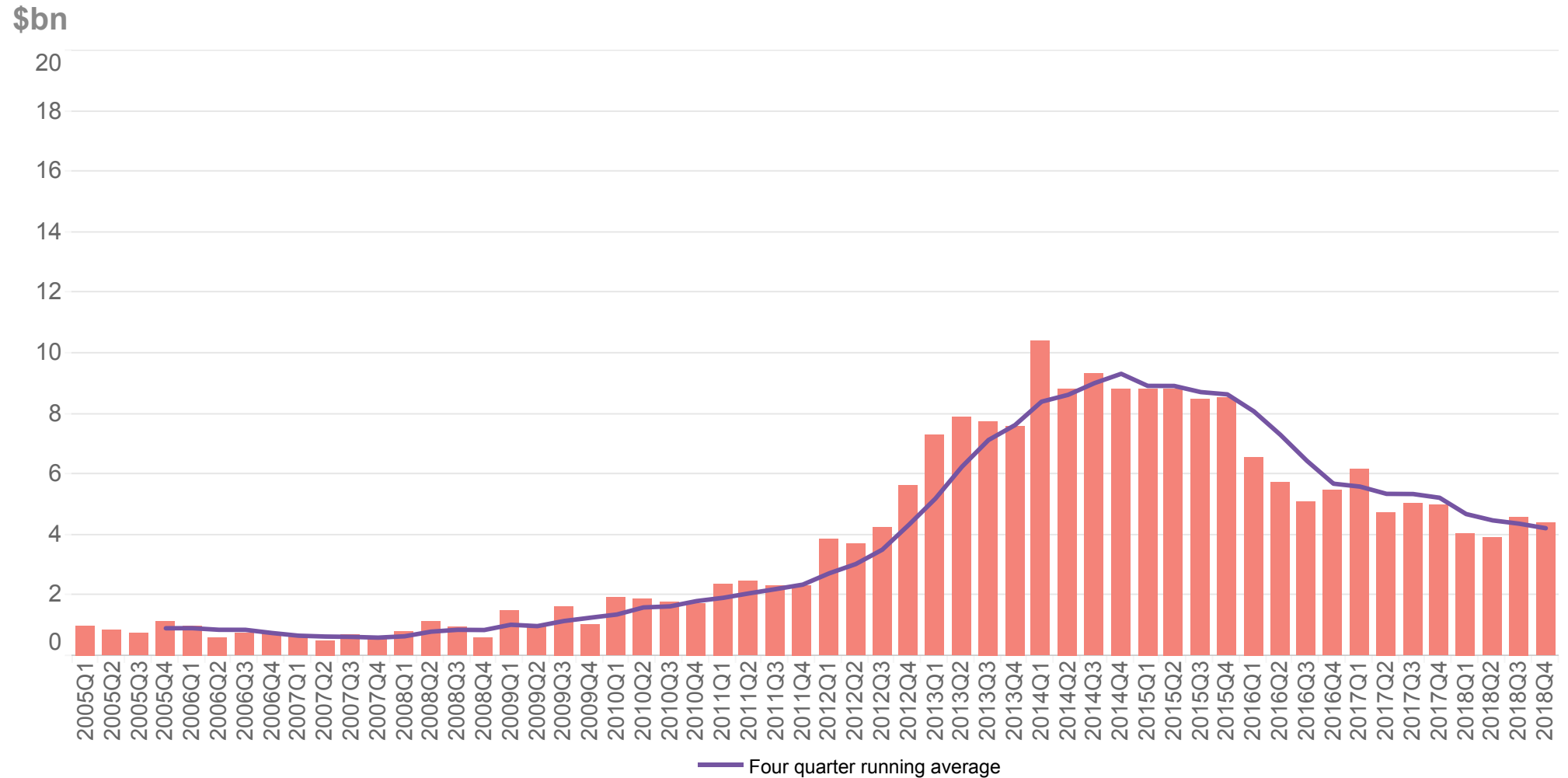
1Q 2005 - 4Q 2018





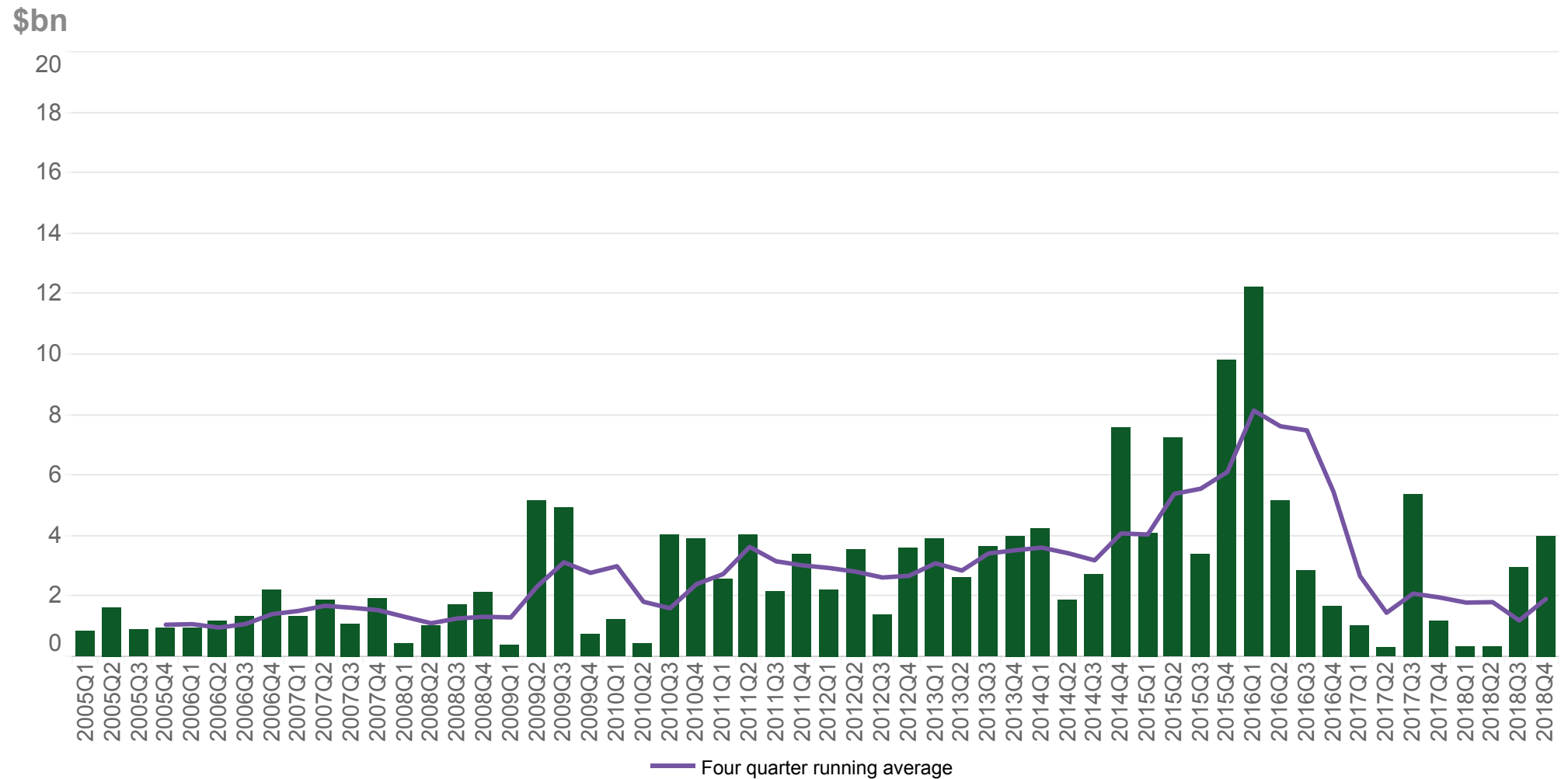
# New Investment in Clean Energy Japan

1Q 2005 - 4Q 2018



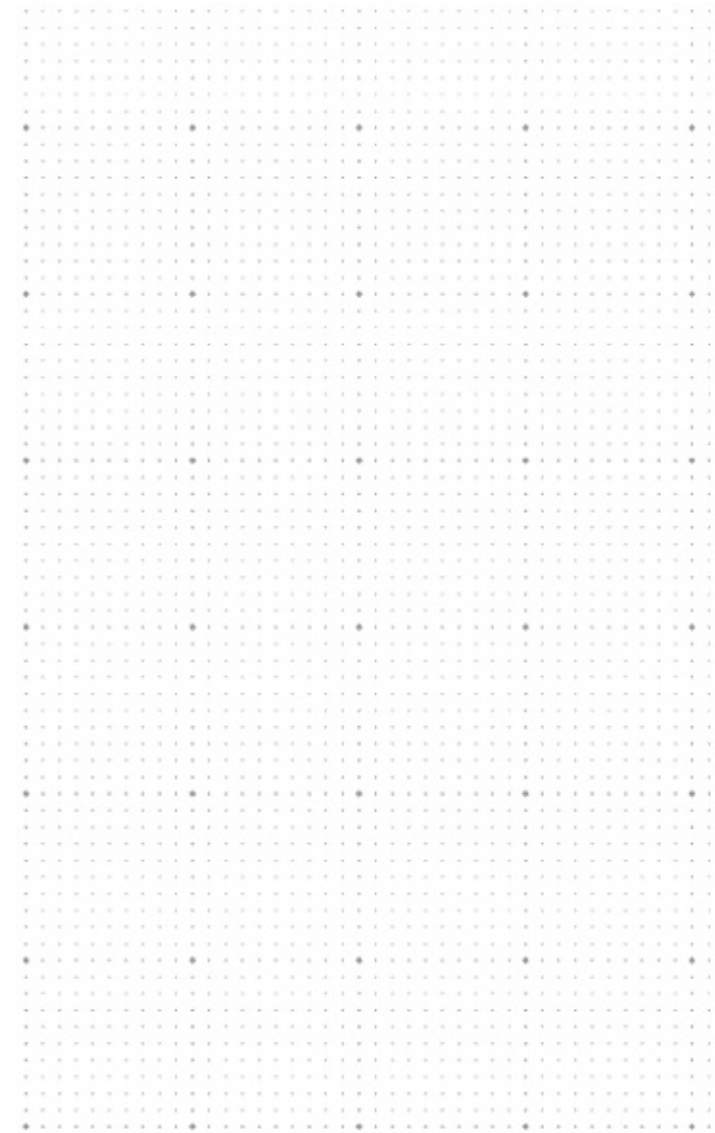
# New Investment in Clean Energy United Kingdom

1Q 2005 - 4Q 2018



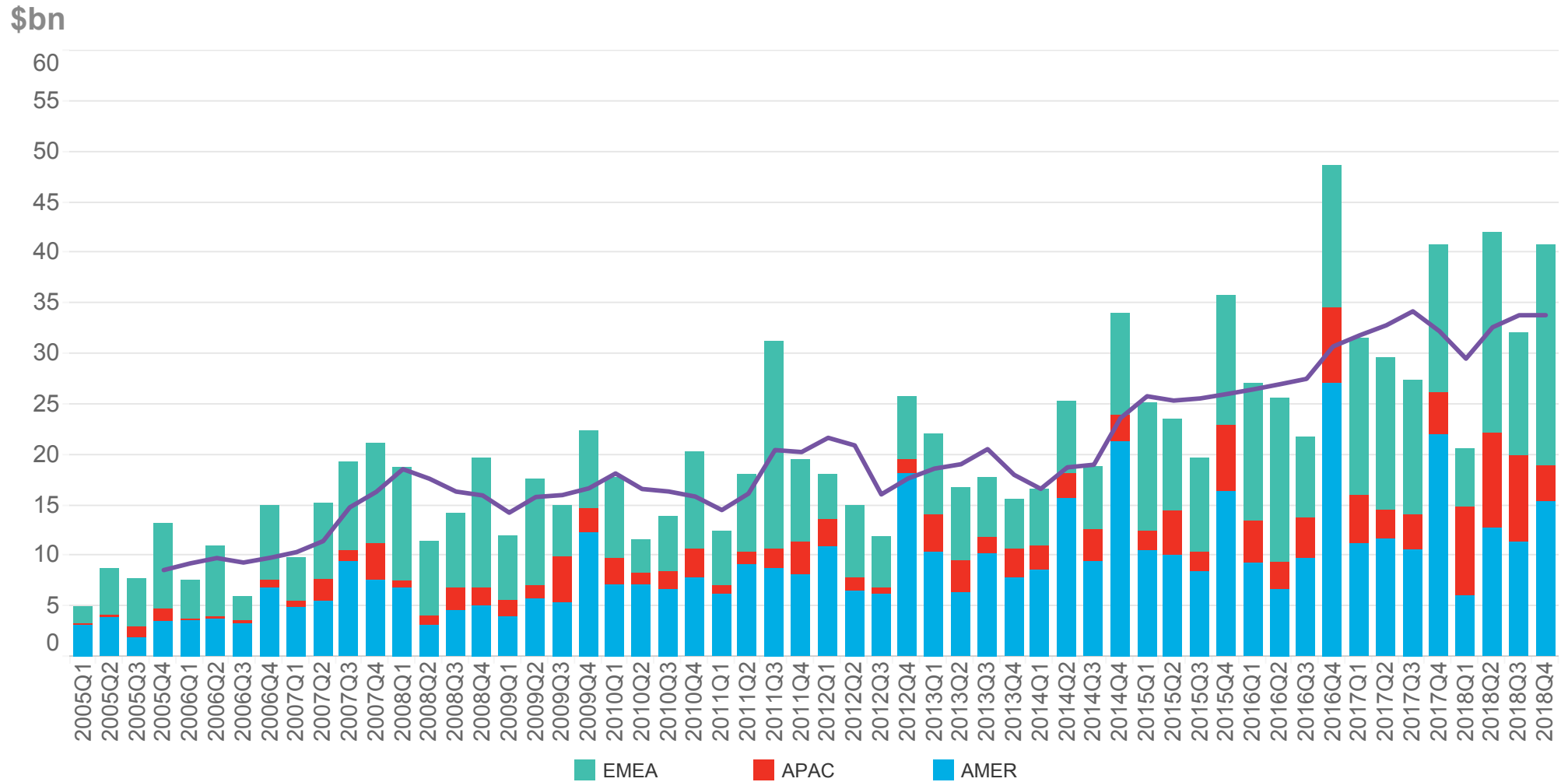
# Quarterly Trends, Funds in Circulation

Quarterly trends since 1Q 2005



# Global Clean Energy, Funds in Circulation, by Region

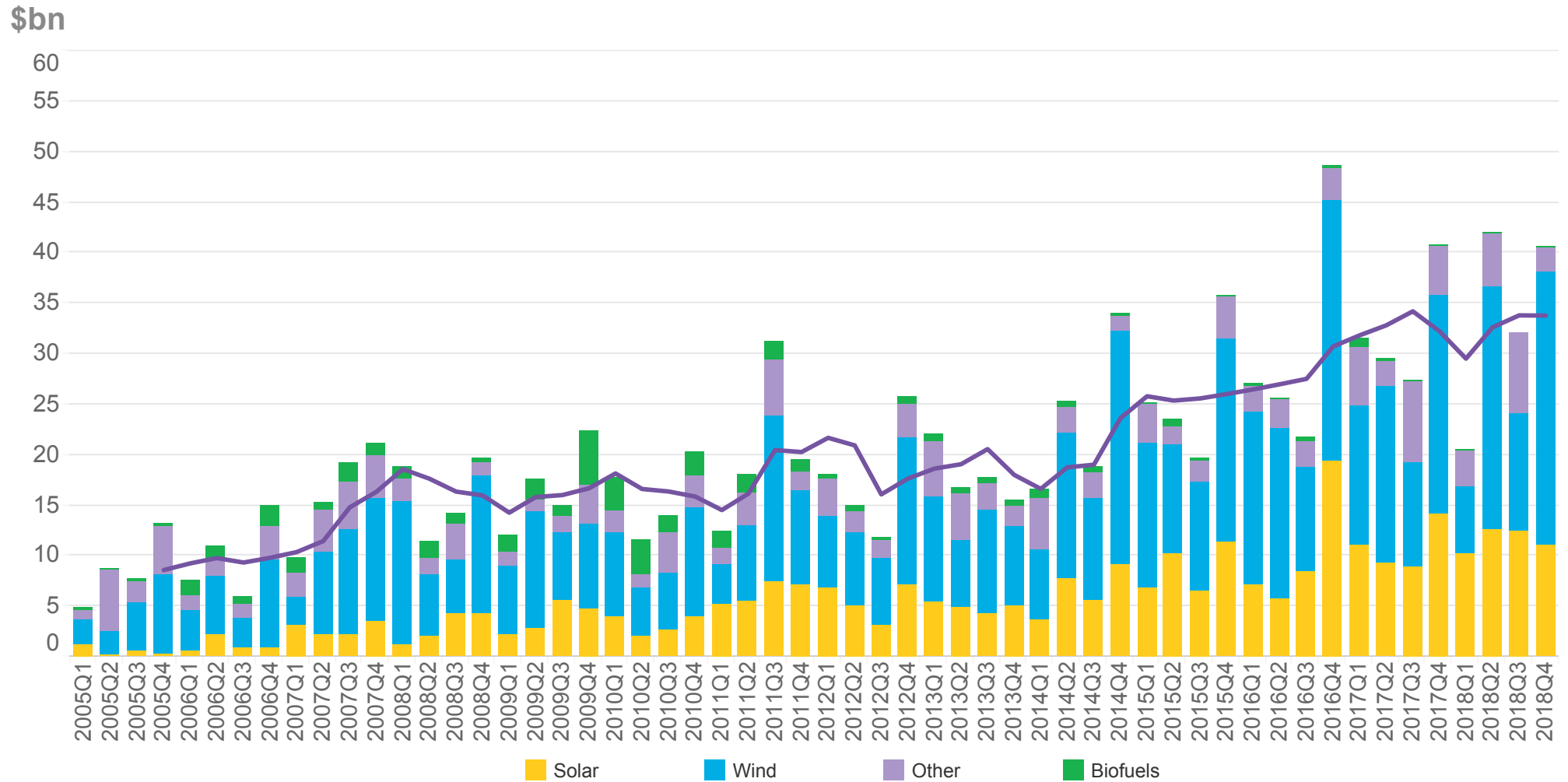
1Q 2005 - 4Q 2018



Quarterly Trends, Funds in Circulation

# Global Clean Energy, Funds in Circulation, by Sector

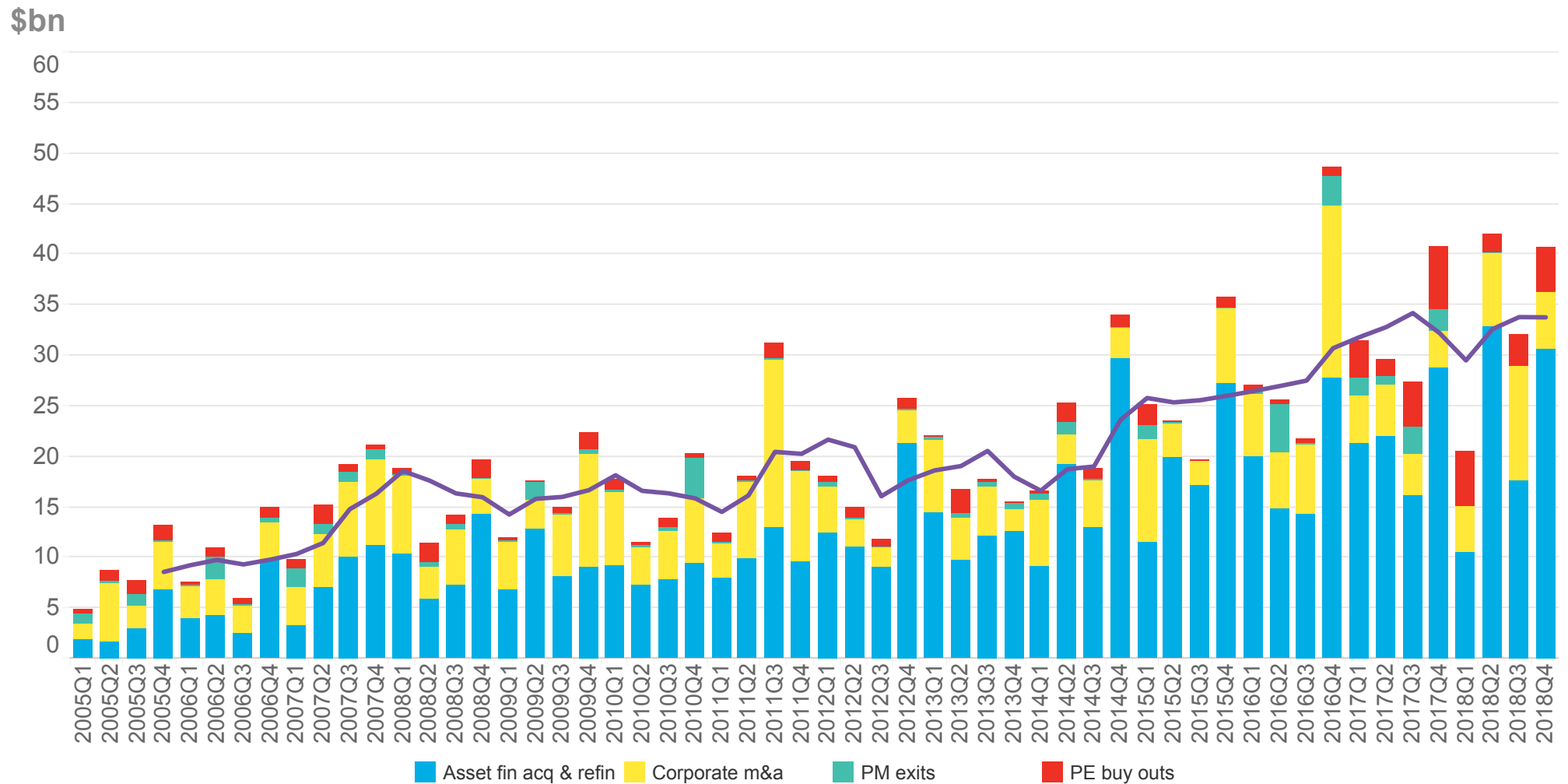
1Q 2005 - 4Q 2018



Quarterly Trends, Funds in Circulation

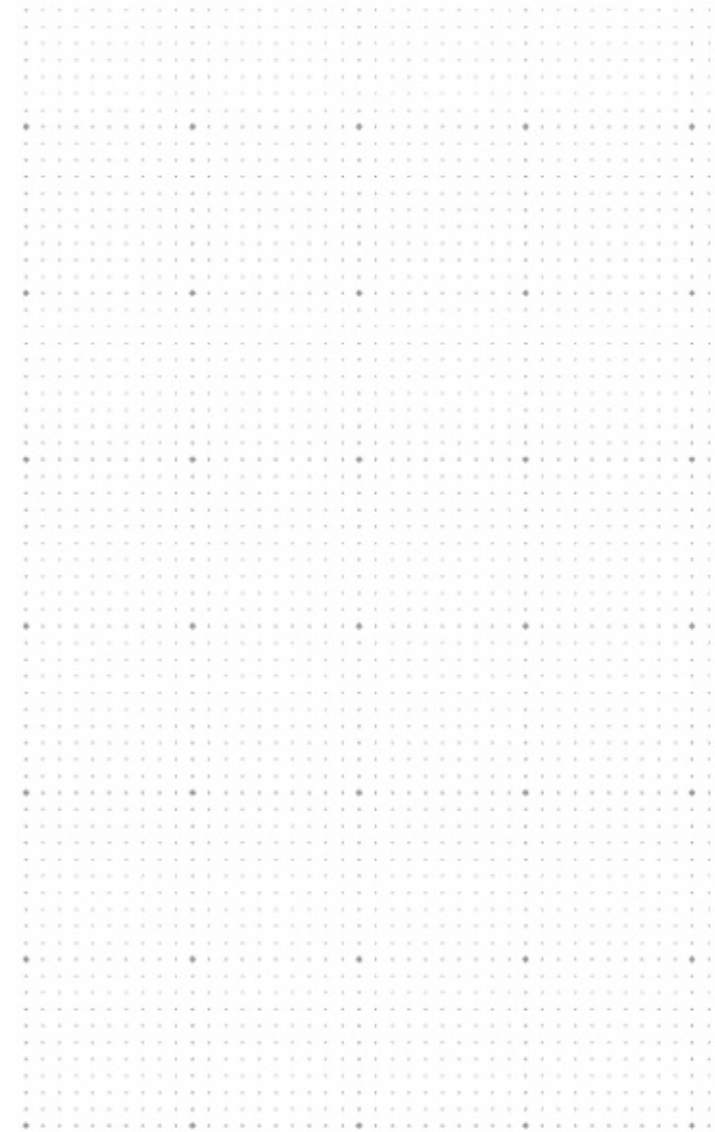
# Global Clean Energy, Funds in Circulation, by Asset Class

1Q 2005 - 4Q 2018



# Top Deals

## Top Deals for 2018



# Top Asset Finance Deals

2018

Project Name	Country	Sector	Type of Transaction	Capacity	Value
Moray Firth Offshore Wind Farm	United Kingdom	Wind	Debt	950MW	\$3,335
Triton Knoll Offshore Wind Farm	United Kingdom	Wind	Debt	860MW	\$2,592
NOORm Midelt Solar Portfolio	Morocco	Solar	Debt	800MW	\$2,411
Borssele III & IV Offshore Wind Farm	Netherlands	Wind	Equity	731MW	\$1,504
Guangdong Baolihua New Energy Shanwei Lufeng Houhu Offshore Wind Farm	China	Wind	Equity	500MW	\$1,479



# Top Venture Capital & Private Equity Deals

2018

Project Name	Country	Sector	Type of Transaction	Value
View Inc	United States	Energy smart technologies	PE Expansion	\$1,100
Youxia Motors	China	Energy smart technologies	VC Early Stage	\$795
Guangzhou Xiaopeng Motors Technology	China	Energy smart technologies	VC Late Stage	\$585
Future Mobility Corp	China	Energy smart technologies	VC Early Stage	\$500
Beijing CHJ Information Technology Co Ltd	China	Energy smart technologies	VC Early Stage	\$475

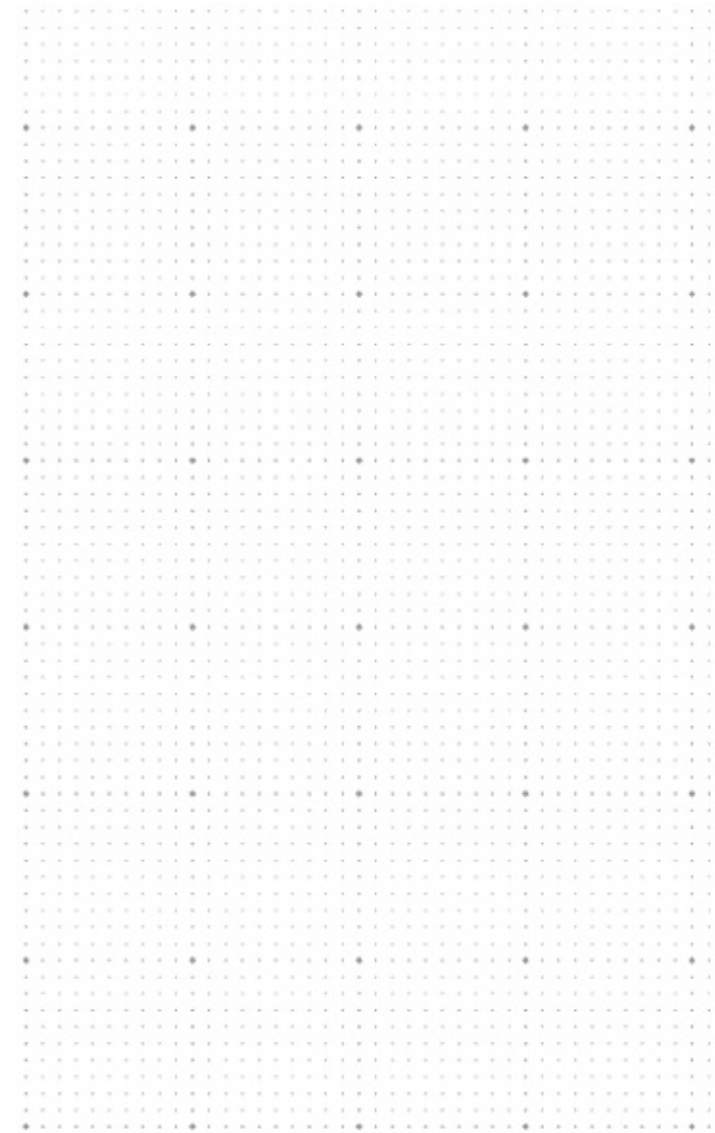
# Top Public Market Deals

2018

Project Name	Stock Exchange	Sector	Type of Transaction	Equity Raised
China Everbright International	Hong Kong Stock Exchange	Biomass & Waste	Exercise of Rights	\$1,269
NIO	New York Stock Exchange	Energy smart technologies	IPO	\$1,152
Contemporary Amperex Technology Co Ltd	Shenzen Stock Exchange	Energy smart technologies	IPO	\$853
Neoen SA	Euronext Paris	Solar	IPO	\$808
TerraForm Power Inc	NASDAQ Stock Exchange	Solar	Private Investment in Public Equity (PIPE)	\$650

# Annual Trends, New Investment

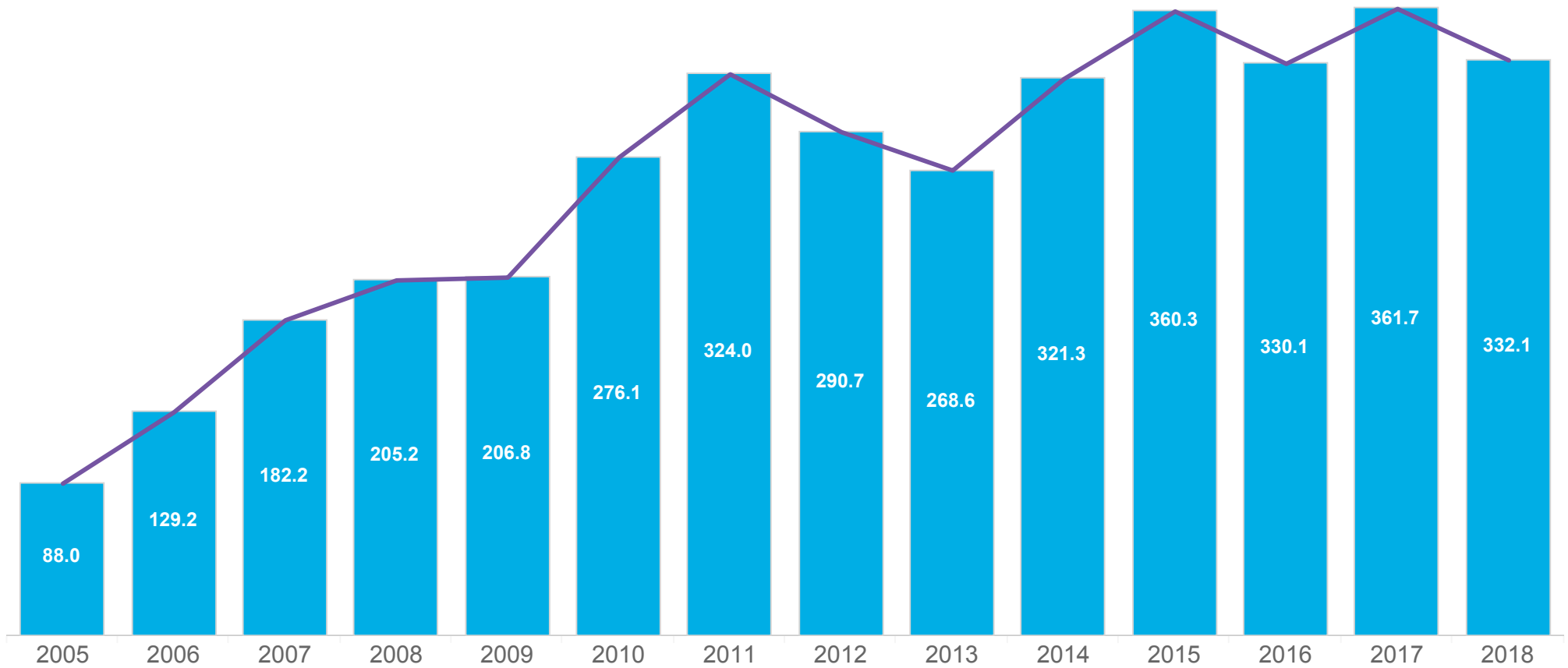
Annual trends since 2005



# Global New Investment in Clean Energy

2005 - 2018

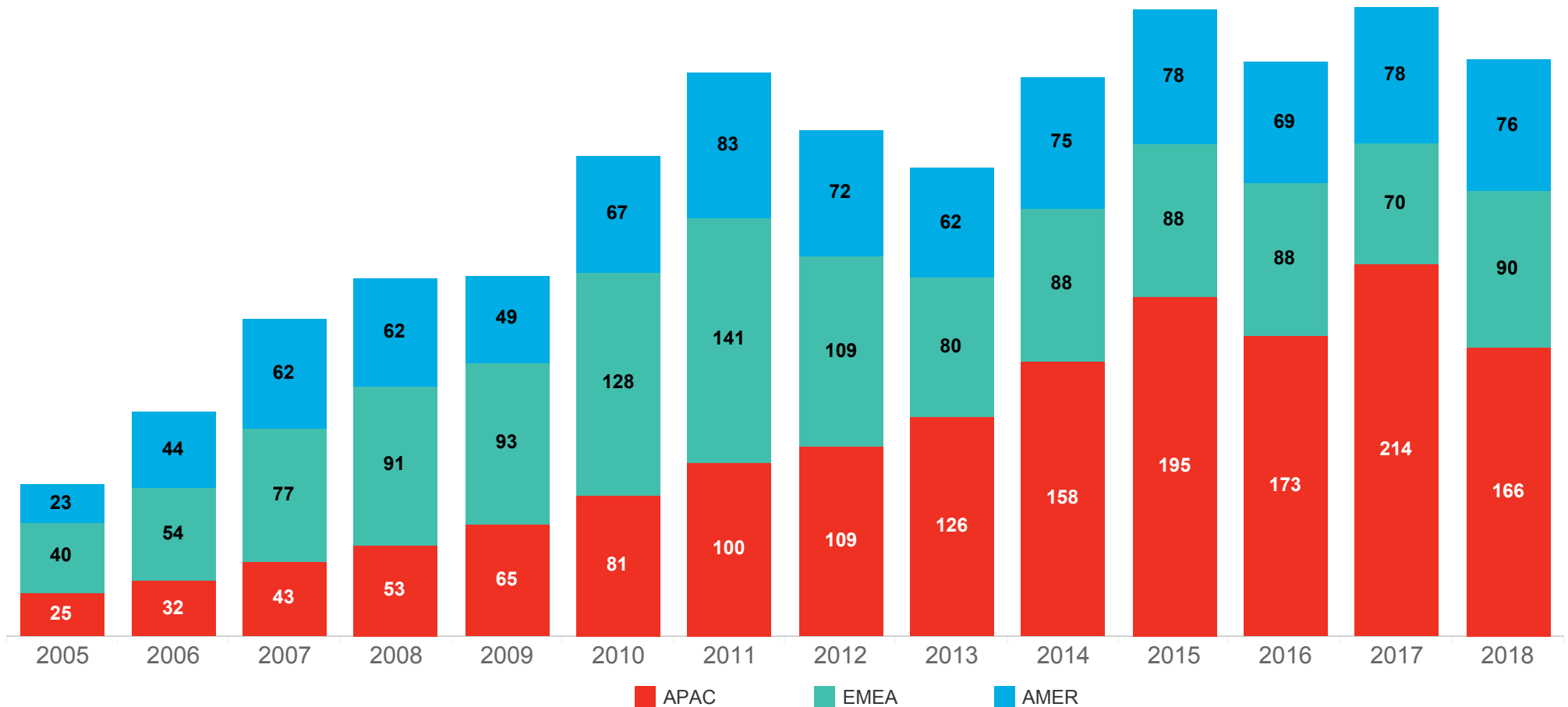
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# Global New Investment in Clean Energy, by Region

2005 - 2018

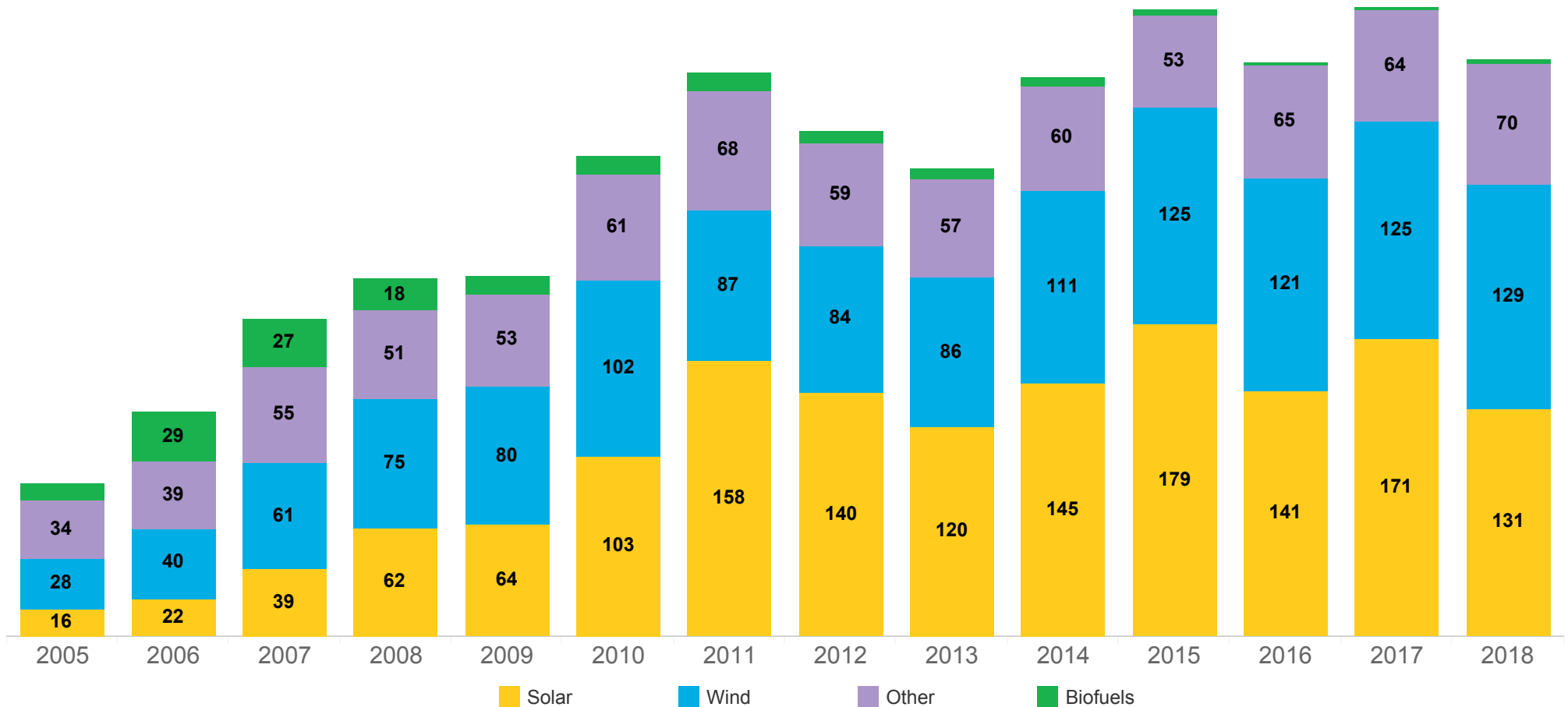
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# Global New Investment in Clean Energy, by Sector

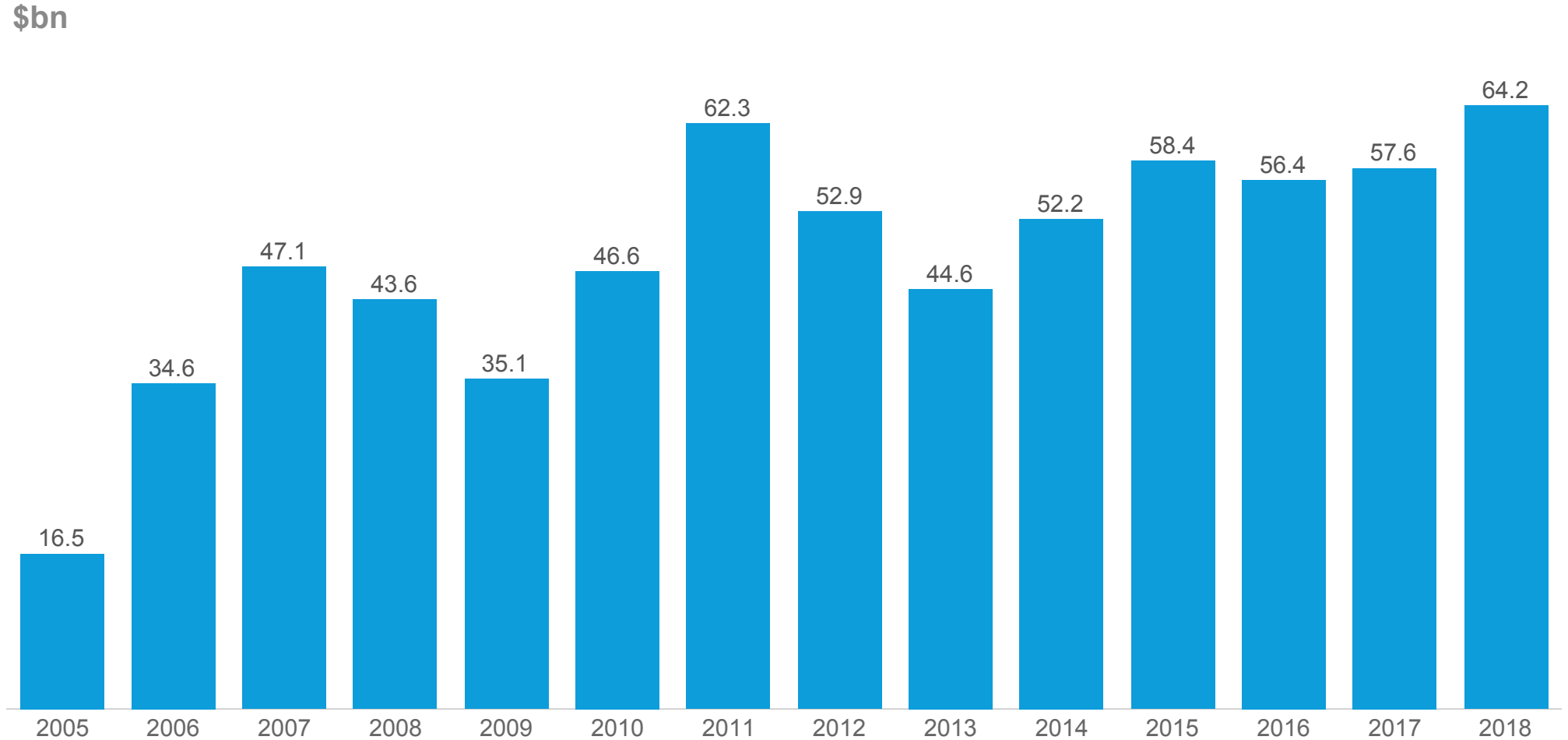
2005 - 2018

\$bn



# New Investment in Clean Energy United States

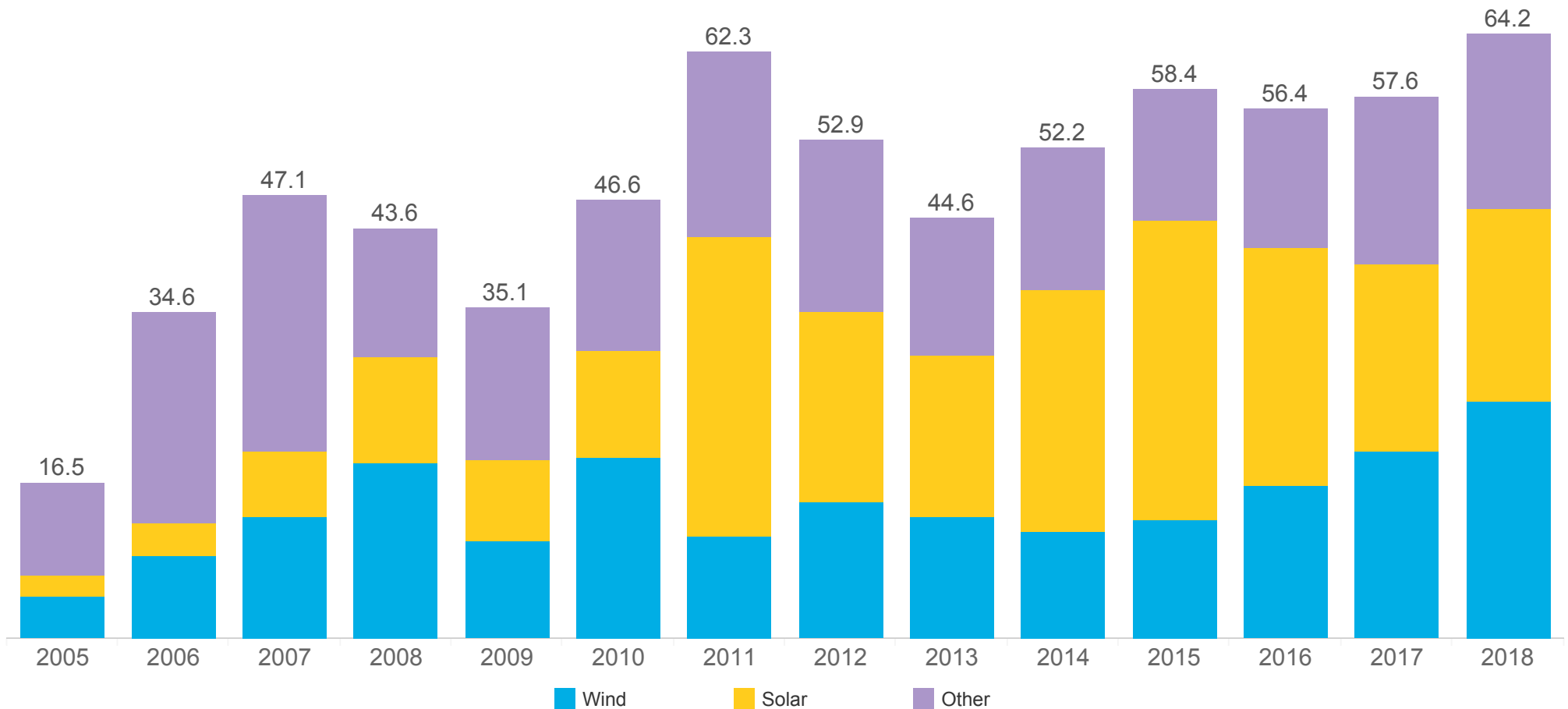
2005 - 2018



# New Investment in Clean Energy United States, by Sector

2005 - 2018

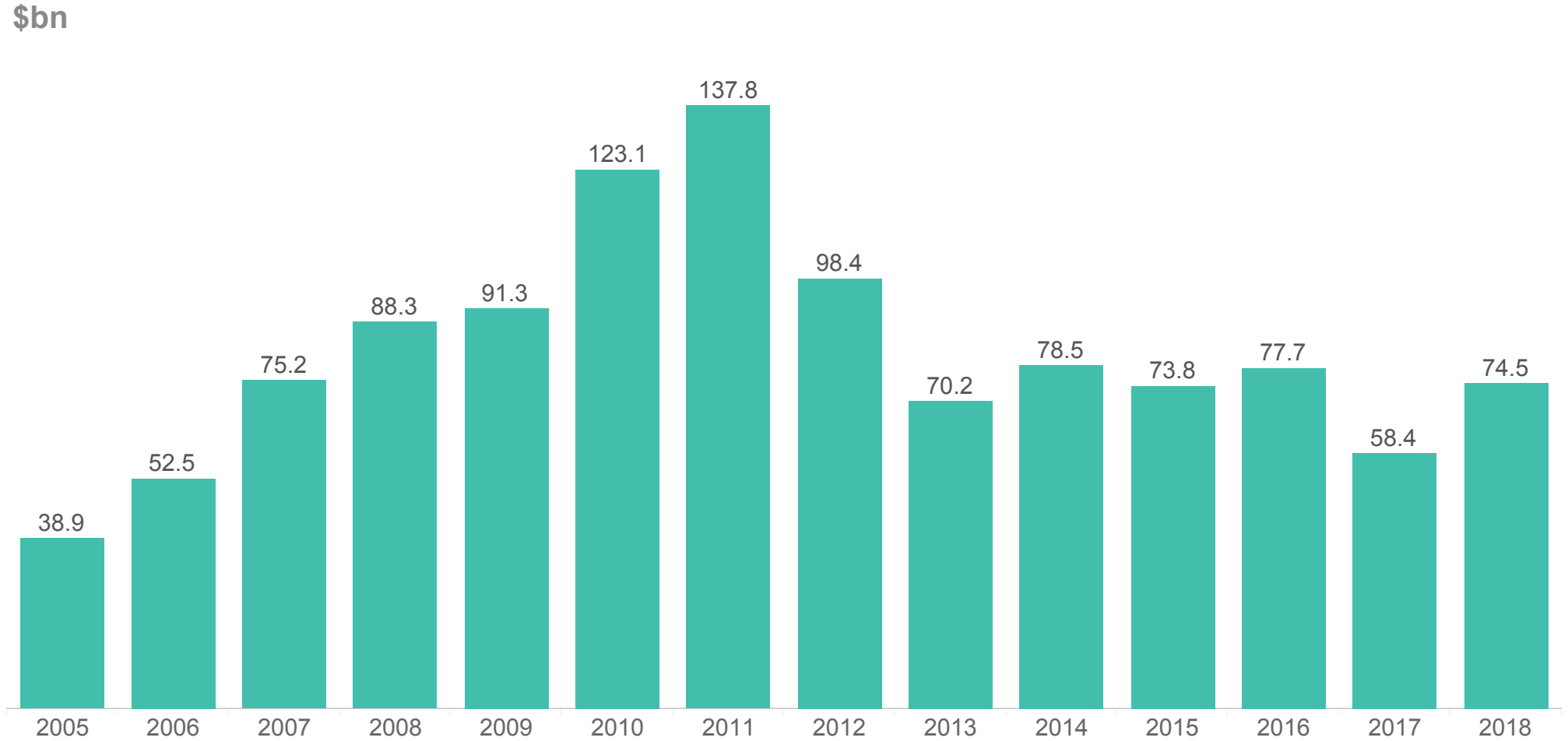
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# New Investment in Clean Energy Europe

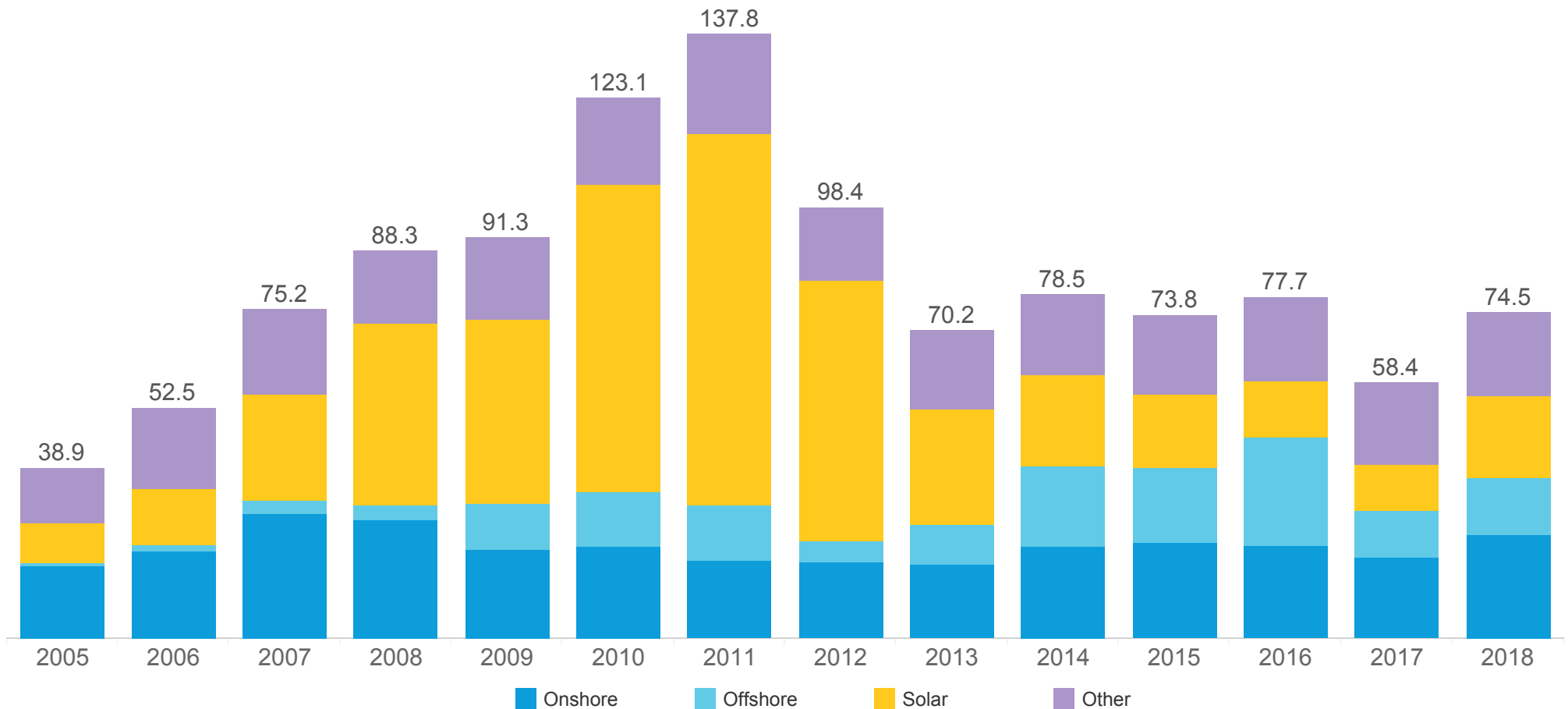
2005 - 2018



# New Investment in Clean Energy Europe, by Sector

2005 - 2018

\$bn

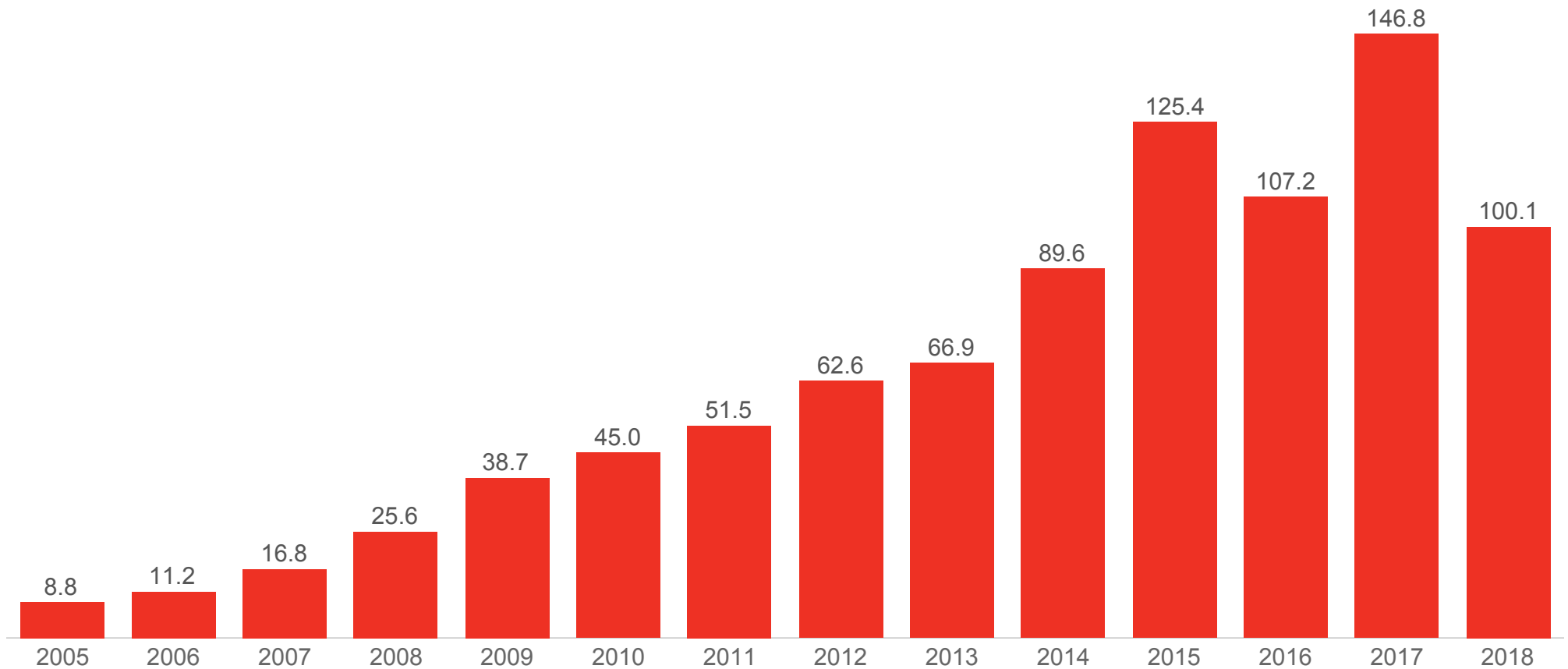


Annual Trends, New Investment

# New Investment in Clean Energy China

2005 - 2018

\$bn

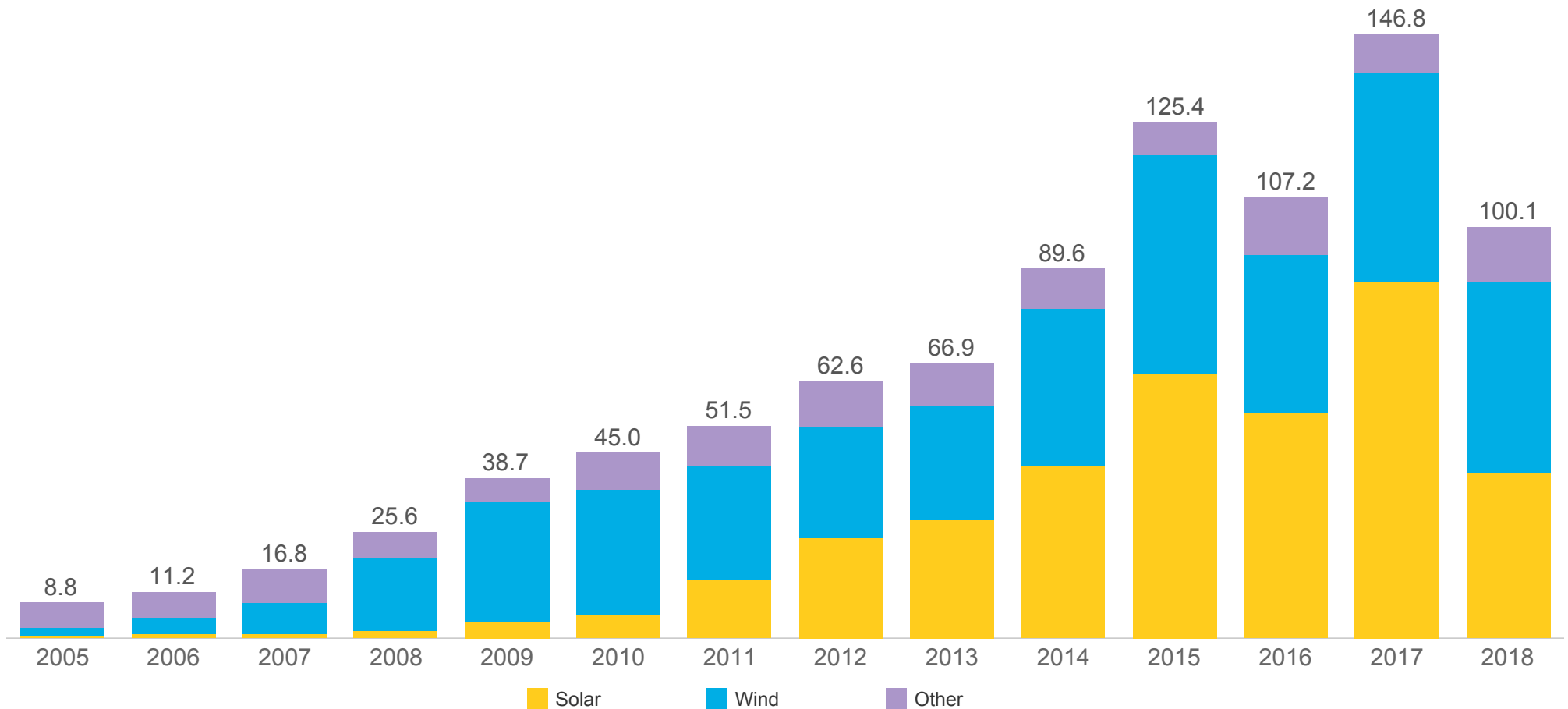


Annual Trends, New Investment

# New Investment in Clean Energy China, by Sector

2005 - 2018

\$bn



# Definitions and FAQs

How Bloomberg NEF defines clean energy

# 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.

# FAQs



## 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



# Download the underlying data and create your own charts

Bloomberg NEF clients can navigate to the web platform (BNEF.com) or run BNEF <GO> in a terminal window to download the relevant data that supplies this publication. Customizable charts and data sets are available for further insight relating to clean energy investment.



Clean energy investment was \$76.7 billion in the second quarter of 2018, up 8% year-on-year, the increase driven by stronger activity in the U.S. and, to some extent, Europe.

Angus McCrone  
Chief Editor

Jonathan Gardiner  
Analyst, Clean Energy Finance

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Clean Energy Investment 2004-18 (\$bn)



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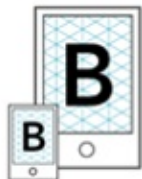
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