




October 2015

# GLOBAL TRENDS IN CLEAN ENERGY INVESTMENT

Luke Mills

**Bloomberg**  
NEW ENERGY FINANCE

1. Annual clean energy investment overview
2. Quarterly trends in clean energy: new investment
3. Quarterly trends in clean energy: funds in circulation
4. Clean energy indexes

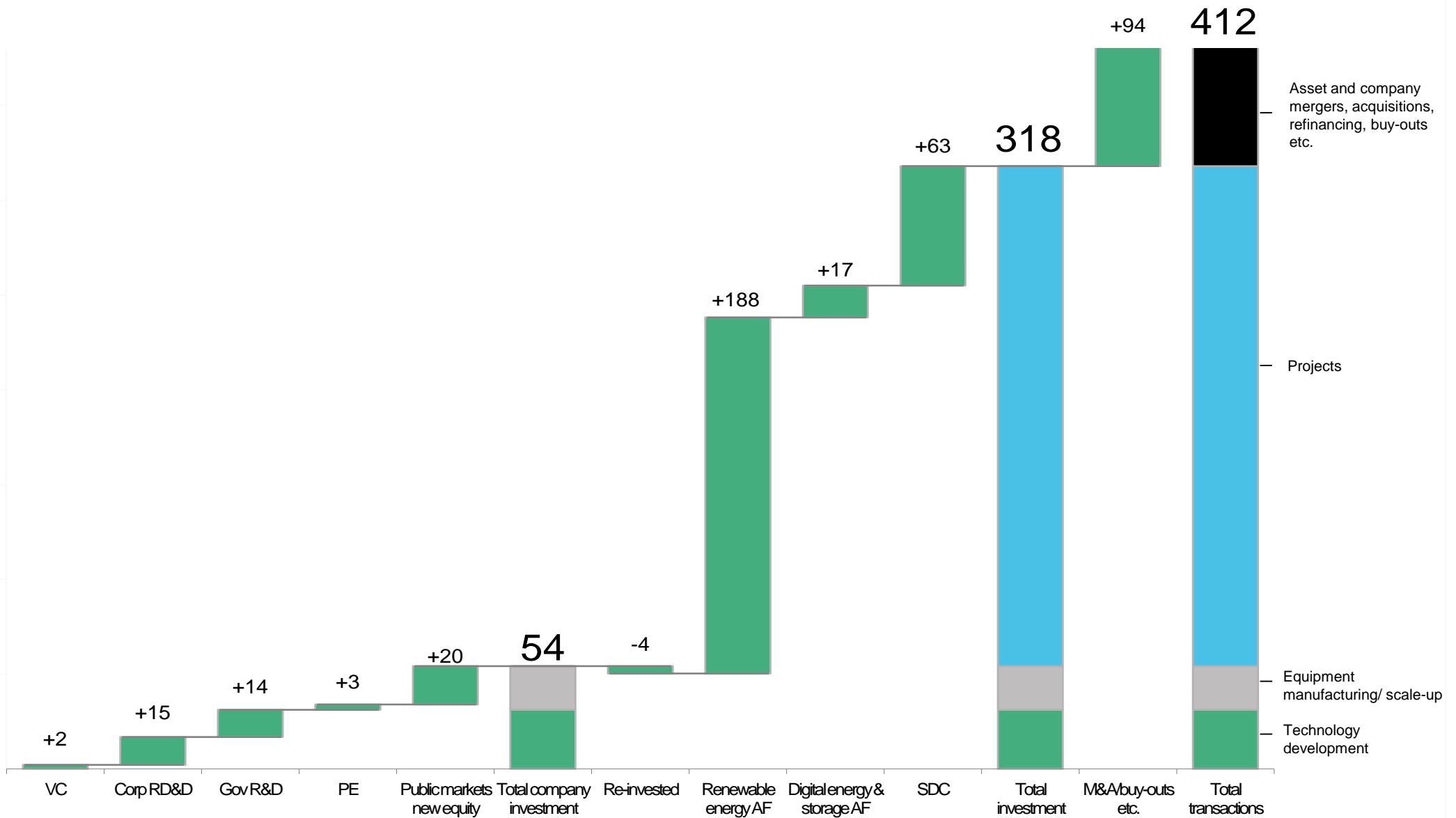


# ANNUAL CLEAN ENERGY INVESTMENT OVERVIEW

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# 2014 CLEAN ENERGY INVESTMENT TYPES & FLOWS

(\$BN)

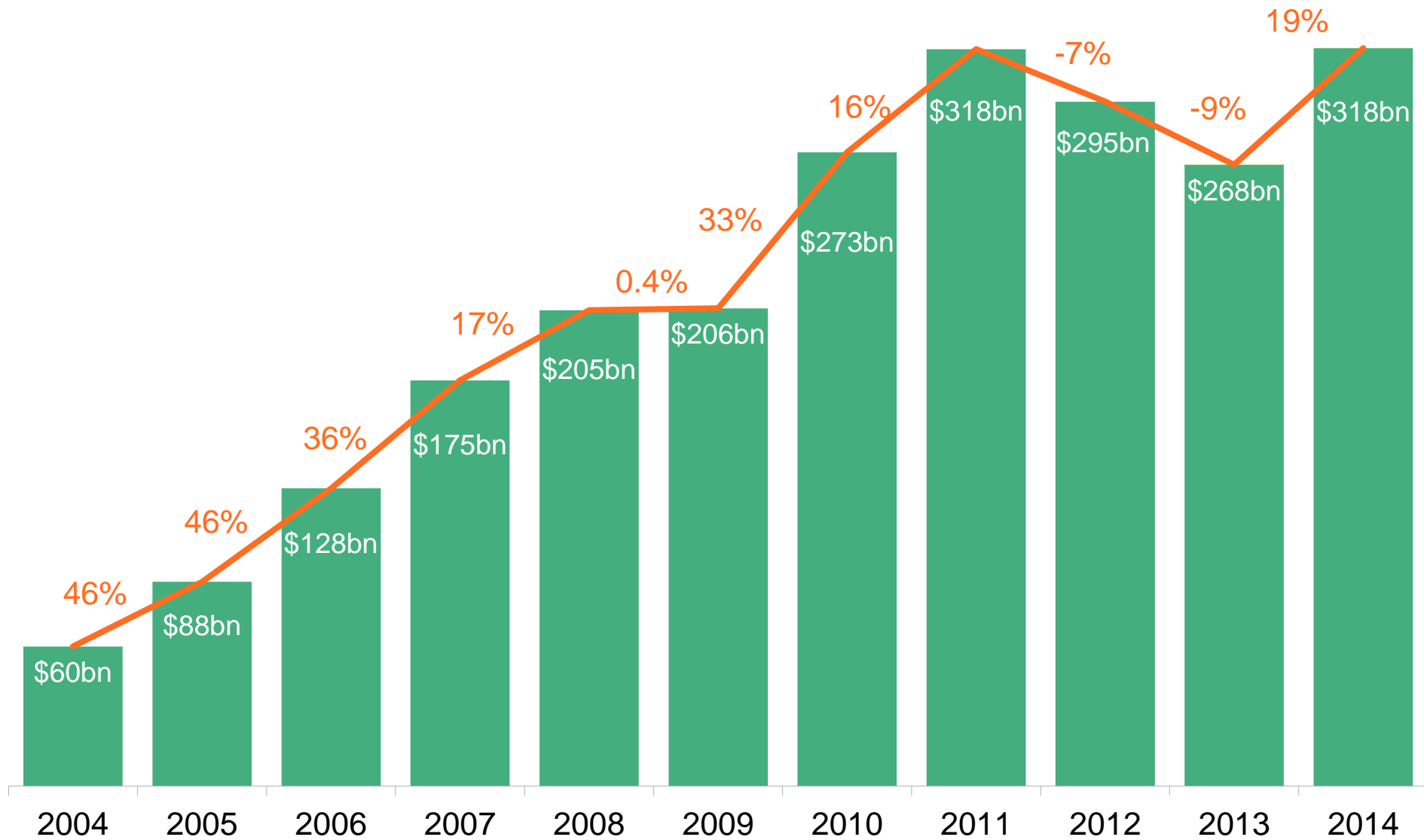


Note: Total values include estimates for undisclosed deals. AF = asset finance, SDC = small distributed capacity.

Source: Bloomberg New Energy Finance

# NEW INVESTMENT IN CLEAN ENERGY

2004-14 (\$BN)

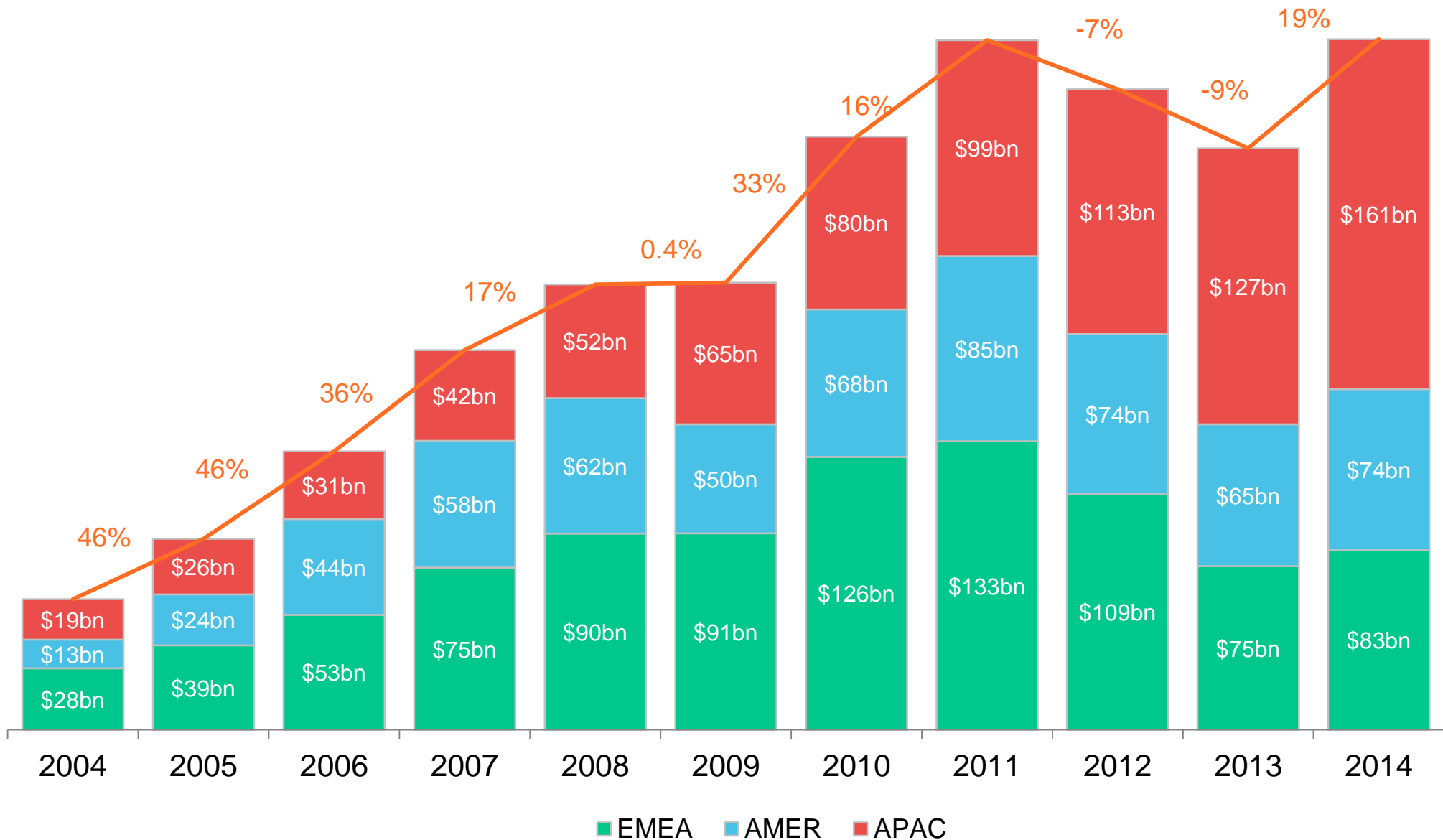


Note: Total values include estimates for undisclosed deals. Includes corporate and government R&D, and spending for digital energy and energy storage projects (not reported in quarterly statistics).

Source: Bloomberg New Energy Finance

# NEW INVESTMENT IN CLEAN ENERGY BY REGION

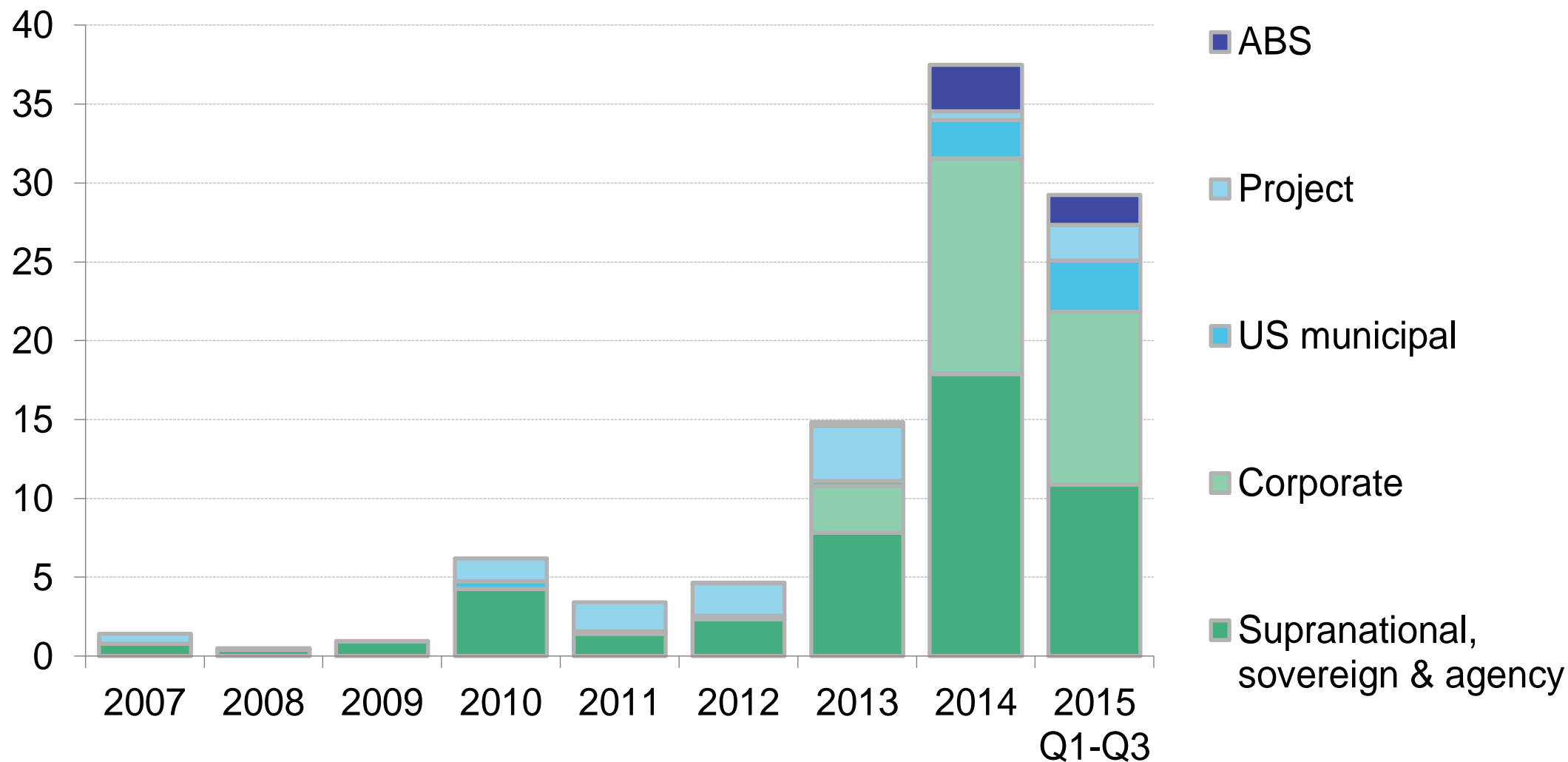
2004-14 (\$BN)



Note: Total values include estimates for undisclosed deals. Includes corporate and government R&D, and spending for digital energy and energy storage projects (not reported in quarterly statistics).

Source: Bloomberg New Energy Finance

# ANNUAL HISTORICAL GREEN BOND ISSUANCE, BY TYPE, 2007-15 YTD (\$BN)



Notes: (1) The funds raised by green bonds are neither entirely inclusive nor exclusive of figures for clean energy asset finance. (2) 'Corporate', 'sovereign, supranational and agency' and 'US municipal' include only bonds explicitly labelled as green and which meet the criteria for receiving a green bond 'tag' on the Bloomberg Terminal. (3) 'Project' includes bonds backed by the cash flows of an underlying renewable energy project or portfolio of projects. (4) 'ABS' includes asset-backed securities whose cash flows come from a portfolio of underlying receivables such as loans, leases and PPAs where the receivables are associated with green (eg, renewable energy, energy efficiency) projects.

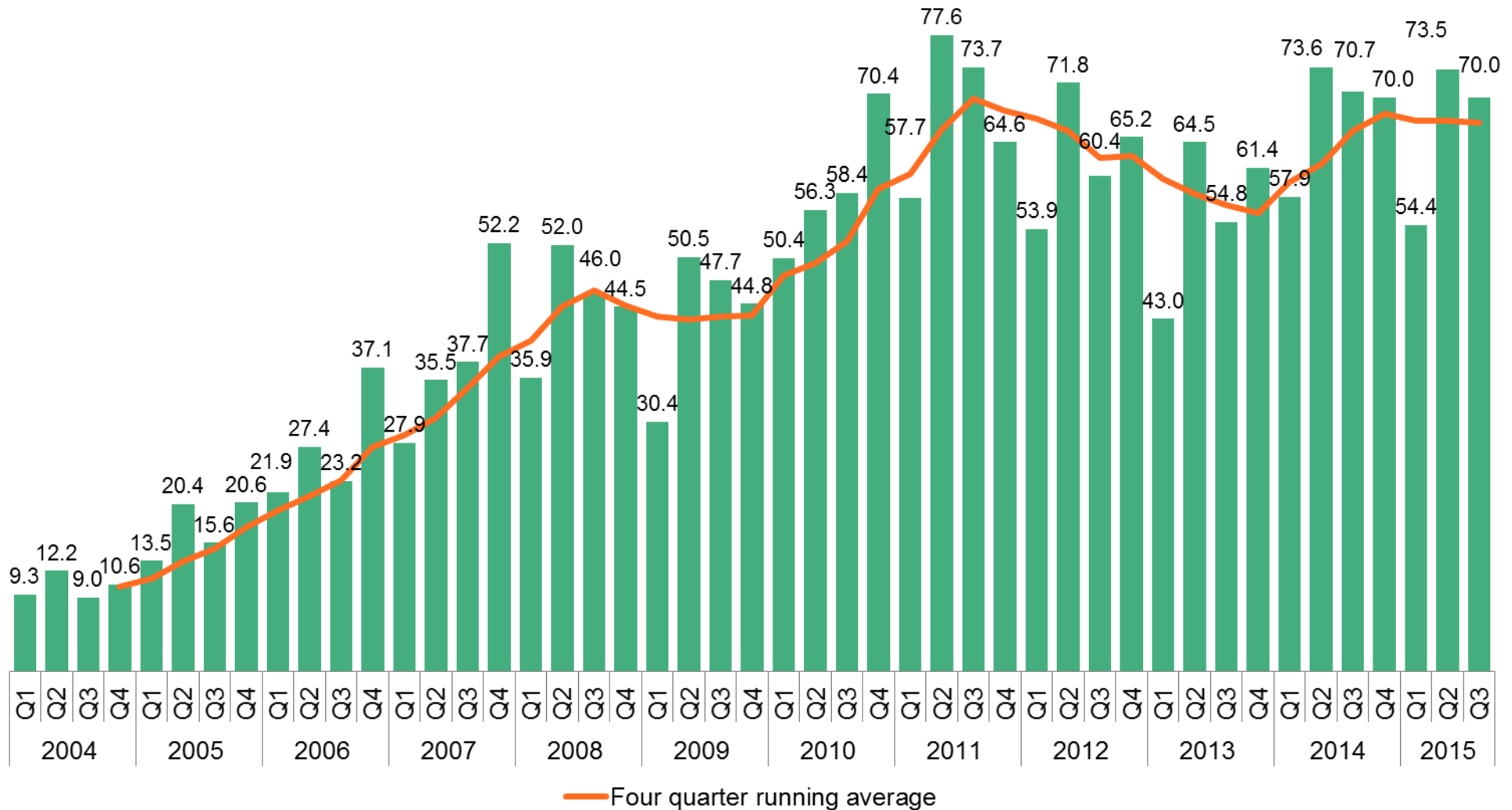


**QUARTERLY TRENDS  
IN CLEAN ENERGY:  
NEW INVESTMENT**

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# NEW INVESTMENT IN CLEAN ENERGY

Q1 2004-Q3 2015 (\$BN)

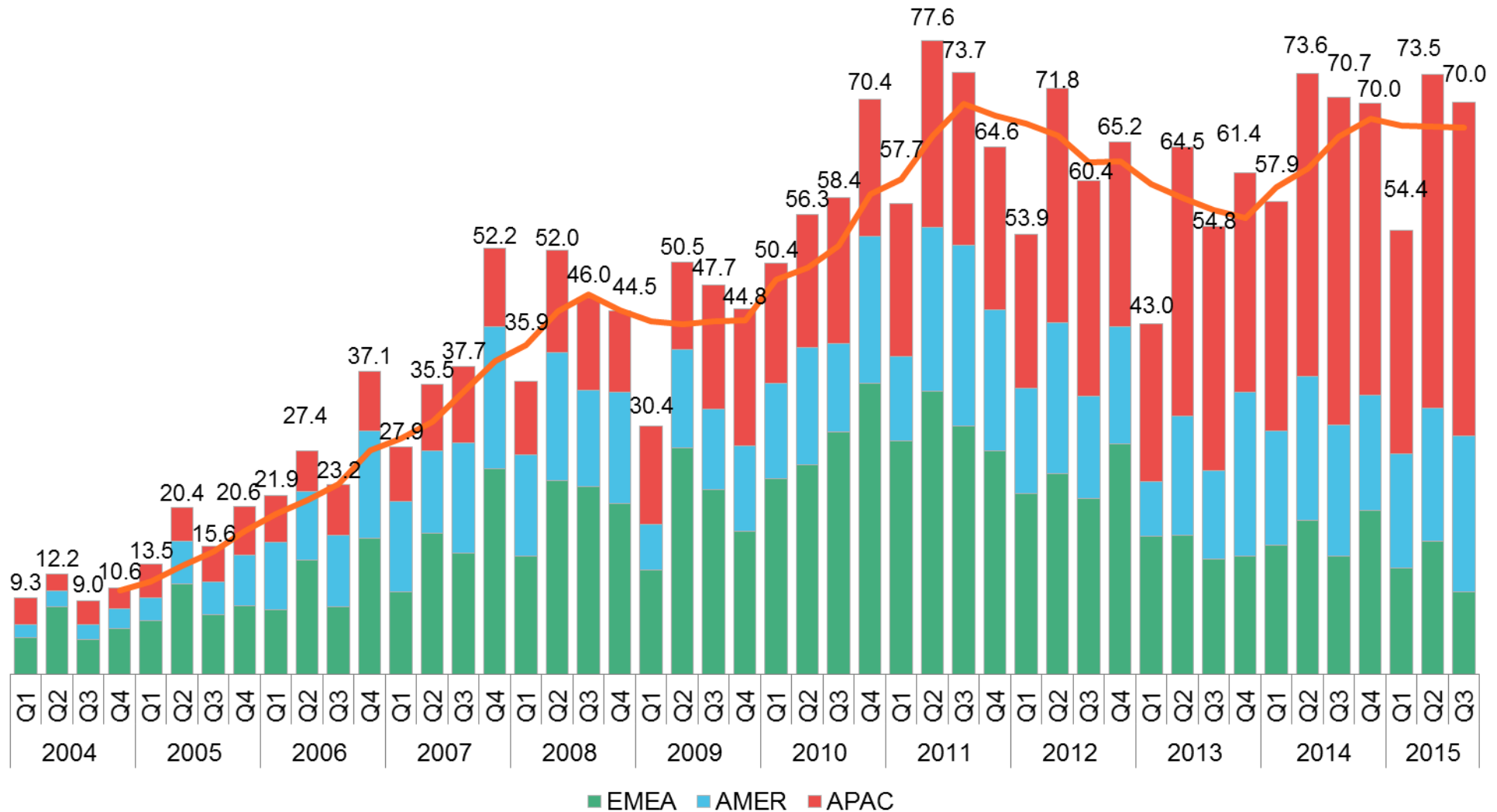


Note: Total values include estimates for undisclosed deals. Excludes corporate and government R&D, and spending for digital energy and energy storage projects (reported in annual statistics only).

Source: Bloomberg New Energy Finance

# NEW INVESTMENT IN CLEAN ENERGY BY REGION

Q1 2004-Q3 2015 (\$BN)

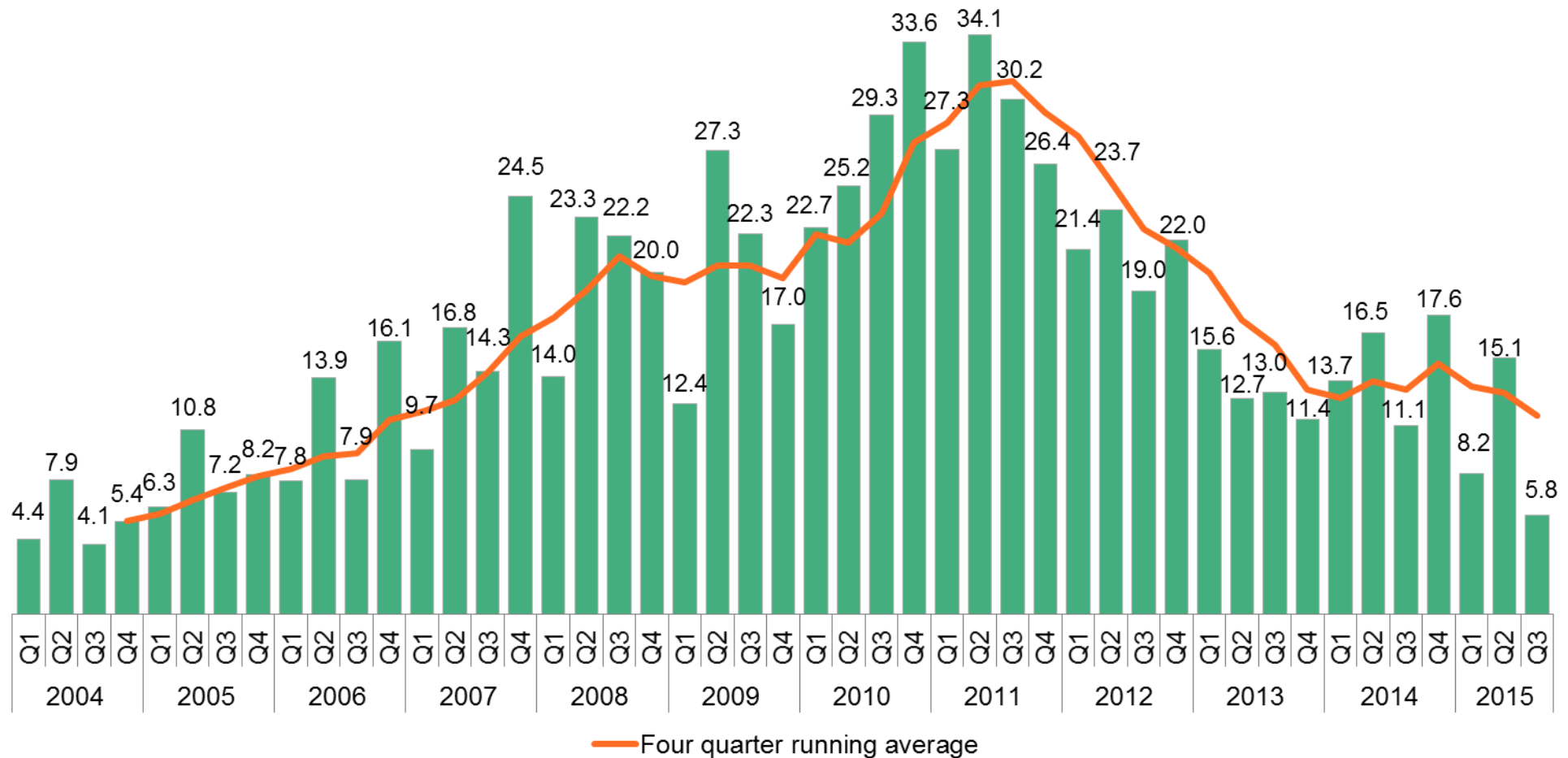


Note: Total values include estimates for undisclosed deals. Excludes corporate and government R&D, and spending for digital energy and energy storage projects (reported in annual statistics only).

Source: Bloomberg New Energy Finance

# NEW INVESTMENT IN CLEAN ENERGY IN EUROPE

Q1 2004-Q3 2015 (\$BN)

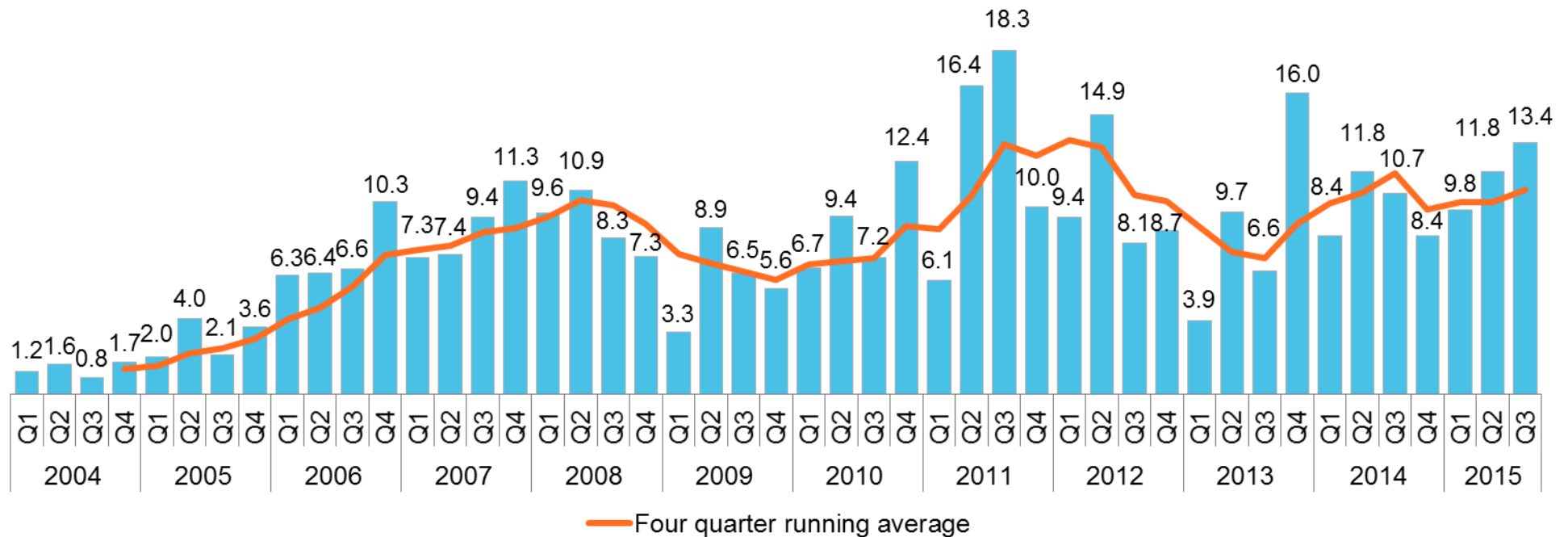


Note: Total values include estimates for undisclosed deals. Excludes corporate and government R&D, and spending for digital energy and energy storage projects (reported in annual statistics only).

Source: Bloomberg New Energy Finance

# NEW INVESTMENT IN CLEAN ENERGY IN THE US

Q1 2004-Q2 2015 (\$BN)

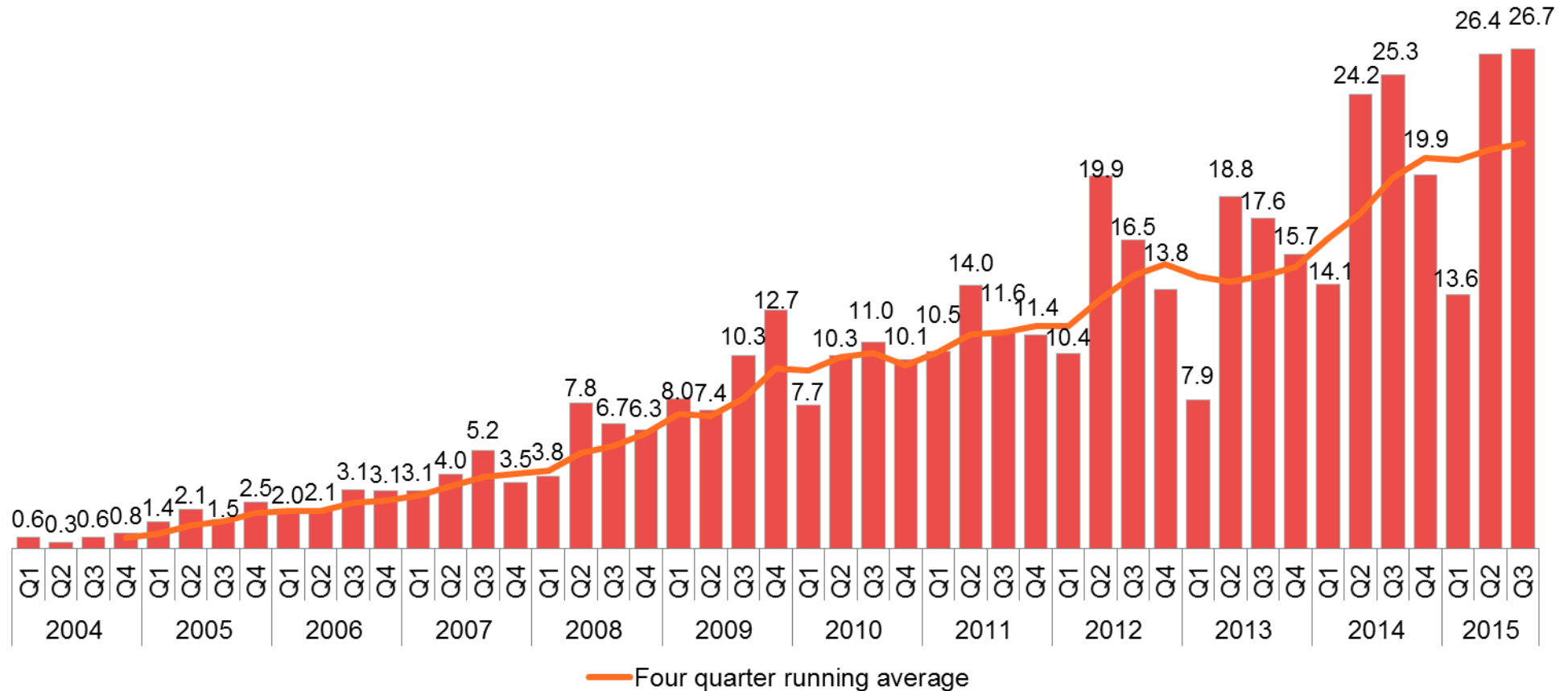


Note: Total values include estimates for undisclosed deals. Excludes corporate and government R&D, and spending for digital energy and energy storage projects (reported in annual statistics only).

Source: Bloomberg New Energy Finance

# NEW INVESTMENT IN CLEAN ENERGY IN CHINA

Q1 2004-Q3 2015 (\$BN)

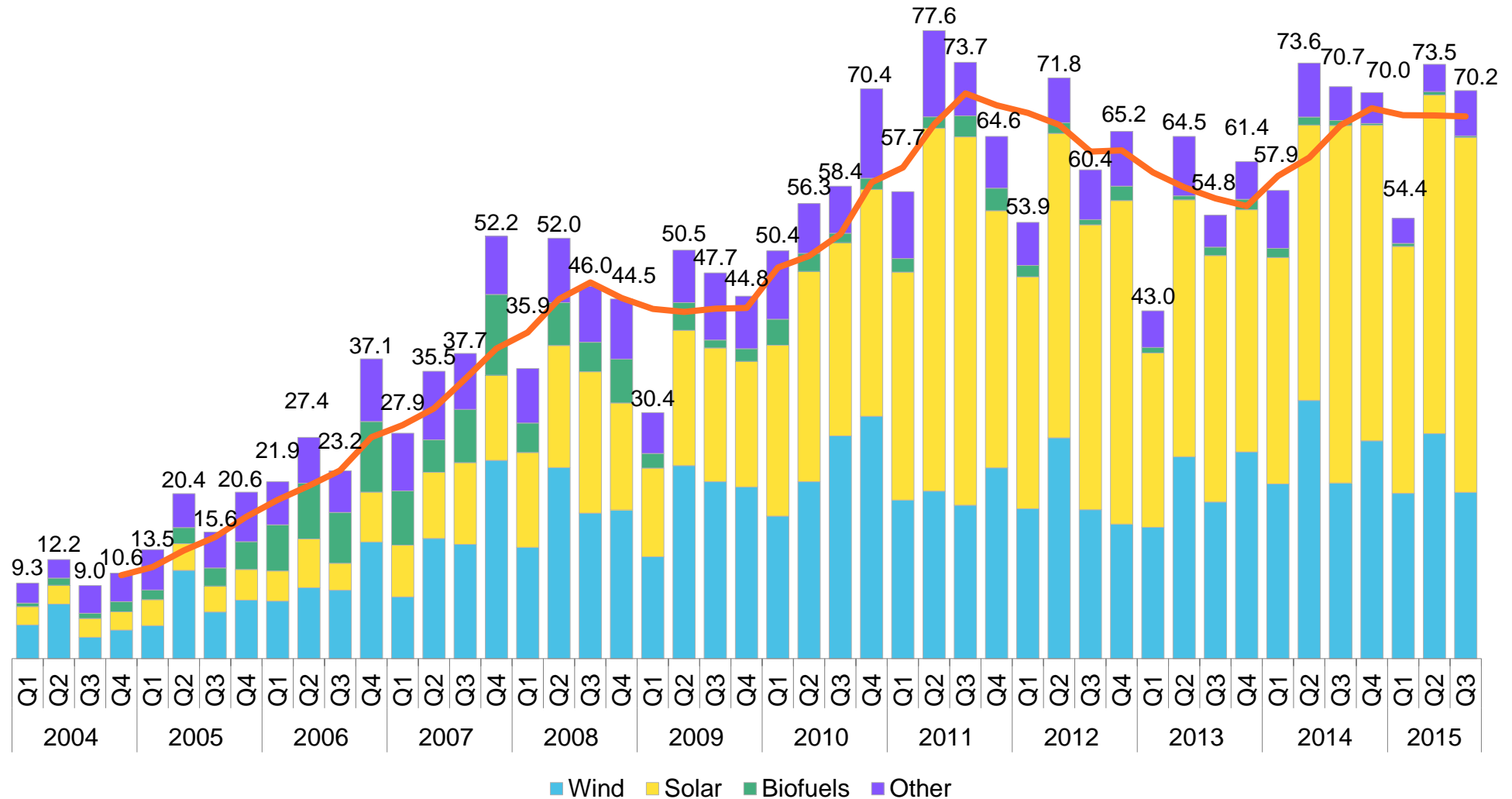


Note: Total values include estimates for undisclosed deals. Excludes corporate and government R&D, and spending for digital energy and energy storage projects (reported in annual statistics only).

Source: Bloomberg New Energy Finance

# NEW INVESTMENT IN CLEAN ENERGY BY SECTOR

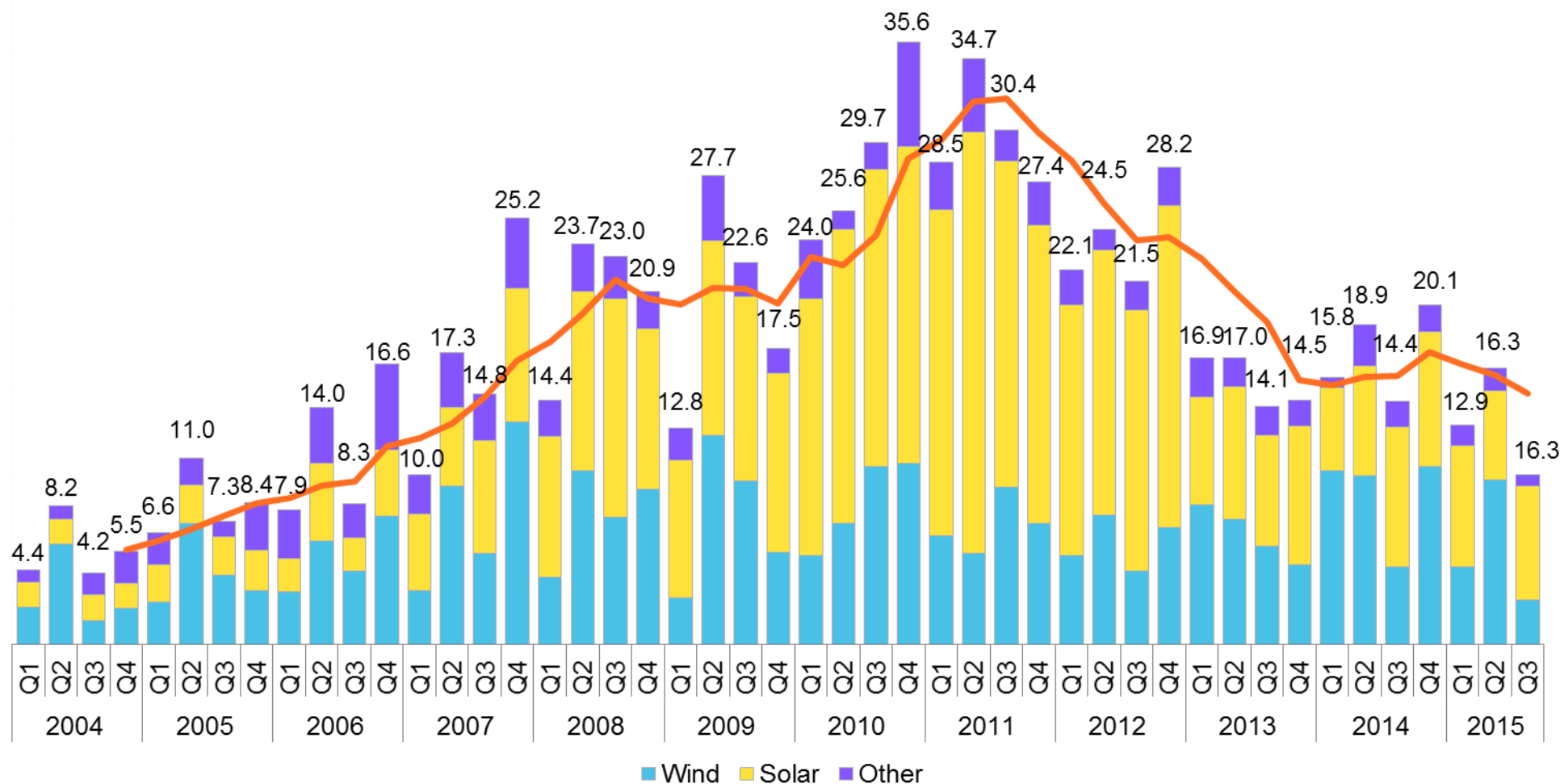
Q1 2004-Q3 2015 (\$BN)



Note: Total values include estimates for undisclosed deals. Excludes corporate and government R&D, and spending for digital energy and energy storage projects (reported in annual statistics only).

Source: Bloomberg New Energy Finance

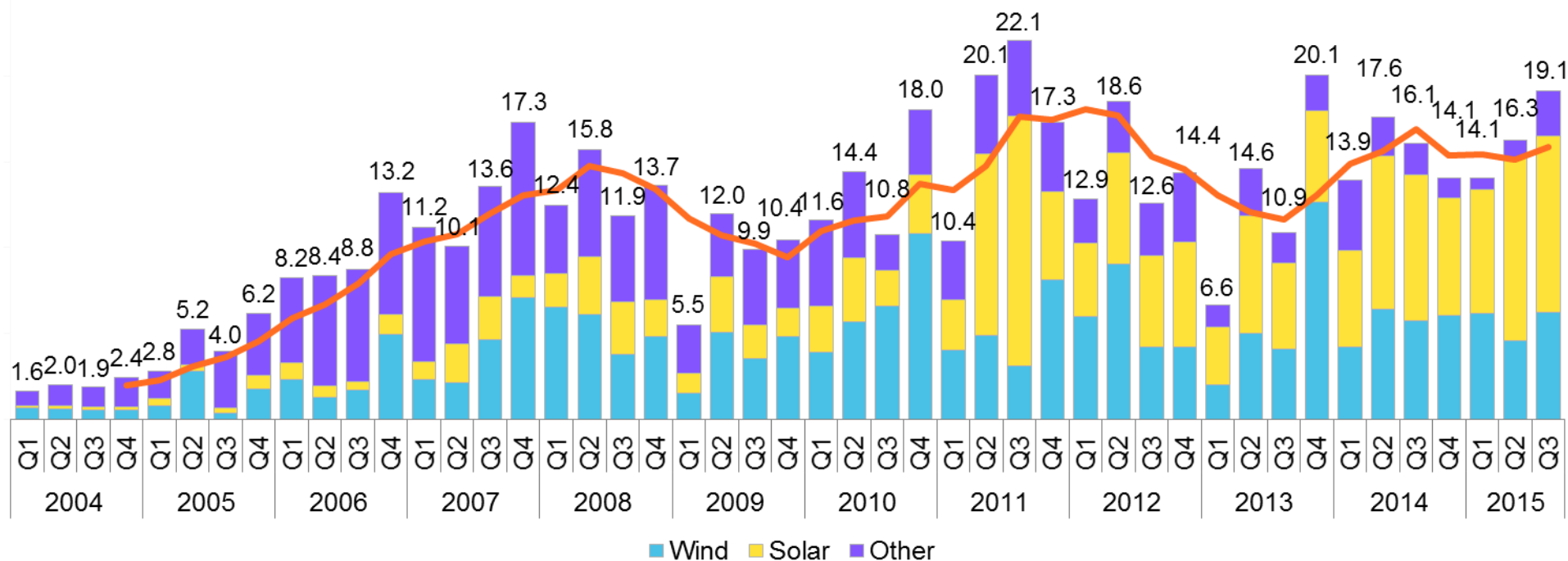
# EMEA NEW INVESTMENT IN CLEAN ENERGY BY SECTOR Q1 2004-Q3 2015 (\$BN)



Note: Total values include estimates for undisclosed deals. Excludes corporate and government R&D, and spending for digital energy and energy storage projects (reported in annual statistics only).

Source: Bloomberg New Energy Finance

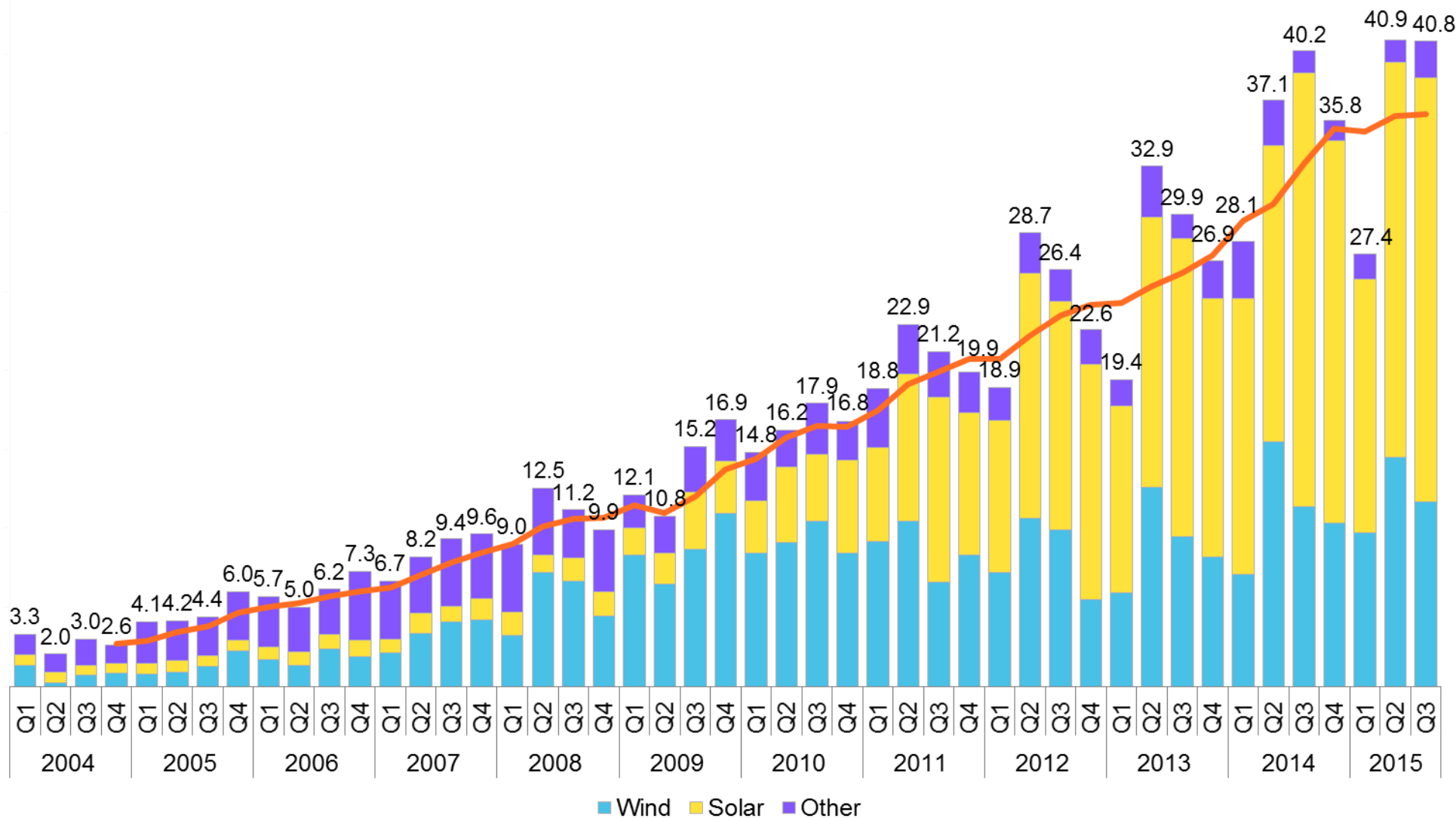
# AMER NEW INVESTMENT IN CLEAN ENERGY BY SECTOR Q1 2004-Q3 2015 (\$BN)



Note: Total values include estimates for undisclosed deals. Excludes corporate and government R&D, and spending for digital energy and energy storage projects (reported in annual statistics only).

Source: Bloomberg New Energy Finance

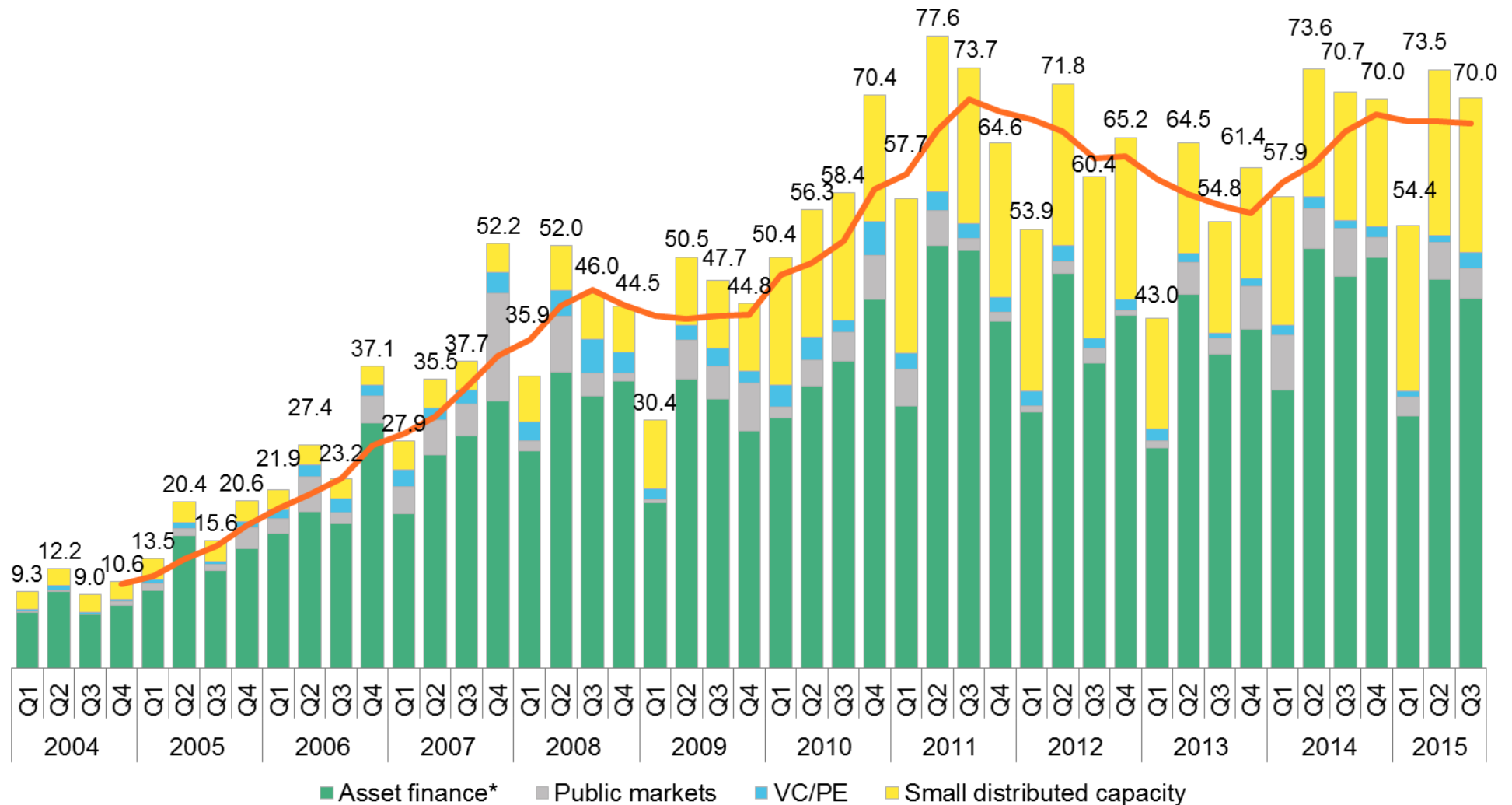
# APAC NEW INVESTMENT IN CLEAN ENERGY BY SECTOR Q1 2004-Q3 2015 (\$BN)



Note: Total values include estimates for undisclosed deals. Excludes corporate and government R&D, and spending for digital energy and energy storage projects (reported in annual statistics only).

Source: Bloomberg New Energy Finance

# NEW INVESTMENT IN CLEAN ENERGY BY ASSET CLASS Q1 2004-Q3 2015 (\$BN)

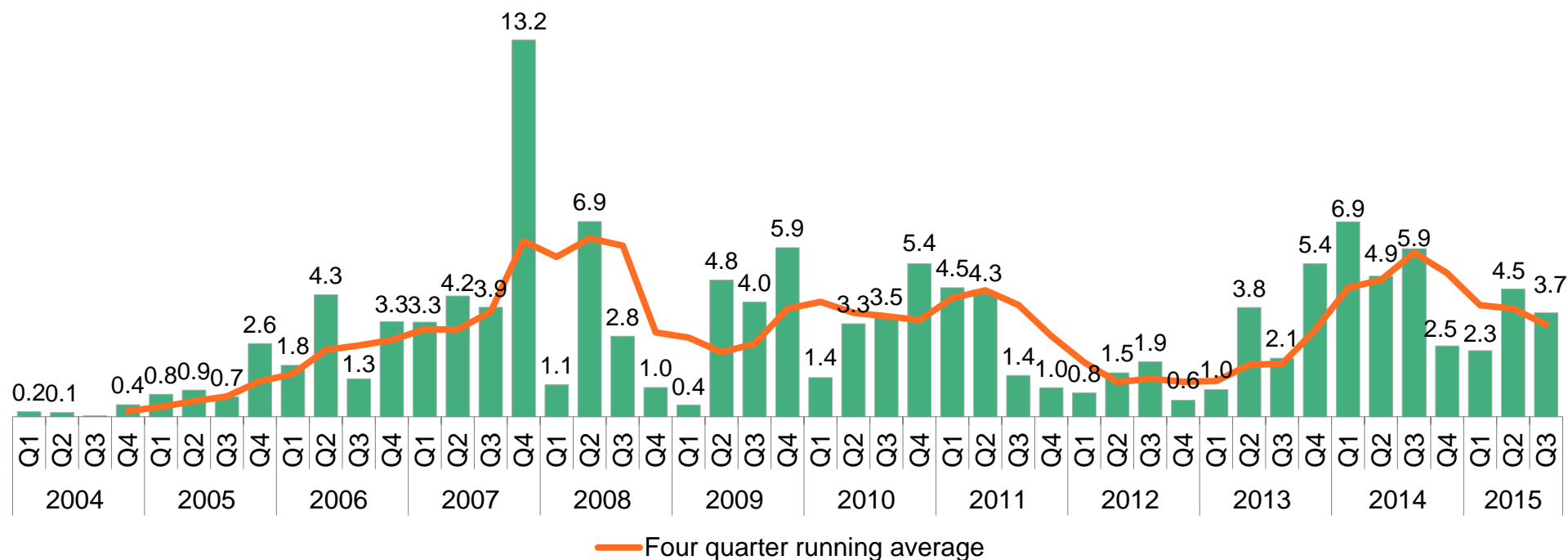


\*Asset finance adjusted for re-invested equity

Note: Total values include estimates for undisclosed deals. Excludes corporate and government R&D, and spending for digital energy and energy storage projects (reported in annual statistics only).

Source: Bloomberg New Energy Finance

# PUBLIC MARKET NEW INVESTMENT IN CLEAN ENERGY Q1 2004-Q3 2015 (\$BN)



Note: Total values include estimates for undisclosed deals.

Source: Bloomberg New Energy Finance

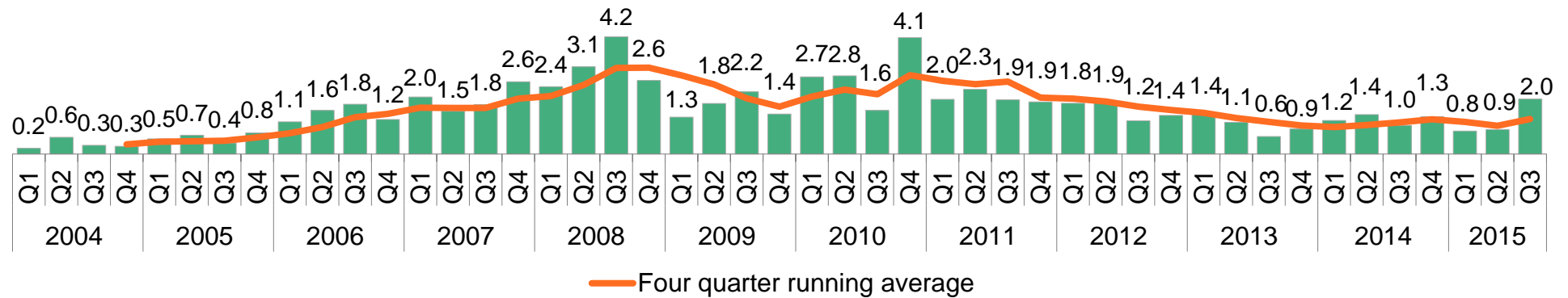
# TOP PUBLIC MARKET TRANSACTIONS OF THE QUARTER Q3 2015

Organisation	Stock exchange	Sector	Type of transaction	New equity raised	Total offering size
Tesla Motors Inc	NASDAQ Global Select Market (GS)	Electrified Transport	Secondary	\$750.m	\$750.m
TerraForm Global Inc	NASDAQ Global Select Market (GS)	Solar	IPO	\$675.m	\$675.m
Sunedison Inc	New York Stock Exchange (NYSE)	Solar	Convertible	\$650.m	\$650.m
Sunrun Inc	NASDAQ Global Select Market (GS)	Solar	IPO	\$244.8m	\$250.6m
GCL-Poly Energy Holdings Ltd	Hong Kong Stock Exchange (HKEX)	Solar	Convertible	\$225.m	\$225.m

Source: Bloomberg New Energy Finance

# VC/PE NEW INVESTMENT IN CLEAN ENERGY

Q1 2004-Q3 2015 (\$BN)



Note: Total values include estimates for undisclosed deals.

Source: Bloomberg New Energy Finance

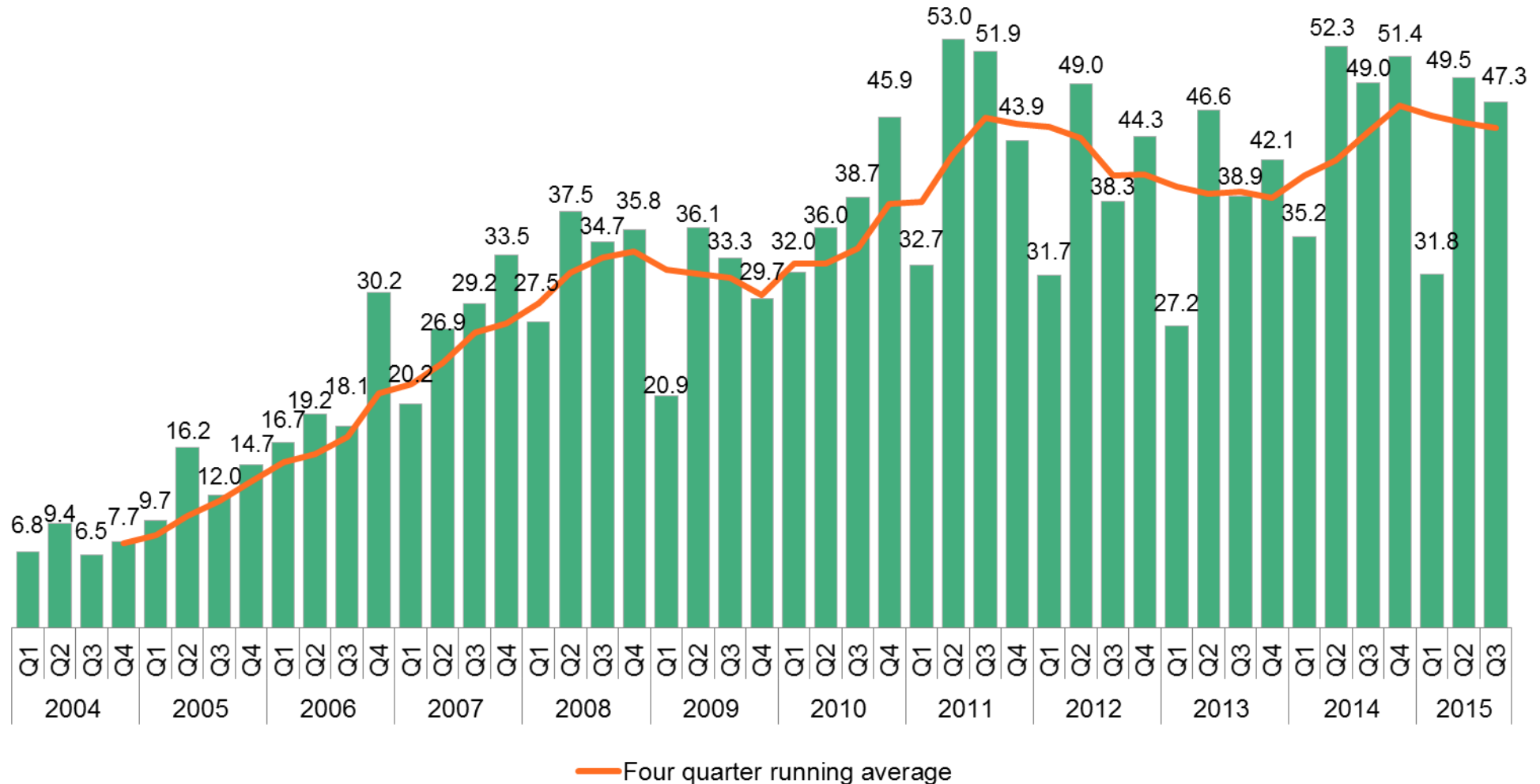
# TOP VC/PE TRANSACTIONS OF THE QUARTER

Q3 2015

Organisation	Country	Sector	Type of transaction	Value
NextEV	China	Electrified Transport	VC Early Stage	\$500.m
View	United States	Efficiency: Built Environment	VC Late Stage	\$150.m
Enerkem	Canada	Biofuels	PE Expansion Capital	\$115.4m
Silicor Materials	United States	Solar	PE Expansion Capital	\$105.m
Sunlight Financial	United States	Solar	VC Early Stage	\$80.m

Source: Bloomberg New Energy Finance

# ASSET FINANCING FOR NEW BUILD RENEWABLE ENERGY ASSETS Q1 2004-Q3 2015 (\$BN)



Note: Total values include estimates for undisclosed deals. Excludes spending for digital energy and energy storage projects (reported in annual statistics only).

Source: Bloomberg New Energy Finance

# TOP ASSET FINANCE TRANSACTIONS OF THE QUARTER Q3 2015

Project name	Country	Sector	Type of transaction	Capacity	Value
Qinghai STEG Power Group Haixi Geermu Wutumeirenxiang Boliqi STEG Plant	China	Solar	Term loan	200MW	\$866.4m
Ashalim II Sun Negev STEG Plant	Israel	Solar	Term loan	110MW	\$866.m
Longyuan Haian Jiangjiasha Offshore Wind Farm	China	Wind	Term loan	300MW	\$856.7m
Datang Renewable & Jiangsu Guoxin Investment Binhai Offshore Wind Farm	China	Wind	Term loan	300MW	\$843.8m
SolarReserve Redstone STEG Plant	South Africa	Solar	Term loan	100MW	\$748.9m

Source: Bloomberg New Energy Finance

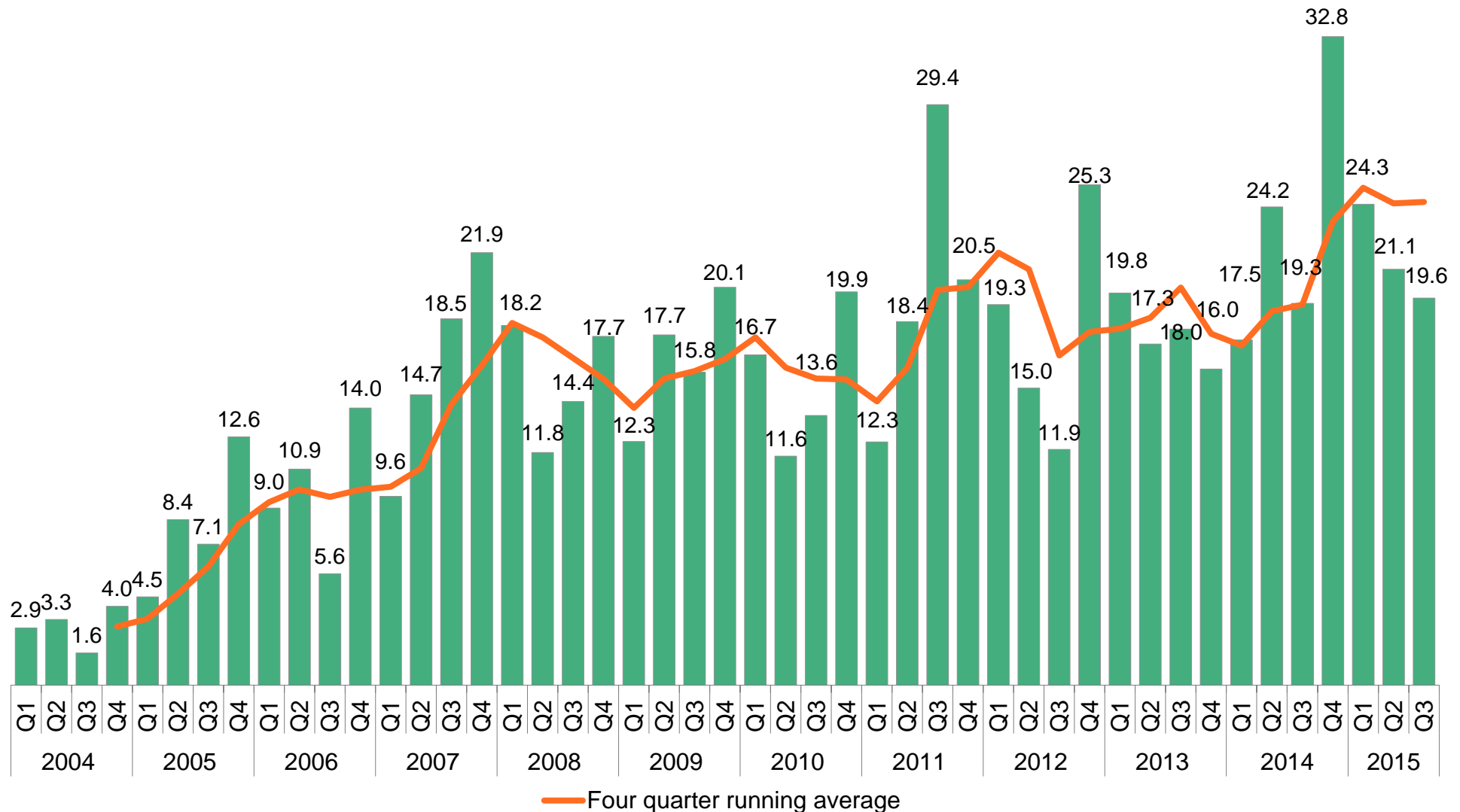


**QUARTERLY TRENDS  
IN CLEAN ENERGY:  
FUNDS IN  
CIRCULATION**

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# FUNDS IN CIRCULATION IN CLEAN ENERGY

Q1 2004-Q3 2015 (\$BN)



Note: Total values include estimates for undisclosed deals. Excludes spending for digital energy and energy storage projects (reported in annual statistics only).

Source: Bloomberg New Energy Finance

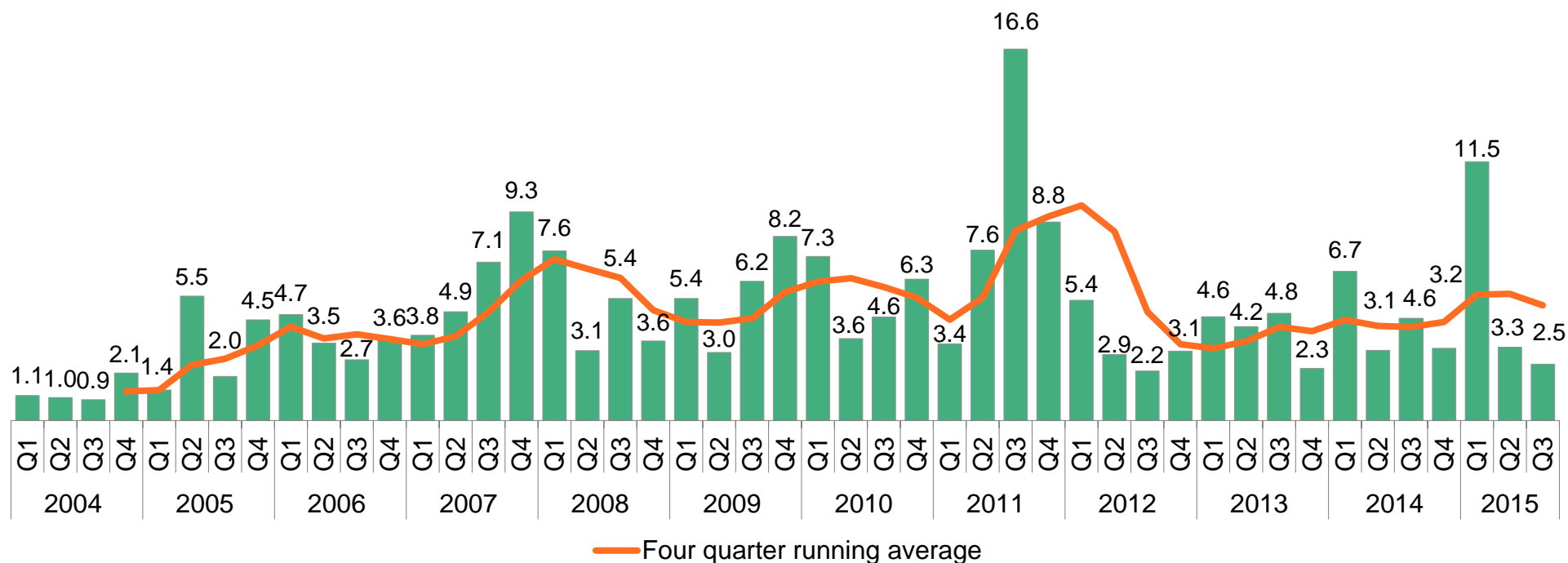
# TOP TRANSACTIONS FOR FUNDS IN CIRCULATION

Q3 2015

Organisation	Country	Sector	Type of transaction	Acquirer	Value
Baltic II Offshore Wind Farm Macquarie Capital Acquisition	Germany	Wind	Term loan	Macquarie Capital	\$805.6m
REC Solar ASA	Singapore	Solar	Equity (company)	Bluestar Elkem	\$462.m
First Wind South Plains III Wind Farm Tax Equity	United States	Wind	Tax equity	Citi, BHE Renewables	\$390.m
Rattlesnake Den Wind Farm Phase I Tax Equity	United States	Wind	Tax equity	Bank of America	\$382.m
Renova Energia 2009 Auction Wind Portfolio Sunedison Acquisition	Brazil	Wind	Balance Sheet	TerraForm Global	\$370.6m

Source: Bloomberg New Energy Finance

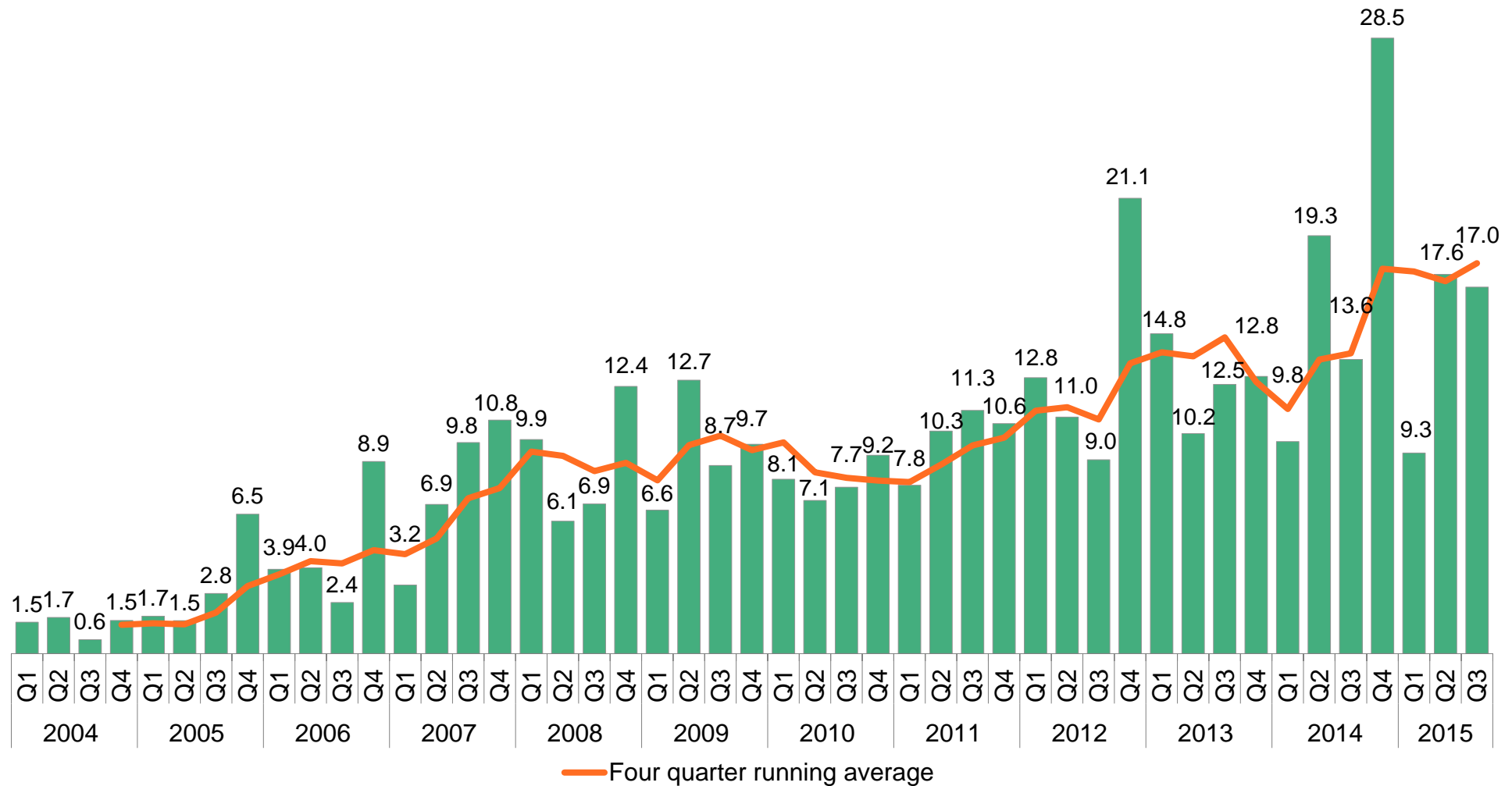
# CORPORATE M&A TRANSACTIONS IN CLEAN ENERGY Q1 2004-Q3 2015 (\$BN)



Note: Total values include estimates for undisclosed deals

Source: Bloomberg New Energy Finance

# RENEWABLE ENERGY ASSET ACQUISITIONS & REFINANCING Q1 2004-Q3 2015 (\$BN)



Note: Total values include estimates for undisclosed deals

Source: Bloomberg New Energy Finance



# CLEAN ENERGY INDEXES

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# NEX CLEAN ENERGY INDEX

## 2003–15 YTD

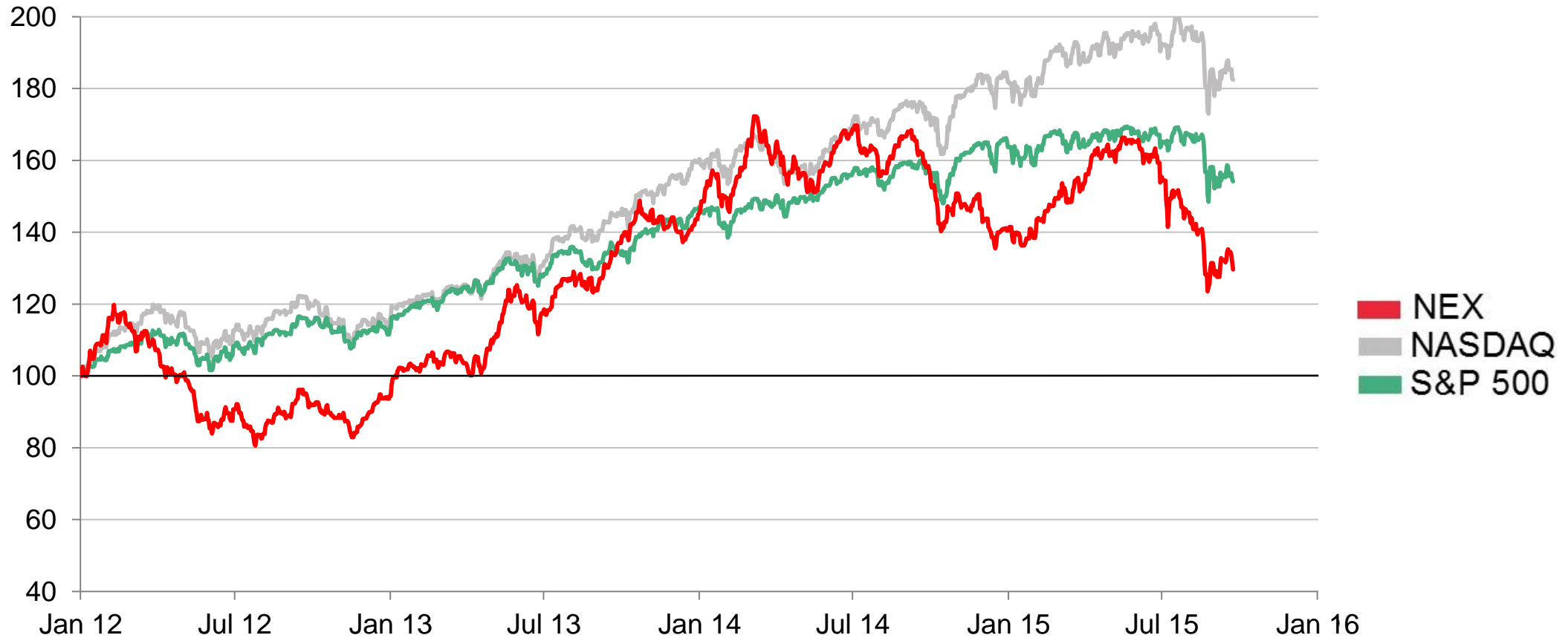


Note: Values as of 23 September 2015; NASDAQ and S&P 500 rebased to 100 on 1 Jan 2003

Source: Bloomberg New Energy Finance

# NEX CLEAN ENERGY INDEX

## 2012–15 YTD

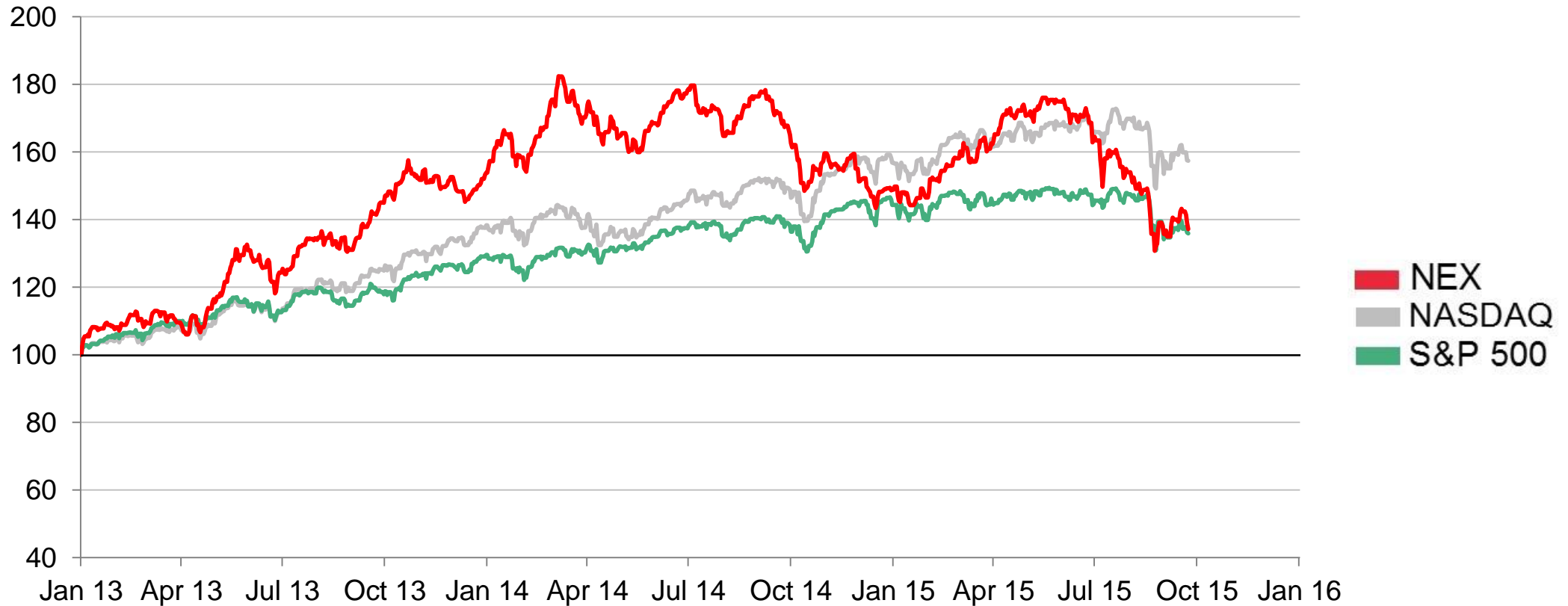


Note: Values as of 23 September 2015; NASDAQ and S&P 500 rebased to 100 on 1 Jan 2011

Source: Bloomberg New Energy Finance

# NEX CLEAN ENERGY INDEX

## 2013–15 YTD

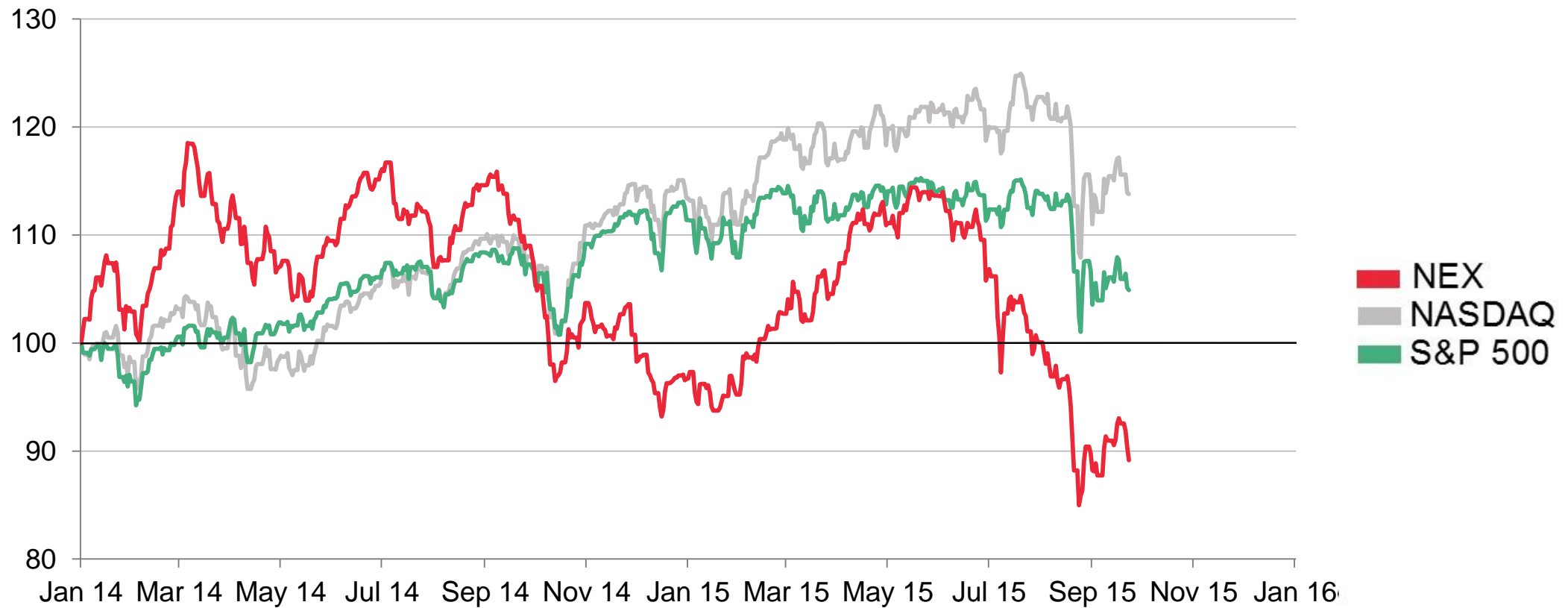


Note: Values as of 09 July 2015; NASDAQ and S&P 500 rebased to 100 on 1 Jan 2011

Source: Bloomberg New Energy Finance

# NEX CLEAN ENERGY INDEX

## 2014–15 YTD



Note: Values as of 23 September 2015; NASDAQ and S&P 500 rebased to 100 on 1 Jan 2011

Source: Bloomberg New Energy Finance

# NYSE BNEF REGIONAL CLEAN ENERGY INDEXES

2006-15 YTD

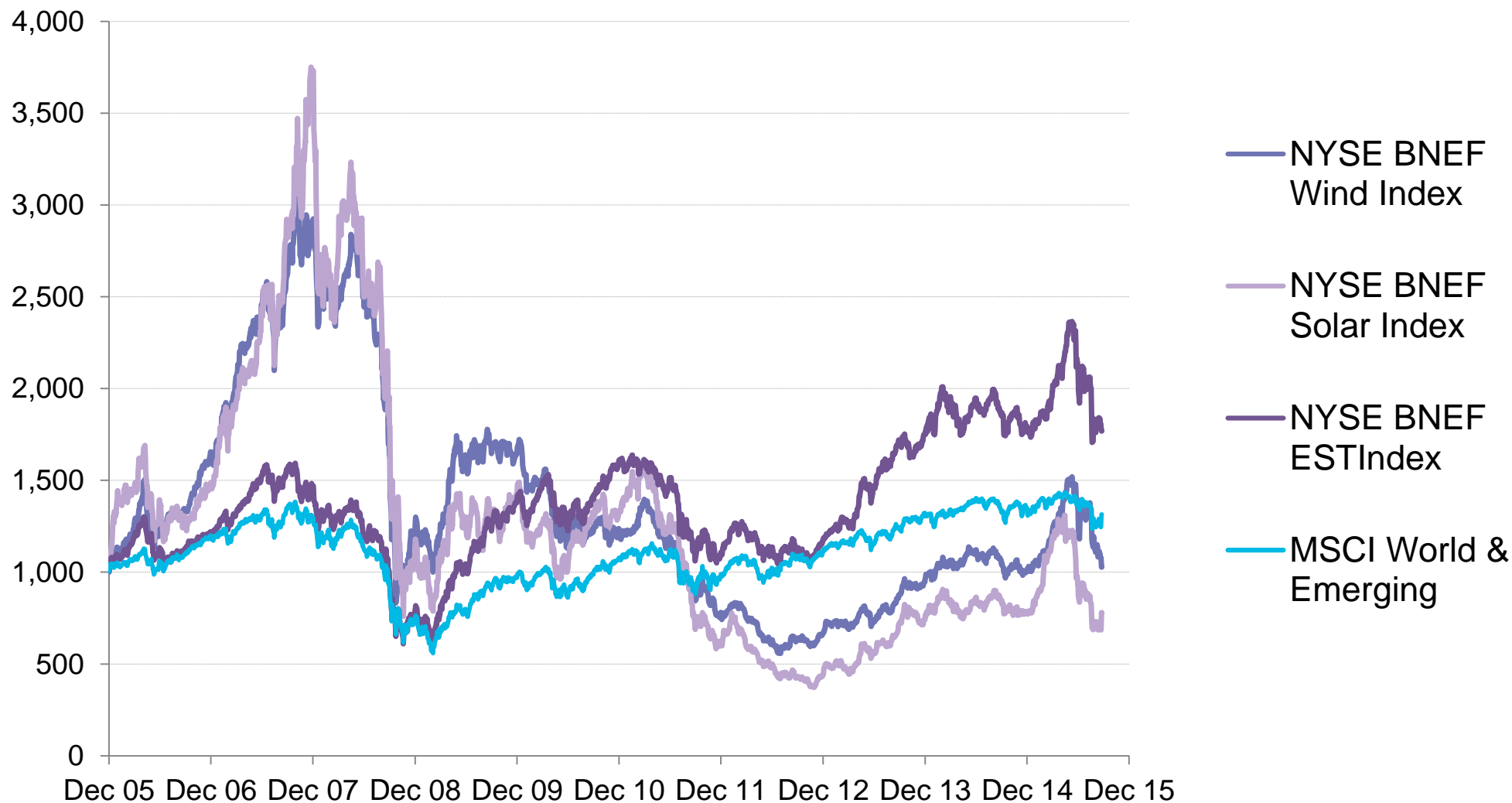


Note: Values as of 10 April 2015; NASDAQ and S&P 500 rebased to 1,000 on 30 December 2005

Source: Bloomberg New Energy Finance

# NYSE GLOBAL CLEAN ENERGY SECTOR INDEXES

2006-15 YTD



Note: Values as of 10 April 2015; NASDAQ and S&P 500 rebased to 1,000 on 30 December 2005

Source: Bloomberg New Energy Finance

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