

Eilat, 9 December 2014

GLOBAL TRENDS IN CLEAN ENERGY INVESTMENT

EILAT-EILOT GREEN ENERGY

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Head Client Relations

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Bloomberg
NEW ENERGY FINANCE

200 EXPERTS ACROSS SIX CONTINENTS



PRODUCTS TO HELP YOU UNDERSTAND THE FUTURE OF ENERGY



Solar



Wind



Other
Renewables



Gas



Energy Smart
Technologies



Advanced
Transport



Carbon &
RECs Markets



Americas



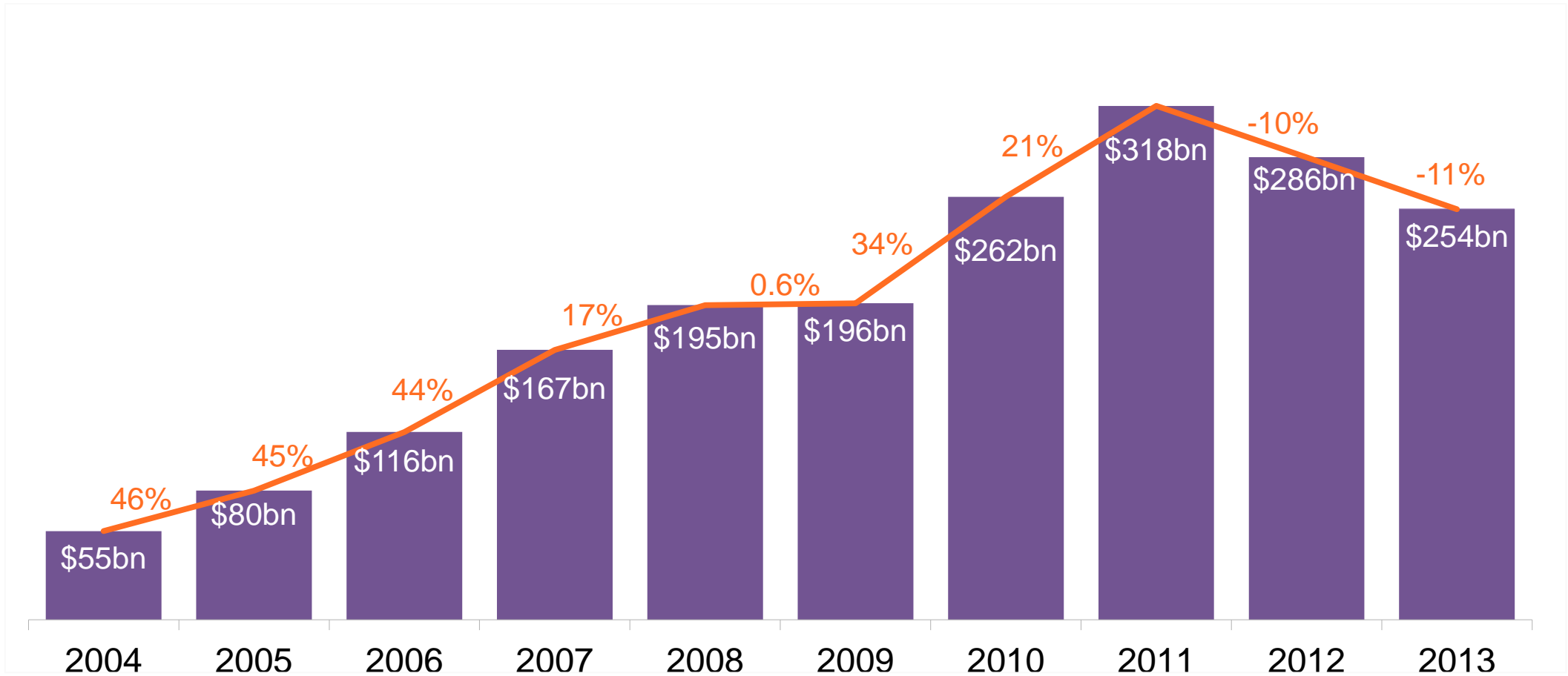
Europe, Middle East
& Africa



Asia Pacific

NEW INVESTMENT IN CLEAN ENERGY

2004-13 (\$BN)

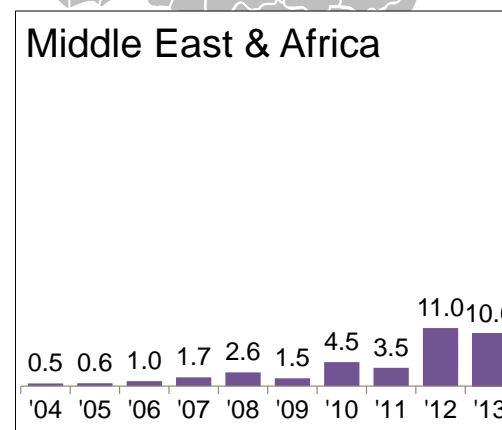
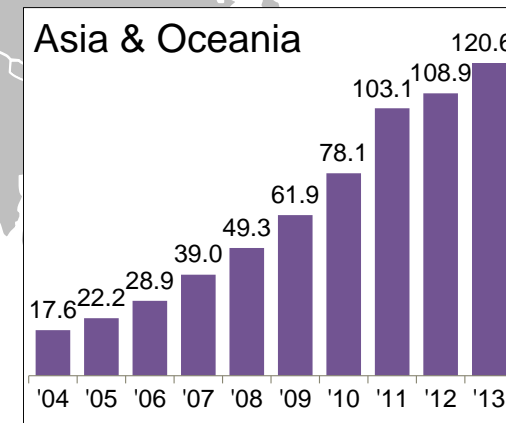
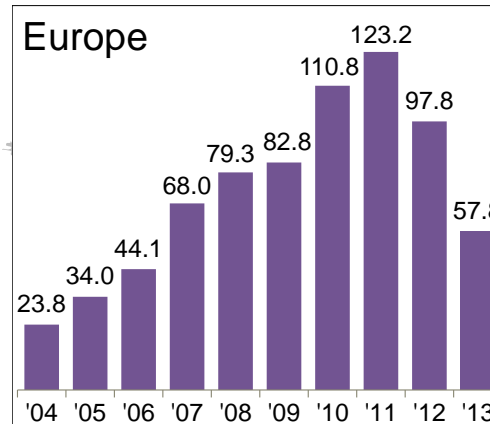
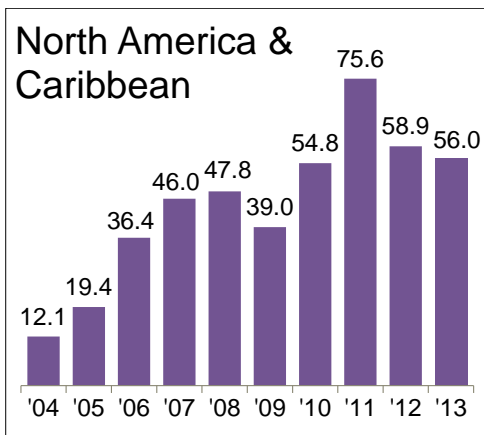


Note: Total values include estimates for undisclosed deals. Includes corporate and government R&D, and spending for digital energy and energy storage projects (not reported in quarterly statistics).

Source: Bloomberg New Energy Finance

NEW INVESTMENT IN CLEAN ENERGY BY REGION

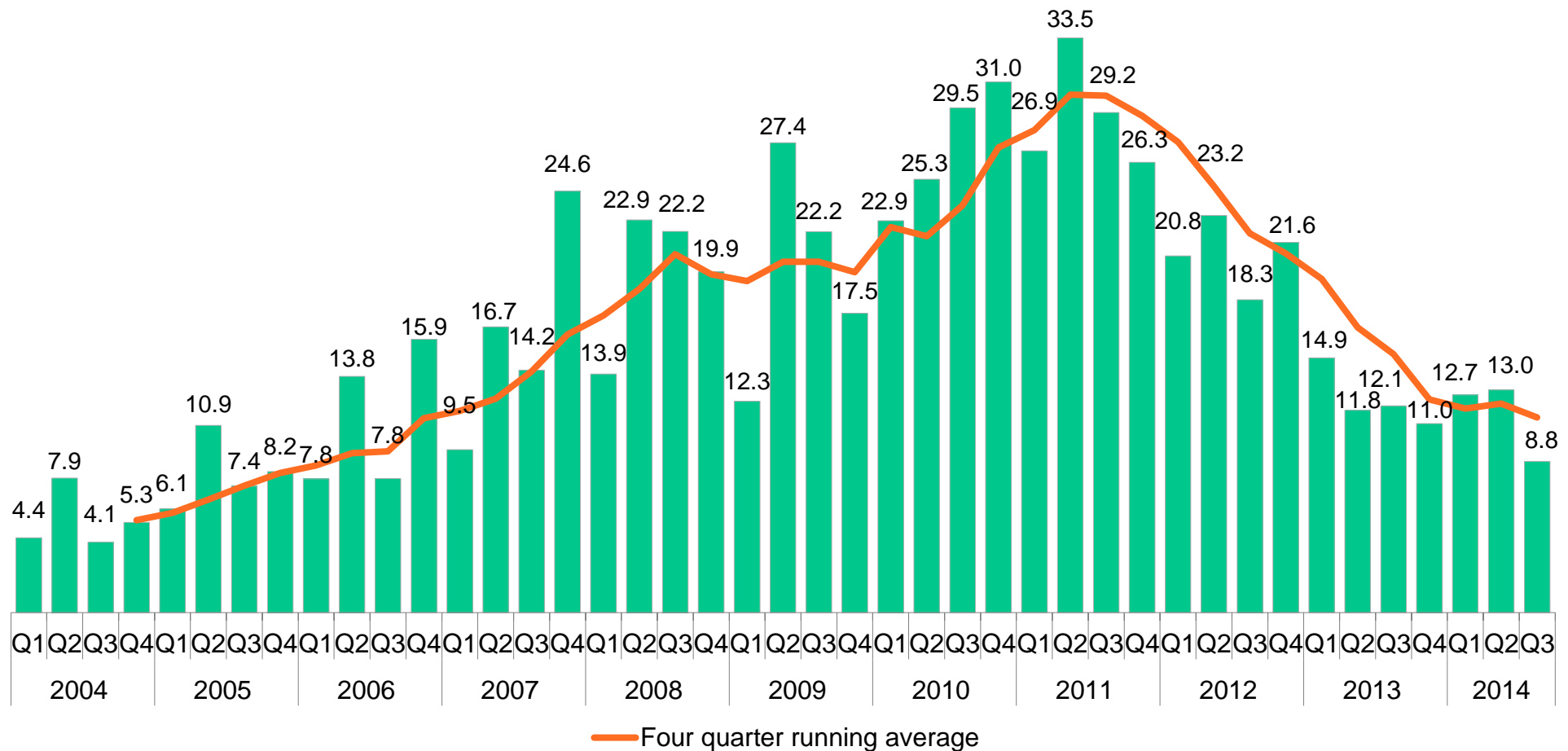
2004-13 (\$BN)



Source: Bloomberg New Energy Finance

NEW INVESTMENT IN CLEAN ENERGY IN EUROPE

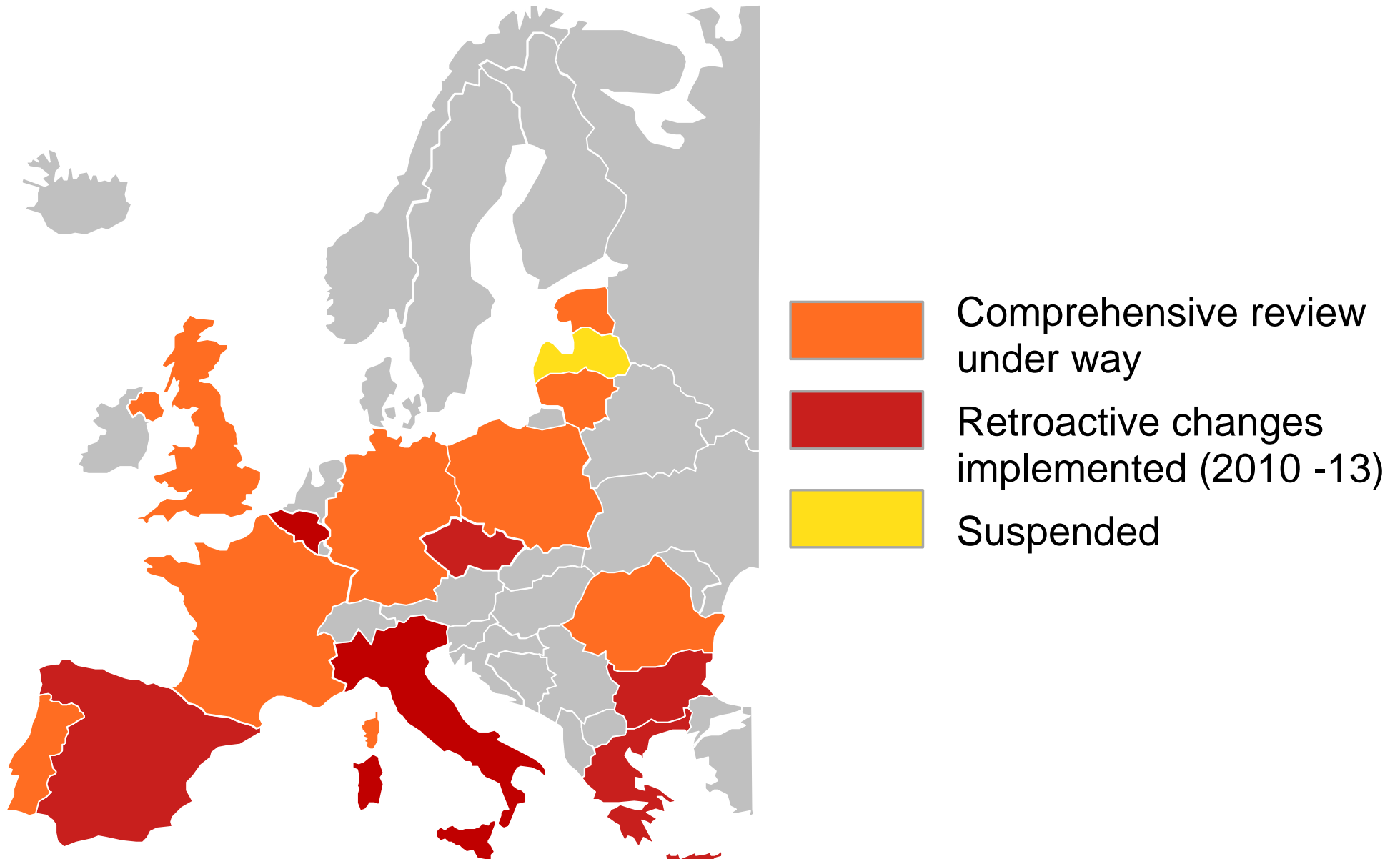
Q1 2004-Q3 2014 (\$BN)



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).

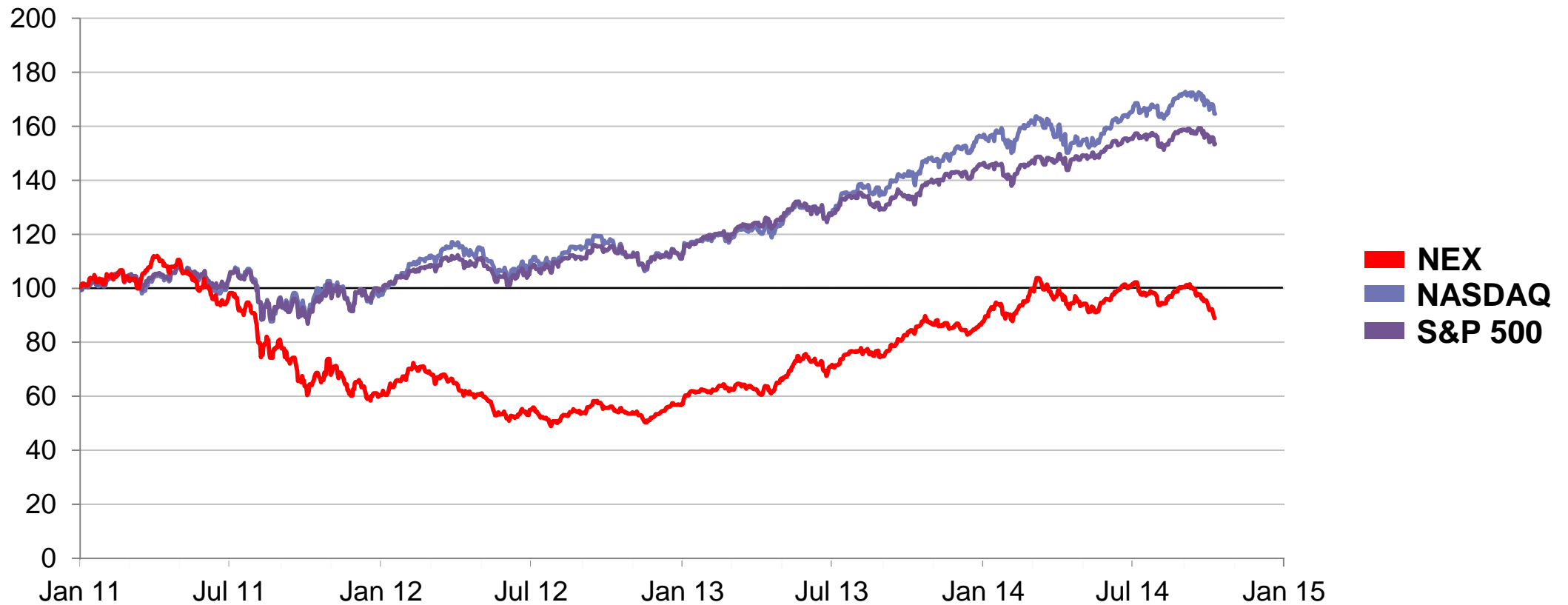
Source: Bloomberg New Energy Finance

EUROPEAN POLICY SUPPORT SCHEMES UNDER REVIEW, 2013



Source: Bloomberg New Energy Finance

NEX CLEAN ENERGY INDEX 2011 – 2014 YTD



Note: Values as of 08 October 2014; NASDAQ and S&P 500 rebased to 100 on 01 Jan 2011

Source: Bloomberg New Energy Finance

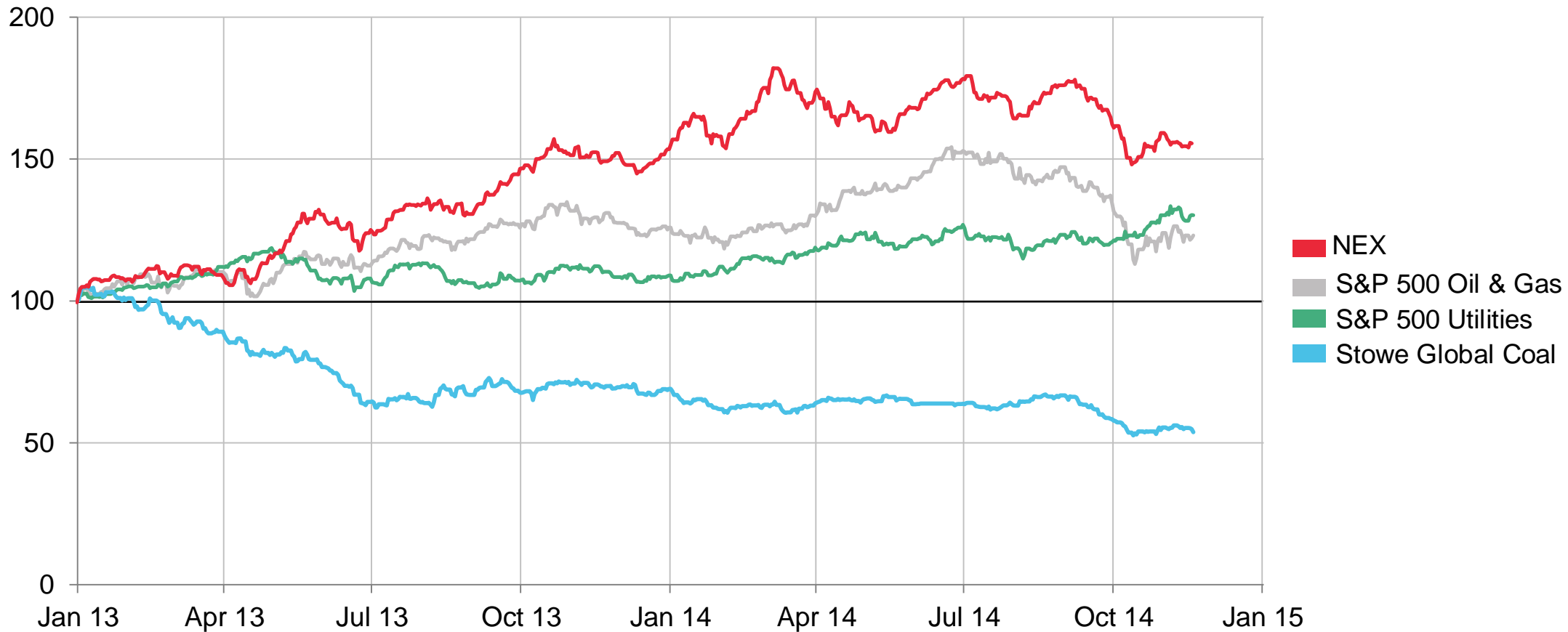
NEX CLEAN ENERGY INDEX 2014 YTD



Note: Values as of 19 November 2014; NASDAQ and S&P 500 rebased to 100 on 01 Jan 2013

Source: Bloomberg New Energy Finance

NEX CLEAN ENERGY INDEX 2013 – 2014 YTD

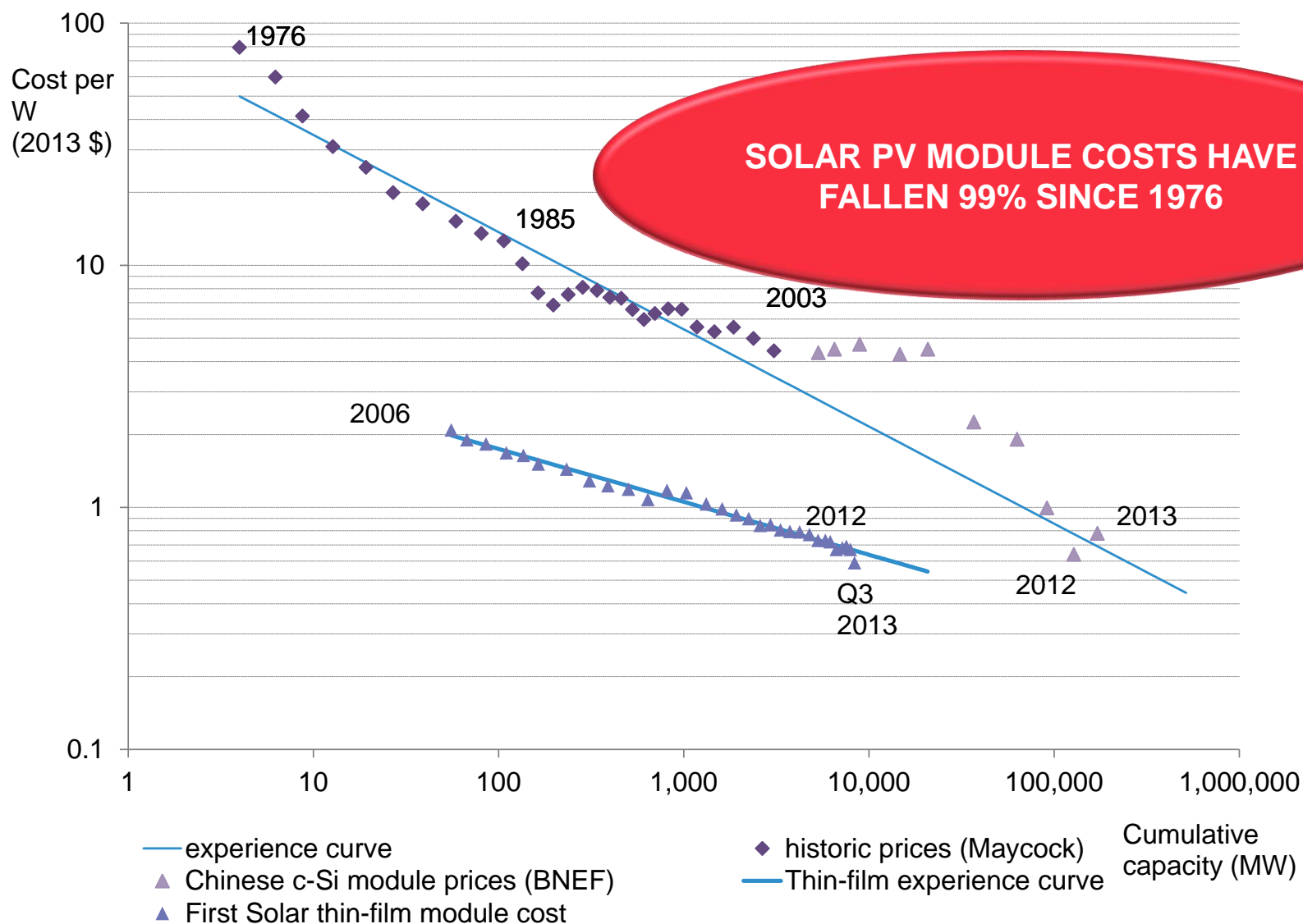


Note: Values as of 21 November 2014; Stowe and S&P 500 rebased to 100 on 01 Jan 2013

Source: Bloomberg New Energy Finance

PV EXPERIENCE CURVE

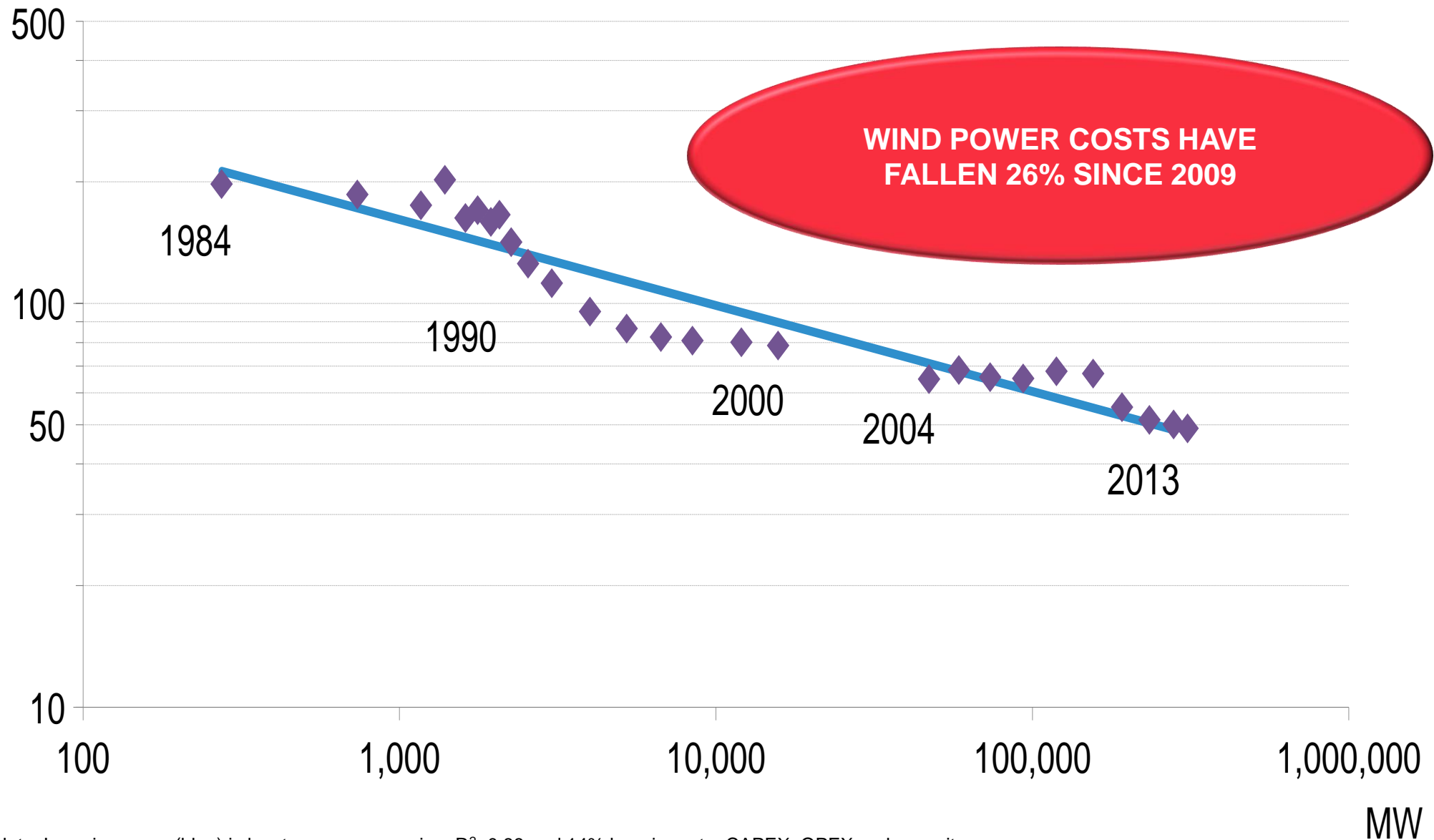
1976-2013 (2013 \$/W)



Note: Prices inflation indexed to US PPI.

Source: Paul Maycock, First Solar, Bloomberg New Energy Finance

AVERAGE LEVELISED COST OF ONSHORE WIND 1984-2013 (EUR/MWH)

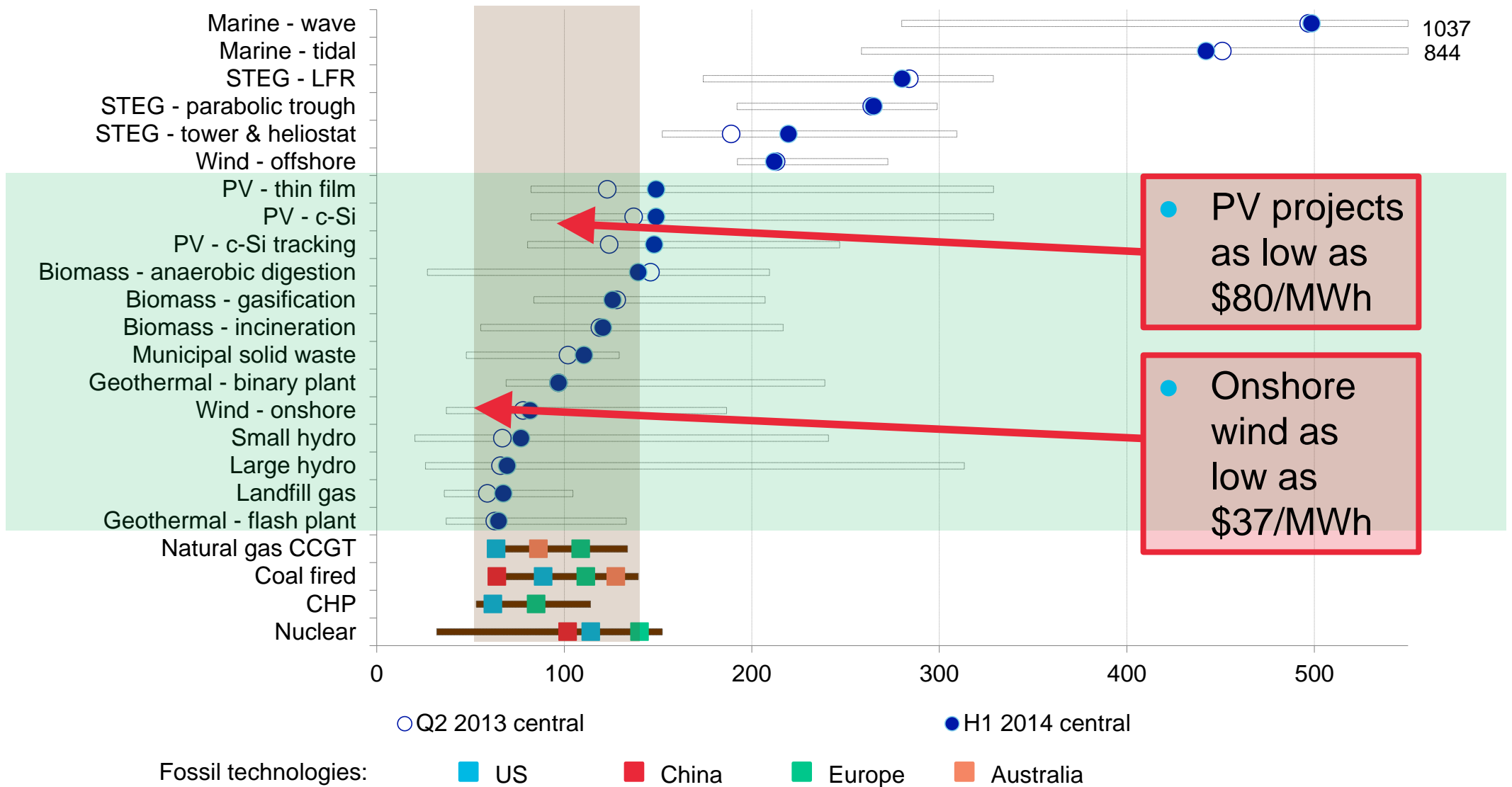


Note: Learning curve (blue) is least square regression: $R^2=0.88$ and 14% learning rate. CAPEX, OPEX and capacity factor evolution is included in this LCOE analysis; financing assumptions kept constant.

Source: Bloomberg New Energy Finance, ExTool

LEVELISED COST OF ELECTRICITY

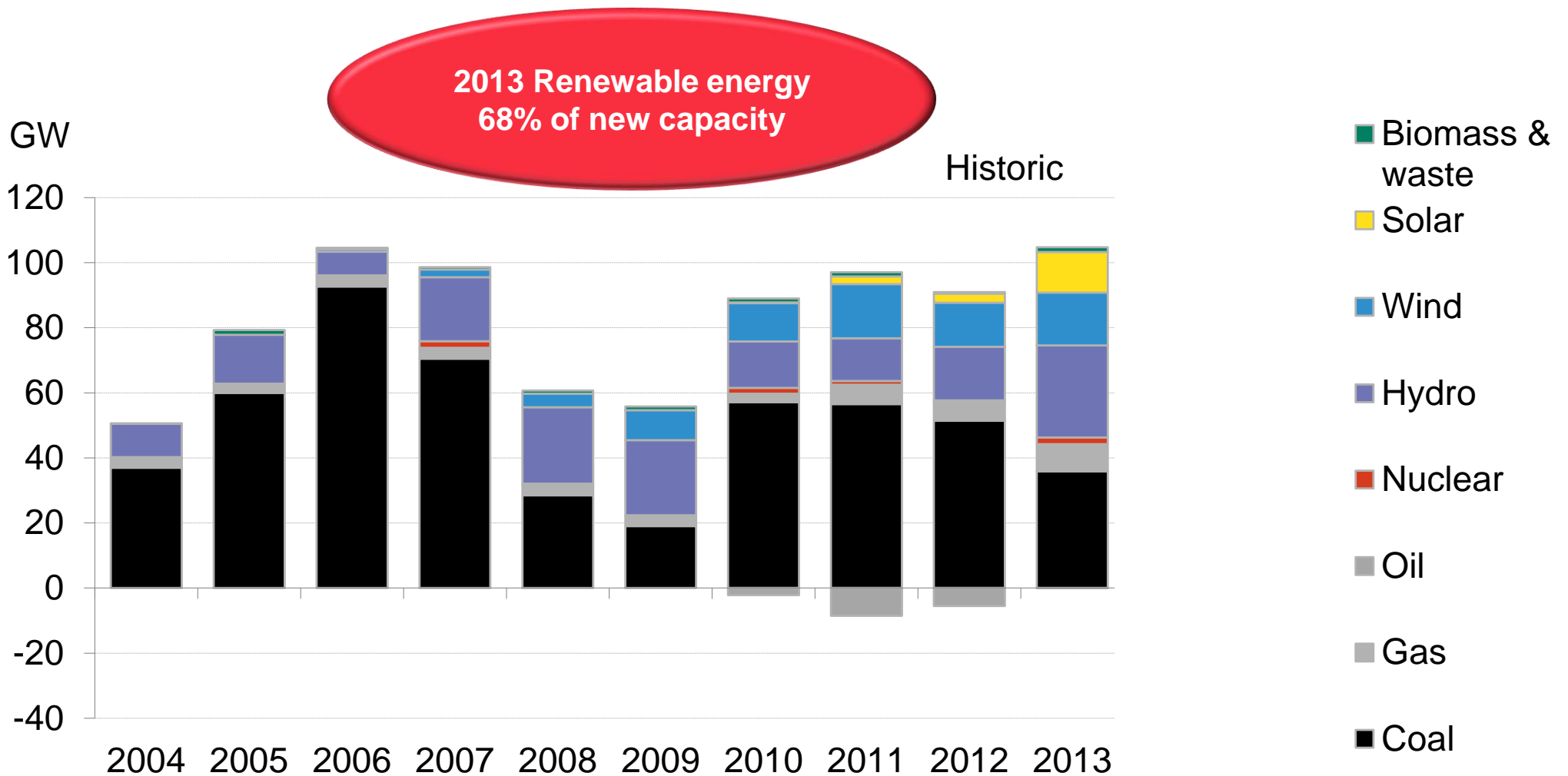
H1 2014 (\$/MWh)



Note: LCOEs for coal and CCGTs in Europe and Australia assume a carbon price of \$20/t. No carbon prices are assumed for China and the US.

Source: Bloomberg New Energy Finance

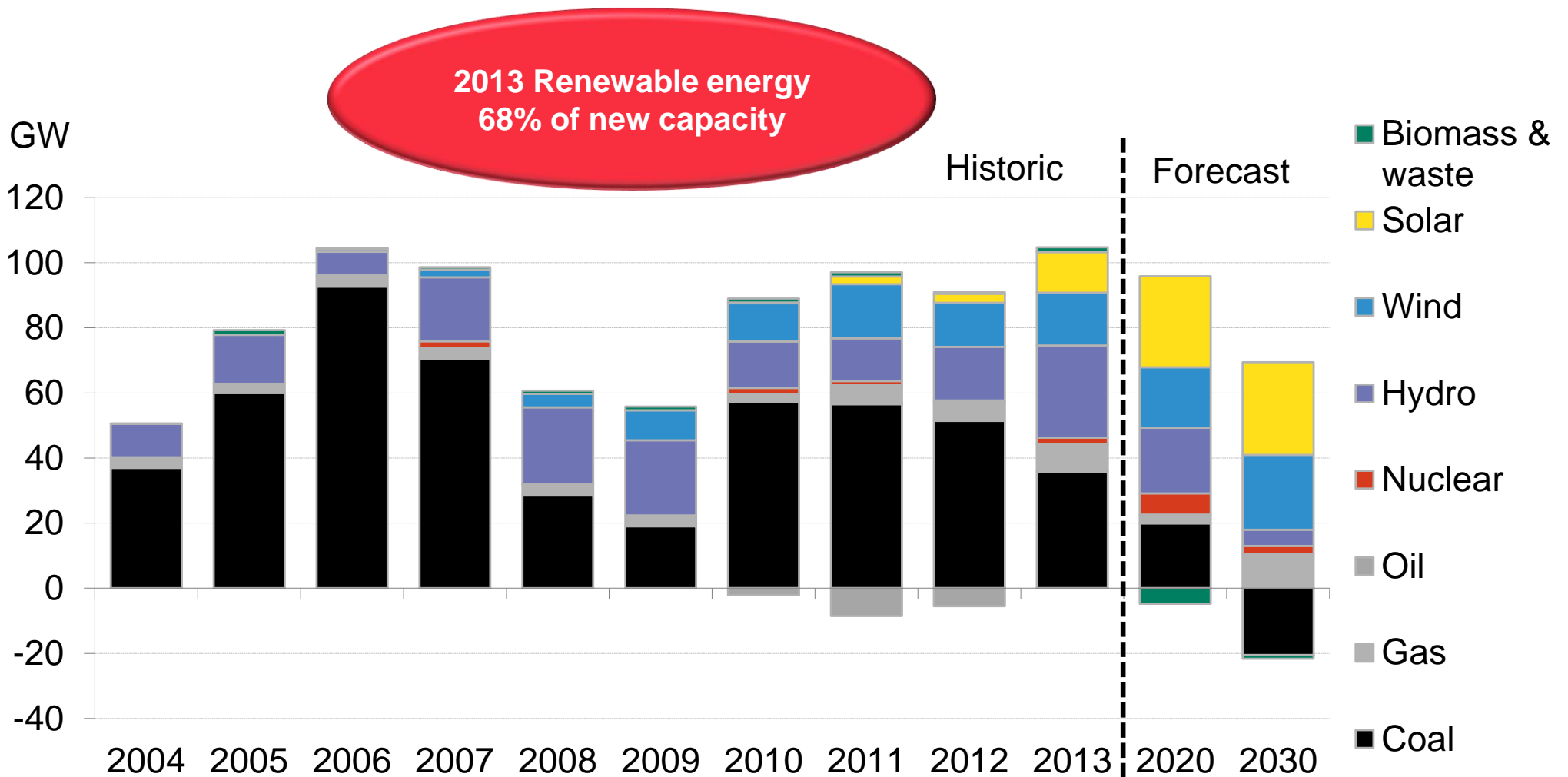
CHINA POWER GENERATION CAPACITY ADD BY TECHNOLOGY, 2004-13, 2020 & 2030



Note: 2020 & 2030 forecasts from BNEF Global Renewable Energy Outlook 2014.

Source: Bloomberg New Energy Finance, China Electricity Council

CHINA POWER GENERATION CAPACITY ADD BY TECHNOLOGY, 2004-13, 2020 & 2030



Note: 2020 & 2030 forecasts from BNEF Global Renewable Energy Outlook 2014.

Source: Bloomberg New Energy Finance, China Electricity Council

South Africa

GDP: \$350.4bn
Five-year economic growth rate: 4%
Population: 53m
Total clean energy investments, 2006-2013: \$9.4bn
Installed power capacity: 43.4GW
Renewable share: 1.2%
Total clean energy generation: 1,533QWh
Top energy authority: Department of Energy

OVERALL RANKING 2014
3

OVERALL SCORE 2014
1.92

PARAMETER

- I. Enabling Framework
- II. Clean Energy Investment & Climate Financing
- III. Low-Carbon Business & Clean Energy Value Chains
- IV. Greenhouse Gas Management Activities

SUMMARY

South Africa scored 1.92 to rank third in Climatescope 2014, and first among African countries. The country's clean energy sector has been transformed recently: in the last two years it has made it into the top 50 globally for clean energy investment and accounted for almost 90% of investment in sub-Saharan Africa during this period. Indeed, it was second-best globally on Clean Energy Investment, Parameter II, its highest ranking.

The country also scored well on Clean Energy Value Chains, Parameter III, taking third place overall. The manufacturing sector is expanding partly due to local content requirements.

Solar accounts for the largest share of clean energy investment to date, a total of \$5.7bn out of \$9.4bn since 2006. This is being driven by the push to install South Africa's very ambitious renewable energy program, a relatively poor performer in the region.

For further information, access www.global-climatescope.org

AFRICA INSTALLED POWER CAPACITY BY SECTOR (GW) AND CLEAN ENERGY CAPACITY BY SECTOR (MW)

Among the countries with the highest absolute levels of clean energy capacity, Kenya (403MW) and Ethiopia (326MW) still scored significantly but South Africa did not – its 511MW paled in comparison to its 43.0GW of other power plants. It is worth noting again here that Climatescope does not count large hydro power projects in its clean energy figures.)

South Africa also ranks largely due to the REE has kick-started a 3.6GW transformation of the market. The country also has a rich and significant legacy work, which includes a followed by Ohana, an On the other hand, the or virtually no policies.

CLEAN ENERGY POLICIES IN AFRICA

	Botswana	Cameroon	Cote d'Ivoire	Ethiopia	Ghana	Kenya	Liberia	Mali	Mozambique	Nigeria
Energy target										
Feed-in tariff										
Auctions										
Net metering										
Biofuels blending mandate										
Debt/equity incentives										
Tax incentives										
Utility regulation										

CLIMATE SCOPE 2014

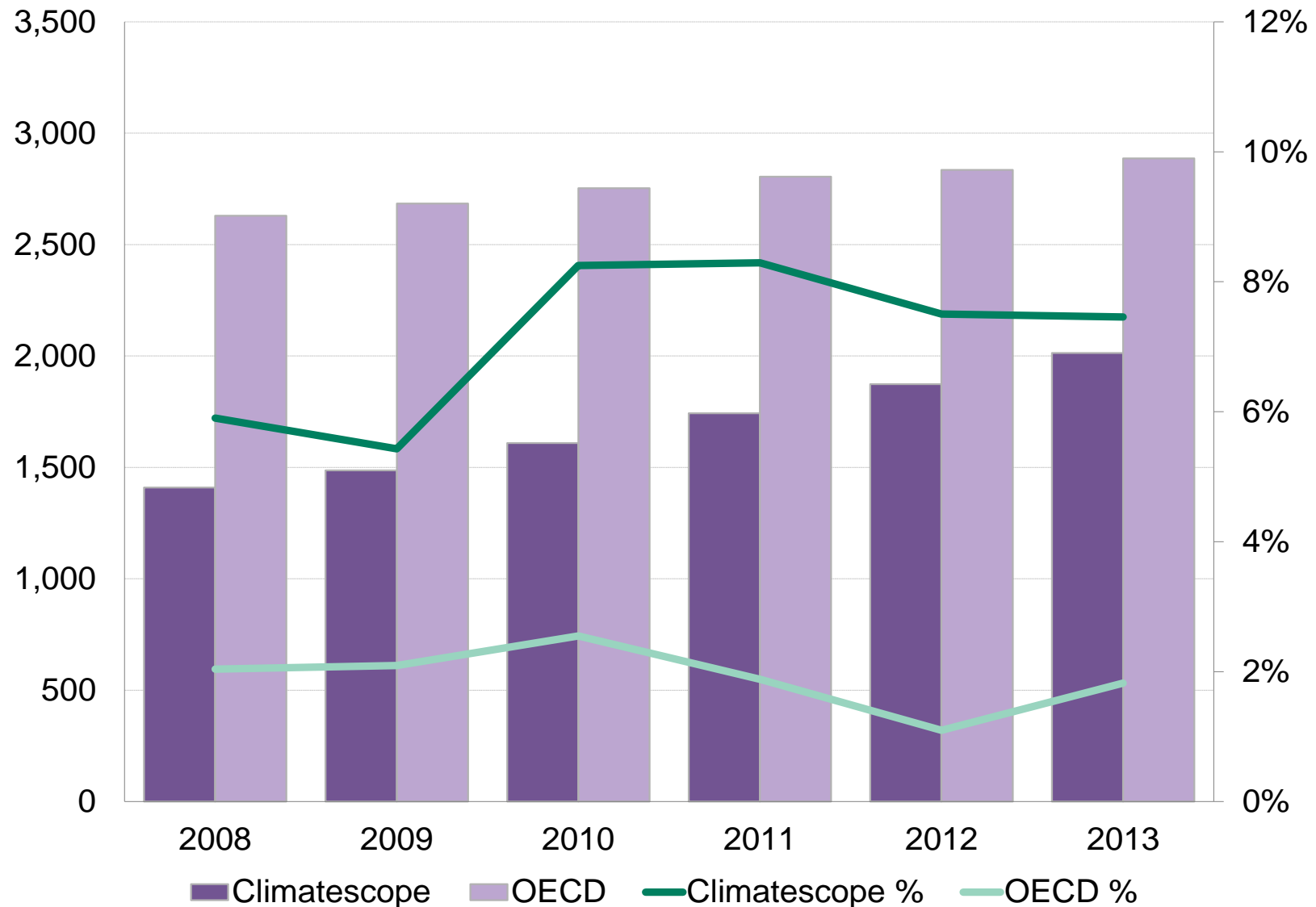
Mapping the Global Frontiers for Clean Energy Investment

Logos: GVIN, UKaid, POWER AFRICA, Bloomberg NEW ENERGY FINANCE

www.global-climatescope.org

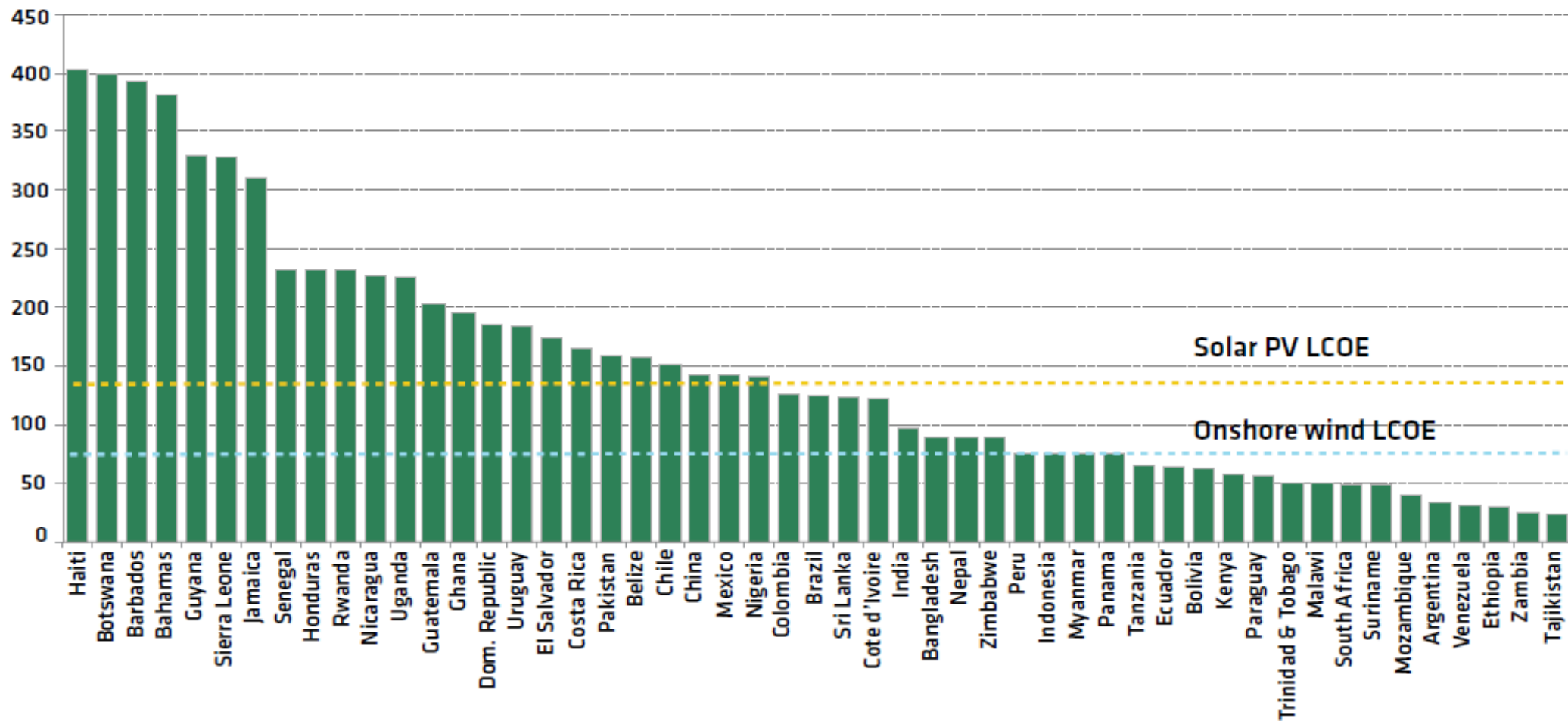
Rank	Country	Score	Progress Bar	Lightning Bolt
1	China	2.23	<div style="width: 100%; height: 10px; background: linear-gradient(to right, yellow, green, blue, purple);"></div>	⚡
2	Brazil	2.13	<div style="width: 100%; height: 10px; background: linear-gradient(to right, yellow, green, blue, purple);"></div>	⚡
3	India	1.85	<div style="width: 100%; height: 10px; background: linear-gradient(to right, yellow, green, blue, purple);"></div>	⚡
4	South africa	1.84	<div style="width: 100%; height: 10px; background: linear-gradient(to right, yellow, green, blue, purple);"></div>	⚡
5	Chile	1.79	<div style="width: 100%; height: 10px; background: linear-gradient(to right, yellow, green, blue, purple);"></div>	⚡

POWER CAPACITY & GROWTH, CLIMATESCOPE VS OECD (CUM. CAPACITY, GW, ANNUAL % CHANGE)



Source: Climatescope

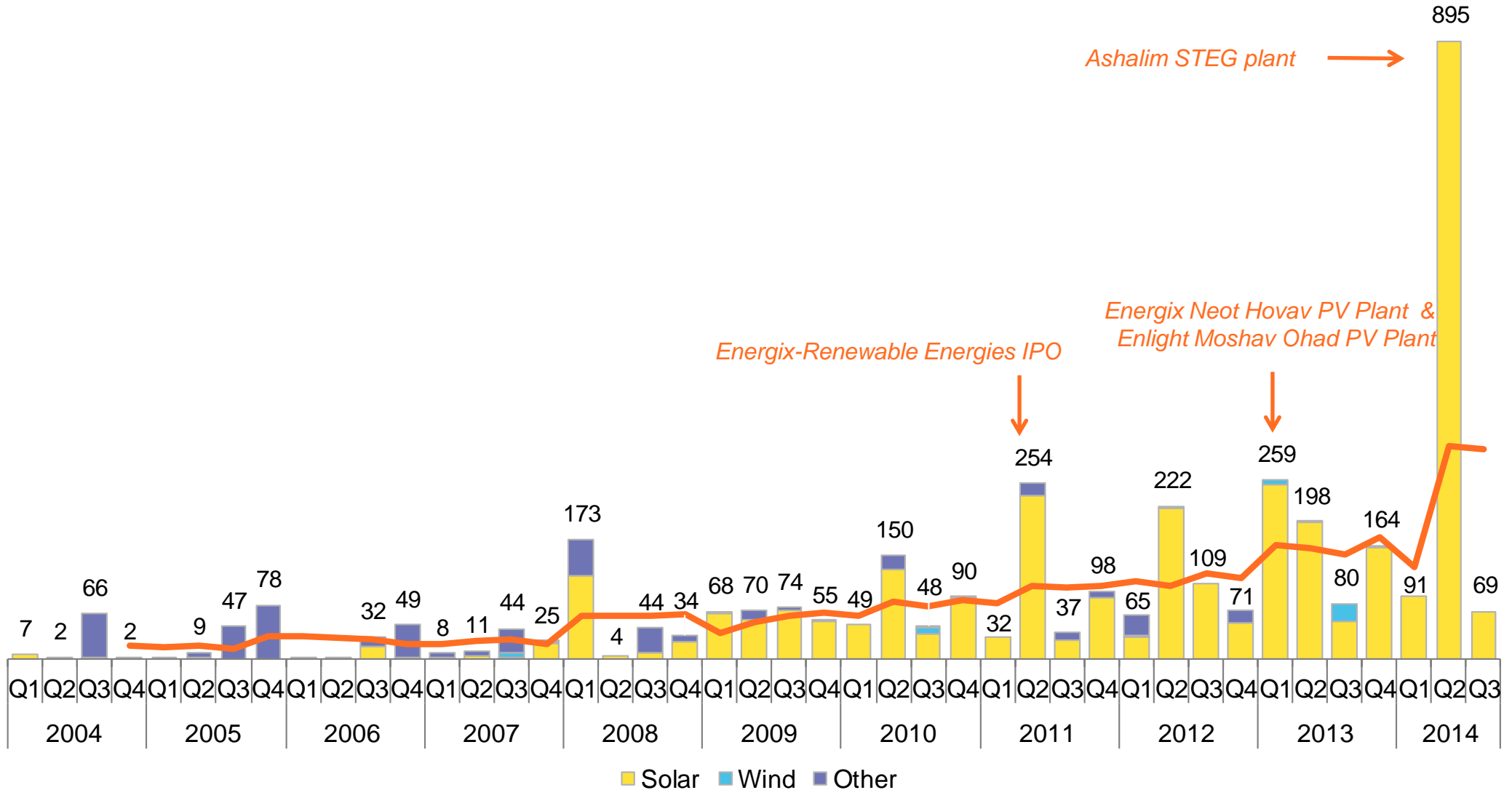
INDUSTRIAL POWER PRICES 2013, CLIMATESCOPE COUNTRIES (\$/MWH)



Source: Climatescope 2014

NEW INVESTMENT IN CLEAN ENERGY IN ISRAEL

Q1 2004-Q3 2014 (\$MN)

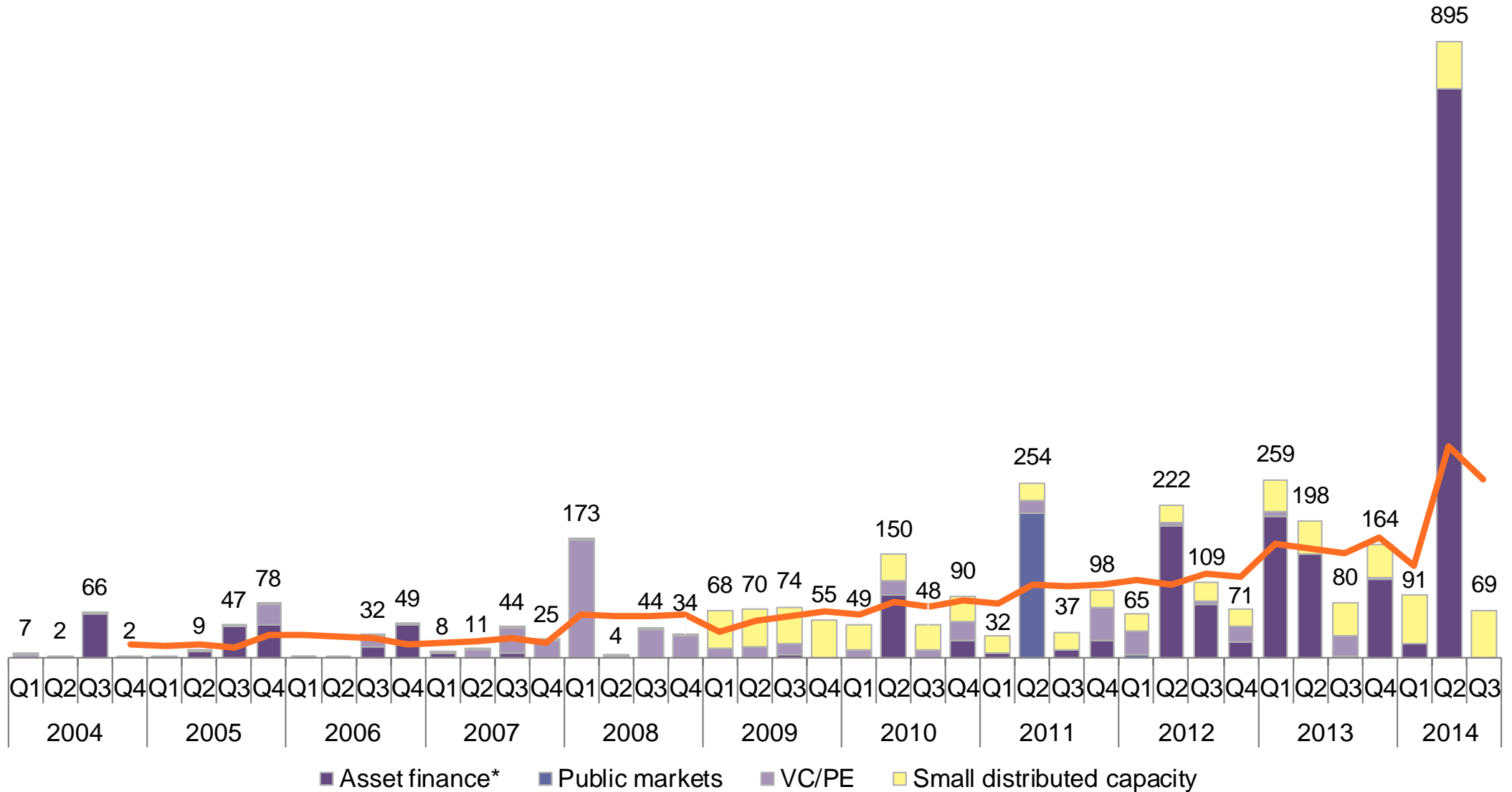


Note: Total values include estimates for undisclosed deals. Excludes corporate and government R&D, and spending for digital energy and energy storage projects (reported in annual statistics only).

Source: Bloomberg New Energy Finance

NEW INVESTMENT IN CLEAN ENERGY IN ISRAEL BY ASSET CLASS

Q1 2004-Q3 2014 (\$MN)



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). *Asset finance includes reinvested equity.

Source: Bloomberg New Energy Finance

TOP 12 CLEAN ENERGY VENTURE CAPITAL INVESTMENT DESTINATIONS

CUM. Q1 2004-Q3 2014 (\$BN)

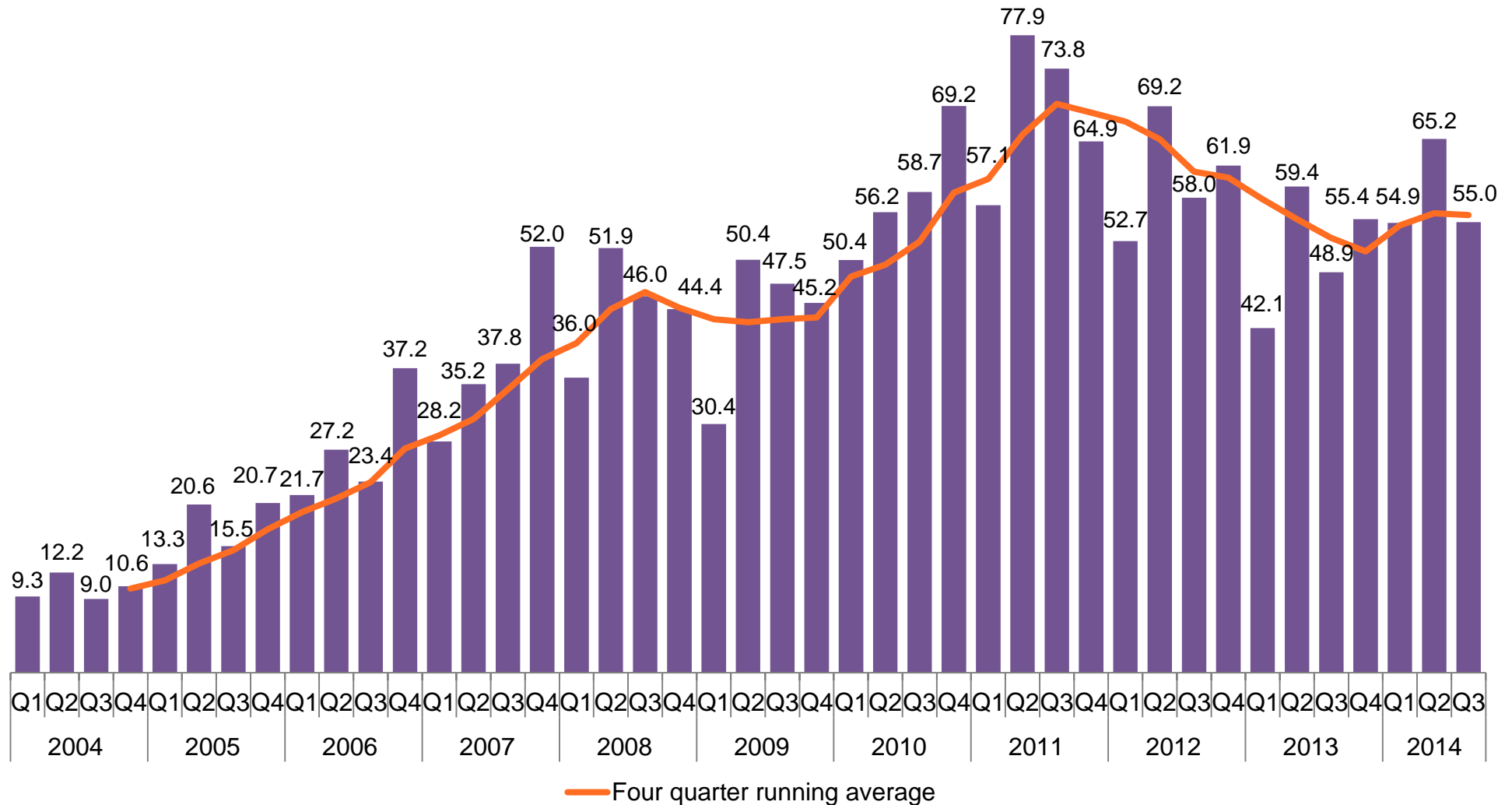


Note: Total values include cumulative early and late stage venture capital investment in clean energy between Q1 2004 and Q3 2014

Source: Bloomberg New Energy Finance

NEW INVESTMENT IN CLEAN ENERGY

Q1 2004-Q3 2014 (\$BN)



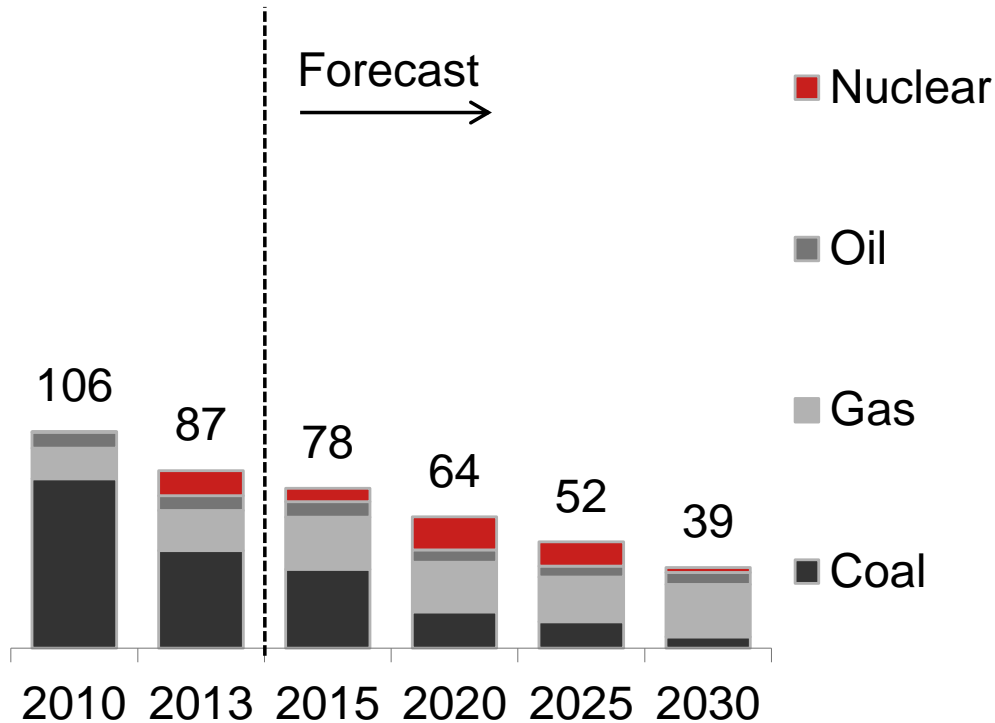
Note: Total values include estimates for undisclosed deals. Excludes corporate and government R&D, and spending for digital energy and energy storage projects (reported in annual statistics only).

Source: Bloomberg New Energy Finance

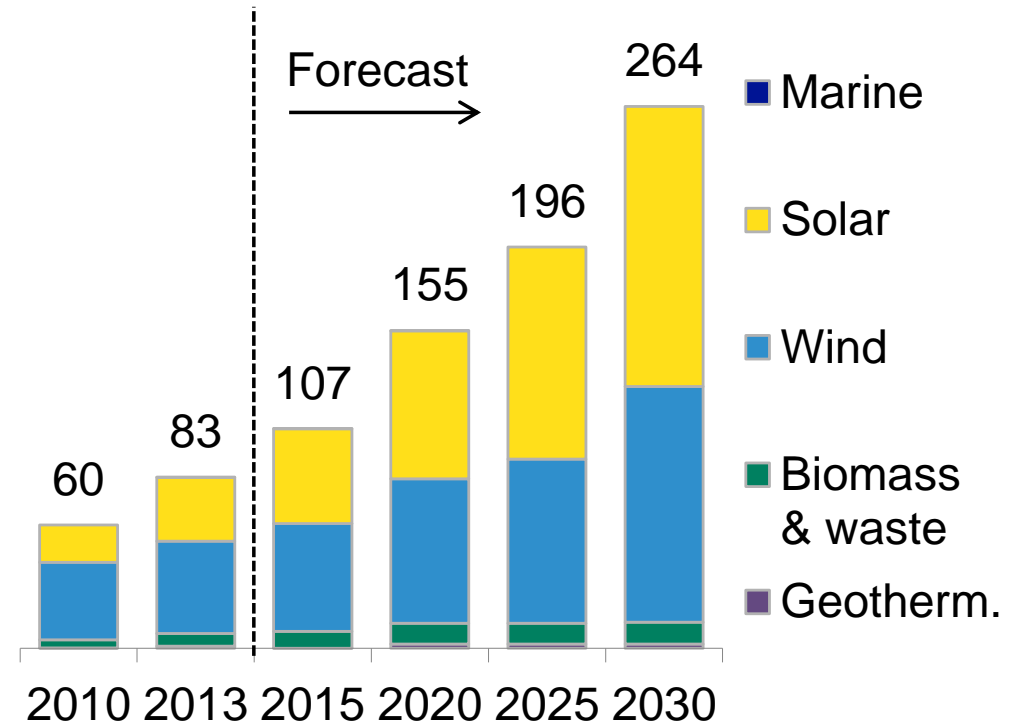
GLOBAL POWER GENERATION CAPACITY ADDITIONS

2010–30 (GW)

FOSSIL FUEL AND NUCLEAR



RENEWABLES



Source: Bloomberg New Energy Finance

Thanks!

MARKETS

Renewable Energy
Energy Smart Technologies
Advanced Transport
Gas
Carbon and RECs

SERVICES

Americas Service
Asia Pacific Service
EMEA Service
Applied Research
Events and Workshops

Unique analysis, tools and data for decision-makers
driving change in the energy system

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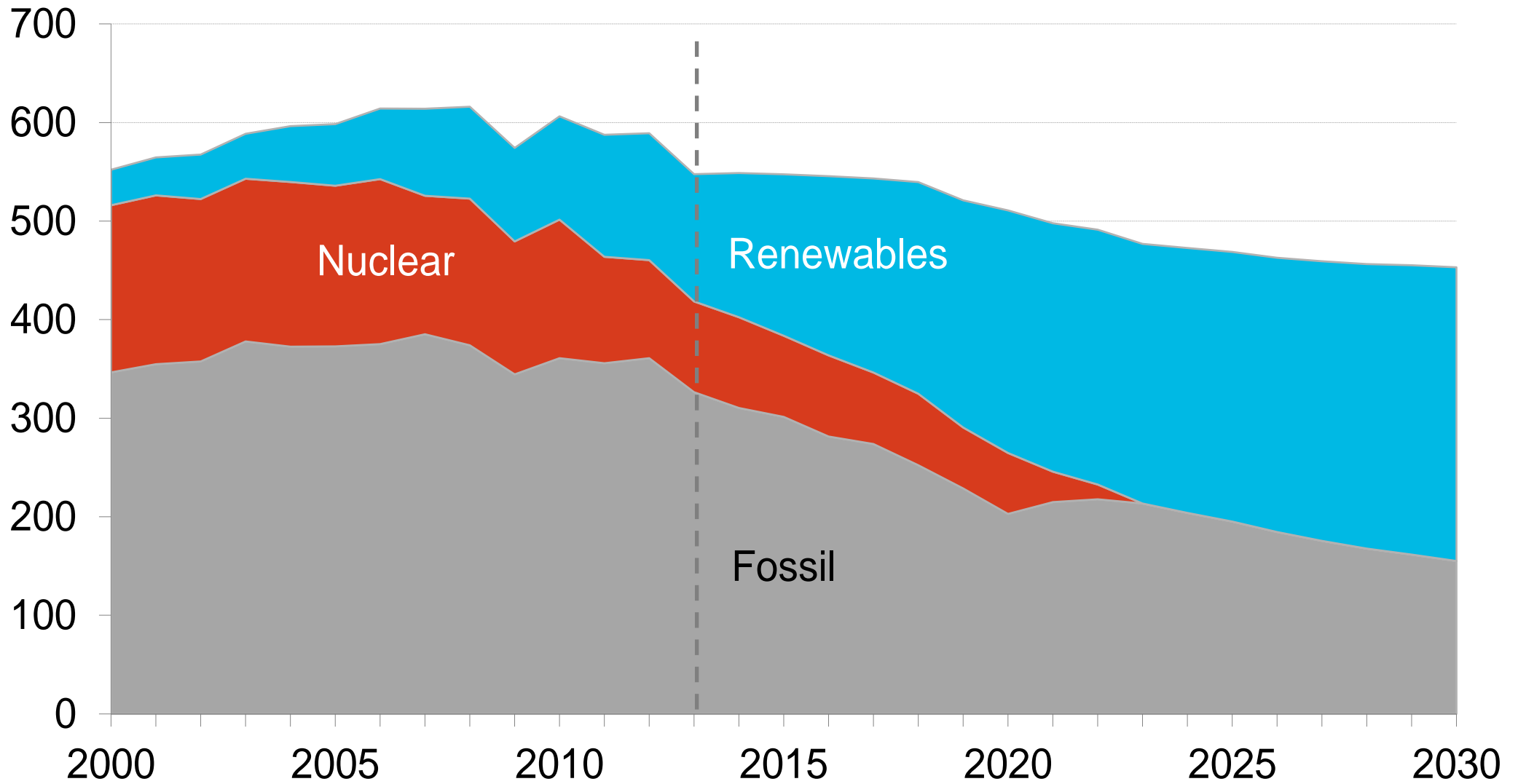
@BenjaminKafri

Bloomberg
NEW ENERGY FINANCE

ANNEX

ENERGIEWENDE

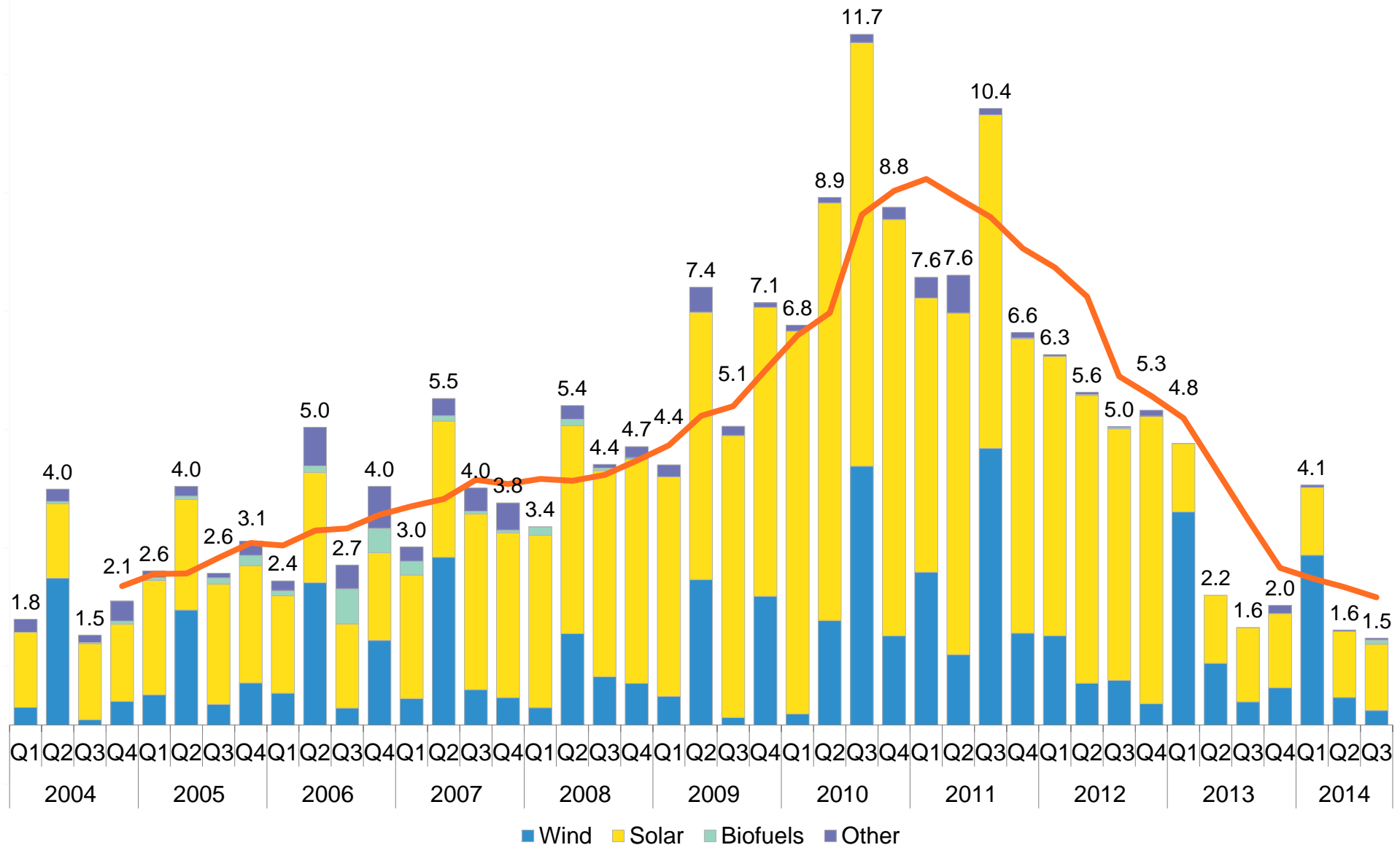
2000–30 (TWH)



Source: Bloomberg New Energy Finance, Destatis

NEW INVESTMENT IN CLEAN ENERGY IN GERMANY

Q1 2004-Q3 2014 (\$BN)

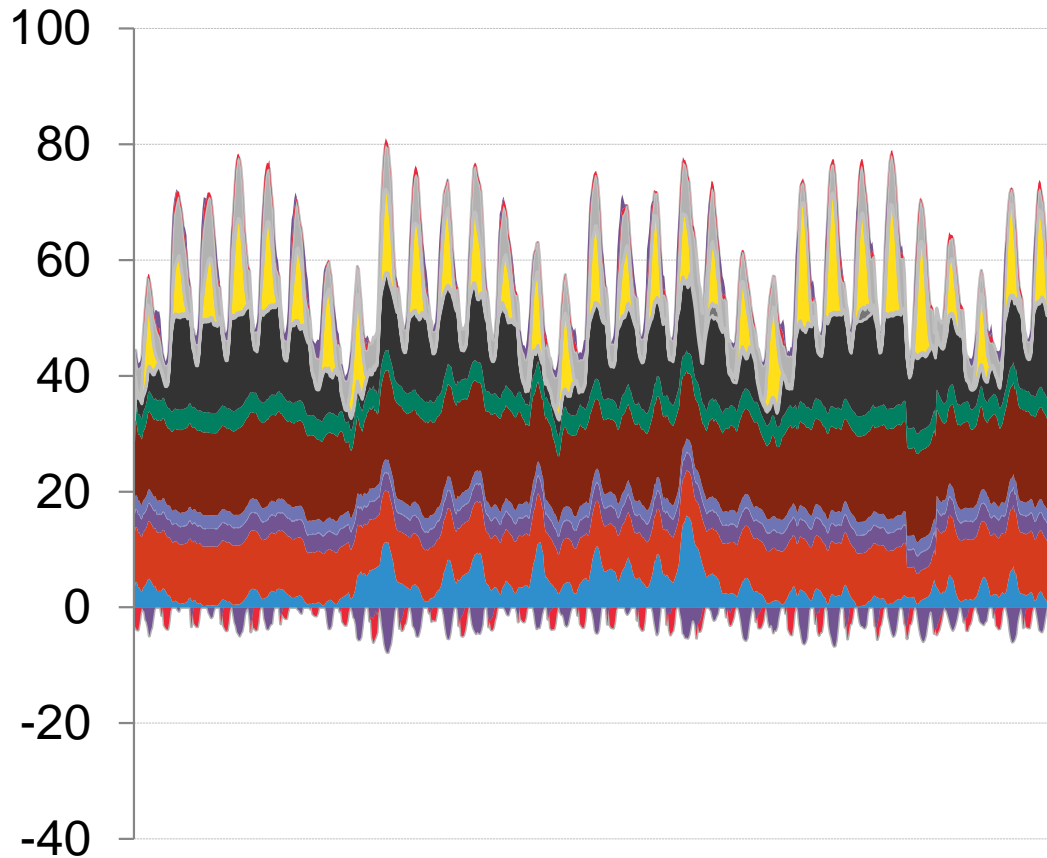


Note: Total values include estimates for undisclosed deals. Excludes corporate and government R&D, and spending for digital energy and energy storage projects (reported in annual statistics only).

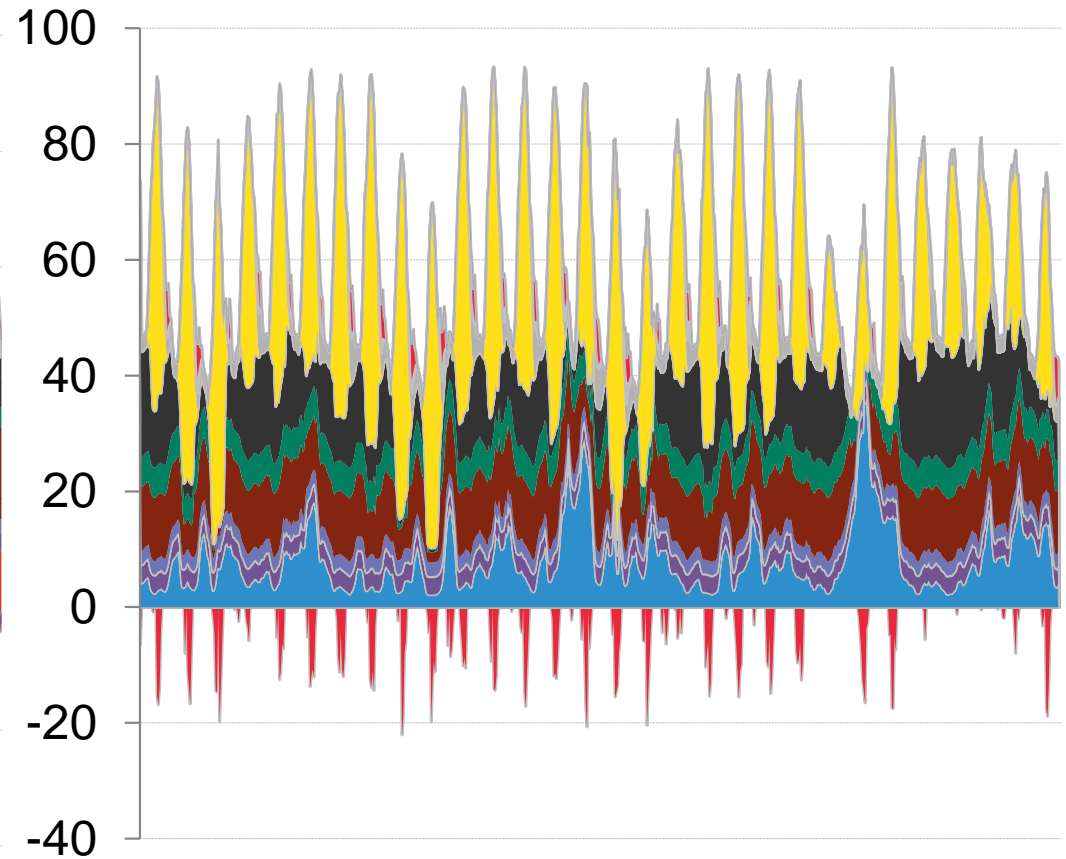
Source: Bloomberg New Energy Finance

GERMAN HOURLY GENERATION PROFILE (GW)

JULY 2012

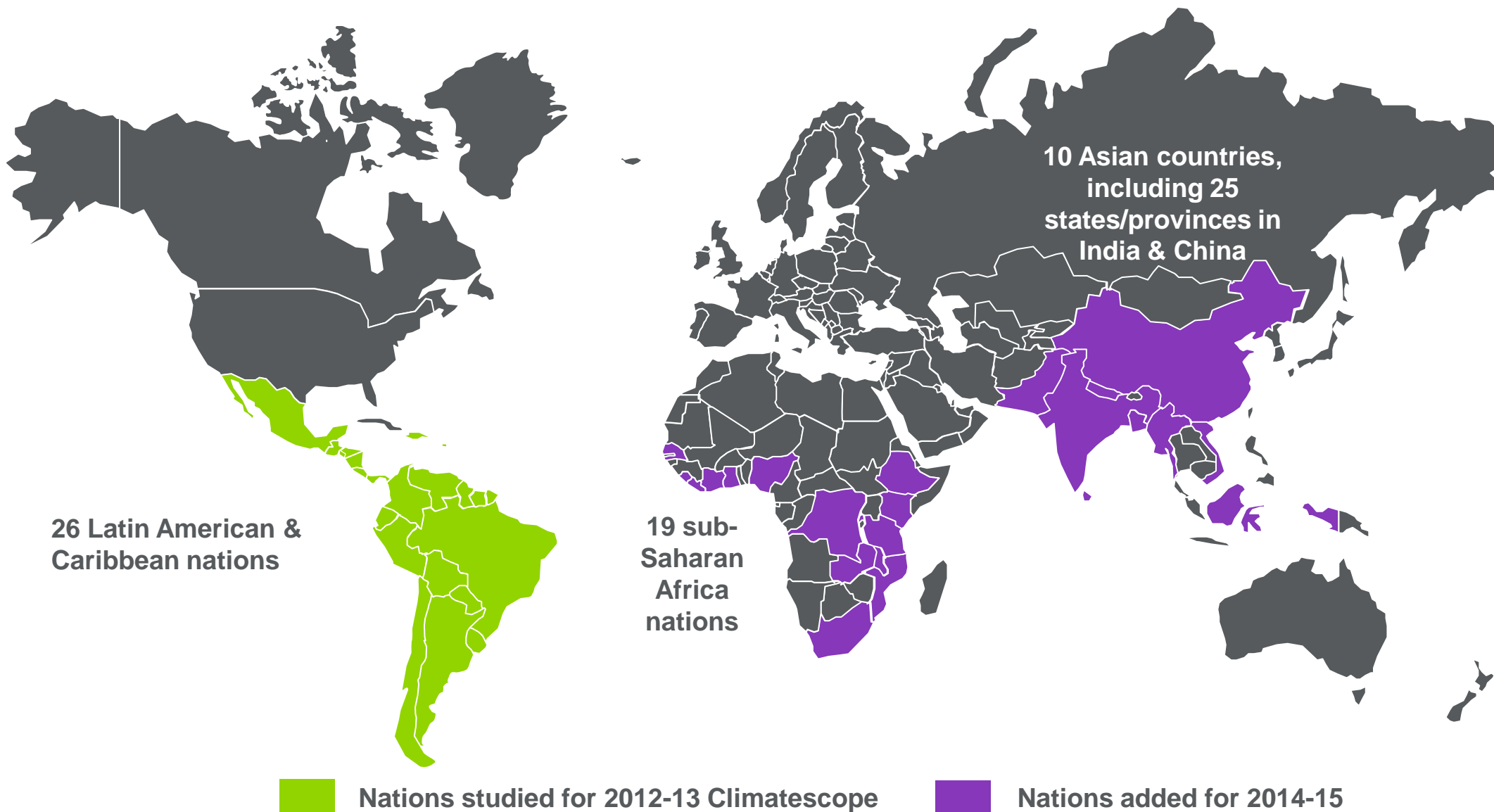


JULY 2013



Source: Bloomberg New Energy Finance

CLIMATESCOPE COUNTRY COVERAGE 2012-13 AND 2014-15



RETAIL POWER PRICES, AFRICA, SOLAR VS KEROSENE (\$/WEEK)



Kerosene
\$4 per week



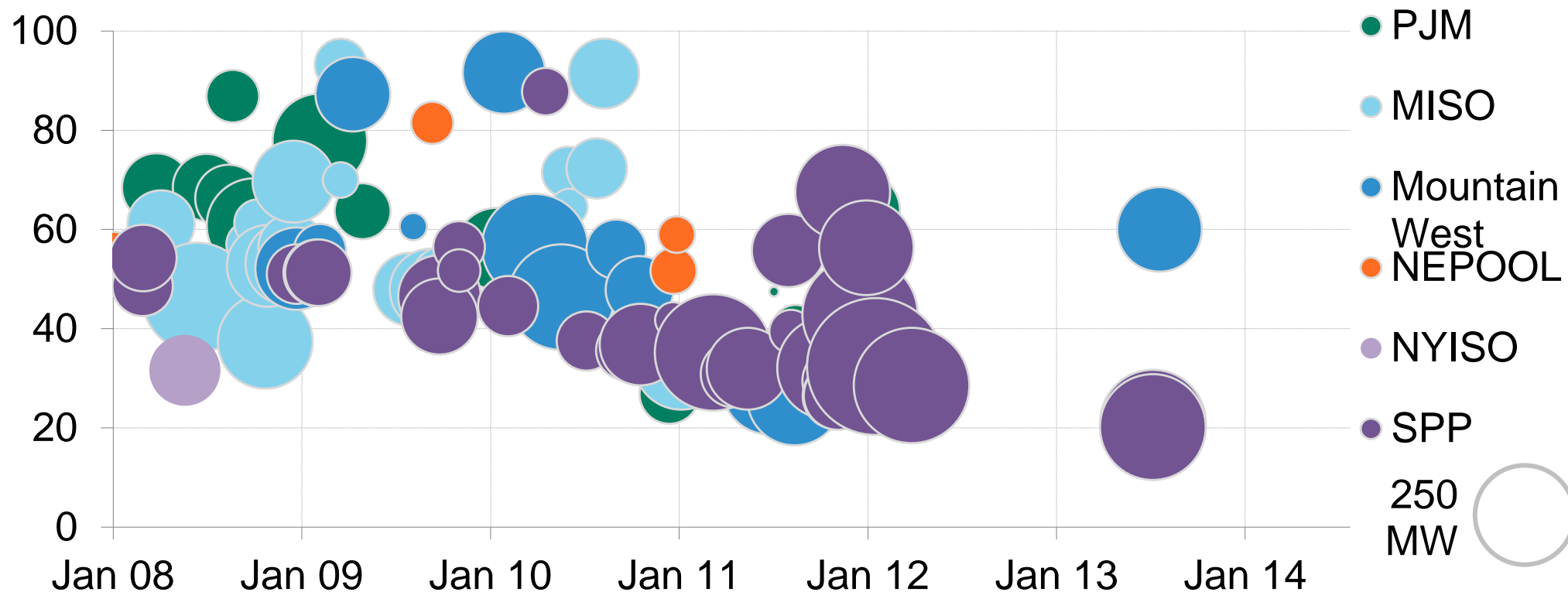
Solar PV
\$1 per week

Note: Illustrative figures for cost of 2 lamps plus mobile phone charging, Kenya, 2012

Picture Credit: SolarSister

US WIND PPA PRICES BY SIGNING DATE

H1 2008–H2 2013 (\$/MWH)

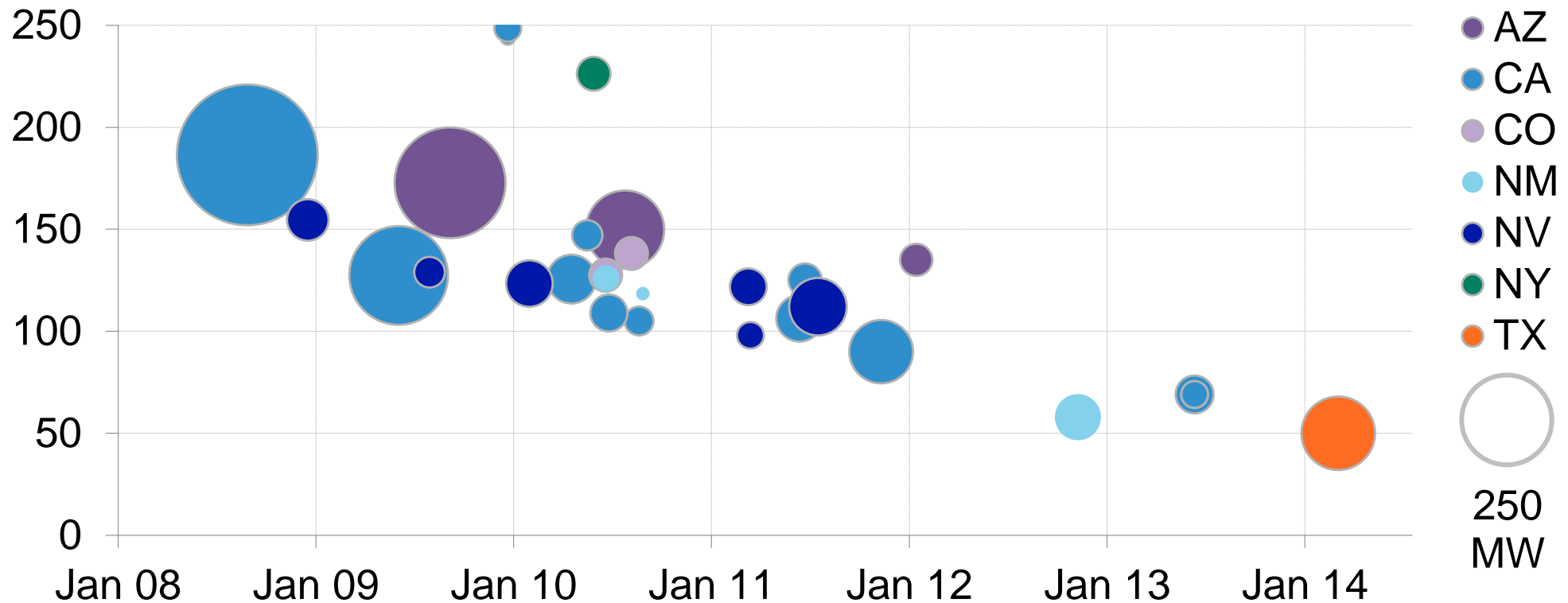


Note: Does not include PPAs under 5MW. 'PPA price' is calculated as the average offtake price over the period of project operation. For projects reporting to FERC, the PPA price is calculated as the average selling price over the operating history of the project. For projects not reporting to FERC, the PPA price represents the 'year1' selling price.

Source: Bloomberg New Energy Finance, FERC

US SOLAR PPA PRICES BY SIGNING DATE

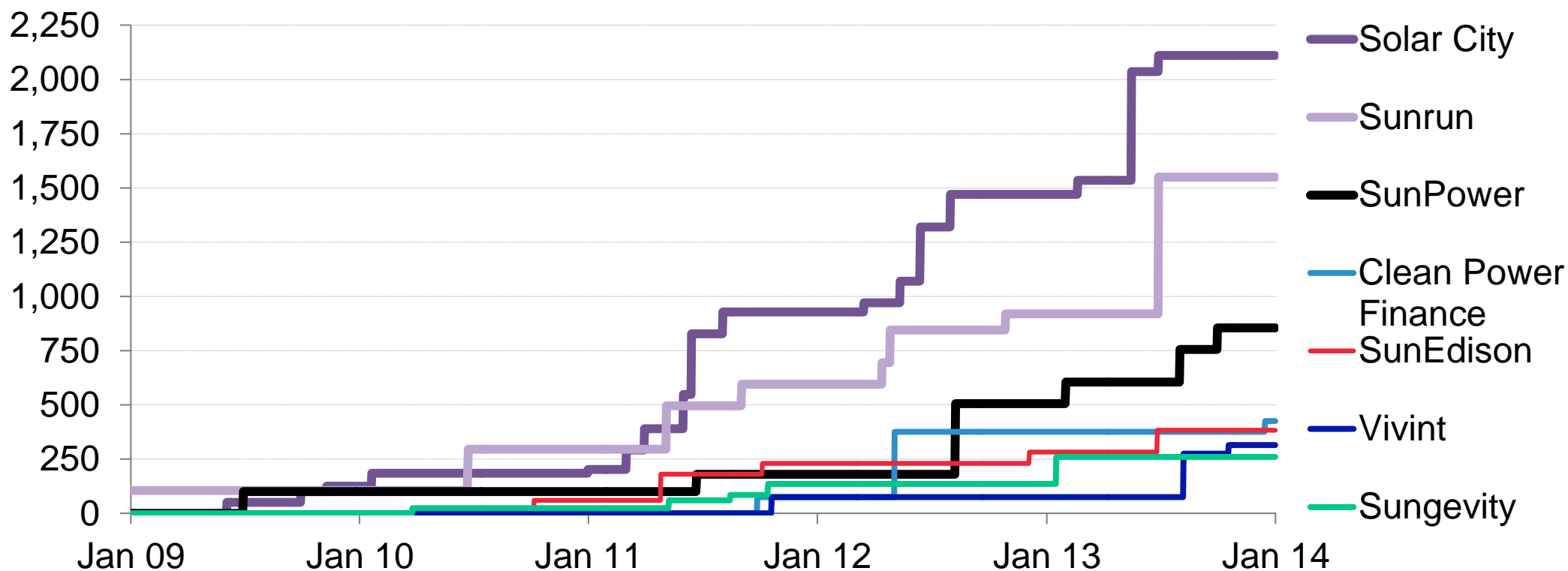
H1 2008–H2 2013 (\$/MWH)



Note: Does not include PPAs under 5MW. 'PPA price' is calculated as the average offtake price over the period of project operation. For projects reporting to FERC, the PPA price is calculated as the average selling price over the operating history of the project. For projects not reporting to FERC, the PPA price represents the 'year1' selling price.

Source: Bloomberg New Energy Finance, FERC

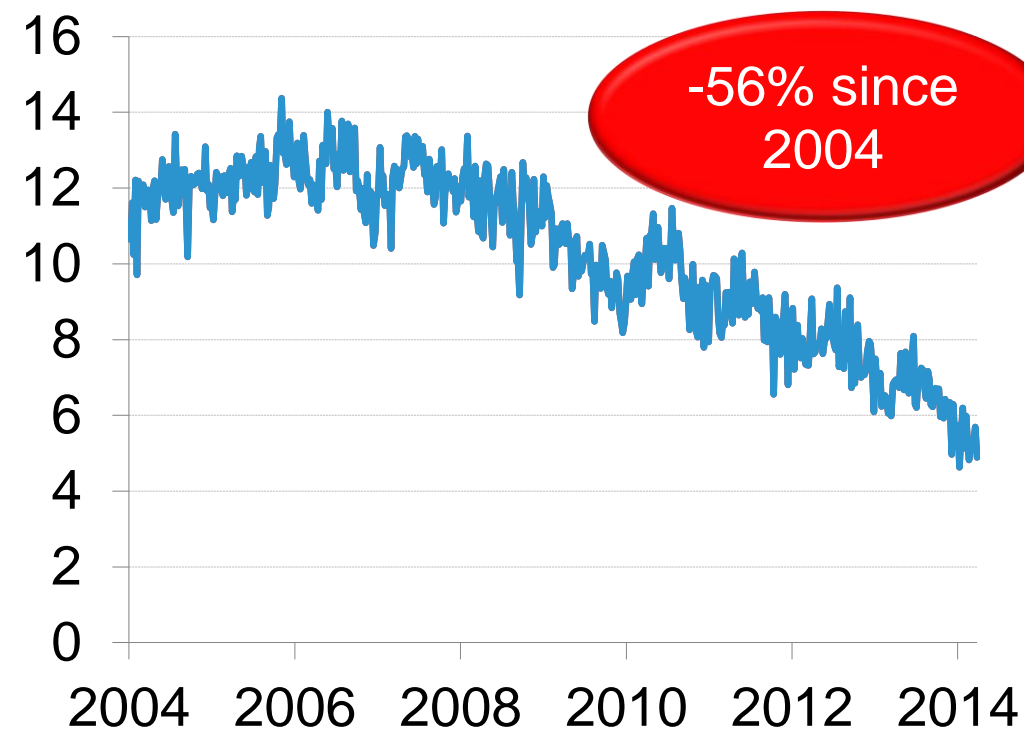
CUMULATIVE FUNDS CLOSED BY SELECTED THIRD-PARTY FINANCIERS, JAN 2009-MAR 2014 (\$M)



Note: This represents fund size; actual capital invested is lower and non-public. This figure may not include all non-public deals. Does not include all third-party financiers. Each fund contains an unknown combination of equity, tax equity or debt (or an absence of tax equity or debt). *The \$300m Clean Power Finance fund raised on 3 May 2012 does not contain tax equity

Source: Bloomberg New Energy Finance

IMPORTS



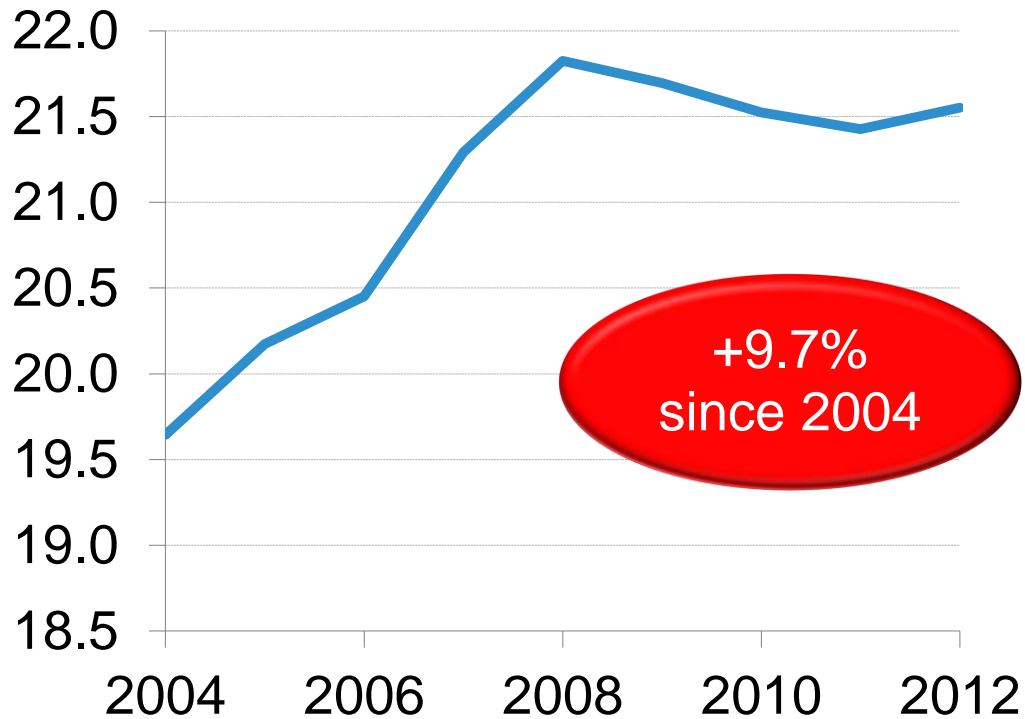
PRODUCTION



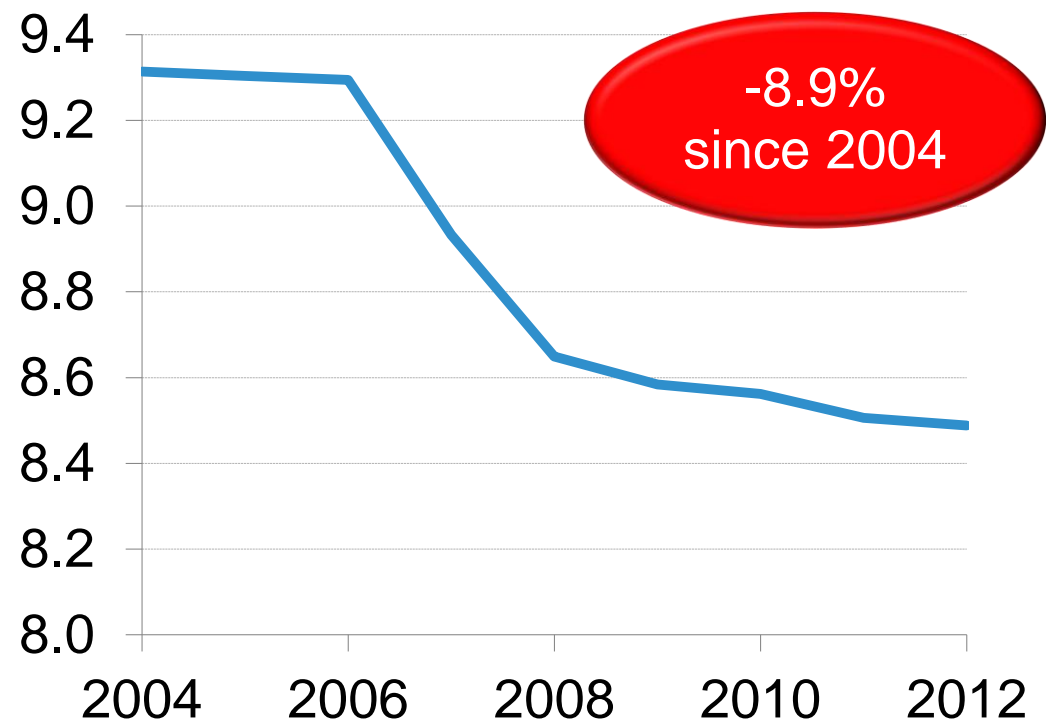
Source: EIA; Bloomberg New Energy Finance

US CAR USE AND FUEL EFFICIENCY

FUEL EFFICIENCY (MILES/GALLON)



ANNUAL VEHICLE-DISTANCE TRAVELLED (1,000 MILES PER PERSON)



Note: Mpg figures are sales weighted average. Total vehicle miles grew at 2.7% CAGR between 1971 and 2007

Source: US DOT, University of Michigan Transportation Research Institute, Bloomberg New Energy Finance