# CLEAN ENERGY INVESTMENT OUTLOOK

## ISRAEL ENERGY AND BUSINESS CONFERENCE

**ETHAN ZINDLER**

**28 NOVEMBER 2011**

Bloomberg NEW ENERGY FINANCE

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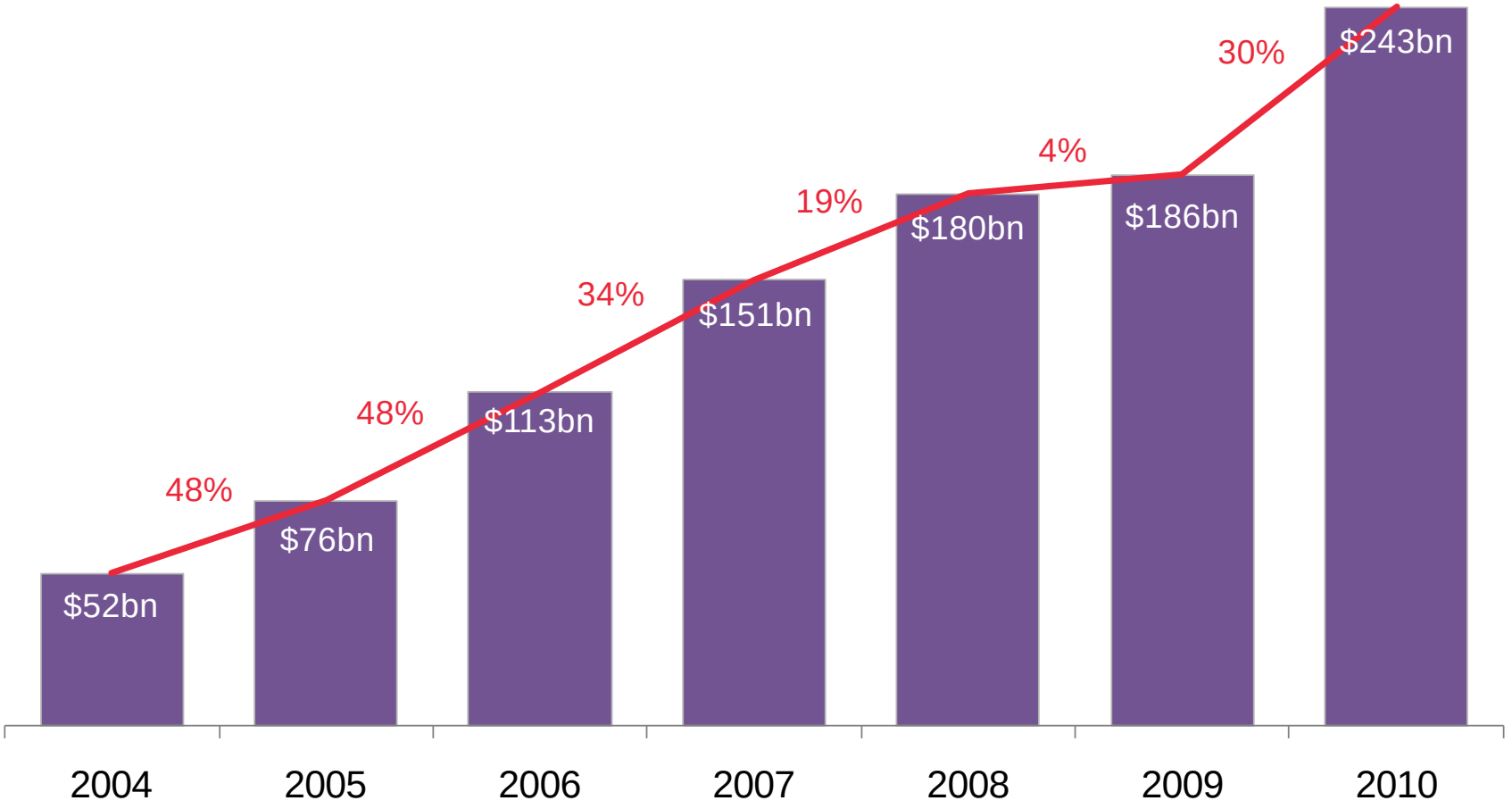
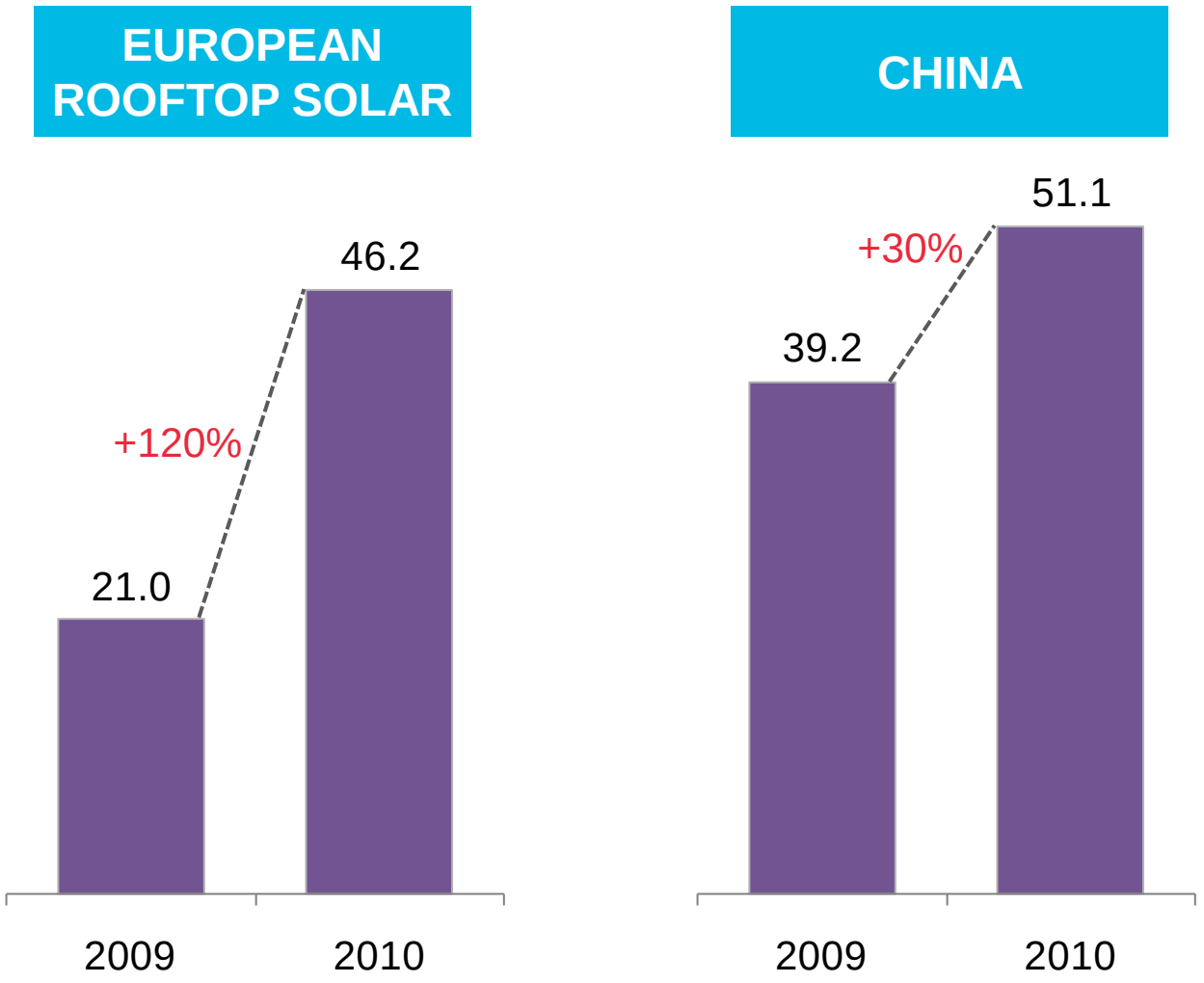
# GLOBAL TOTAL NEW INVESTMENT IN CLEAN ENERGY 2004–10 ($BN)




Note: Includes corporate and government R&D, and small distributed capacity. Adjusted for re-invested equity. Does not include proceeds from acquisition transactions

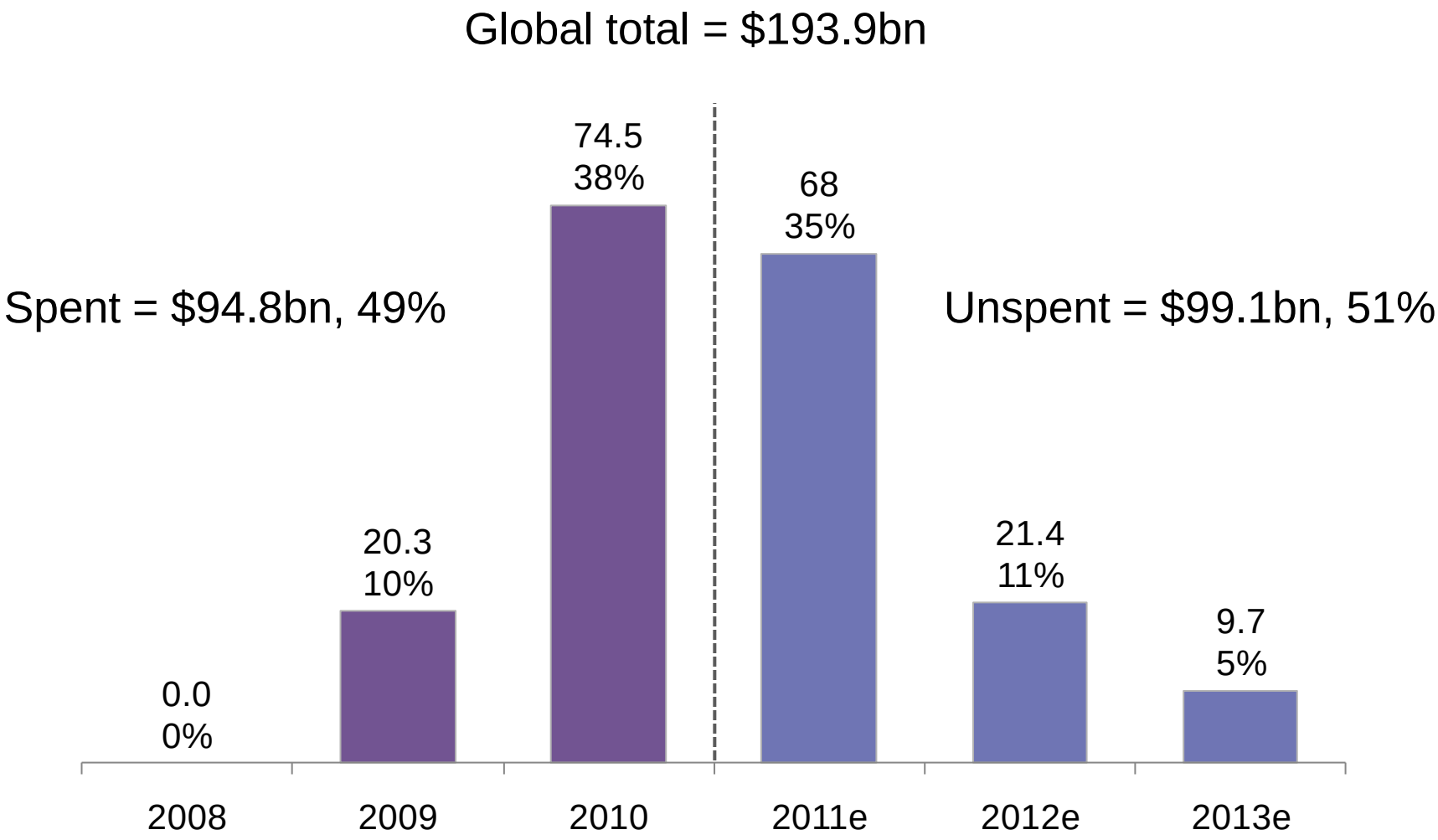
Source: Bloomberg New Energy Finance

# DRIVERS OF INVESTMENT GROWTH, 2009–10 ($BN)




Source: Bloomberg New Energy Finance

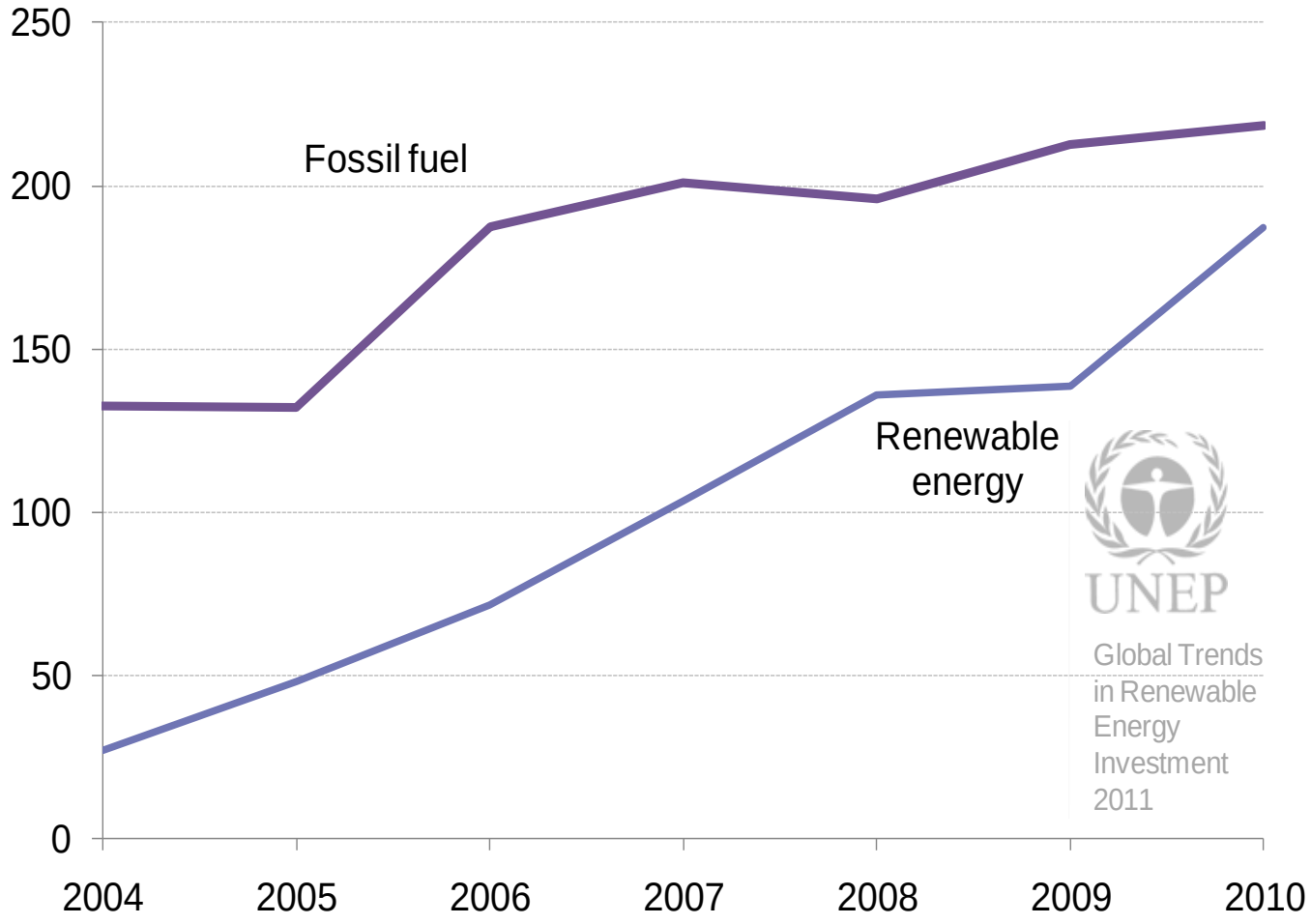
# GLOBAL CLEAN ENERGY STIMULUS SPENDING BY YEAR, 2011–13 ($BN)




Note: 2011–13 according to Bloomberg New Energy Finance expectations

Source: Bloomberg New Energy Finance

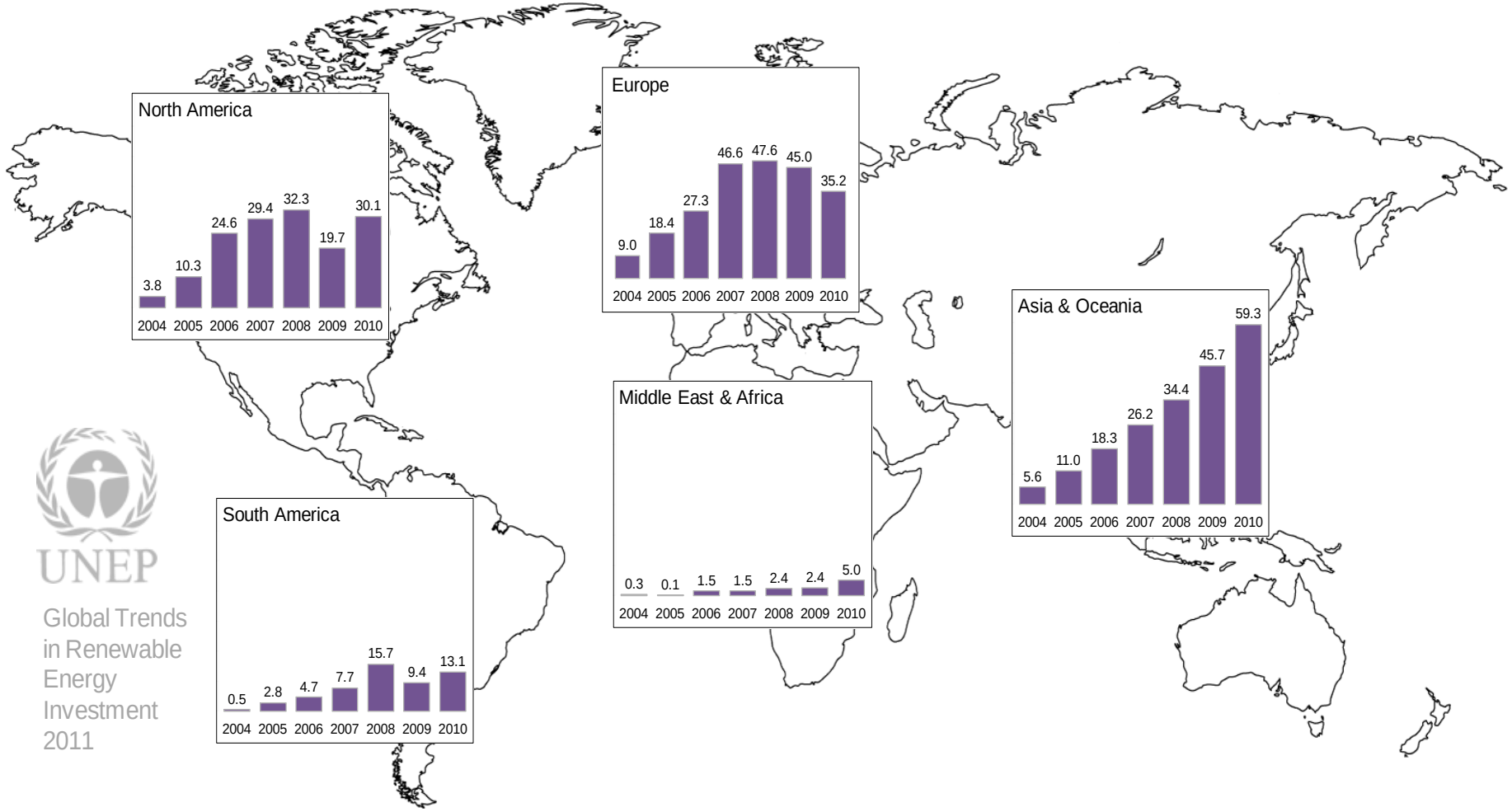
# INVESTMENT IN RENEWABLE ENERGY VS. CONVENTIONAL CAPACITY, 2004-2010 ($BN)




Note: Fossil Fuel investment is calculated from EIA & IEA data. Clean energy investment includes asset finance and small scale projects, but excludes large hydro.

Source: Bloomberg New Energy Finance; EIA, IEA

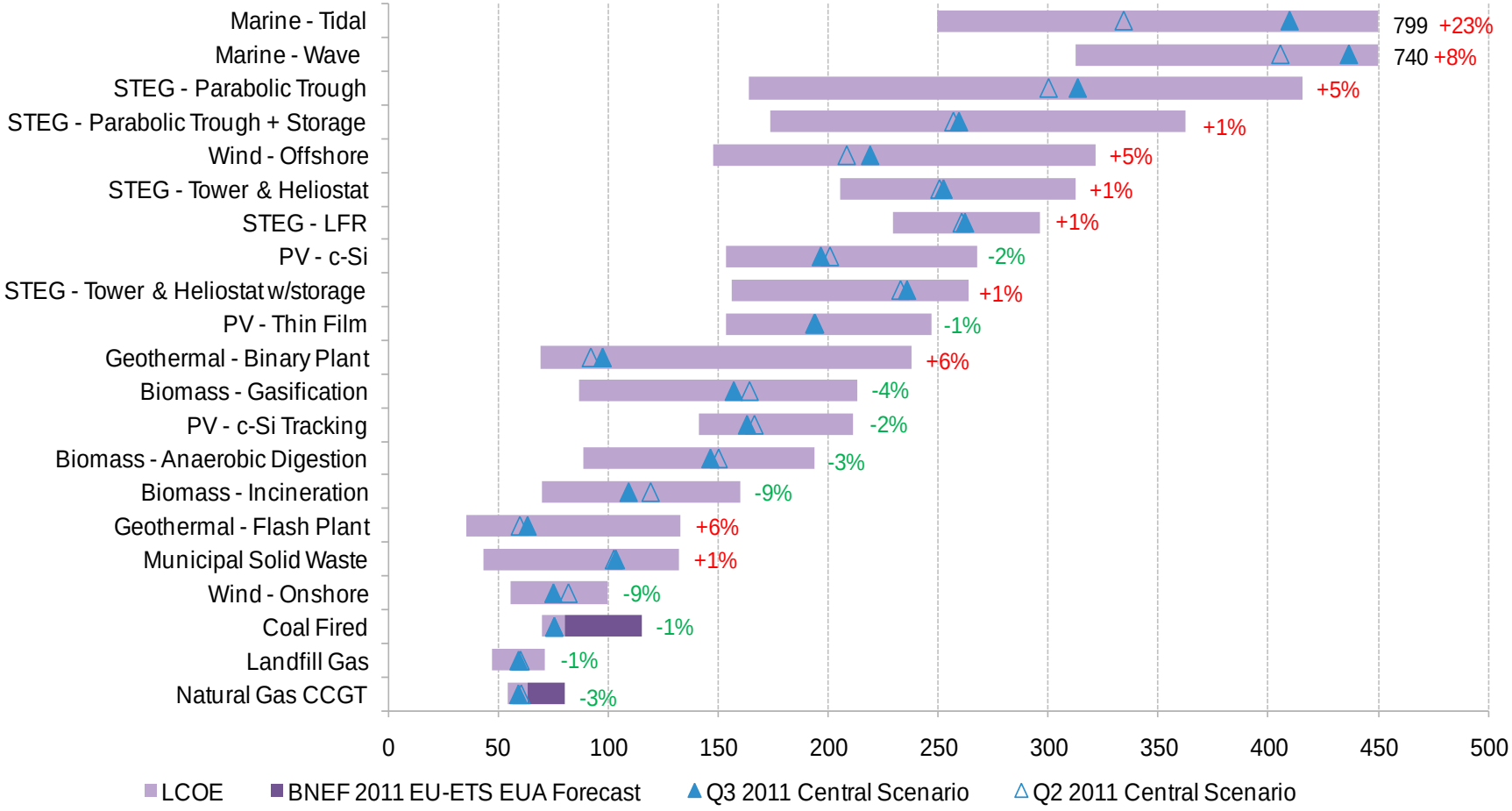
# FINANCIAL NEW INVESTMENT IN RENEWABLE ENERGY BY REGION, 2004-2010 ($BN)




Note: New investment volume adjusts for re-invested equity. Total values include estimates for undisclosed deals. This comparison does not include small-scale projects.

Source: Bloomberg New Energy Finance; UNEP

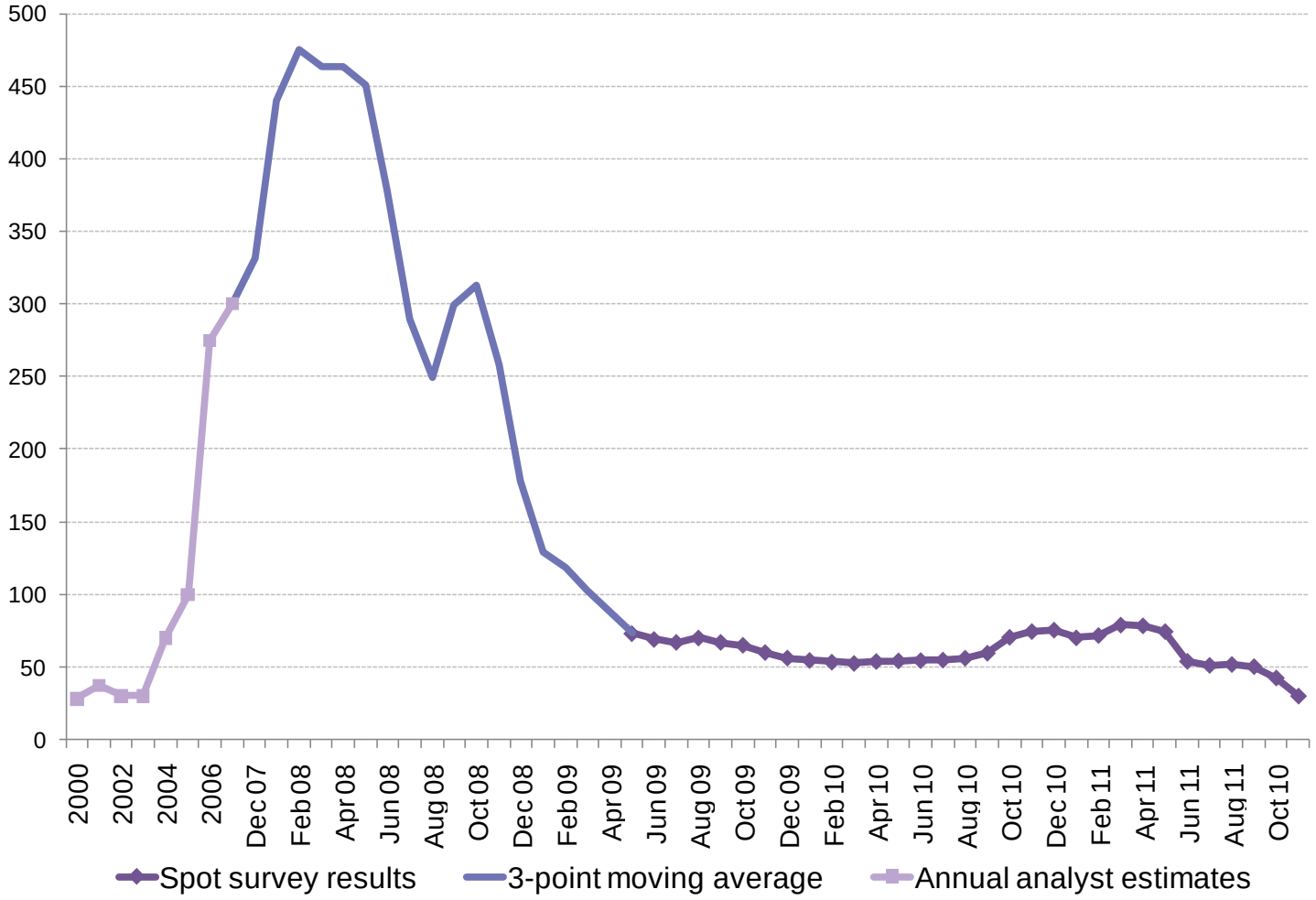
# LEVELISED COST OF ENERGY Q3 2011 ($/MWH)




Carbon forecasts from the BNEF European Carbon Model with a 2020 horizon $74/tCO2. Coal and nat gas prices from the US Department of Energy EIA Annual Energy Outlook 2011. % change represents change in mid from Q2 2011.

Source: Bloomberg New Energy Finance

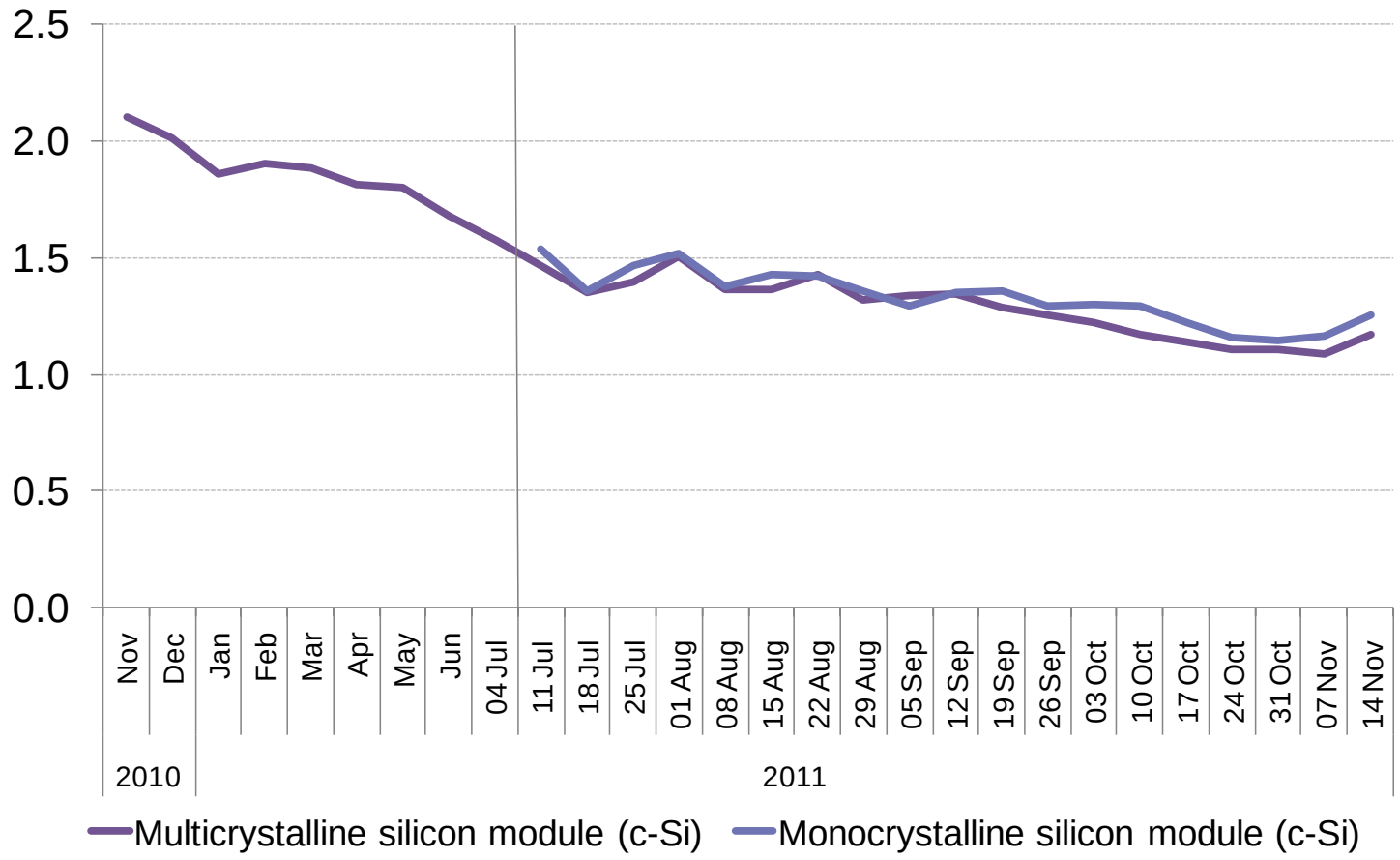
# SPOT PRICES OF SOLAR-GRADE SILICON, YEAR 2000 – NOVEMBER 2011 ($/KG)




Note: Annual data 2000-2007 from various industry sources. Data November 2007 – May 2009 based on a 3-point moving average of actual spot deals. Consistent monthly data collection using the Spot Survey began in May 2009.

Source: Various, Bloomberg New Energy Finance Solar Spot Survey

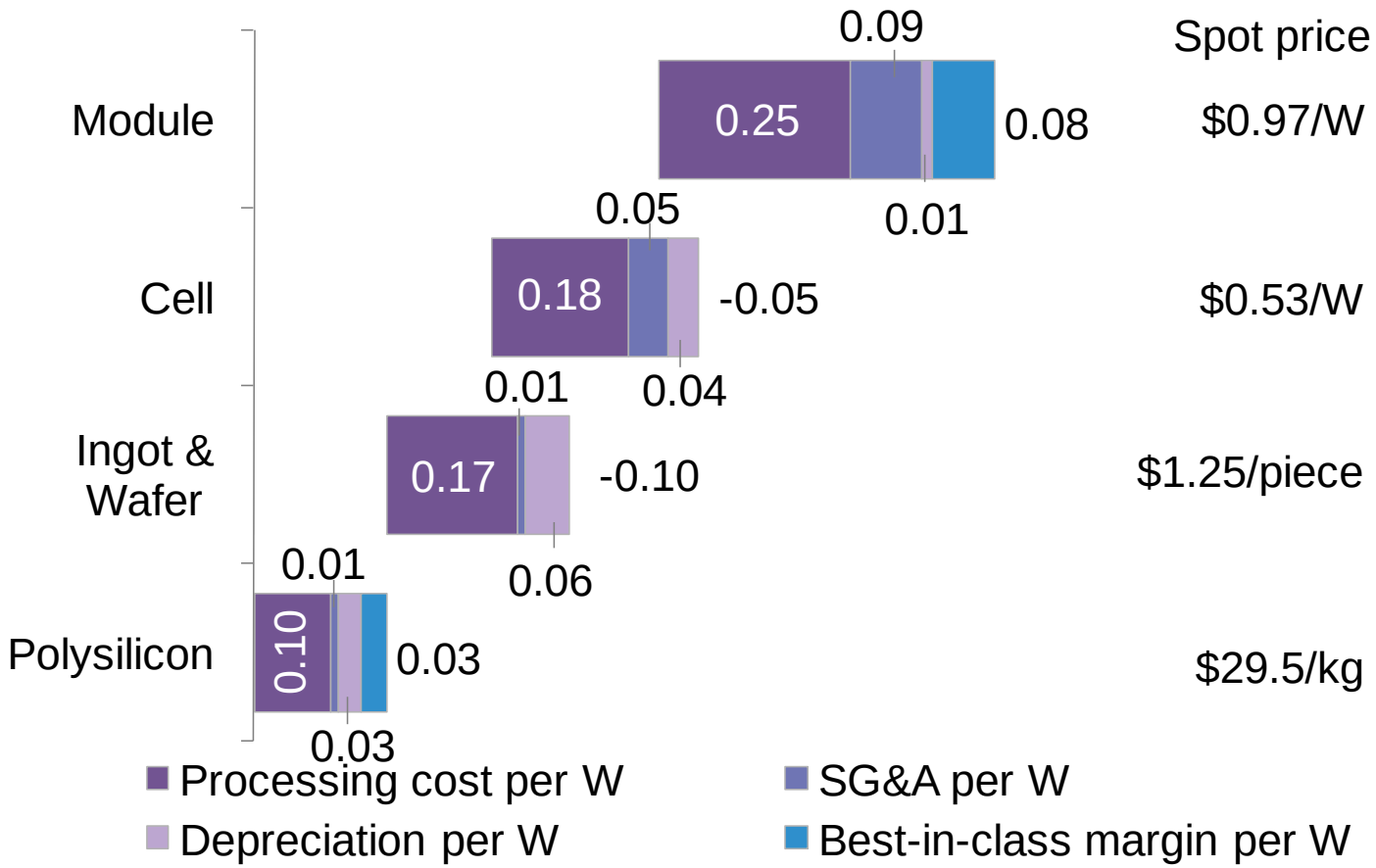
# PRICE FOR IMMEDIATE DELIVERY OF C-SI MODULES, NOVEMBER 2010 – 14 NOVEMBER 2011 ($/W)




Note: From 11 July 2011 the Index is conducted on a weekly basis and the dates in chart represent first day of the week over which the price has been averaged . ie: 8 August represents quote for period of data collection in the week 8-14 August. Prior to the weekly updates, the Index collected price of c-Si modules without differentiating between mono and multi crystalline silicon technology.

Source: Bloomberg New Energy Finance Module Spot Index

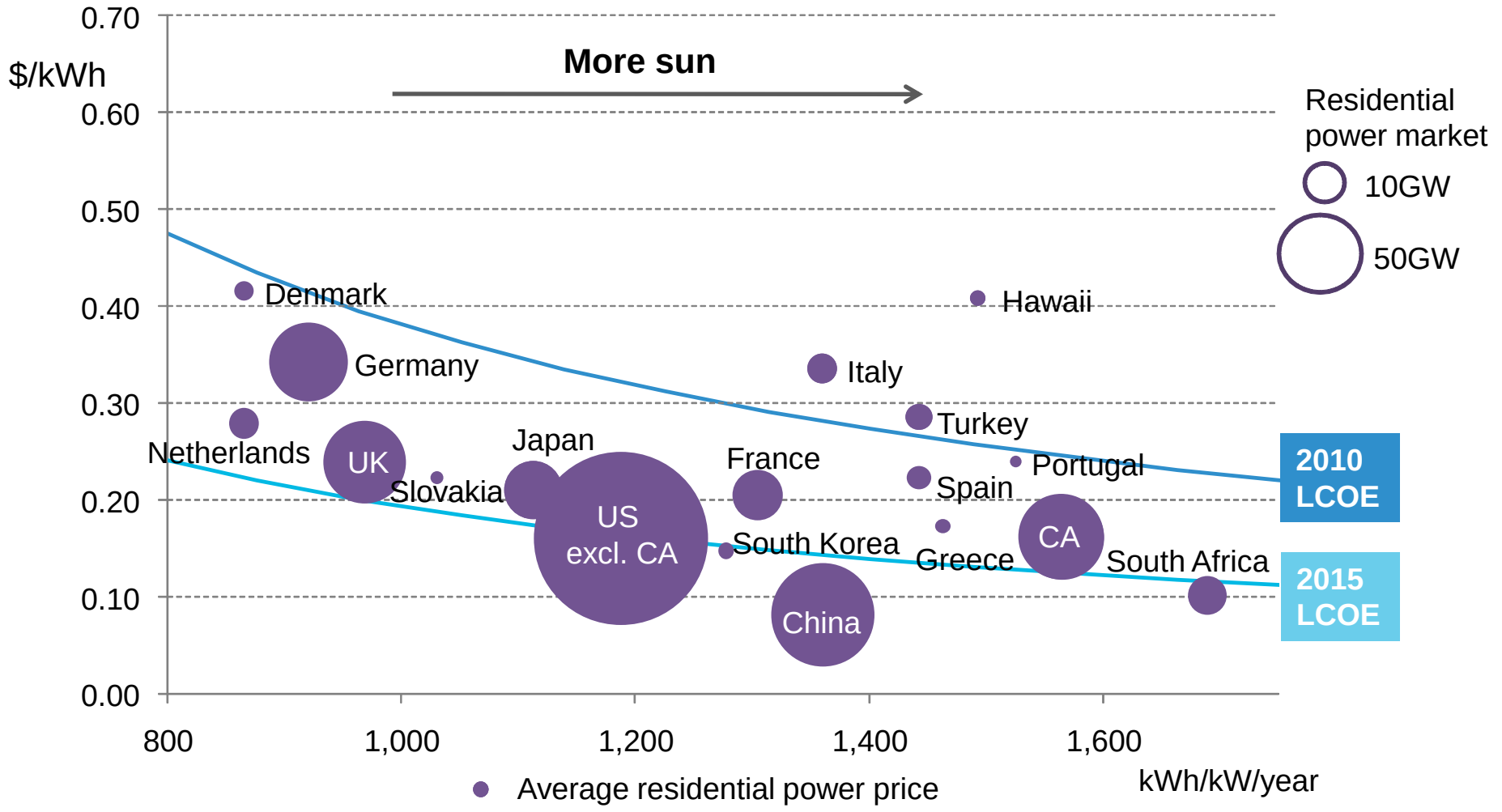
# CHINESE MULTICRYSTALLINE SILICON MODULE PRICE BUILD-UP, NOVEMBER 2011 ($/W)




Assumes 6.0g of silicon per watt of wafer. 'Processing cost per W' based on SEC filings of quoted companies, publically available reports, various discussions and analyst estimates. SG&A represents sales, general, administration and R&D

Source: Bloomberg New Energy Finance Solar Spot Survey

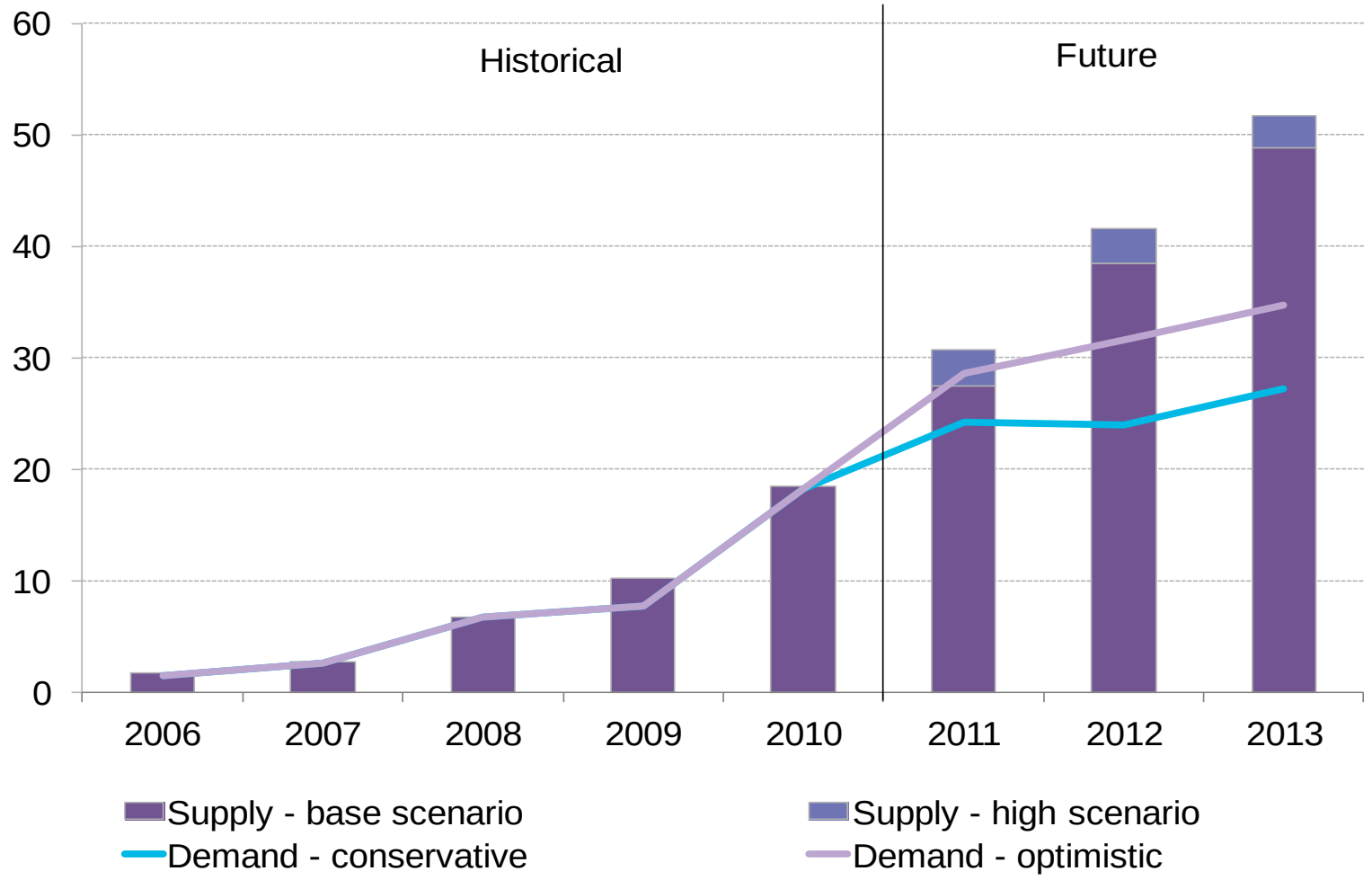
# RESIDENTIAL PV PRICE PARITY




Note: LCOE based on 6% weighted average cost of capital, 0.7%/year module degradation, 1% capex as O&M annually. CA is California.

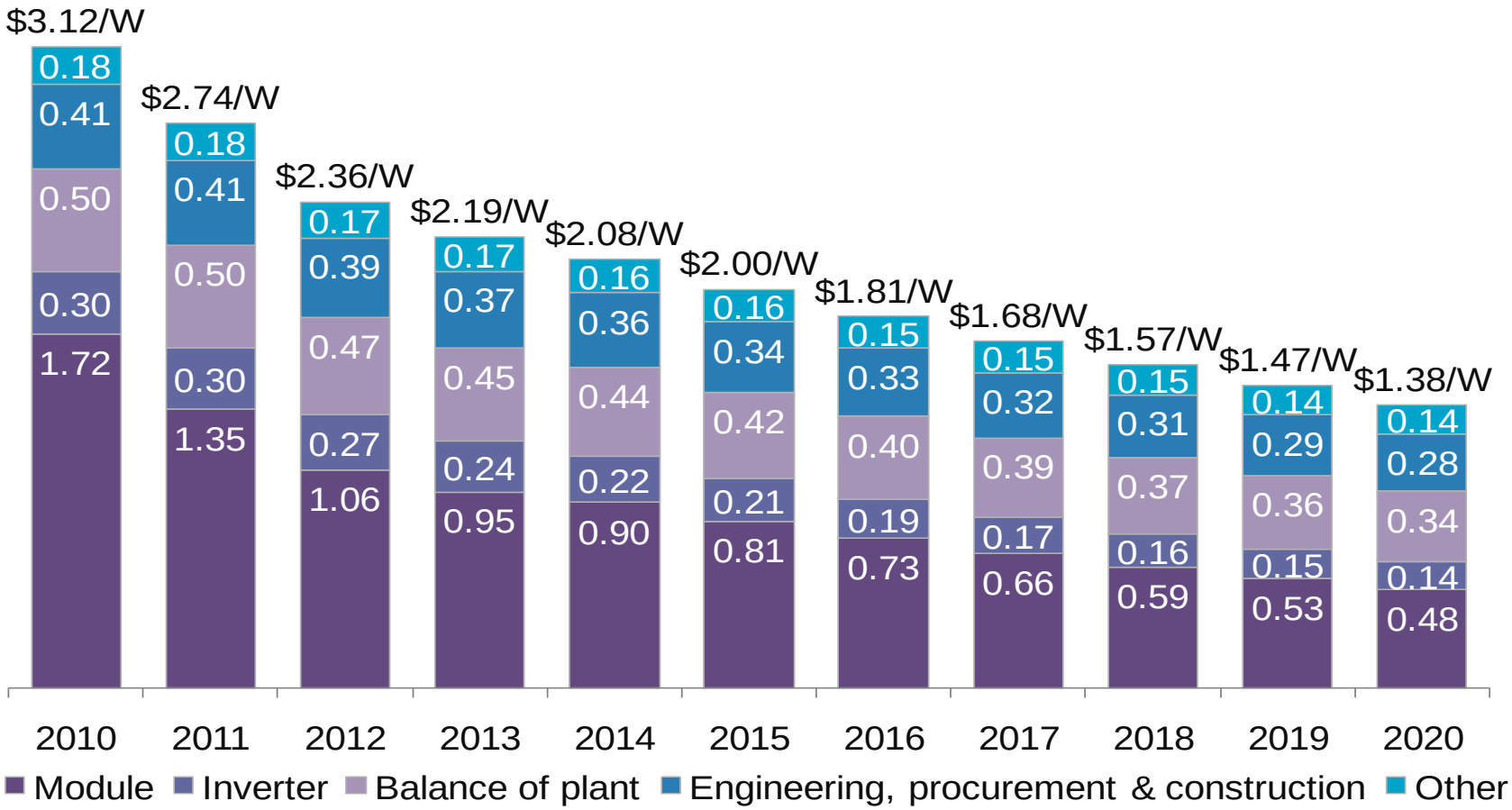
Source: Bloomberg New Energy Finance

# SUPPLY AND DEMAND OF PV MODULES, 2007-2013 (GW)



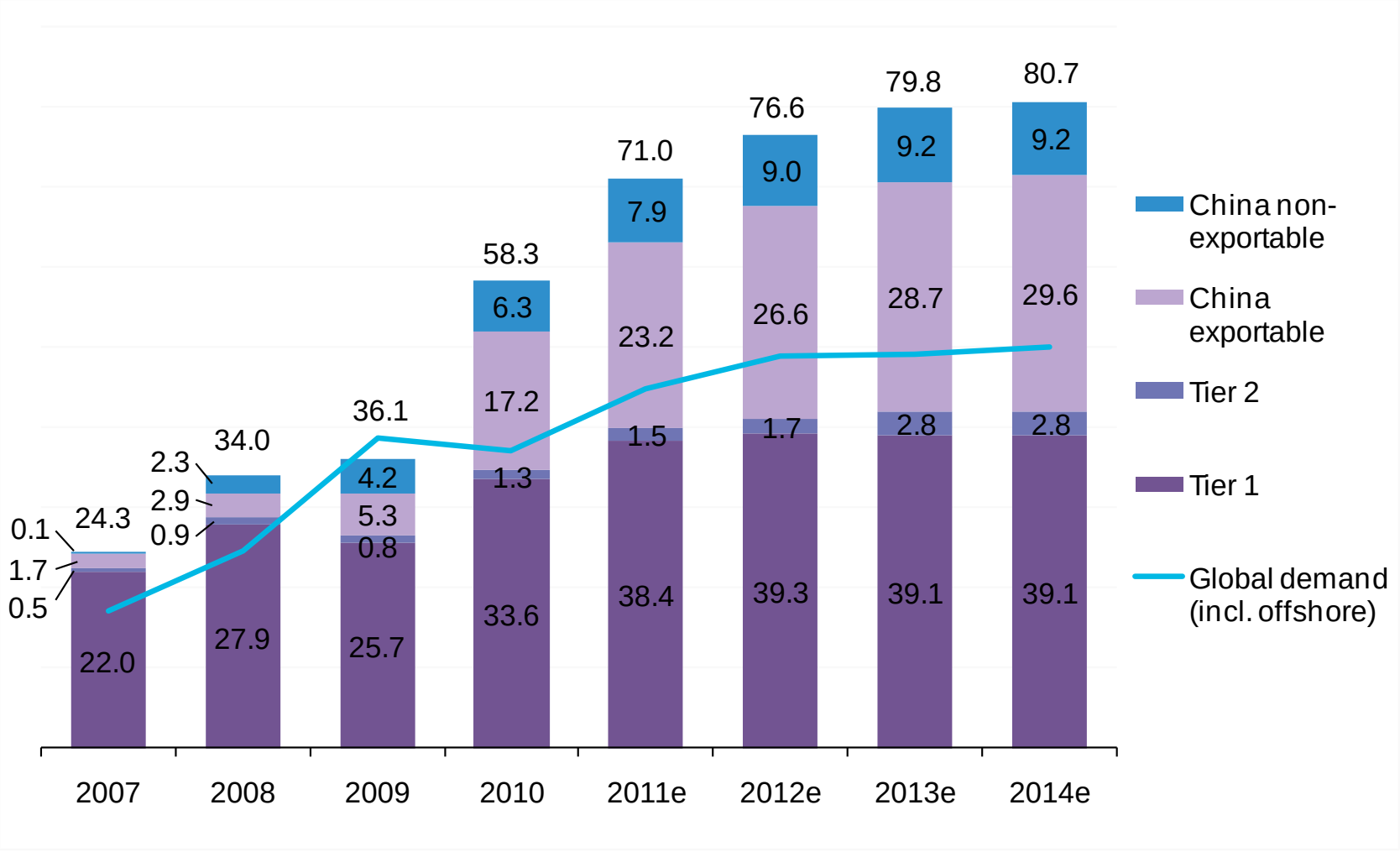

Source: Bloomberg New Energy Finance

# UTILITY-SCALE PV SYSTEM PRICE FORECAST, 2010-2020 (2010 $/W)




Source: Bloomberg New Energy Finance

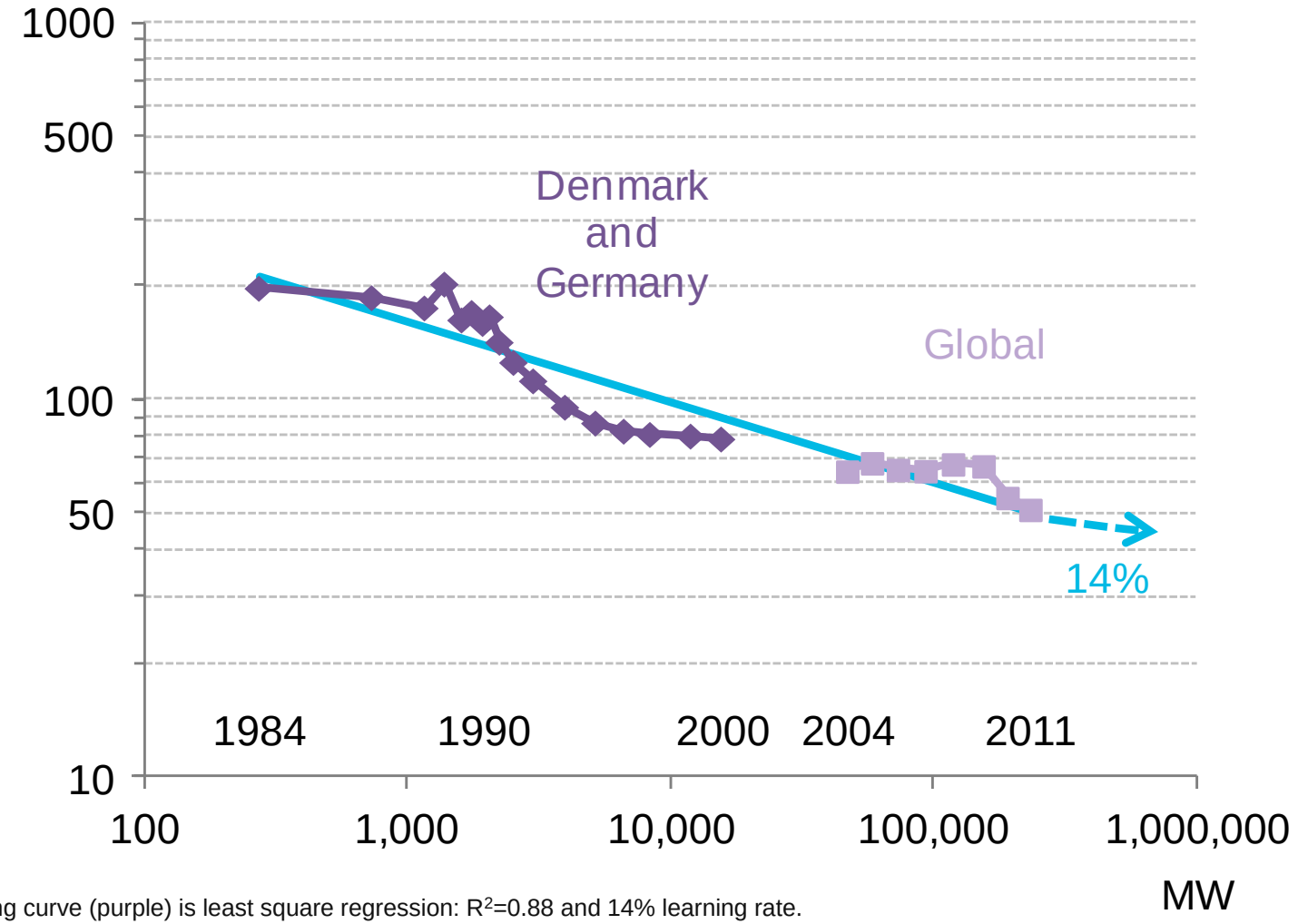
# EFFECTIVE GLOBAL WIND TURBINE SUPPLY, 2007-14E (GW)




Notes: Effective supply models the actual amount of turbines available for projects after discounts to nominal manufacturing capacity. For definitions of each of the categories, please see note in Slide 8.

Source: Bloomberg New Energy Finance

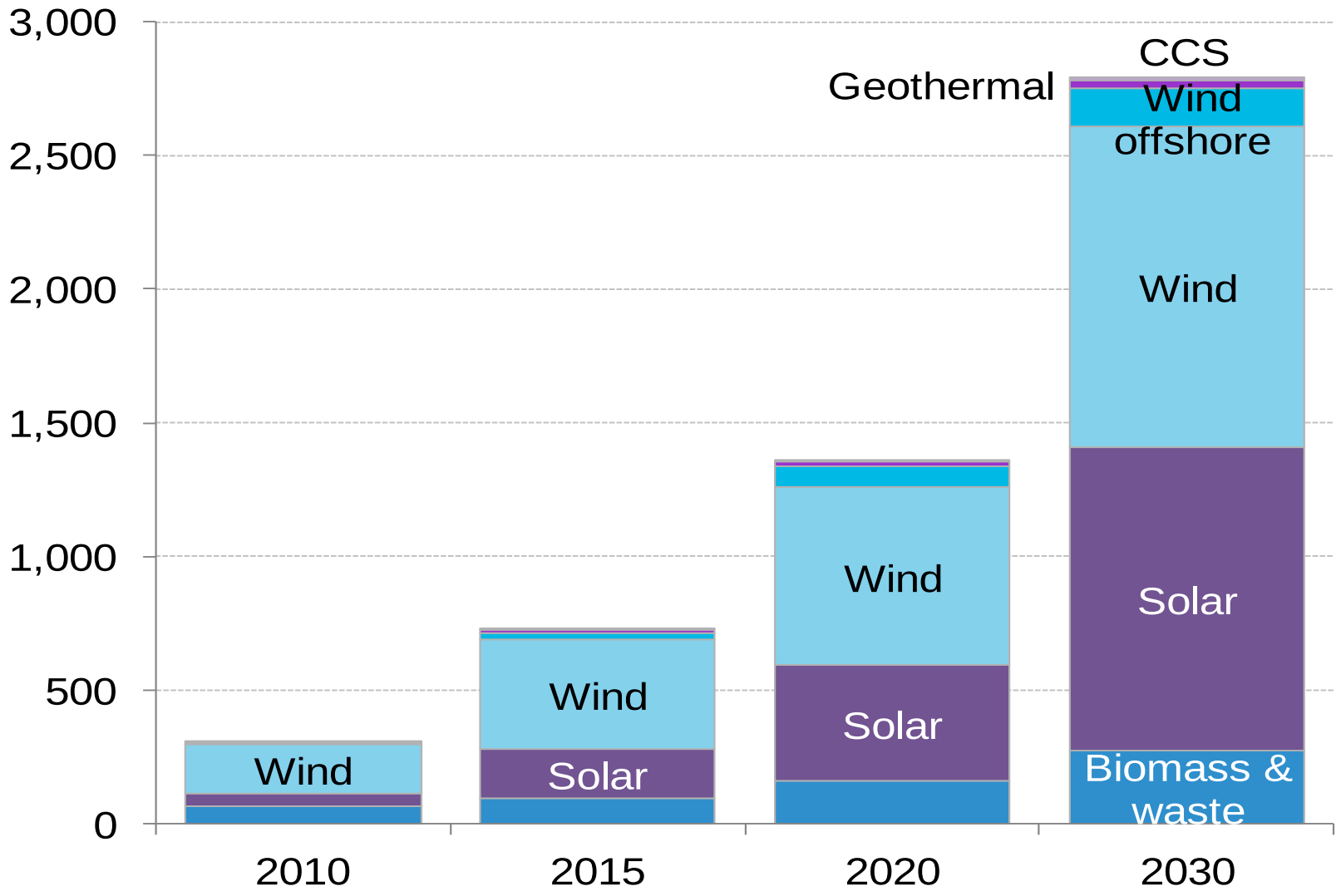
# AVERAGE LCOE OF ONSHORE WIND, 1984-2011 EUR/MWH




Note: Learning curve (purple) 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

# TOTAL INSTALLED CAPACITY BY TECHNOLOGY (GW)




Source: Bloomberg New Energy Finance

# THANK YOU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