EBRD Sustainable Energy Finance Facilities

London, 20th June 2011

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Chief Executive

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Bloomberg
NEW ENERGY FINANCE

AGENDA

1. Background

2. Investment activity

3. Policy

4. Cost trends

5. Regional Rivalry

6. EBRD Countries

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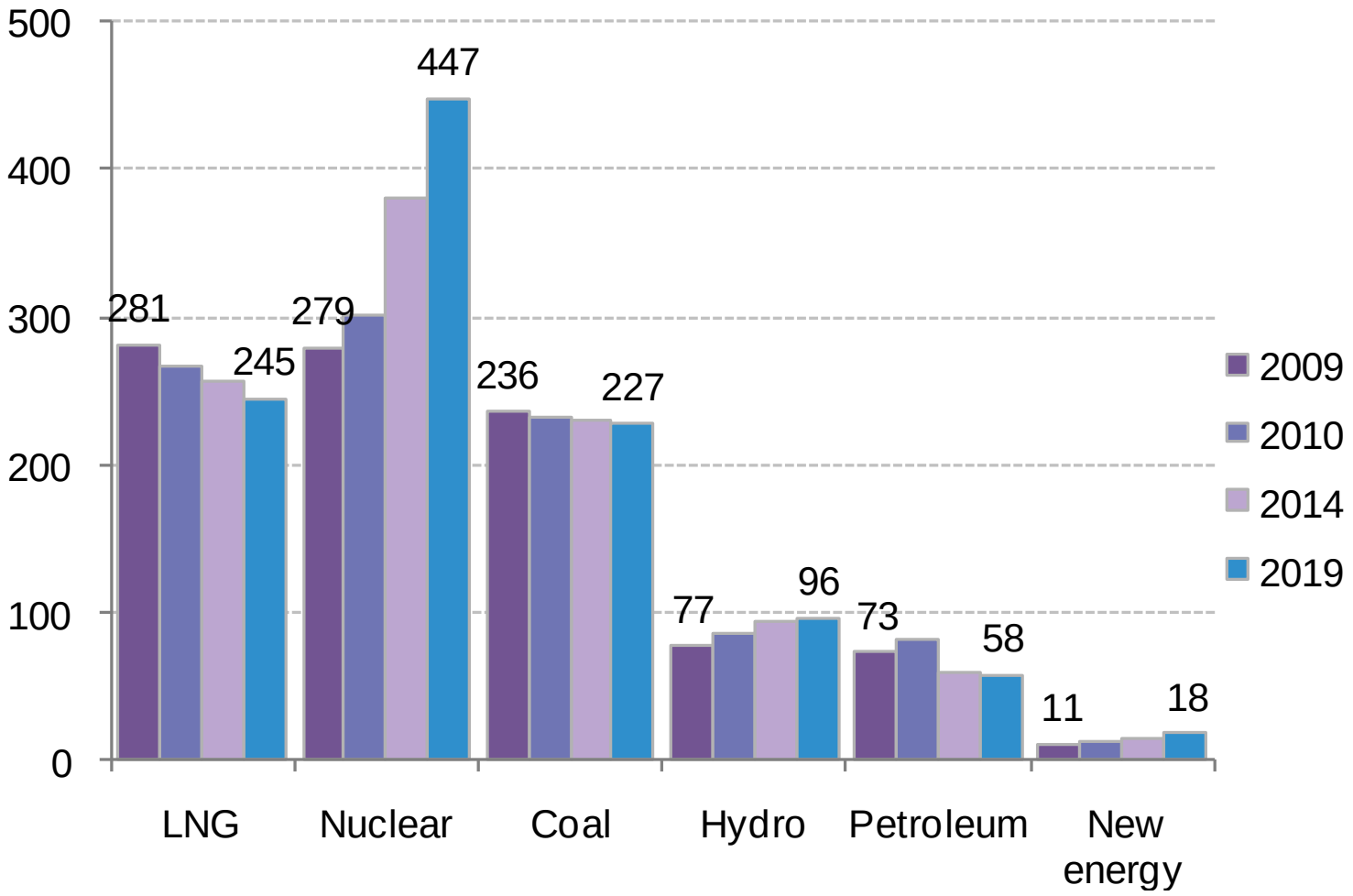
DEEPWATER HORIZON

NORTH AFRICA & THE GULF

Source: AFP

FUKUSHIMA DAIICHI

PRE-EARTHQUAKE PLANNED TOTAL ELECTRICITY SUPPLY BY SOURCE, JAPAN, 2009–19 (TWh)

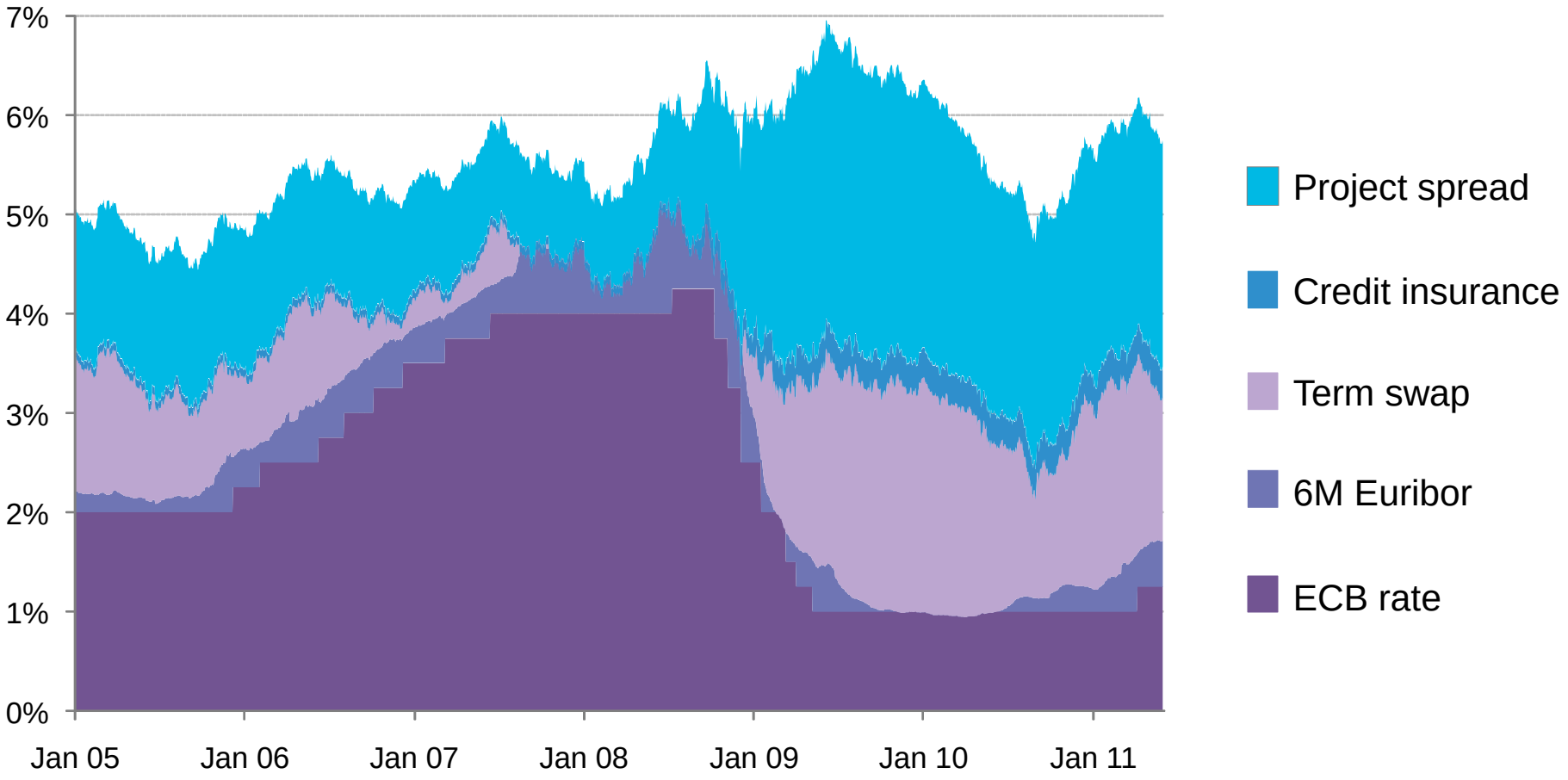


Source: Ministry of Economy, Trade and Industry, *Electricity Supply Plan of 2010*, 31 March 2010

EUROPE

Source: AP

COST OF DEBT, TYPICAL EUROPEAN ONSHORE WIND FARM



Note: Data as of 01 June 2011; term swap: eight-year euro swap rate.

Source: Bloomberg New Energy Finance

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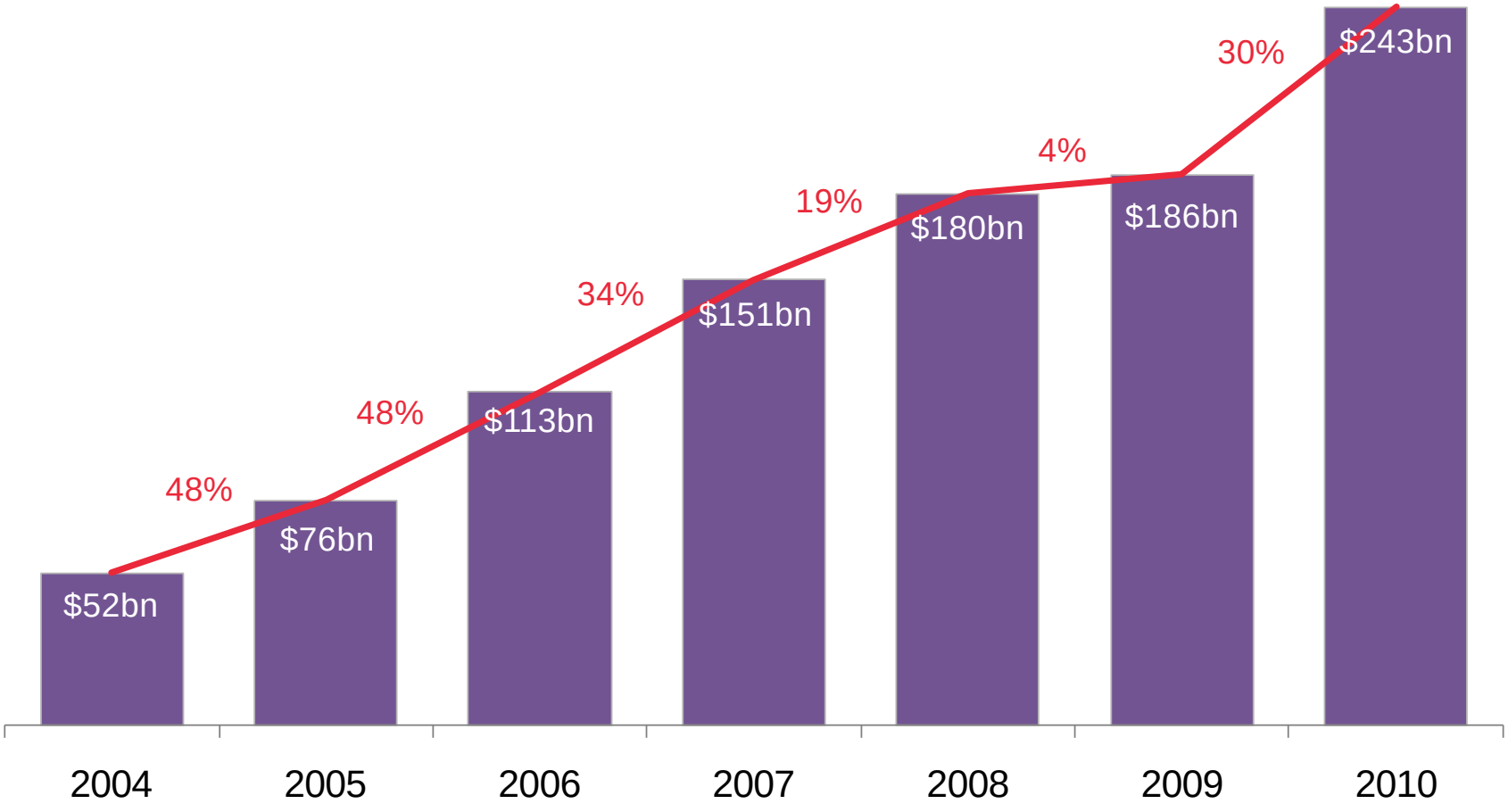
GLOBAL TOTAL NEW INVESTMENT IN CLEAN ENERGY 2004–10 ($BN)

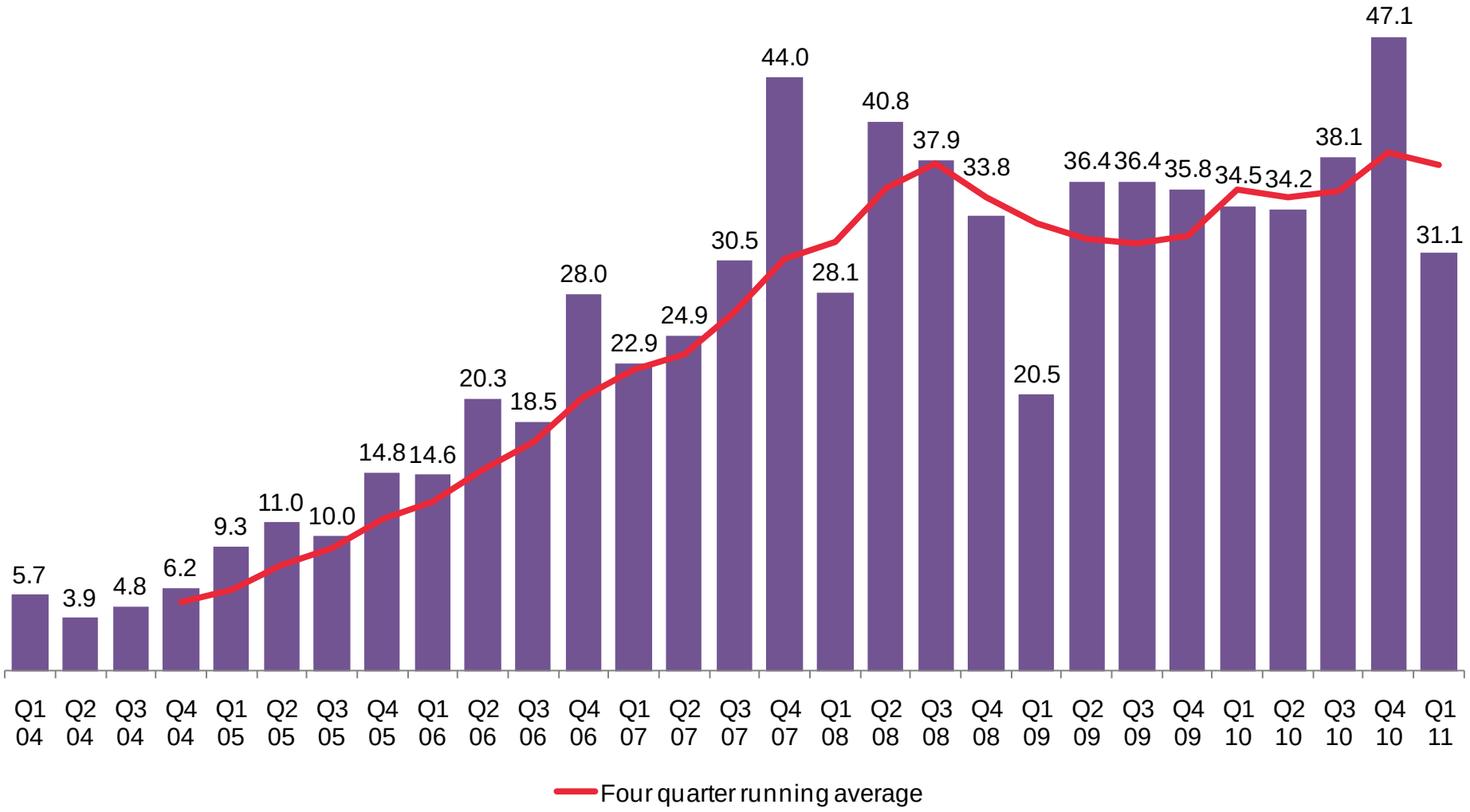


Note: Includes corporate and government R&D, and small distributed capacity. Adjusted for re-invested equity. Does not include proceeds from acquisition transactions

Source: Bloomberg New Energy Finance

NEW FINANCIAL INVESTMENT IN CLEAN ENERGY

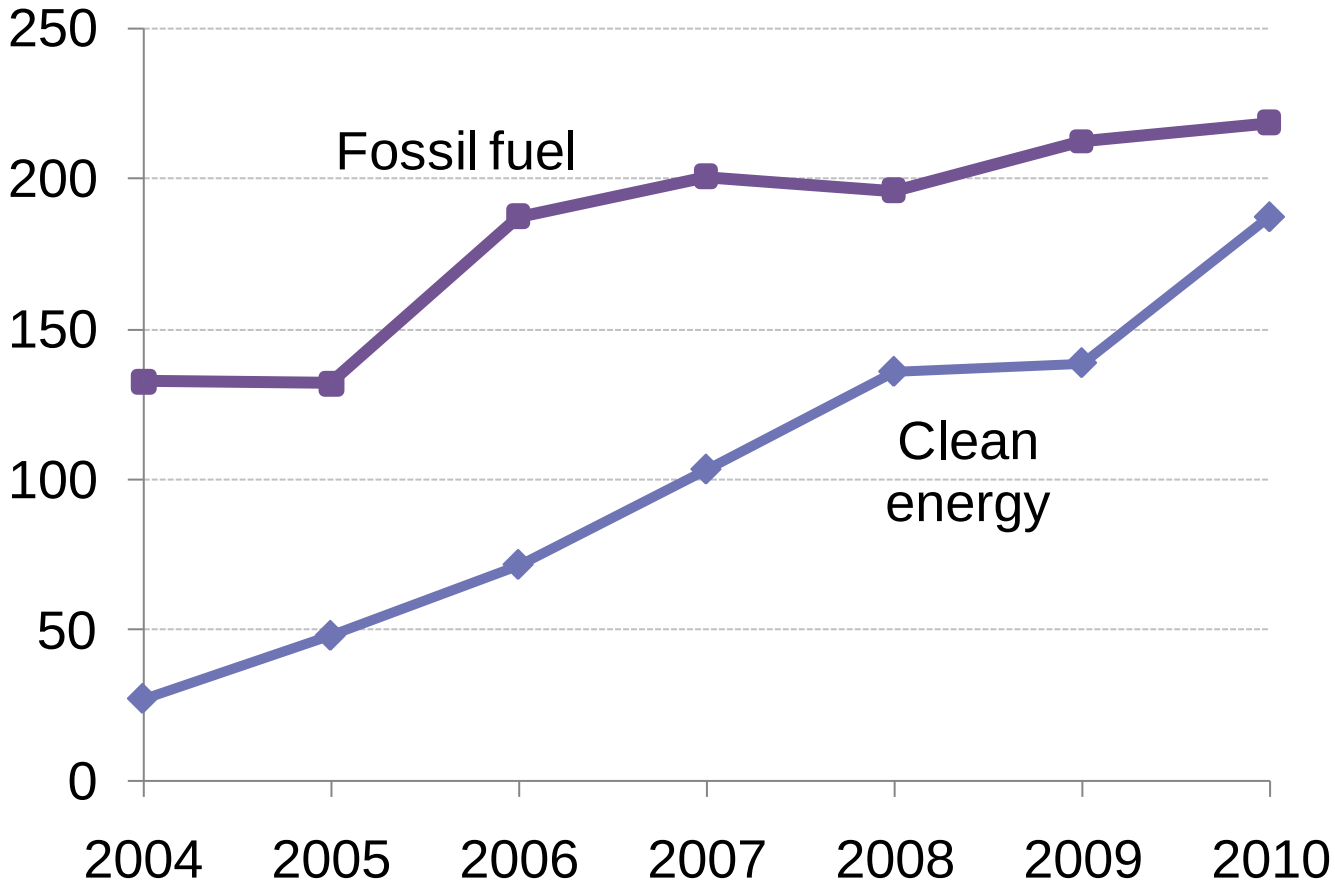
Q1 2004–Q1 2011 ($BN)



Note: Excludes corporate and government R&D, and small distributed capacity. Not adjusted for re-invested equity

Source: Bloomberg New Energy Finance

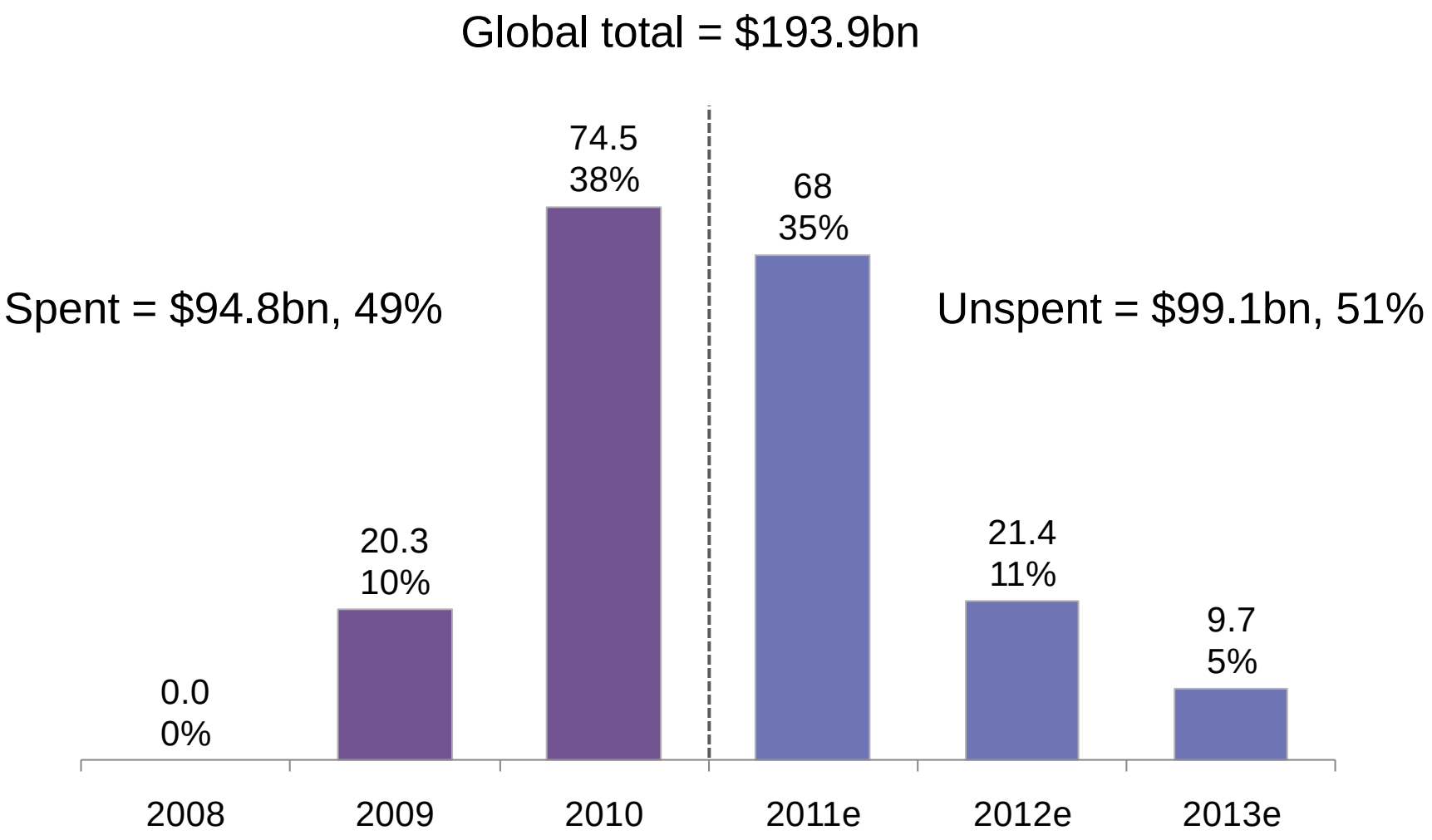
CLEAN VS FOSSIL-BASED GENERATING CAPACITY INVESTMENT, 2004–10 ($BN)



Note: Investment for new build – fossil fuel calculated from EIA & IEA numbers, clean energy taken from Bloomberg New Energy Finance totals. Clean energy capacity includes small distributed capacity.

Source: IEA, EIA, Bloomberg New Energy Finance

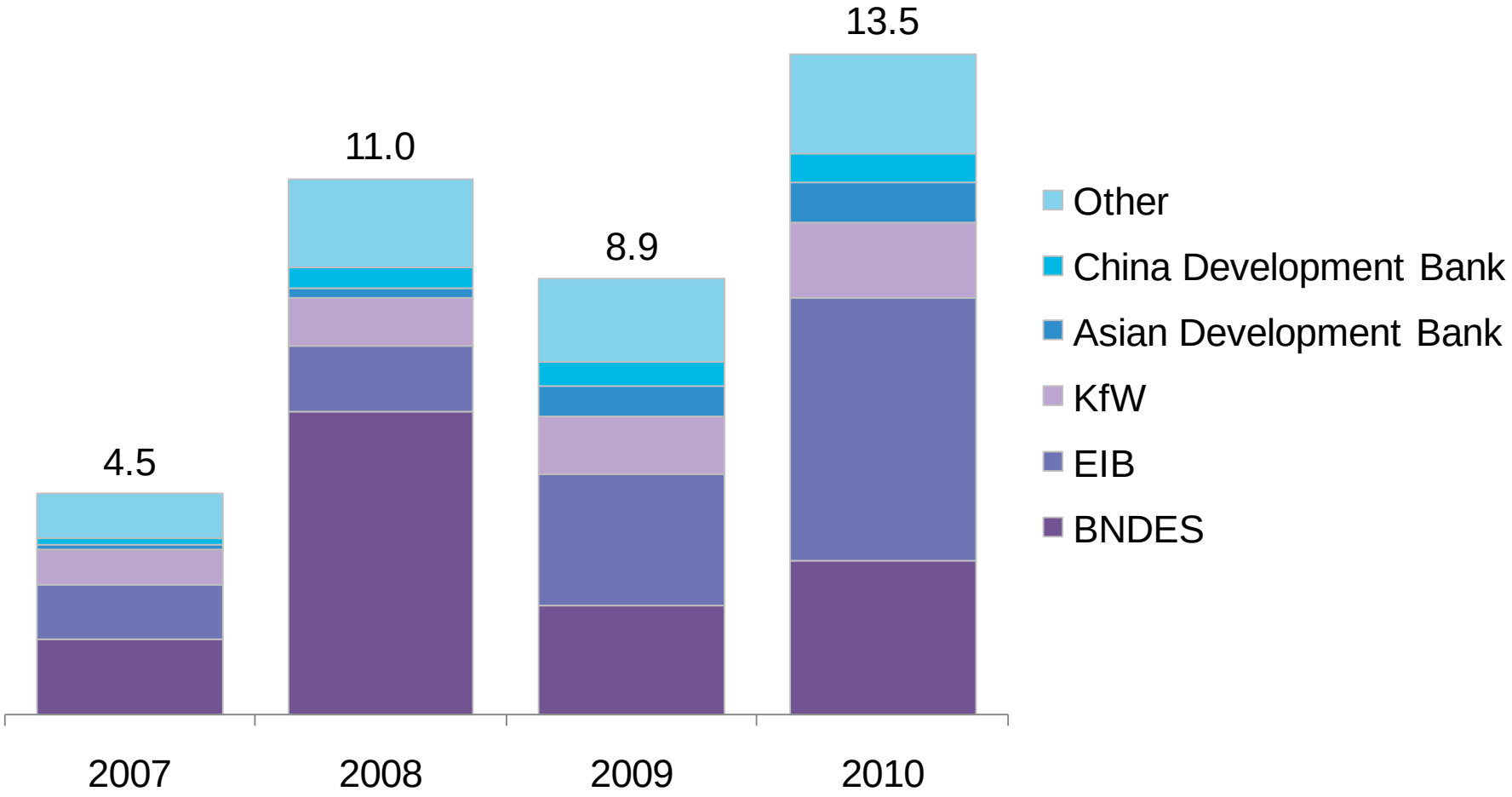
GLOBAL CLEAN ENERGY STIMULUS SPENDING BY YEAR, 2011–13 ($BN)



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

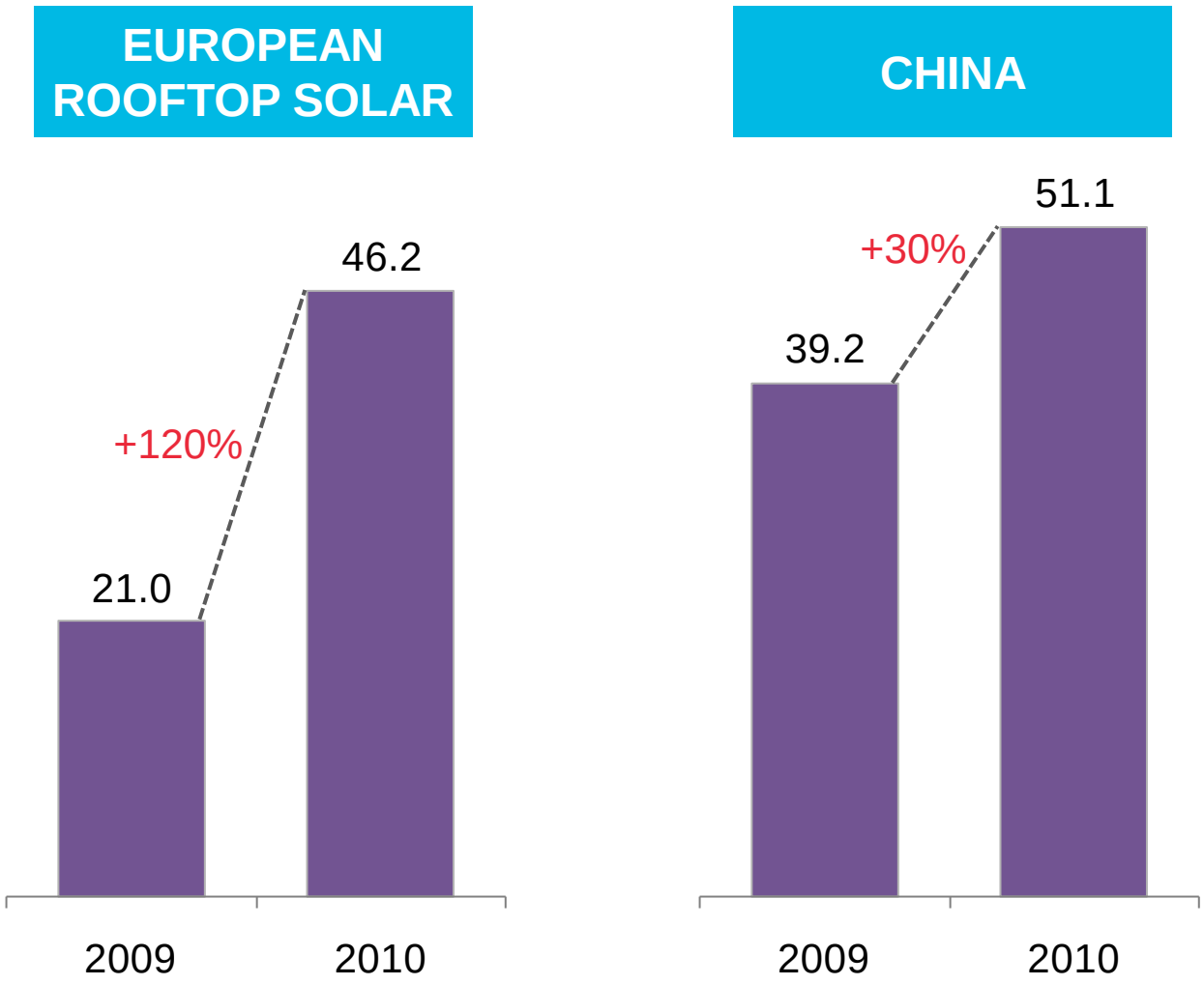
Source: Bloomberg New Energy Finance

DEVELOPMENT BANK FINANCING OF CLEAN ENERGY PROJECTS: 2007–10 ($BN)



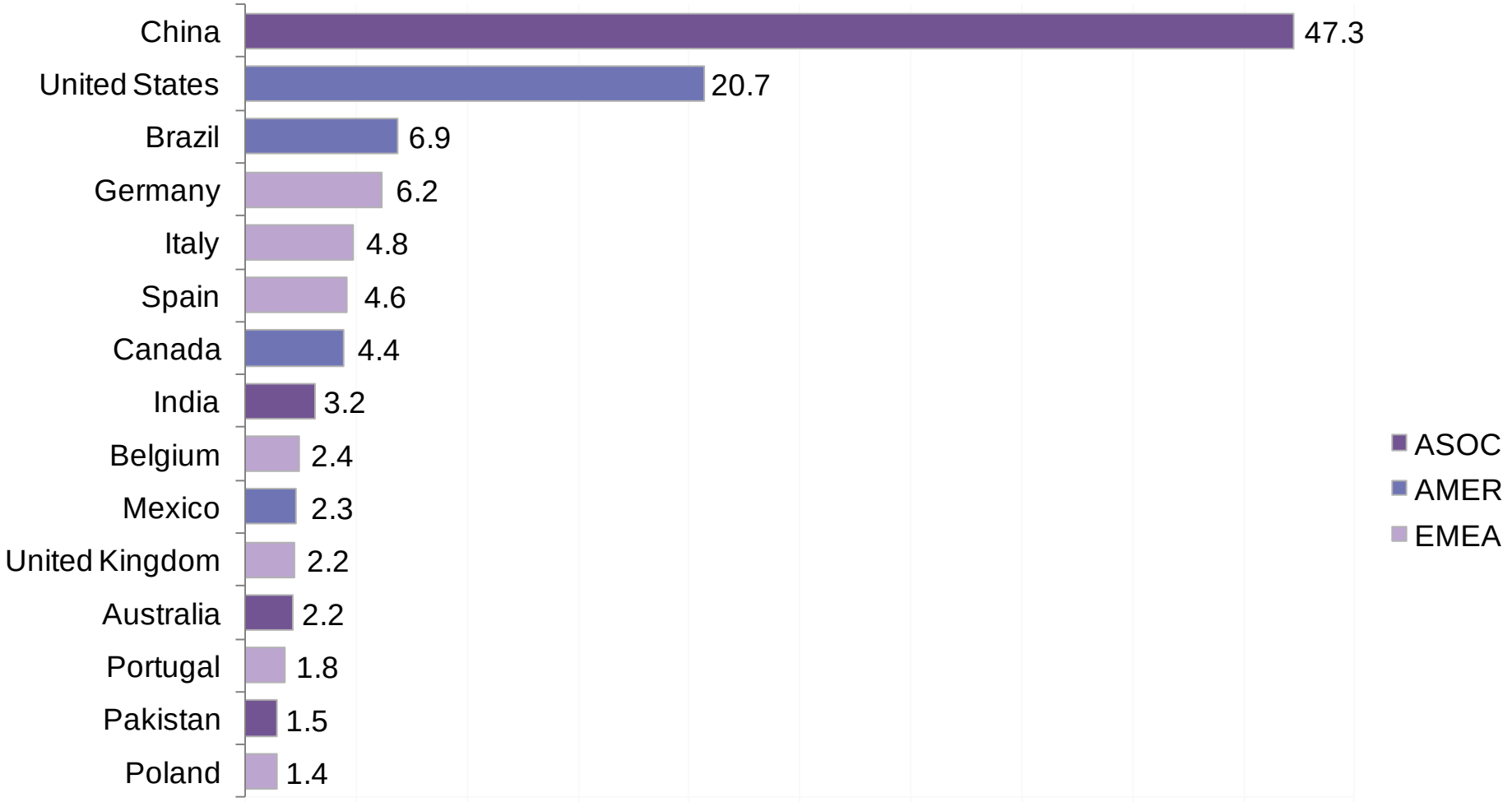
Source: Bloomberg New Energy Finance, development banks

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



Source: Bloomberg New Energy Finance

ASSET FINANCE FOR NEW BUILD CLEAN ENERGY – TOP 15 COUNTRIES, 2010 ($BN)



Note: Total values include estimates for undisclosed deals

Source: Bloomberg New Energy Finance

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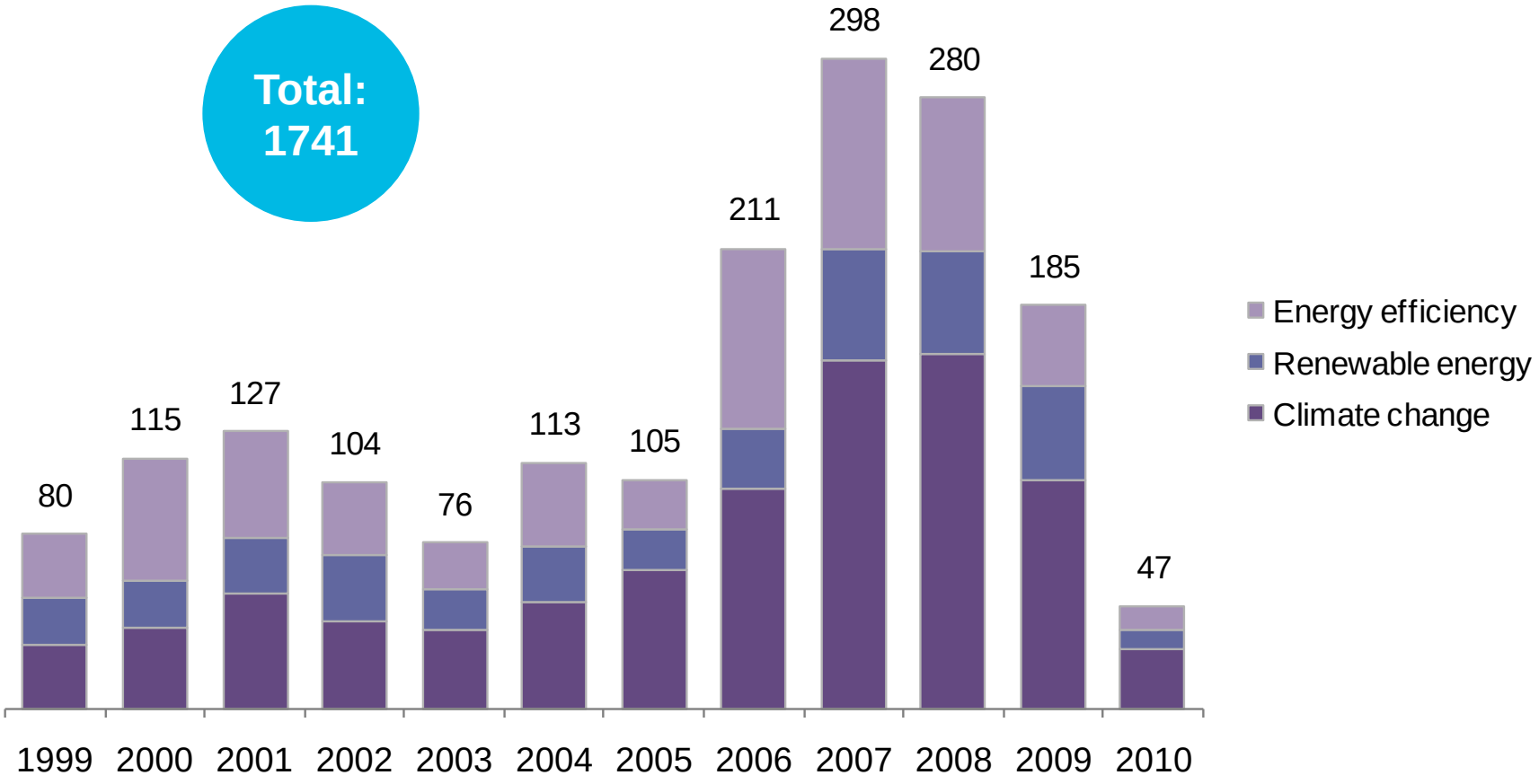
GLOBAL ENERGY & EMISSION-RELATED POLICIES, 1999–10

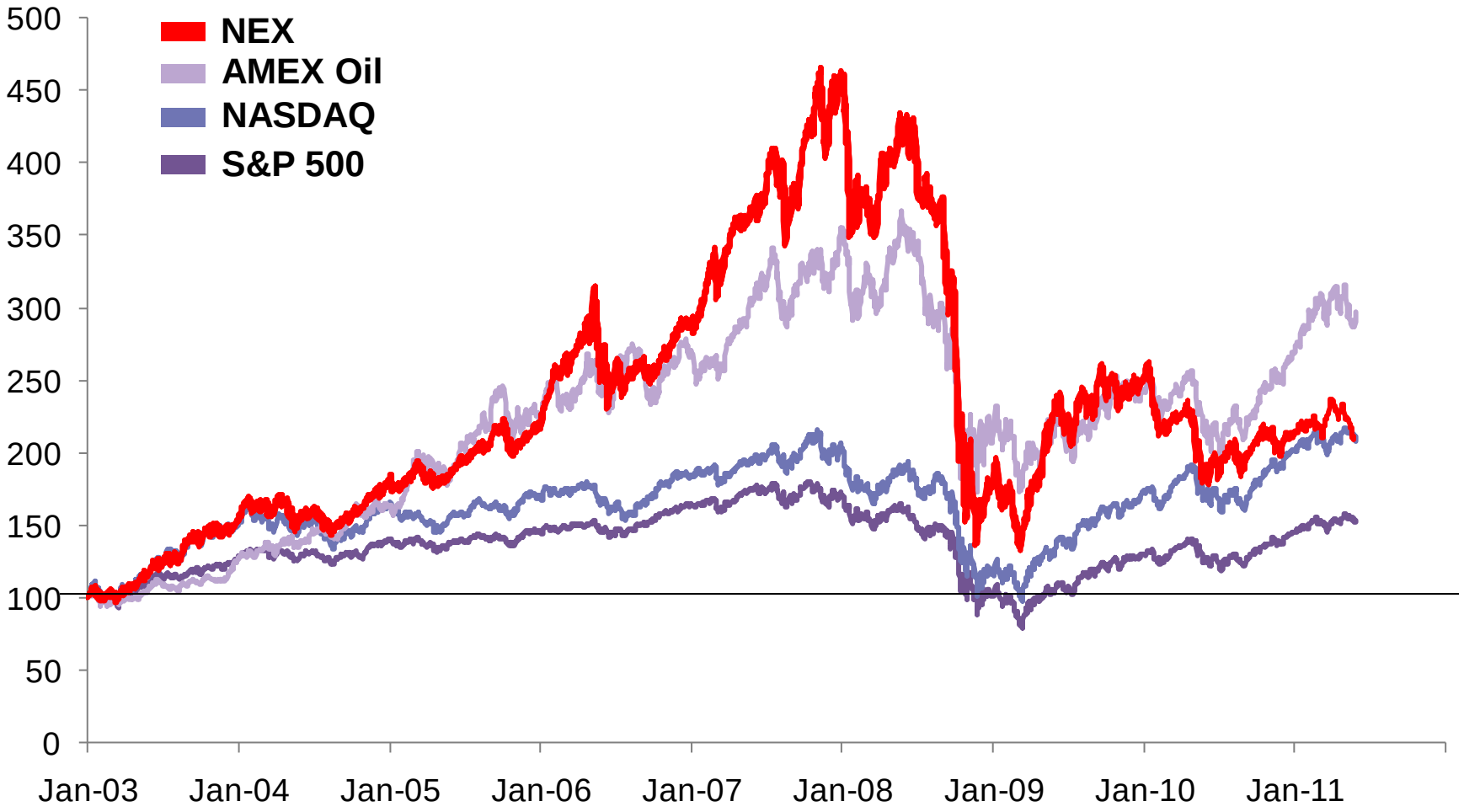


Source: Bloomberg New Energy Finance

SELECTED POLICY BALANCE SHEET, 2010–11

NEGATIVES	POSITIVES
• Regulatory pushback over smart grid programs in US • No US climate or energy bill • US midterms • Retrospective changes to tariff regimes in Czech Republic & Spain • Tariff reductions in other EU countries	• Brazilian wind tenders • Italy tariffs remain in place • Unexpected success of Cancun • Indian Solar Mission programme • CA victory over Proposition 23 • EU funding progress on CCS • UK confirms Climate Bill / Green Bank

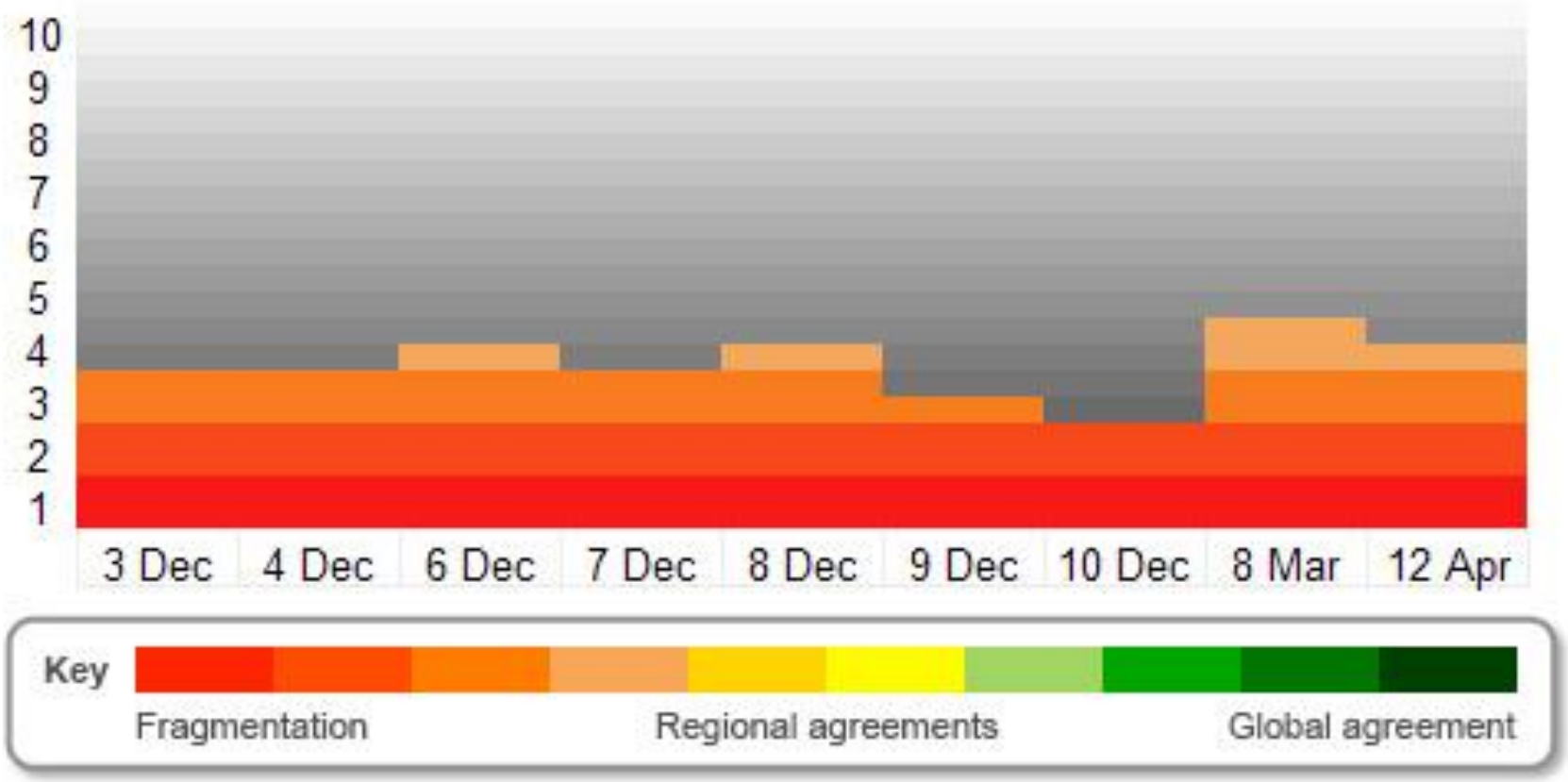
NEX CLEAN ENERGY INDEX 2003 – 2011 YTD



Note: Values as of 27 May 2011; AMEX Oil, NASDAQ and S&P 500 rebased to 100 on 01 Jan 2003

Source: Bloomberg New Energy Finance

DURBAN


10
9
8
7
6
5
4
3
2
1
3 Dec
4 Dec
6 Dec
7 Dec
8 Dec
9 Dec
10 Dec
8 Mar
12 Apr
Key
Fragmentation
Regional agreements
Global agreement

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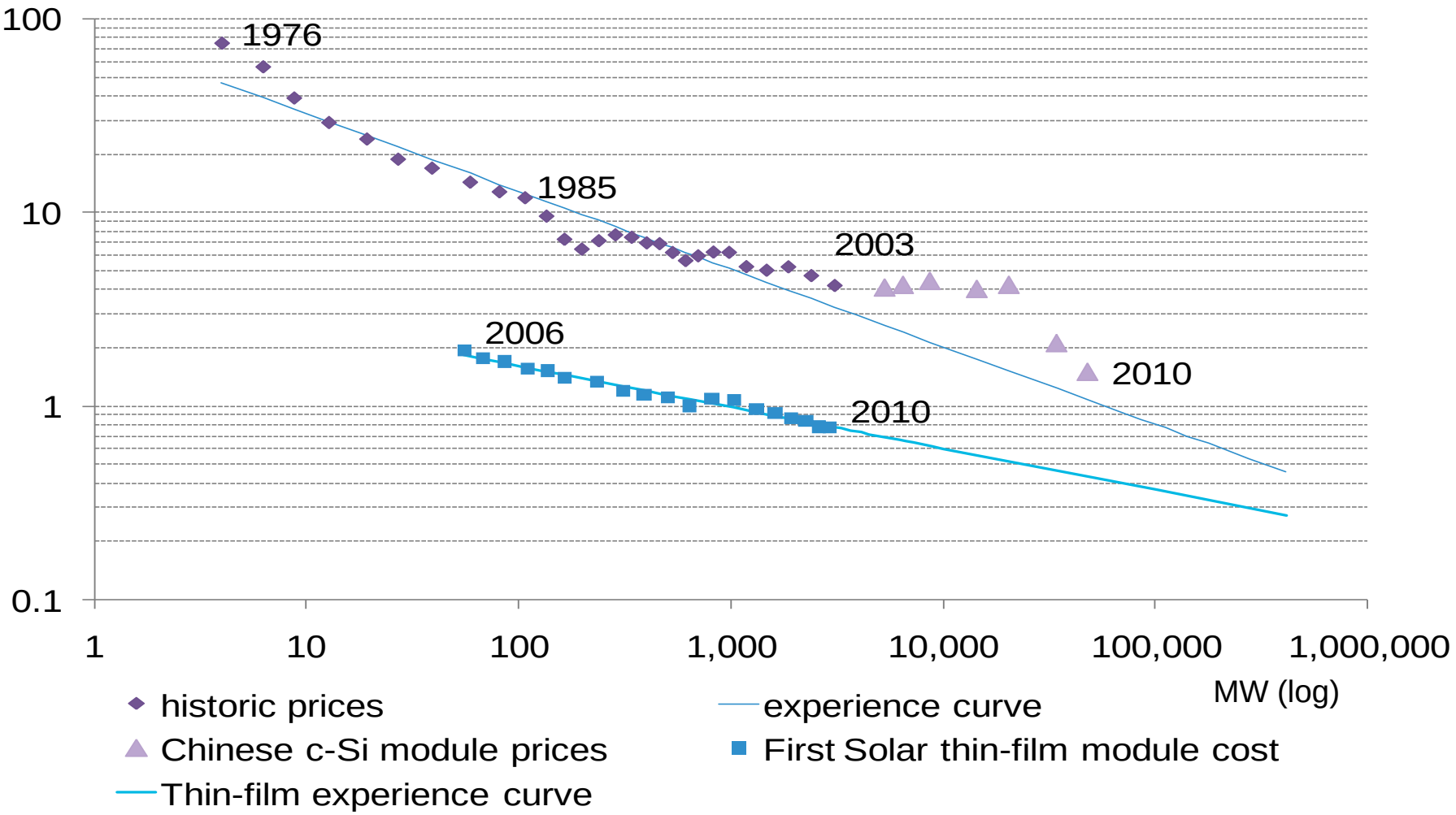
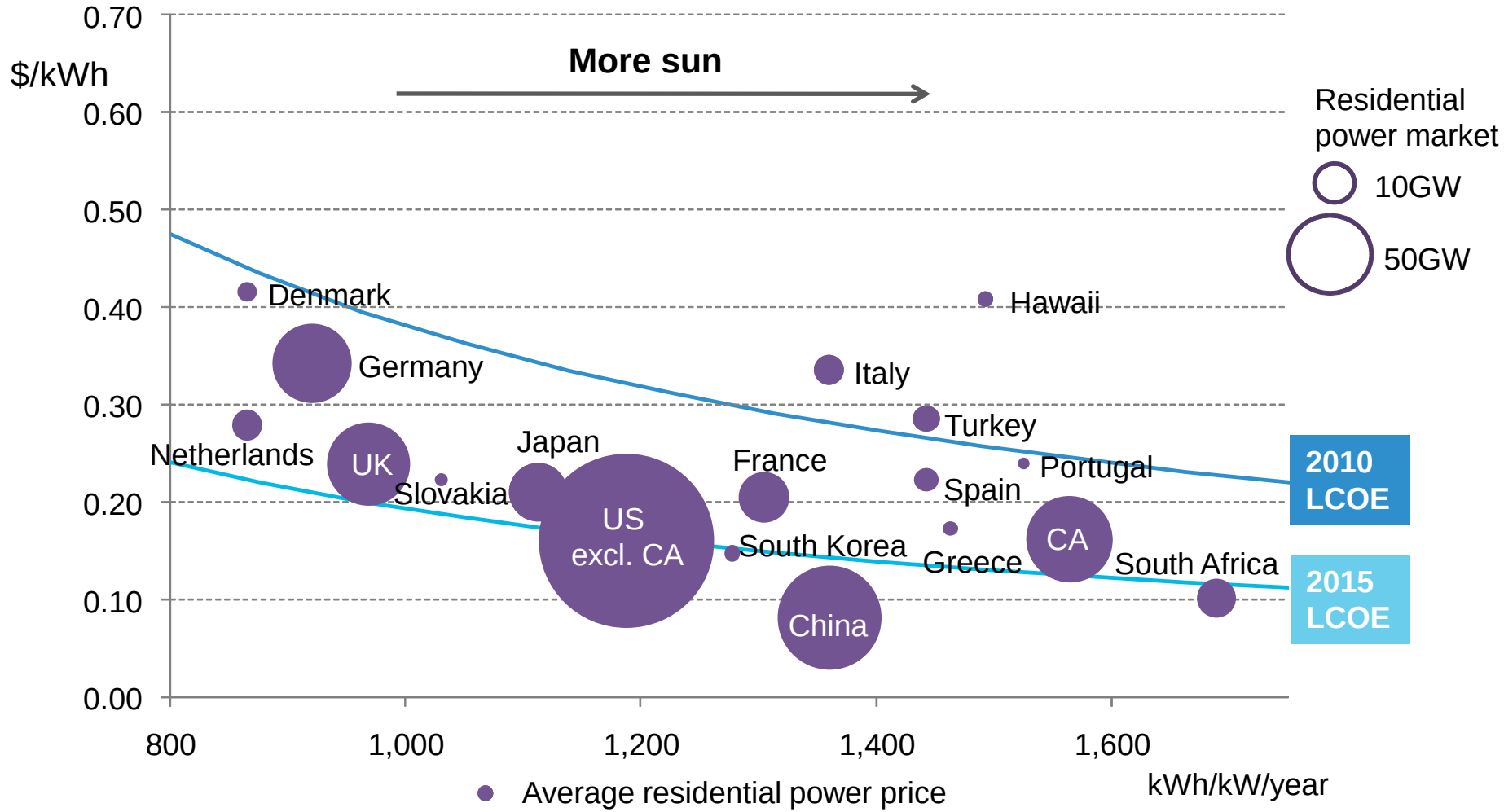
THE PV MODULE EXPERIENCE CURVE, 1976–2010 ($/W)



Notes: Inflation adjustment using US PPI, R2 of c-Si regression = 0.94, R2 of FSLR regression = 0.98

Source: Bloomberg New Energy Finance, FSLR filings

RESIDENTIAL PV PRICE PARITY

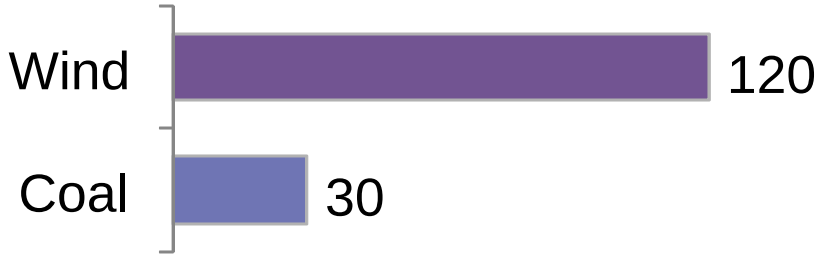


Note: LCOE based on 6% weighted average cost of capital, 0.7%/year module degradation, 1% capex as O&M annually. CA is California.

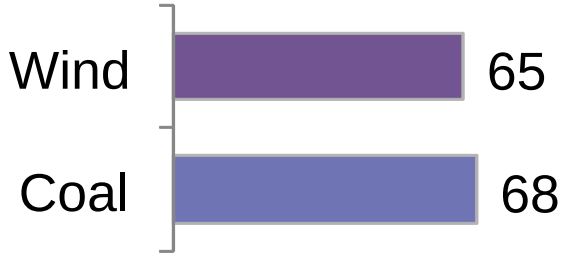
Source: Bloomberg New Energy Finance

LEVELIZED COSTS: BEST NEW WIND VS NEW COAL ($/MWh)

Perception:



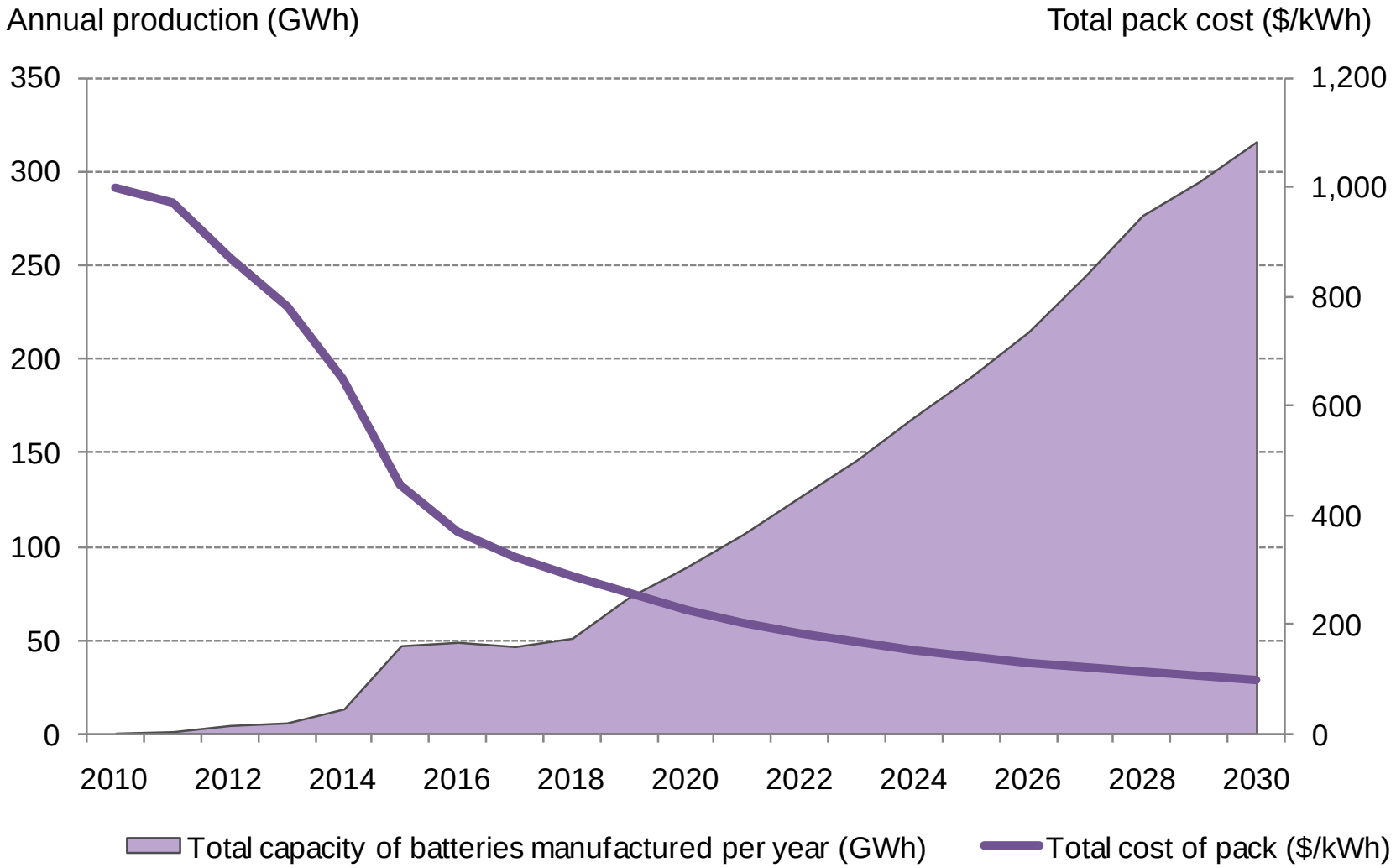
Reality:



- New coal must cover cost of capital
- New coal requires advanced pollution control
- Wind turbines back to 2005 prices, but now perform much better
- Wind bankability has driven down cost of capital
- Coal suffers from carbon price risk

Source: Bloomberg New Energy Finance

LITHIUM-ION BATTERY PACK COST, TRACTION BATTERY PRODUCTION, 2010–30



Note: Total pack cost includes the battery management system

Source: Bloomberg New Energy Finance

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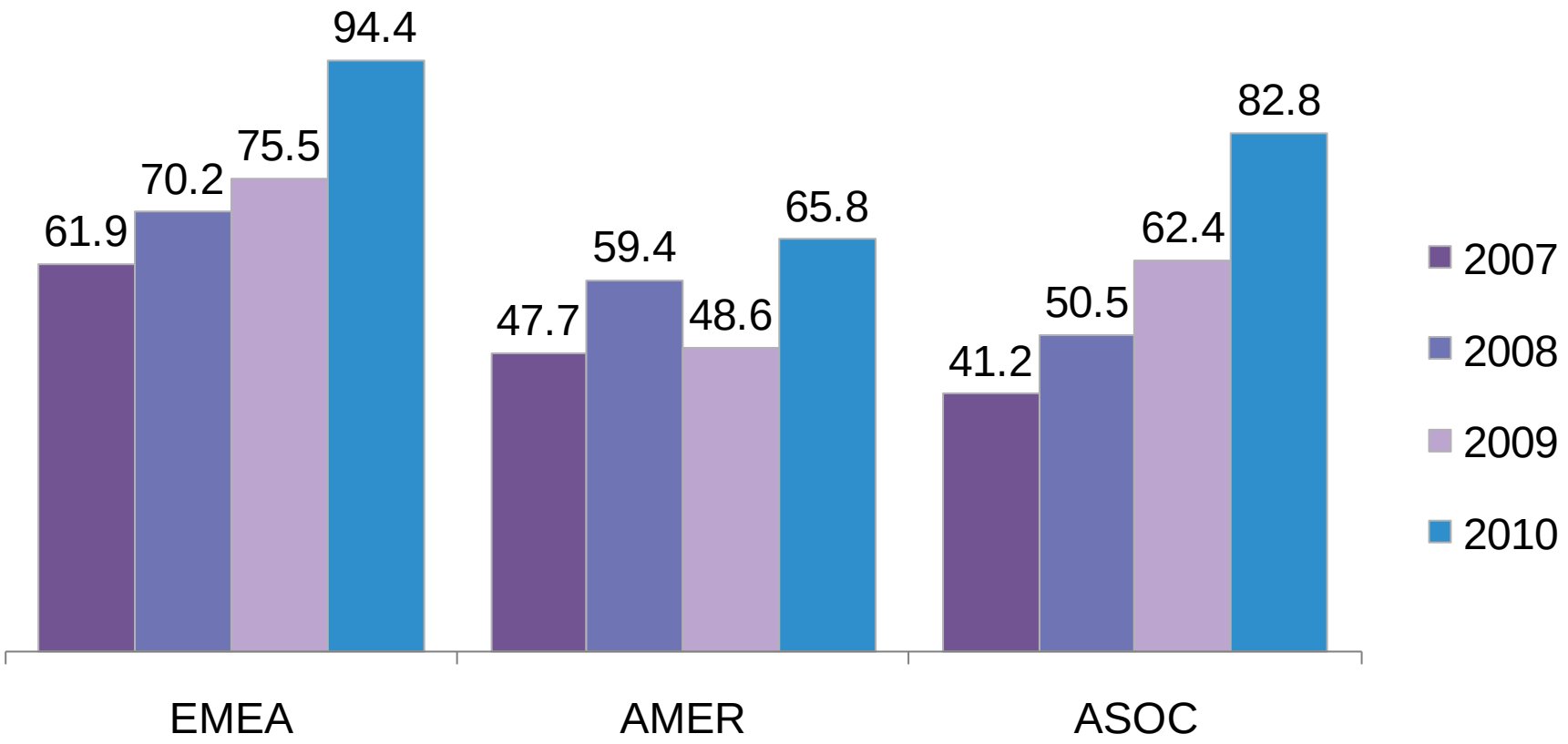
TOTAL NEW INVESTMENT IN CLEAN ENERGY BY REGION

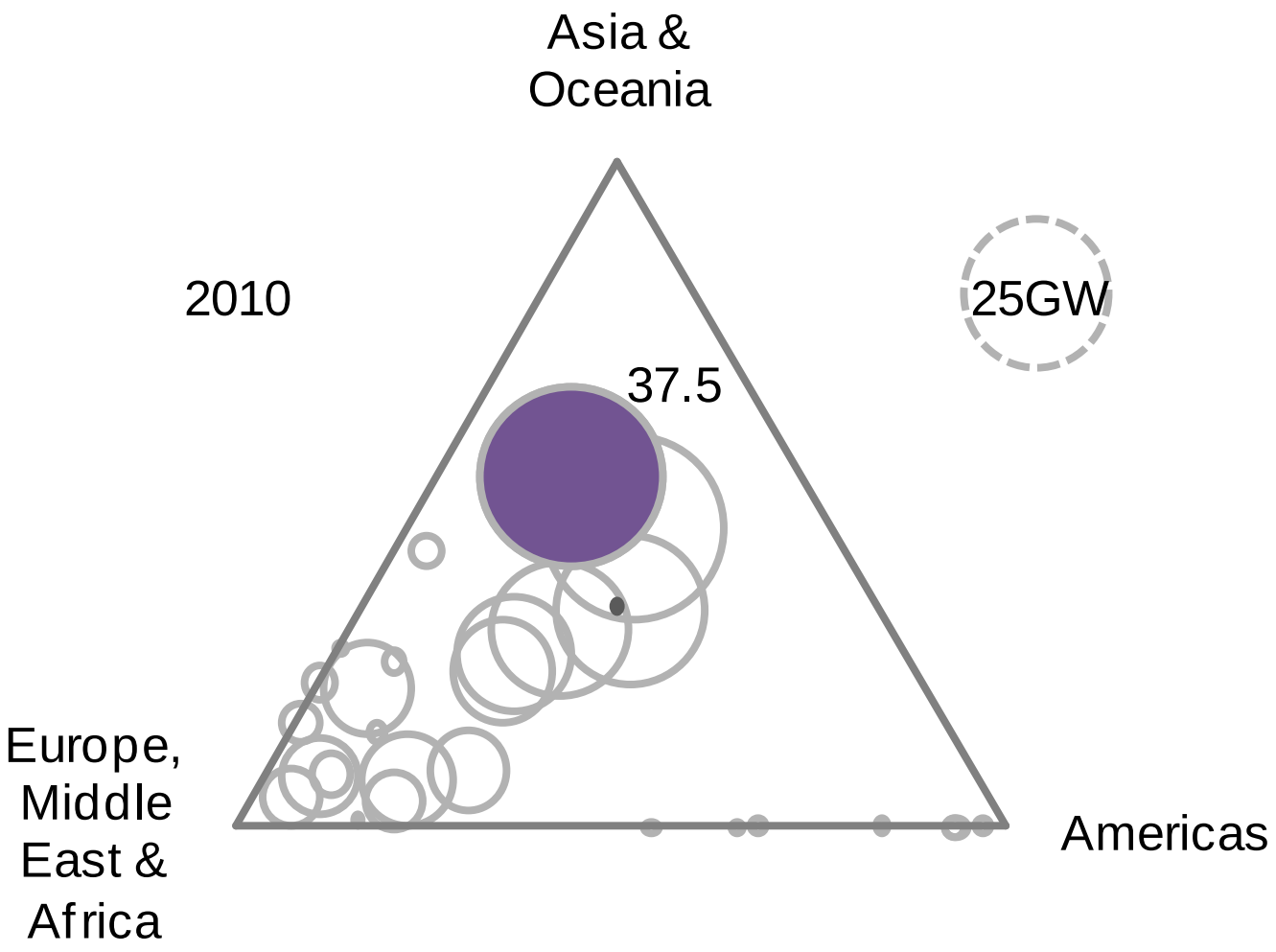
2007–10 ($BN)



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

WIND-GENERATING CAPACITY NET ADDITIONS (GW)



Source: Bloomberg New Energy Finance

TOP 10 GLOBAL WIND MANUFACTURERS 2005, 2010 (RANK ORDER BY PRODUCTION)

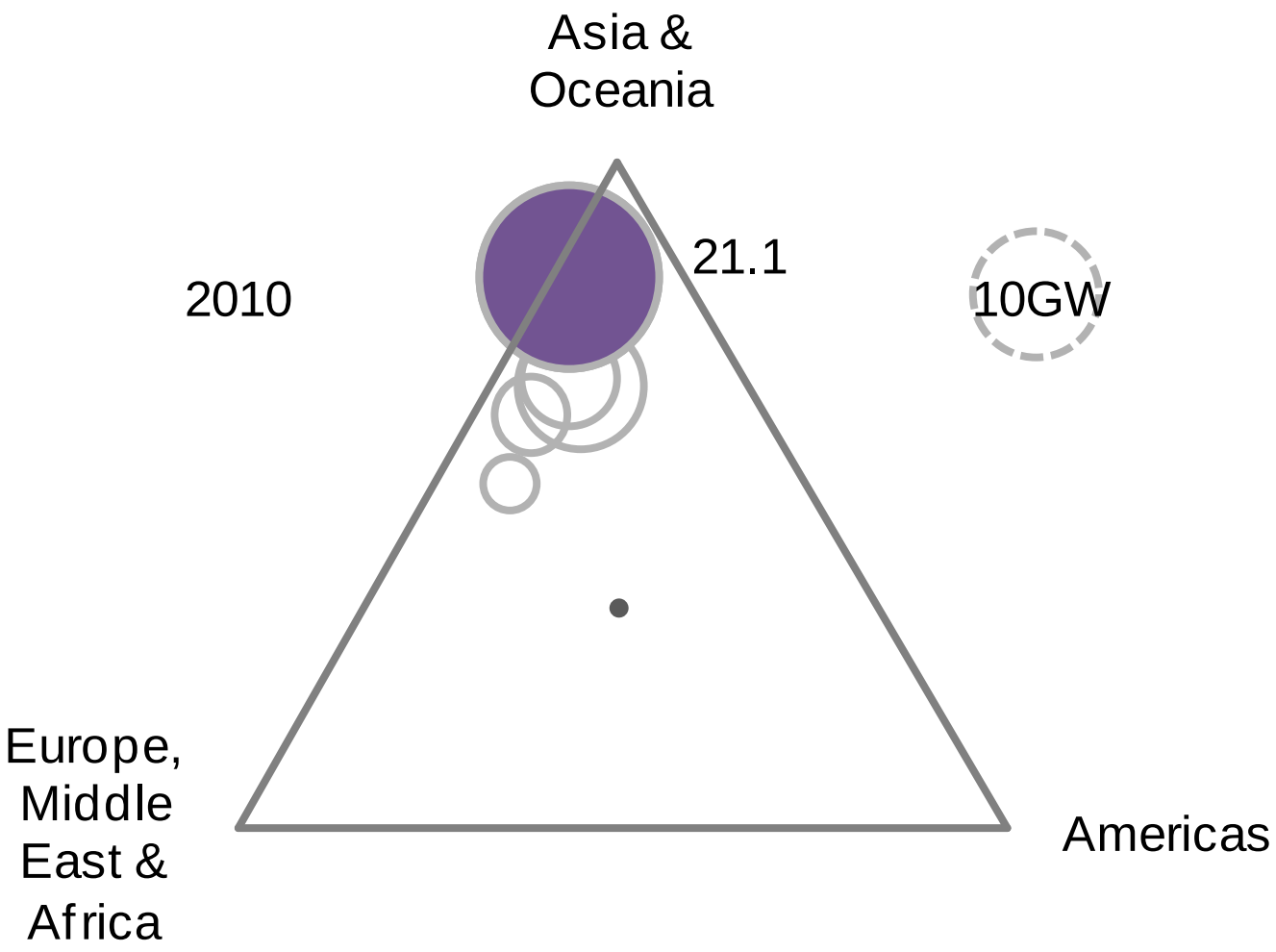
+25% per year

2005			2010		
Company	**Country**	**Production (GW)**	**Company**	**Country**	**Production (GW)**
1. Vestas	Denmark	3.2	1. Vestas	Denmark	6.3
2. Enercon	Germany	2.7	2. GE Wind	US	6.0
3. Gamesa	Spain	1.9	3. Sinovel	China	5.3
4. GE Wind	US	1.3	4. Gamesa	Spain	4.4
5. Siemens	Denmark	1.1	5. Goldwind	China	3.6
6. Suzlon	India	0.9	6. Suzlon	India	3.5
7. Repower	Germany	0.9	7. Enercon	Germany	3.4
8. Goldwind	China	0.7	8. Dongfang	China	3.0
9. Nordex	Germany	0.5	9. Repower	Germany	2.9
10. Ecotecnica	Spain	0.3	9. Siemens	Denmark	2.9

Europe **US** **China** **Other Asia**

Source: Bloomberg New Energy Finance

SOLAR MANUFACTURING CAPACITY ADDITIONS (GW)



Source: Bloomberg New Energy Finance

TOP 10 GLOBAL PV CELL MANUFACTURERS 2006, 2010 (RANK ORDER BY CAPACITY)

+46% per year

2006

Company	Country	Capacity (MW)
Sharp	Japan	500
Q-Cells	Germany	420
Suntech	China	270
Motech	Taiwan	240
Solarworld	Germany	200
China Sunergy	China	180
Kyocera	Japan	180
Isofoton	Spain	130
Schott	Germany	121
Sanyo Electric	Japan	115

2010

Company	Country	Capacity (MW)
JA Solar	China	1,900
Suntech	China	1,620
First Solar (TF)	US	1,502
Yingli	China	1,100
Trina Solar	China	1,000
Q-Cells	Germany	1,000
Canadian Solar	China	800
Motech	Taiwan	600
Gintech	Taiwan	600
JinkoSolar	China	600

Europe | US | China | Other Asia

Note: 'Capacity' counted as either crystalline silicon cell or thin film module. TF is thin film

Source: Bloomberg New Energy Finance, company announcements

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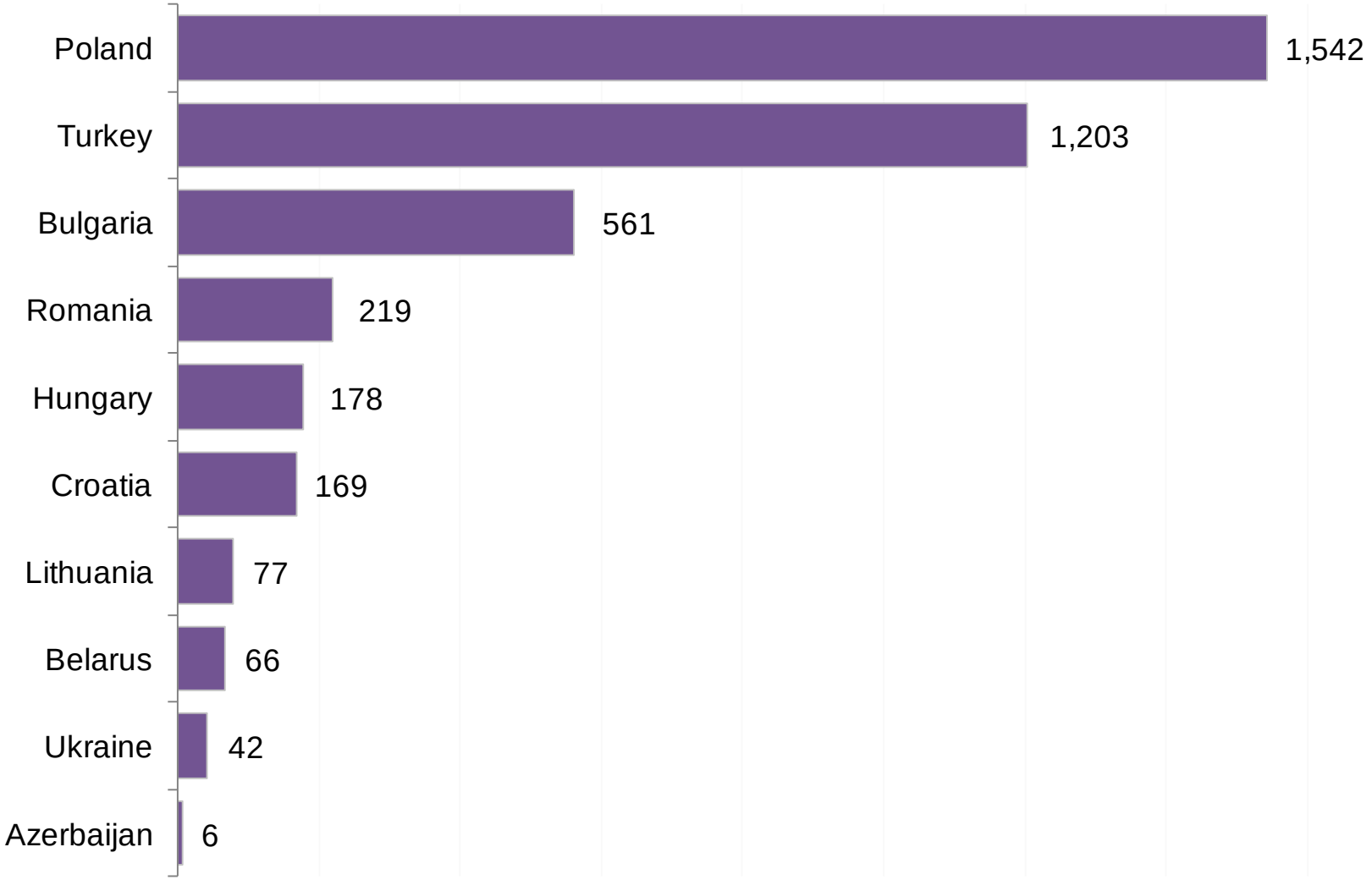
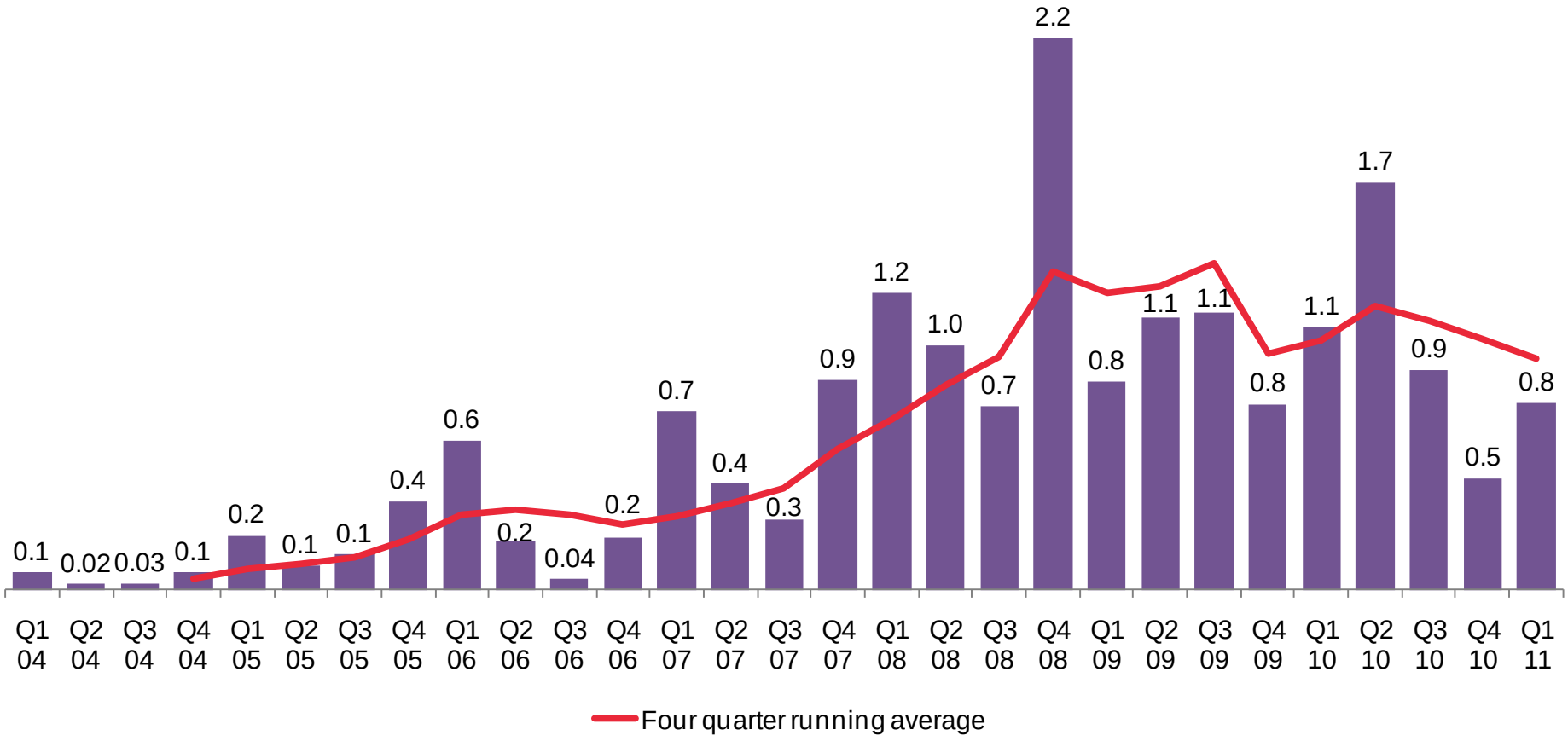
NEW FINANCIAL INVESTMENT IN CLEAN ENERGY: EBRD COUNTRIES, 2010 ($M)



Note: Total values include estimates for undisclosed deals.

Source: Bloomberg New Energy Finance

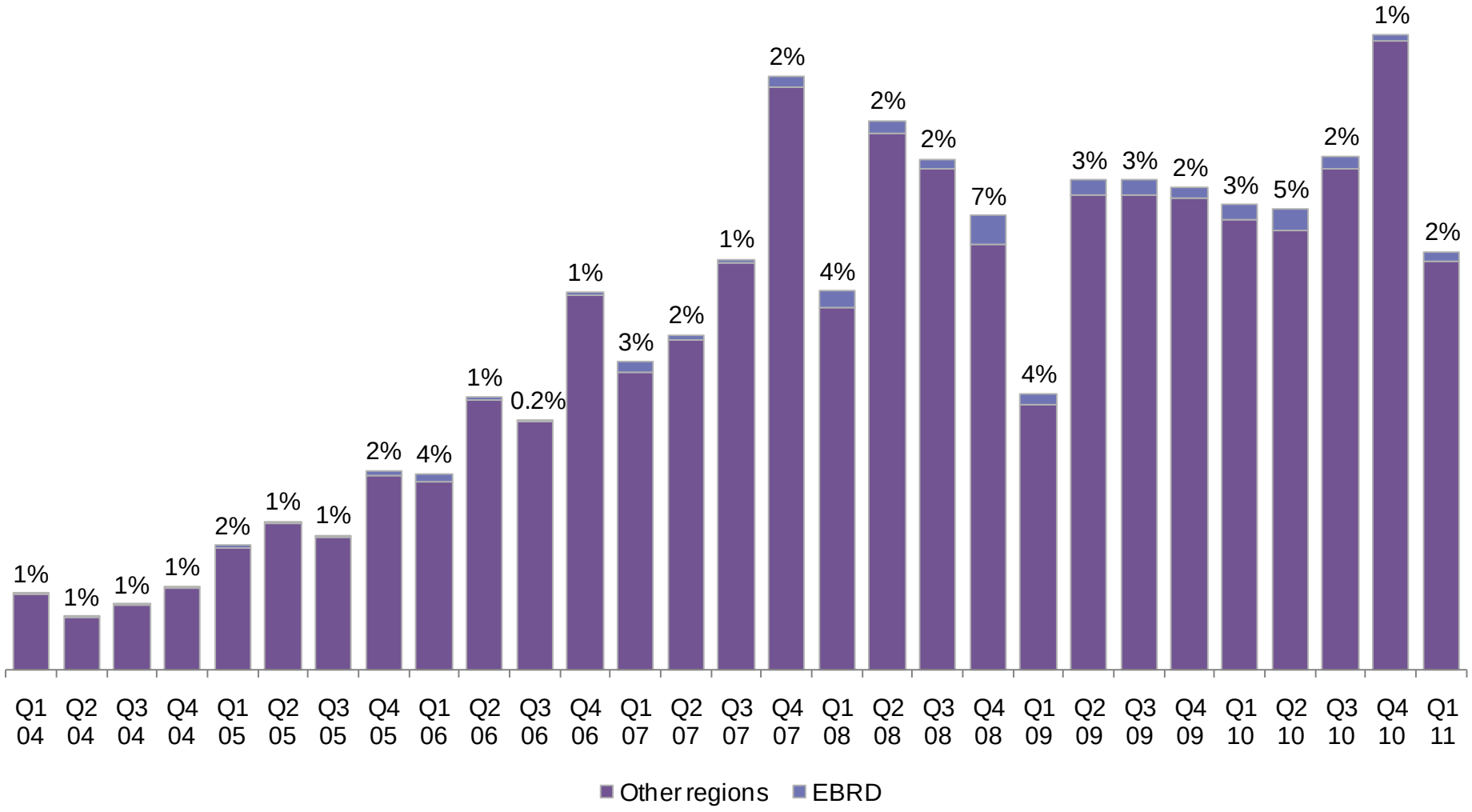
NEW FINANCIAL INVESTMENT IN CLEAN ENERGY: EBRD COUNTRIES, Q1 2004–Q1 2011 ($BN)



Note: Excludes corporate and government R&D, and small distributed capacity. Not adjusted for re-invested equity

Source: Bloomberg New Energy Finance

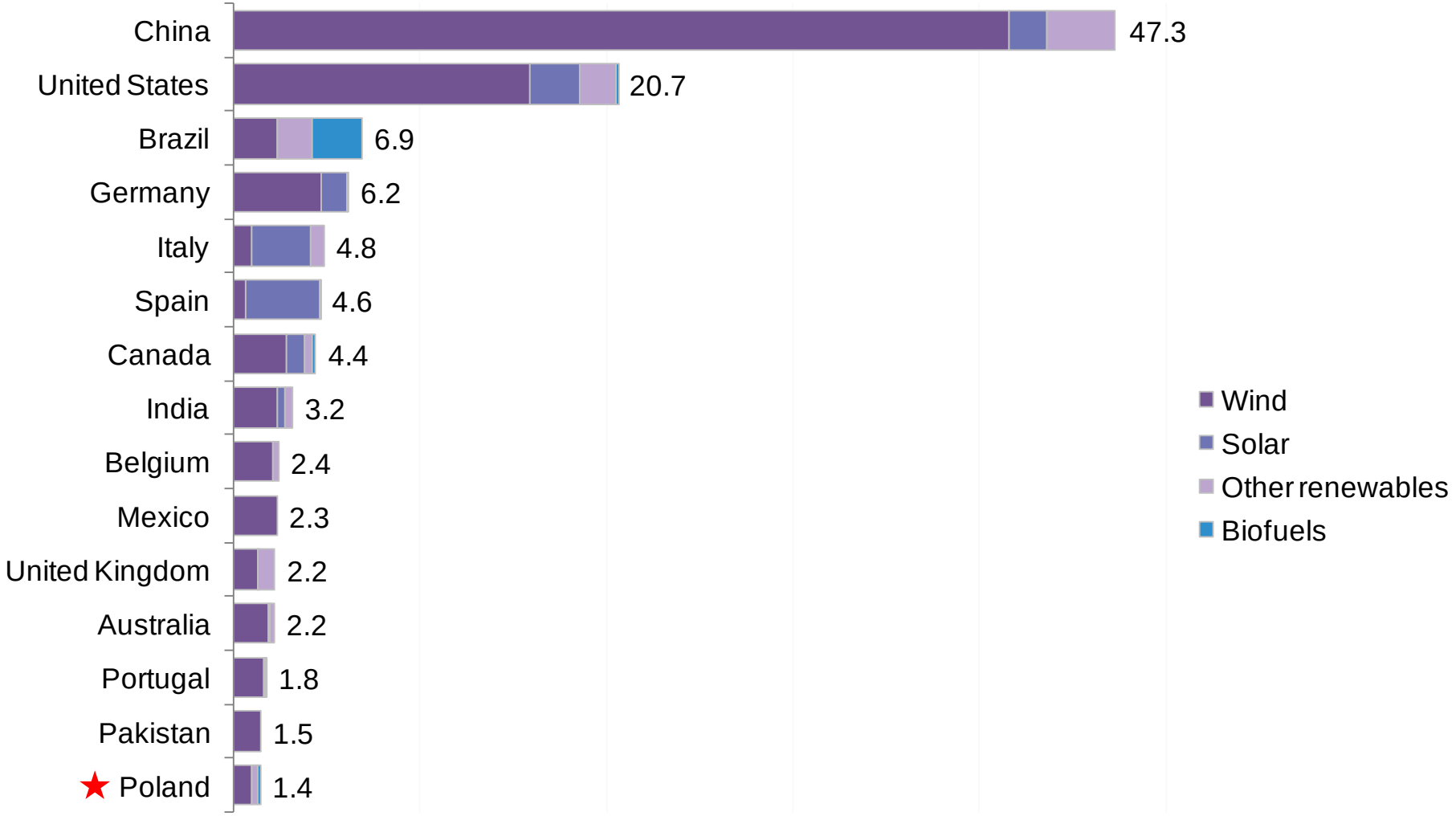
NEW FINANCIAL INVESTMENT IN CLEAN ENERGY: EBRD COUNTRIES AS % TOTAL, Q1 2004–Q1 2011 ($BN)



Note: Excludes corporate and government R&D, and small distributed capacity. Not adjusted for re-invested equity

Source: Bloomberg New Energy Finance

ASSET FINANCE FOR NEW BUILD CLEAN ENERGY ASSETS: TOP 15 COUNTRIES, 2010 ($BN)



Note: Total values include estimates for undisclosed deals. ★ EBRD country

Source: Bloomberg New Energy Finance

MICHAEL LIEBREICH

TWITTER: @MLiebreich

MARKETS

Renewable Energy
Carbon Markets
Energy Smart Technologies
Renewable Energy Certificates
Carbon Capture & Storage
Power
Water
Nuclear

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