FINANCING THE ENERGY TRANSITION

CLEAN ENERGY INVESTMENT TRENDS: HISTORY AND PROSPECTS

GUY TURNER
CHIEF ECONOMIST
CONTENTS

1. Global – investment patterns to date

2. UK - historic and future investment

3. Global – future investment

4. Financing
GLOBAL NEW INVESTMENT IN CLEAN ENERGY BY SECTOR 2004–12 ($BN)

Note: Total values include estimates for undisclosed deals. Includes corporate and government R&D.
Includes digital energy & energy storage asset investment.

Source: Bloomberg New Energy Finance
NEW INVESTMENT IN CLEAN ENERGY BY REGION
Q1 2004–Q2 2013 ($BN)

Note: Total values include estimates for undisclosed deals. Excludes corporate R&D, government R&D, digital energy asset investment and energy storage asset investment (only available annually).

Source: Bloomberg New Energy Finance
NEW INVESTMENT IN CLEAN ENERGY BY REGION
2004–12 ($BN)

Source: Bloomberg New Energy Finance
Note: Excludes corporate and government R&D
TOP 10 COUNTRIES IN TERMS OF NEW INVESTMENT IN CLEAN ENERGY, 2012 ($BN)

China 65.0
United States 36.5
Germany 19.8
Japan 16.0
Italy 14.1
United Kingdom 9.1
India 6.4
South Africa 5.7
Brazil 5.3
France 4.6

Note: Total values include estimates for undisclosed deals. Excludes corporate and government R&D. Excludes digital energy & energy storage asset investment. Country is destination (not origin) of flows. Source: Bloomberg New Energy Finance
NEW INVESTMENT IN CLEAN ENERGY BY ASSET CLASS
Q1 2004–Q2 2013 ($BN)

Note: Total values include estimates for undisclosed deals. Excludes corporate R&D, government R&D, digital energy asset investment and energy storage asset investment (only available annually)

Source: Bloomberg New Energy Finance
CONTENTS

1. Global – investment patterns to date

2. UK - historic and future investment

3. Global – future investment

4. Financing
NEW INVESTMENT IN CLEAN ENERGY IN THE UK BY SECTOR, 2004–12 ($BN)

Source: Bloomberg New Energy Finance

Note: Total values include estimates for undisclosed deals. Includes corporate and government R&D. Includes digital energy & energy storage asset investment.

Source: Bloomberg New Energy Finance
UK RENEWABLE ENERGY CAPACITY (GW)

Historical capacity

Source: Bloomberg New Energy Finance
UK RENEWABLE ENERGY CAPACITY (GW)

Historical capacity

BNEF short-term projections

Source: Bloomberg New Energy Finance
UK RENEWABLE ENERGY CAPACITY (GW)

Historical capacity

2020 target = 50% of 2012 installed thermal & nuclear capacity

BNEF short-term projections

National RE Action Plan Submissions

Source: Bloomberg New Energy Finance
UK RENEWABLE ENERGY CAPACITY (GW)

Source: Bloomberg New Energy Finance

With no new build other than what is in the pipeline as of today

8GW shortfall (20% of target)
EU27 RENEWABLE ENERGY CAPACITY (GW)

Historical capacity

BNEF short-term projections

National RE Action Plan submissions

Source: Bloomberg New Energy Finance
CONTENTS

1. Global – investment patterns to date

2. UK - historic and future investment

3. Global – future investment

4. Financing
ANNUAL INVESTMENT IN POWER GENERATION CAPACITY ($BN) – “NEW NORMAL” SCENARIO

Note: EfW is energy from waste. Small-scale PV includes commercial and residential scale rooftop PV.
GLOBAL POWER GENERATION CAPACITY (GW)

Note: EfW is energy from waste. Small-scale PV includes commercial and residential scale rooftop PV.

Source: Bloomberg New Energy Finance
TOTAL PRIMARY ENERGY DEMAND

Source: Bloomberg New Energy Finance
ANNUAL LARGE-SCALE PV INSTALLATIONS BY REGION - NEW NORMAL SCENARIO (GW)

Source: Bloomberg New Energy Finance

Note: “large scale” denotes systems larger than 1MW
CONTENTS

1. Global – investment patterns to date

2. UK - historic and future investment

3. Global – future investment

4. Financing
RENEWABLE ENERGY ASSET FINANCE INVESTMENT BY SOURCE, 2004–H1 2013 ($BN)

Note: Total values include estimates for undisclosed deals. Volumes show new build asset finance for renewable energy projects only.

Source: Bloomberg New Energy Finance
Investment in the South in 2011 surpassed 25% of total CBI.

North/South investment peaked in 2012 at 27% of total CBI with $10.8bn deployed.
THE IMPORTANCE OF COSTS

PV cost competitive with retail power in:
- Germany
- Australia
- India
- Italy

Wholesale costs

$/MWh

PV LCOE Range: 11-15% Capacity Factor
ANNOUNCED ENERGY STORAGE PROJECTS WORLDWIDE (MW AND NUMBER OF PROJECTS)

Source: Bloomberg New Energy Finance.
GLOBAL ENERGY STORAGE CAPACITY TO BE COMMISSIONED IN 2013 (MW)

By technology:
- Flow batteries: 6.0 MW
- Flywheels: 24.5 MW
- Lead-based batteries: 43.1 MW
- Sodium sulphur batteries: 1 MW
- Compressed air: 1 MW
- Total: 164 MW

By country:
- US: 123.3 MW
- China: 13.5 MW
- Japan: 4.1 MW
- Canada: 5.0 MW
- Australia: 3 MW
- Others: 9.9 MW

Source: Bloomberg New Energy Finance
COPYRIGHT AND DISCLAIMER

This publication is the copyright of Bloomberg New Energy Finance. No portion of this document may be photocopied, reproduced, scanned into an electronic system or transmitted, forwarded or distributed in any way without prior consent of Bloomberg New Energy Finance.

The information contained in this publication is derived from carefully selected sources we believe are reasonable. We do not guarantee its accuracy or completeness and nothing in this document shall be construed to be a representation of such a guarantee. Any opinions expressed reflect the current judgment of the author of the relevant article or features, and does not necessarily reflect the opinion of Bloomberg New Energy Finance, Bloomberg Finance L.P., Bloomberg L.P. or any of their affiliates ("Bloomberg"). The opinions presented are subject to change without notice. Bloomberg accepts no responsibility for any liability arising from use of this document or its contents. Nothing herein shall constitute or be construed as an offering of financial instruments, or as investment advice or recommendations by Bloomberg of an investment strategy or whether or not to "buy," "sell" or "hold" an investment.
FINANCING THE ENERGY TRANSITION

GUY TURNER, GTURNER10@BLOOMBERG.NET

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

SERVICES
Insight: research, analysis & forecasting
Industry Intelligence: data & analytics
News & Briefing: daily, weekly & monthly
Applied Research: custom research & data mining
Knowledge Services: Summit, Leadership Forums, Executive Briefings & workshops

Subscription-based news, data and analysis to support your decisions in clean energy, power and water and the carbon markets

sales.bnef@bloomberg.net