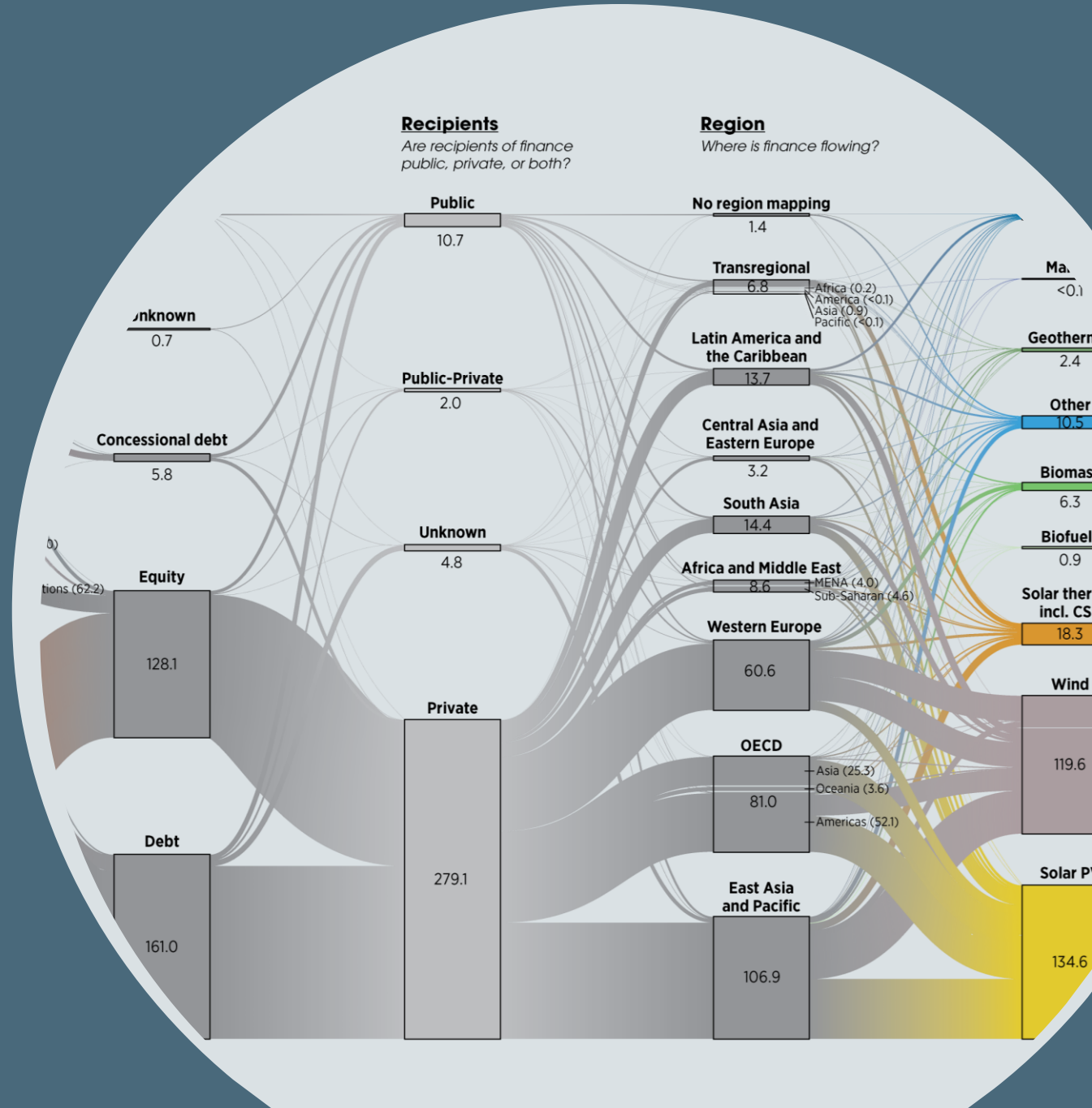


Global Landscape of Renewable Energy Finance 2018



AGENDA

1. Investments by region
2. Investments by technology
3. Investments by source
4. Investments by asset class
5. Investment need & road ahead



Sources and Intermediaries

What types of investors are the sources of finance?

Instruments

What types of instruments are used?

Recipients

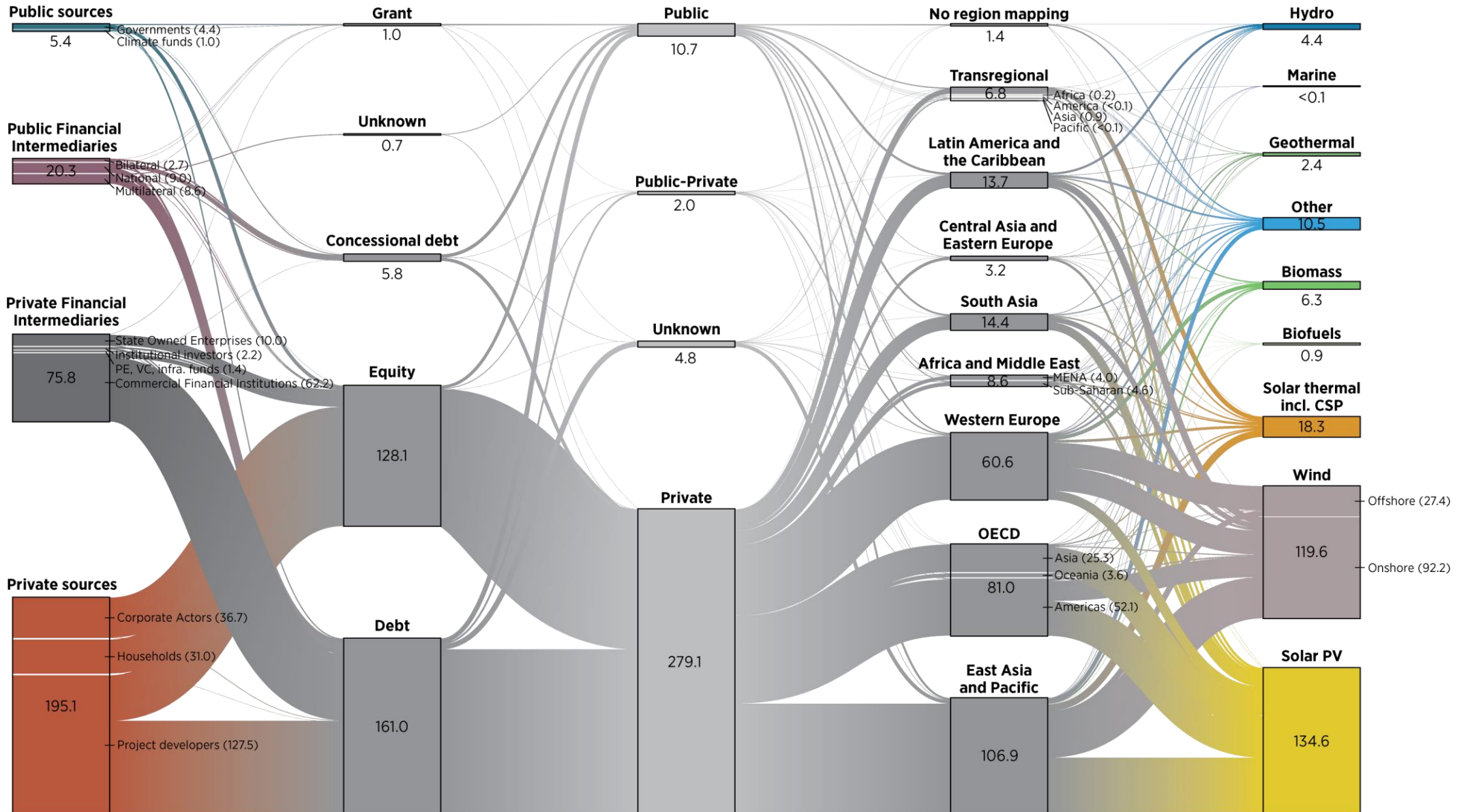
Are recipients of finance public, private, or both?

Region

Where is finance flowing?

Technology

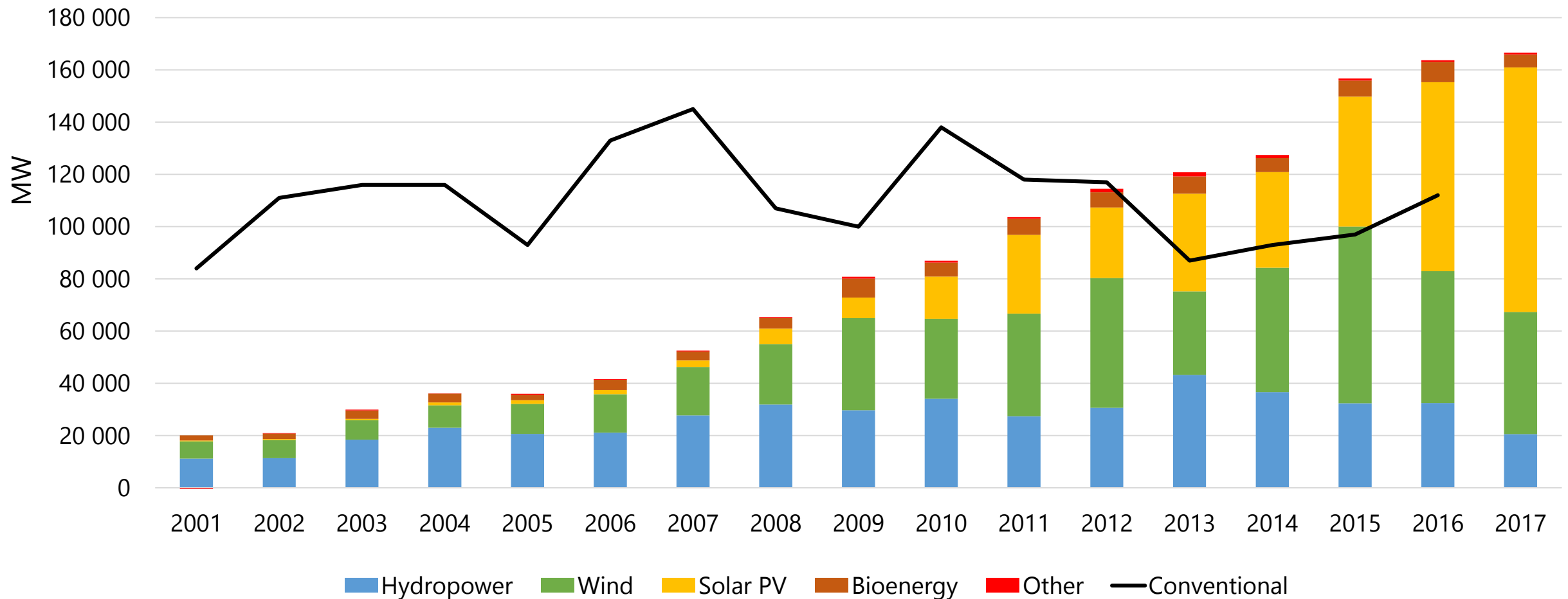
Which technologies are funded?



Source: IRENA and CPI (2018)

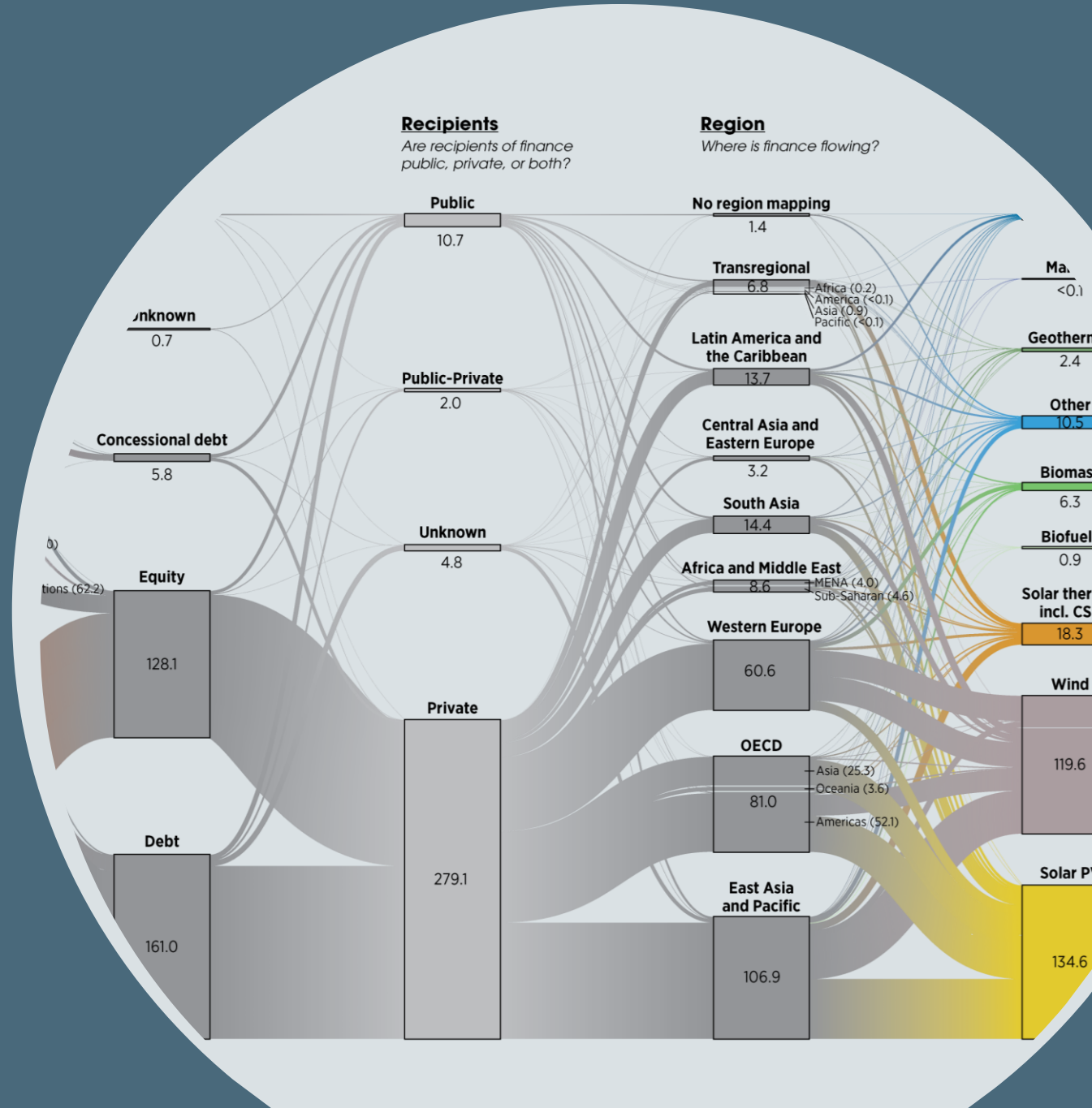
Annual additional power capacity by technology

Renewable energy power capacity additions exceed non-renewable additions.
Wind and solar PV led the uptake of renewable energy sources.



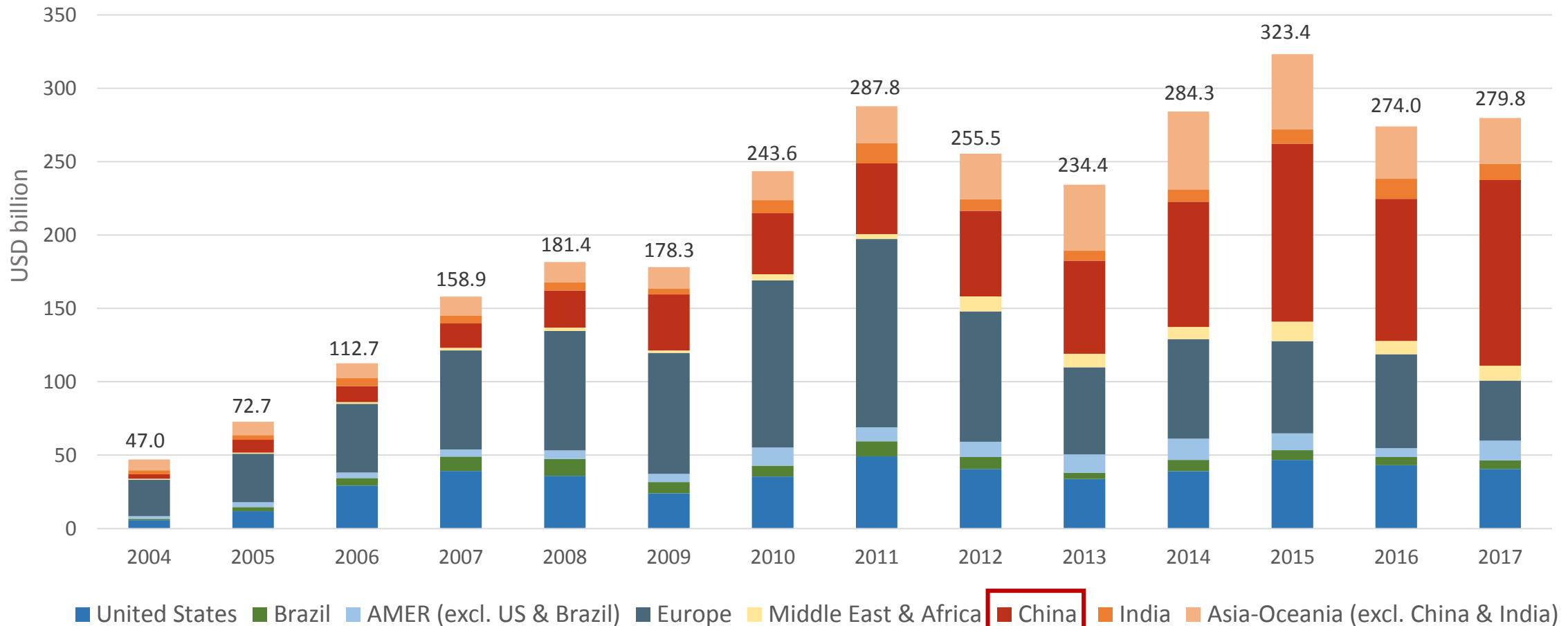
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Geographic destination of renewable investments

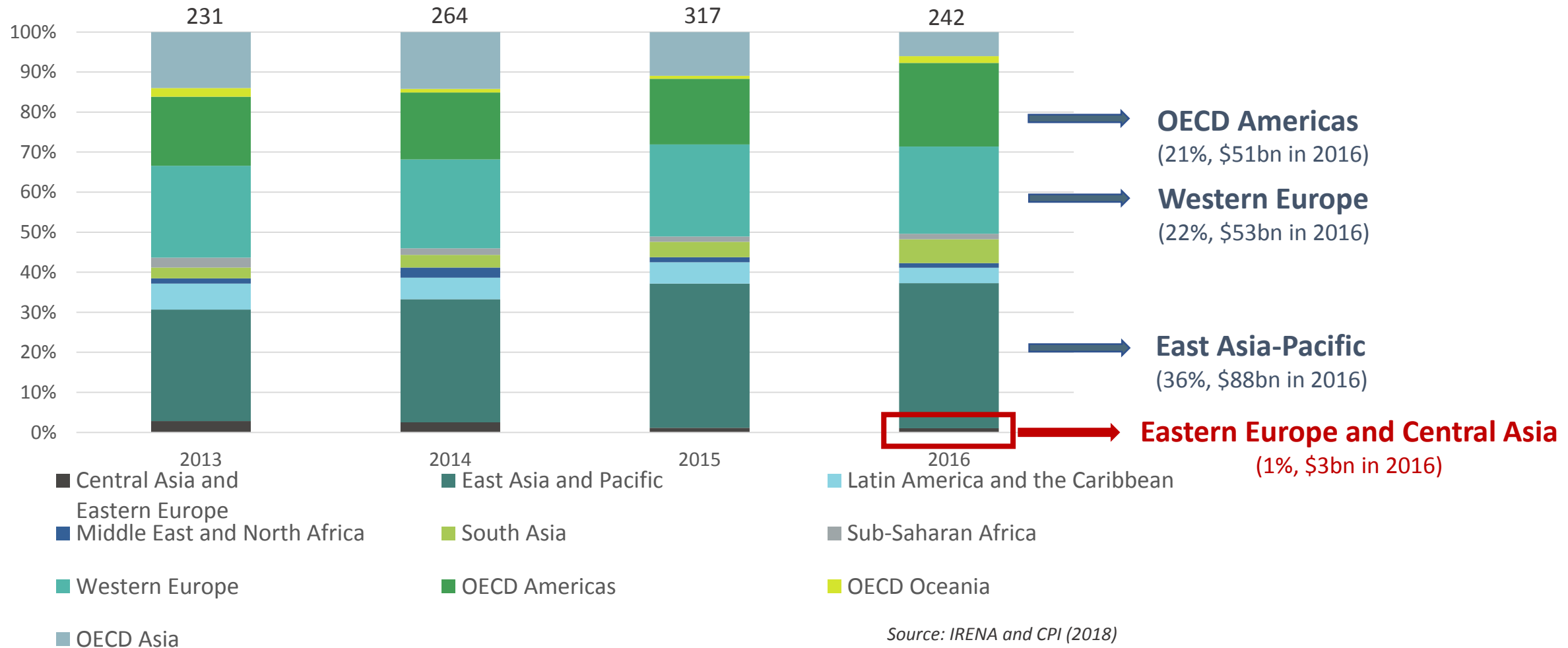
Investments in renewables have exceeded USD 200 billion per year since 2010.
China alone accounted for about 45% of global investments in renewable power in 2017.



Source: Frankfurt School-UNEP/BNEF (2018)

Investments by destination (2013-2016)

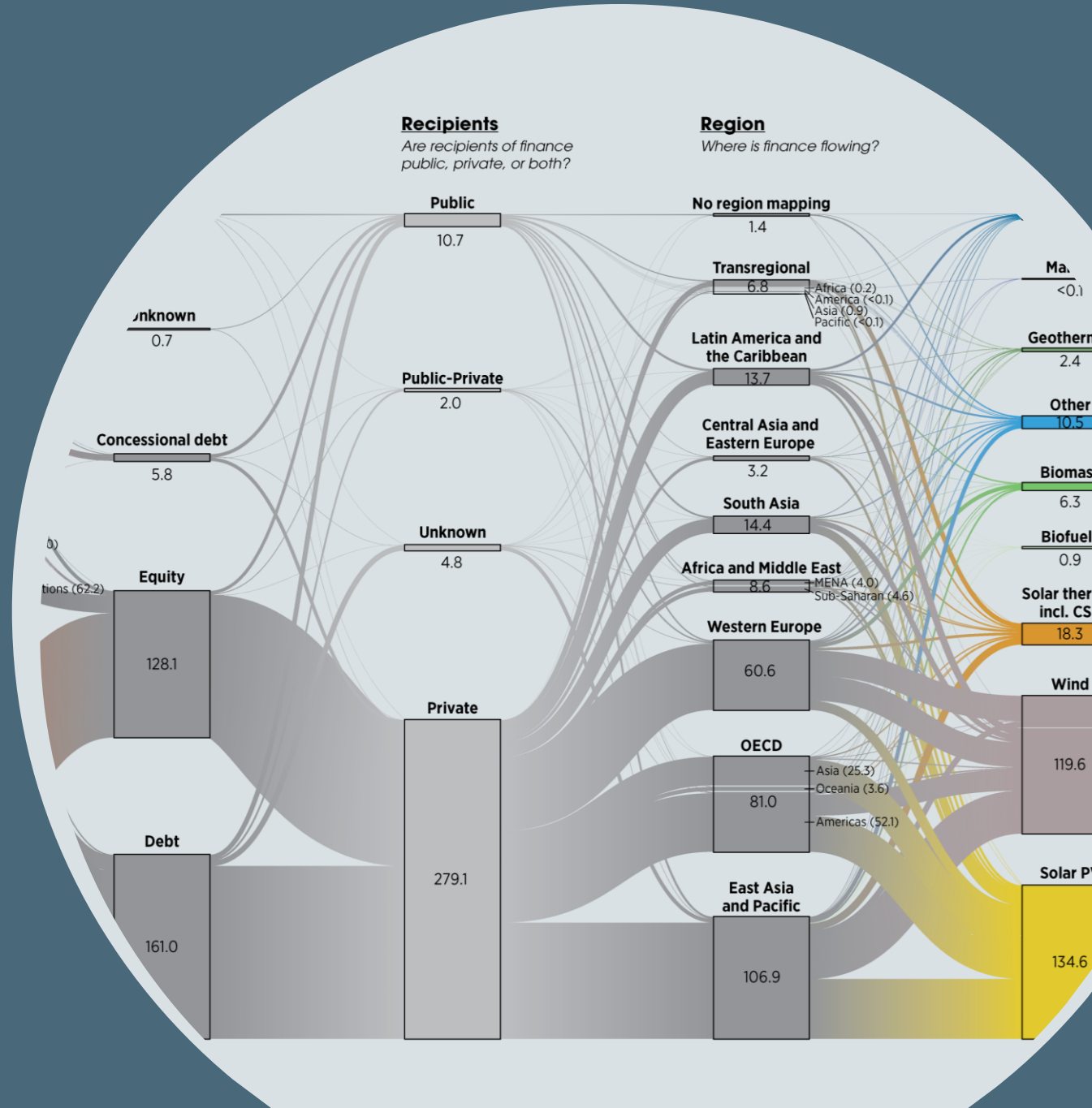
For 2013-2016, East Asia-Pacific region (China) was the dominant destination for renewable investments, followed by Western Europe and OECD Americas.



Source: IRENA and CPI (2018)

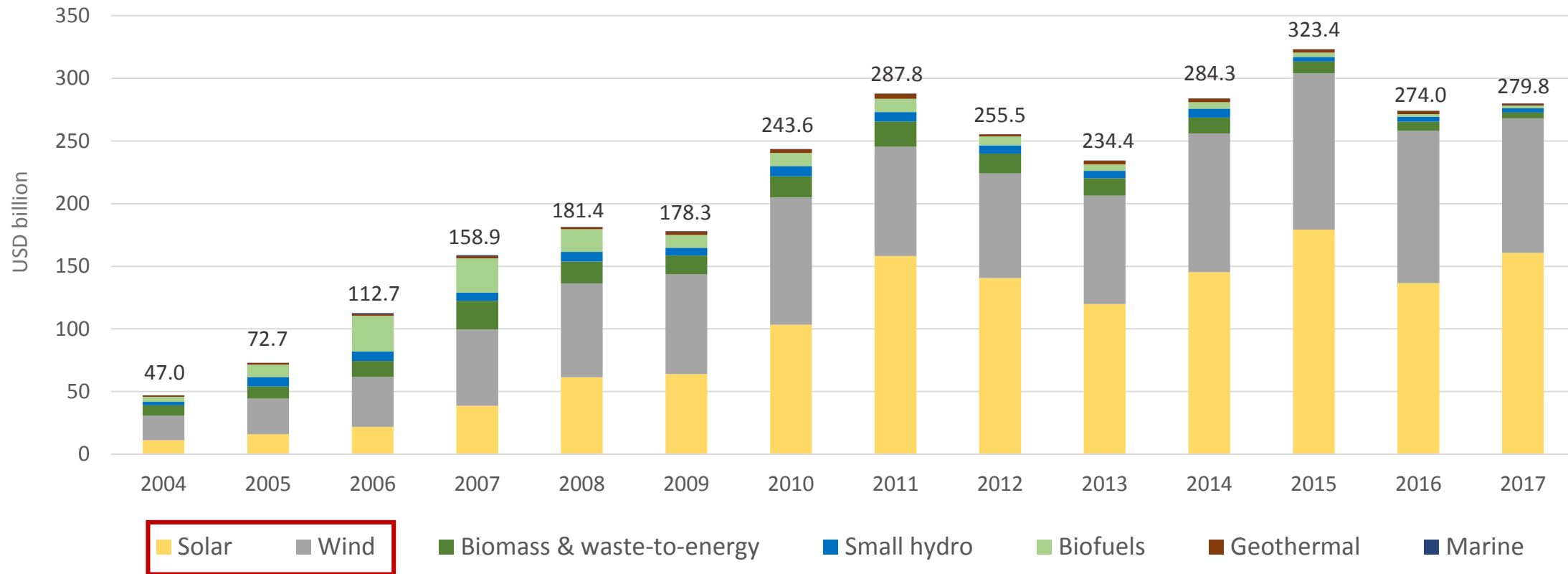
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Investments by technology: long term trend

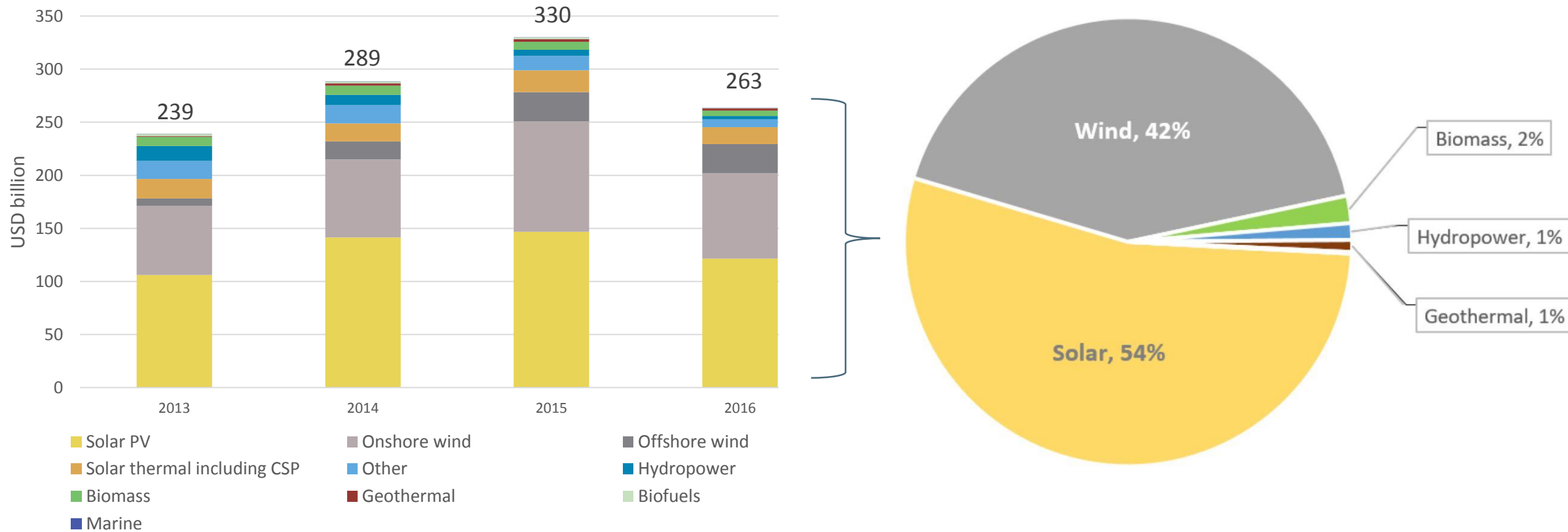
Solar and wind represented 93% of renewable power investments in 2016, and 96% in 2017.



Source: Frankfurt School-UNEP/BNEF (2018)

Renewable investment by technology

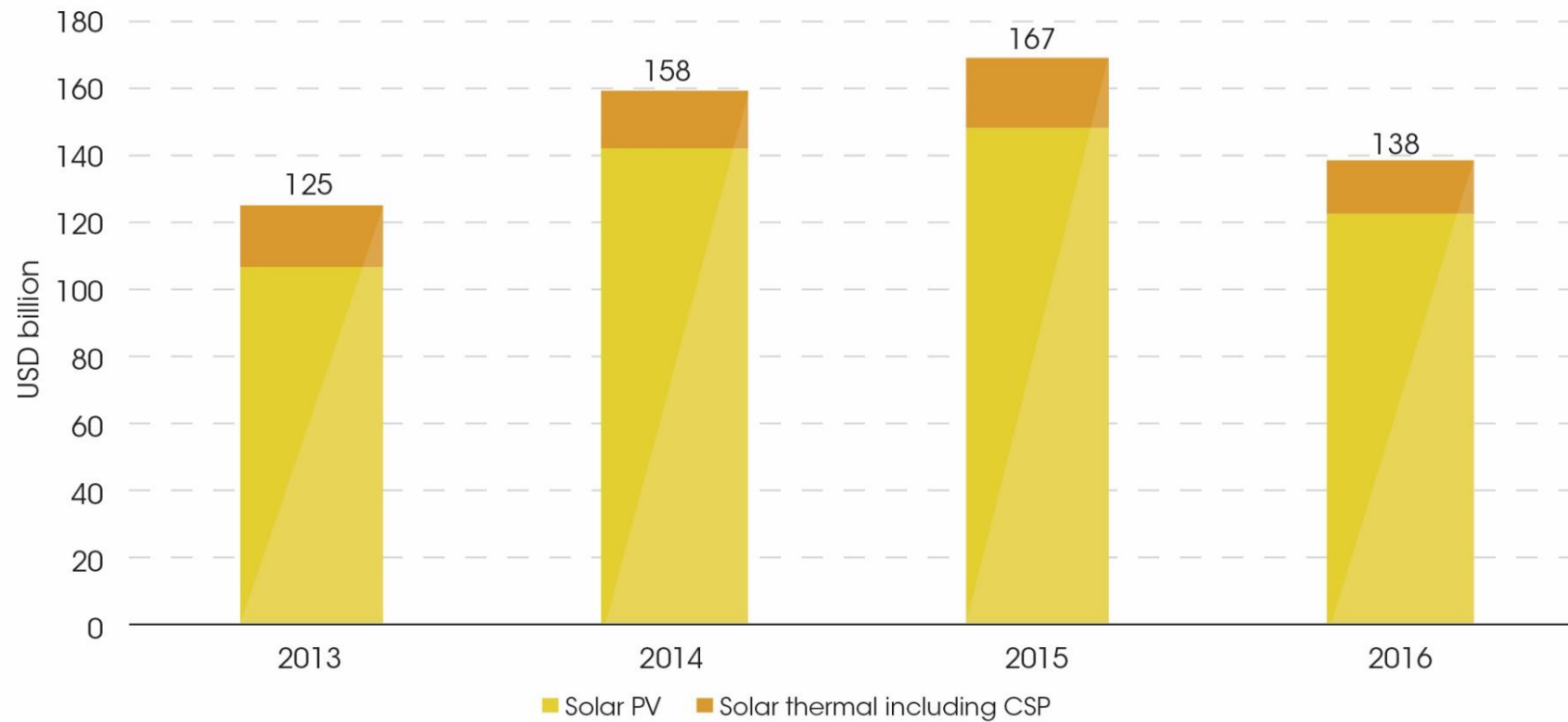
Solar and wind represented 93% of renewable power investments in 2016, and 96% in 2017.



Source: IRENA and CPI (2018)

Solar power investments

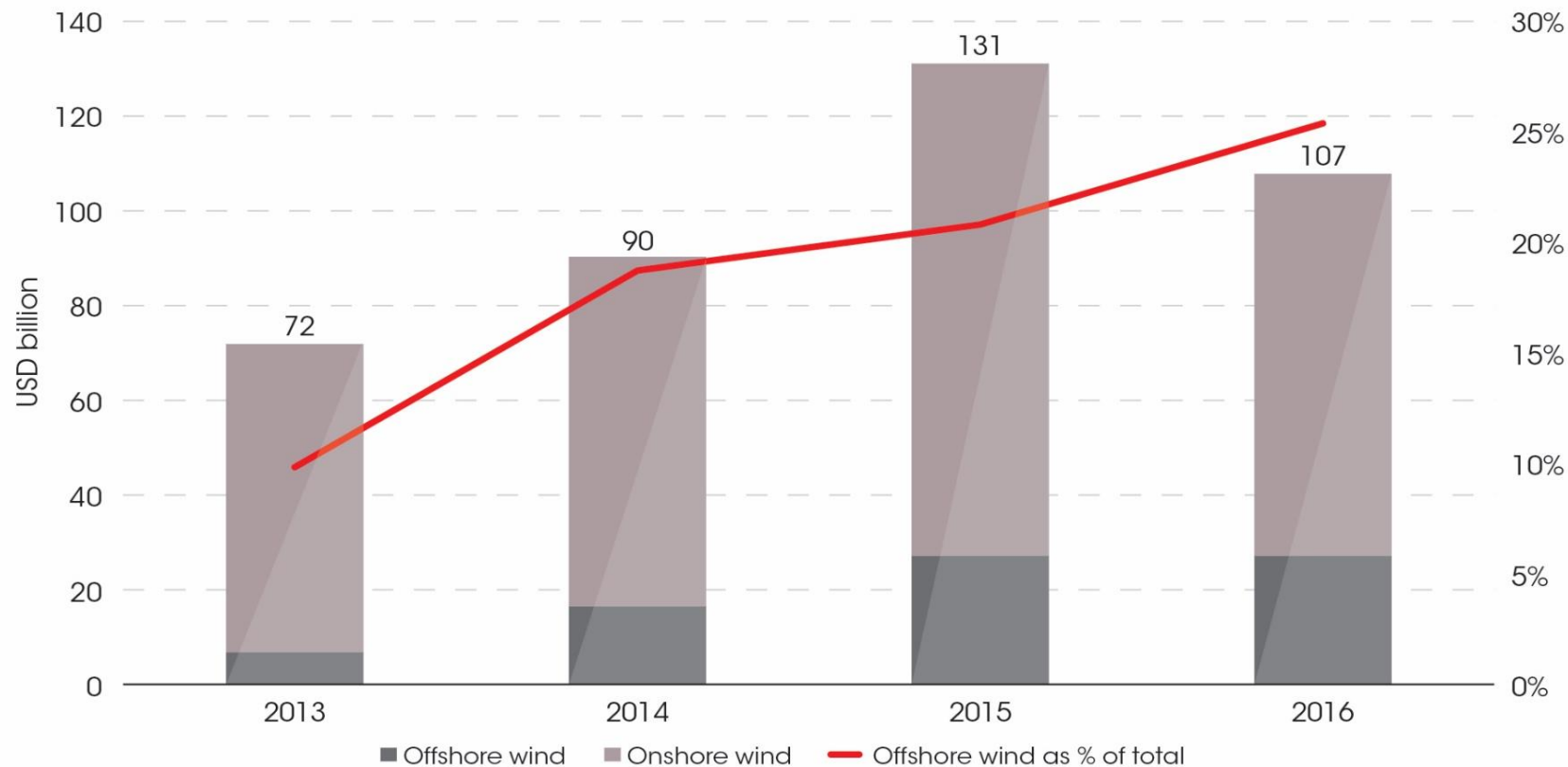
Solar power investment is largely made up of PV generation: 88% in 2016.



Source: IRENA and CPI (2018)

Wind power investments

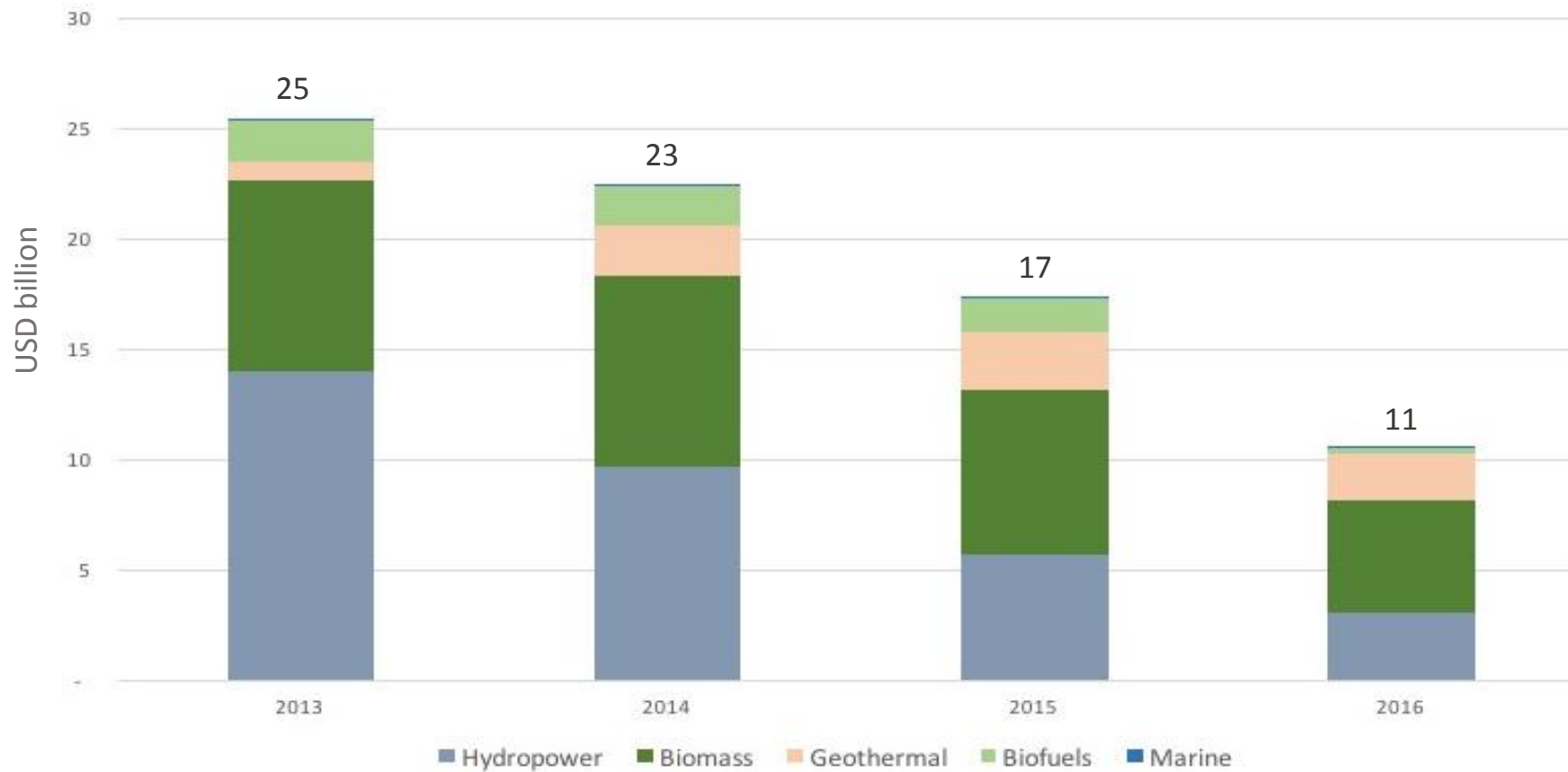
While investment in other renewable technologies declined in 2016, offshore wind investment has risen steadily, quadrupling over 2013-2016.



Source: IRENA and CPI (2018)

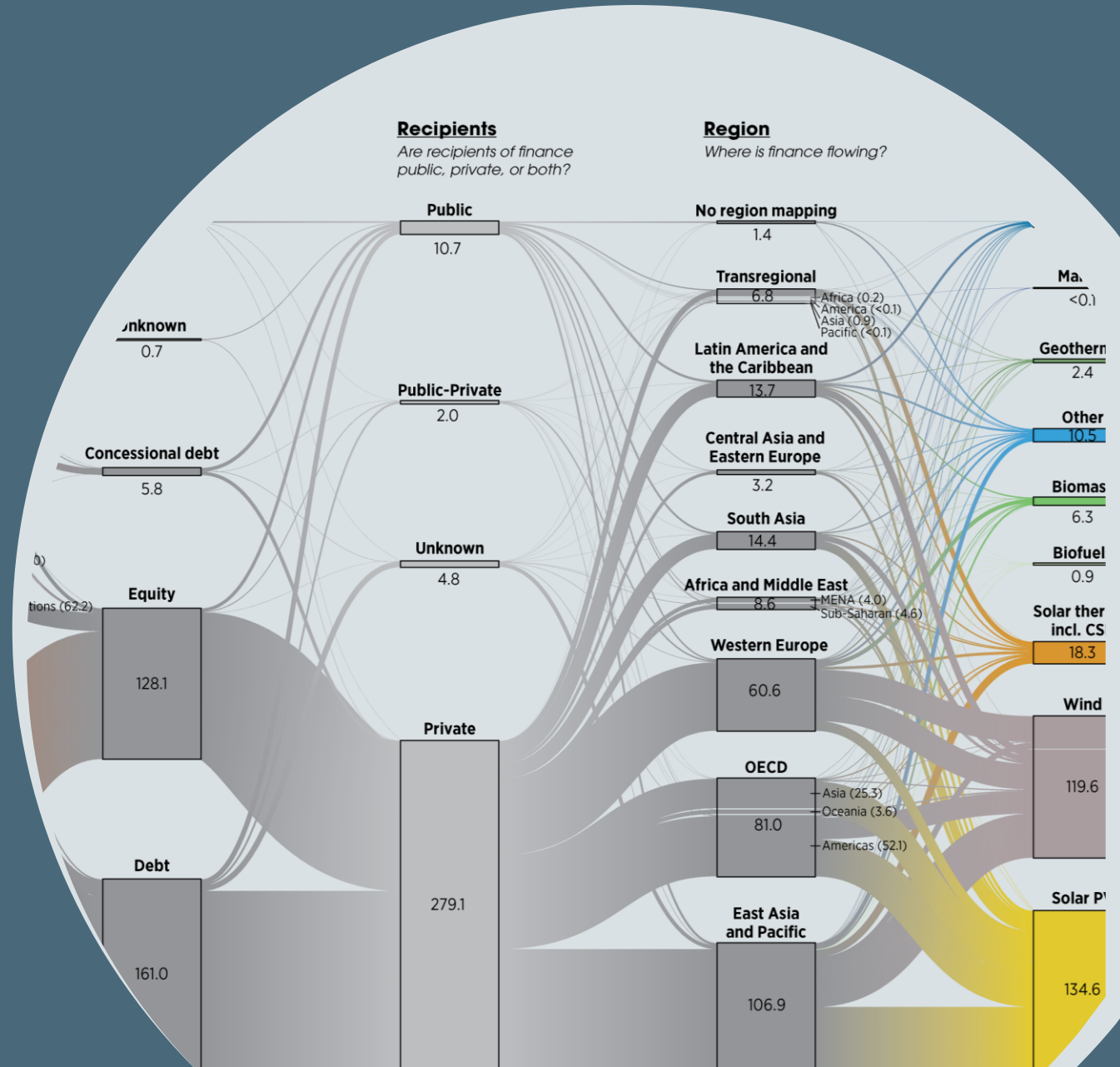
Non-wind and solar investments

Hydropower and biomass-fired plants represent the largest share of non-solar and wind investments.



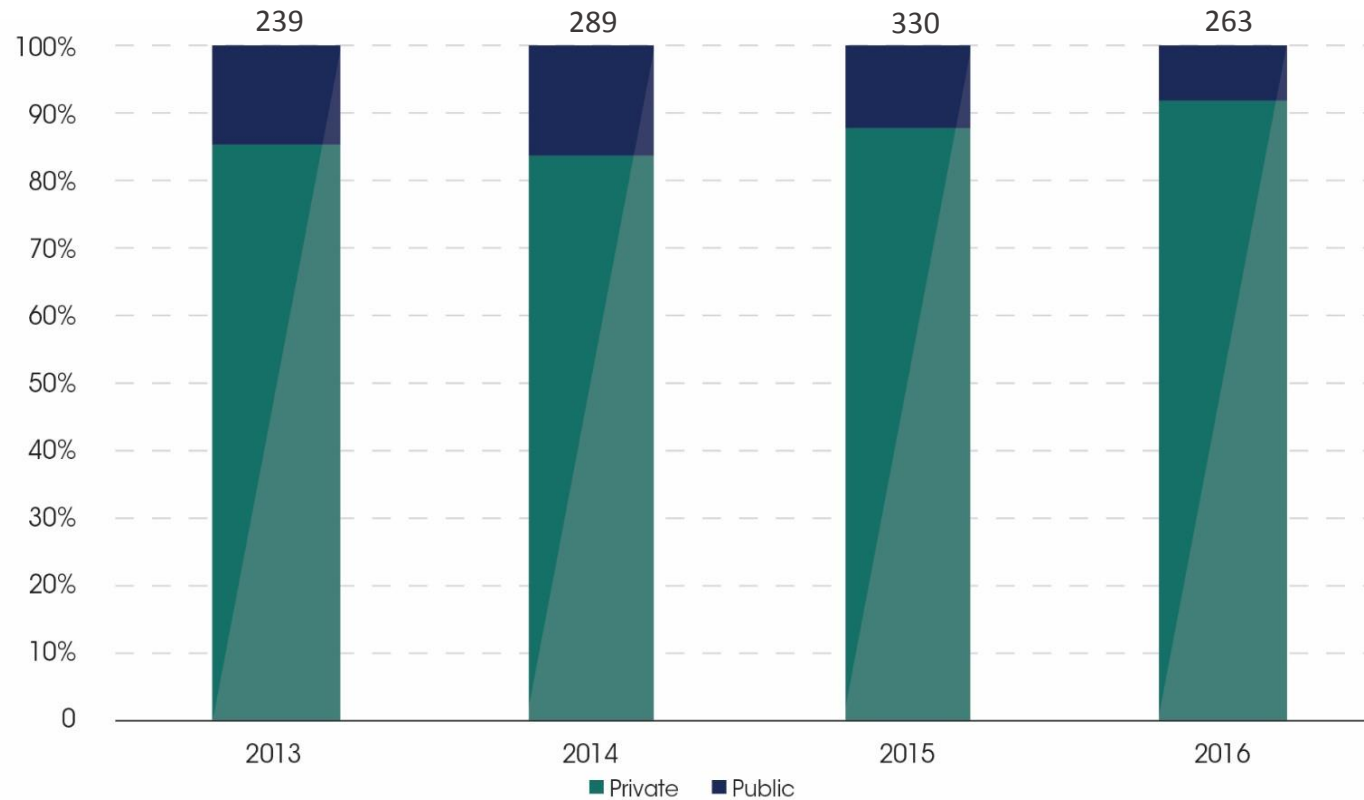
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Public vs. private capital sources

Private sources provide the bulk of direct investments in renewables – avg. of 87% in 2013-2016.



Public share in

Sub-Saharan Africa: 34%

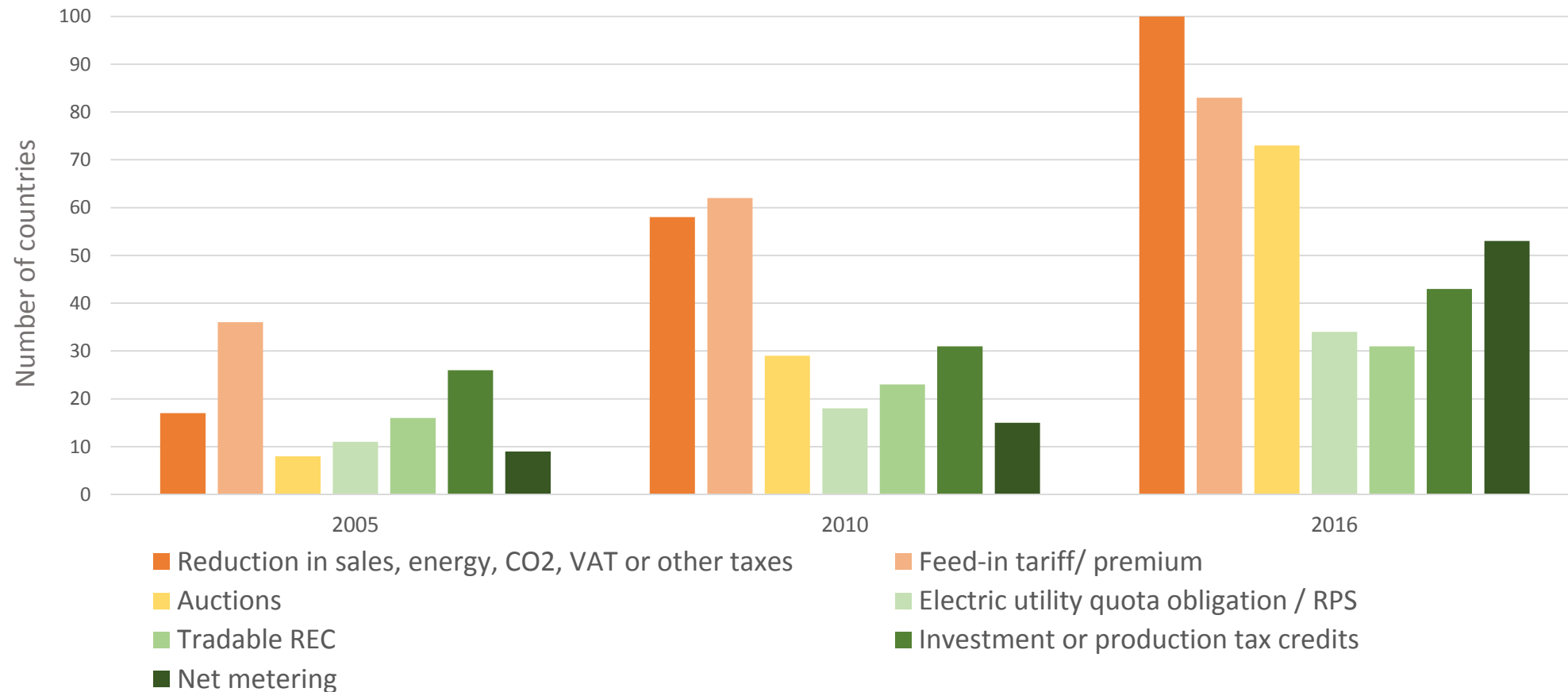
Latin America and Caribbean: 31%

Central Asia and Eastern Europe: 24%

Source: IRENA and CPI (2018)

Public investment in support schemes

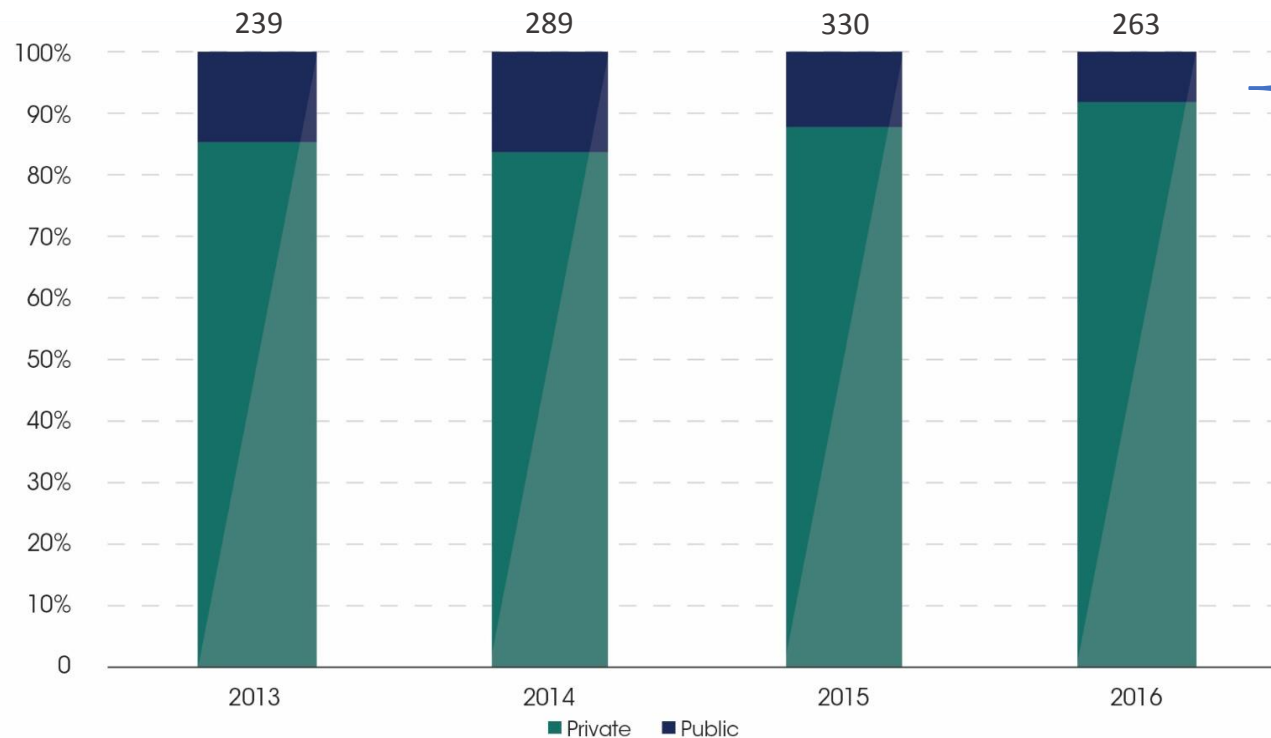
Number of countries promoting renewable energy through direct policy support has tripled from at least 48 in 2004 to at least 147 today.



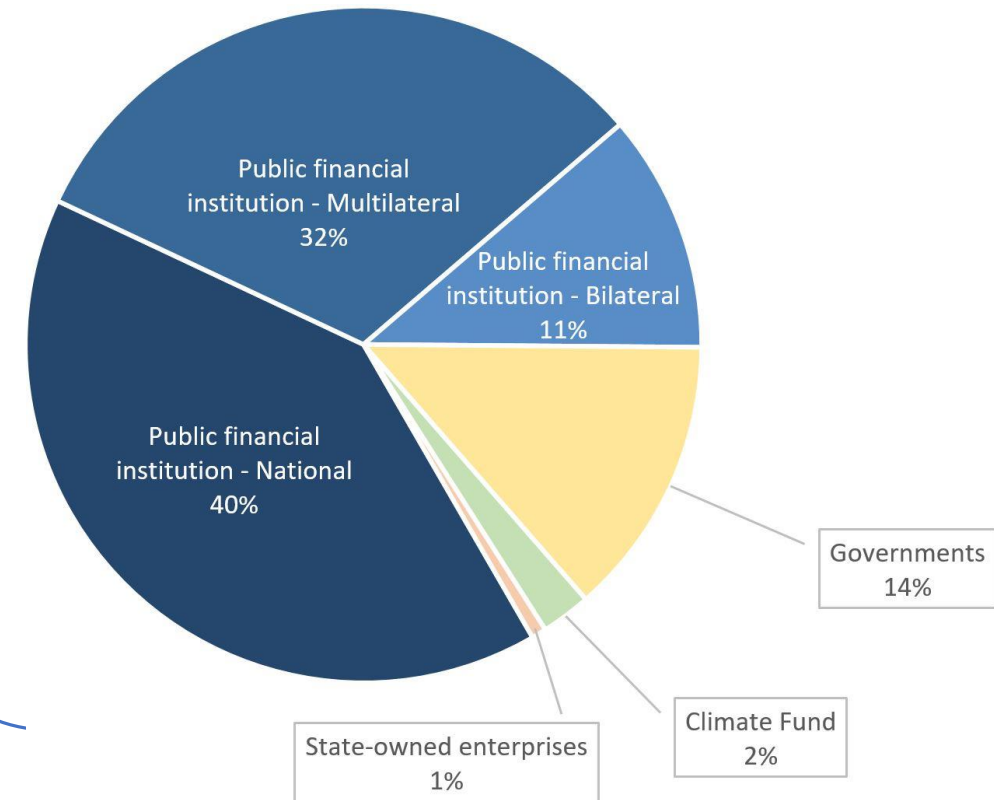
Source: IRENA, IEA and REN21 (2018)

Public direct investments: sources

Development finance institutions (DFIs) accounted for 85% of public direct investment in 2013-2016 (\$35bn p.a.).

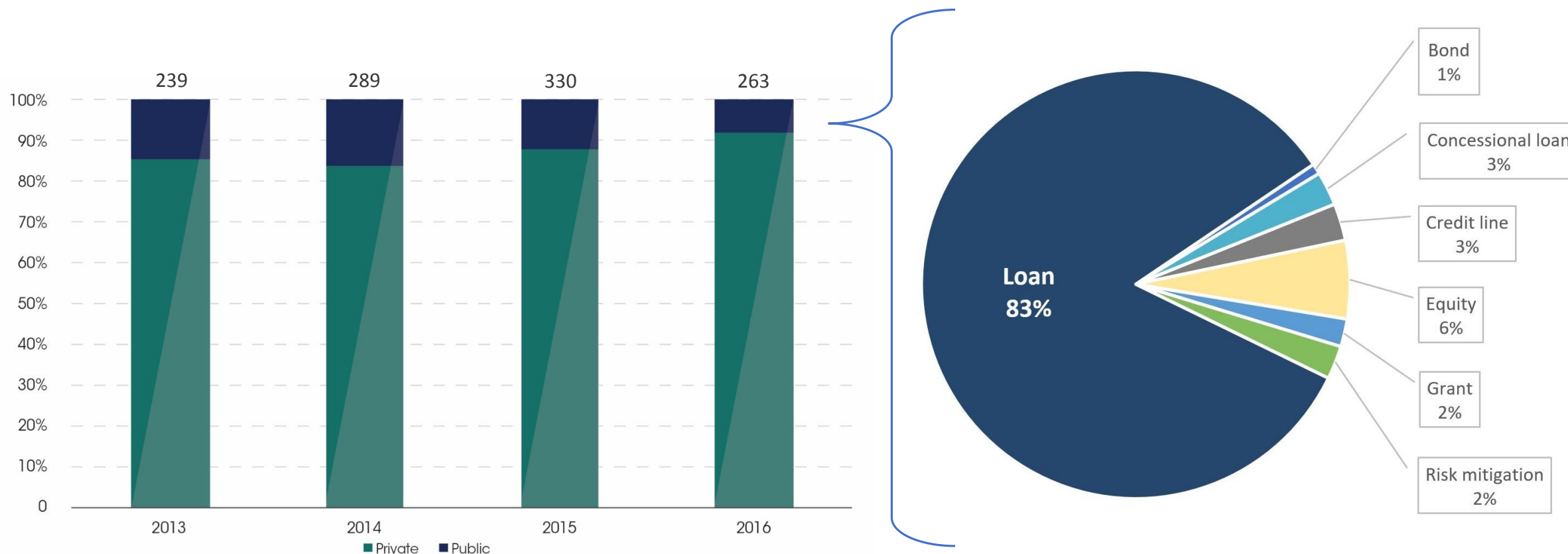


Source: IRENA and CPI (2018)



Public direct investments: form of capital provided

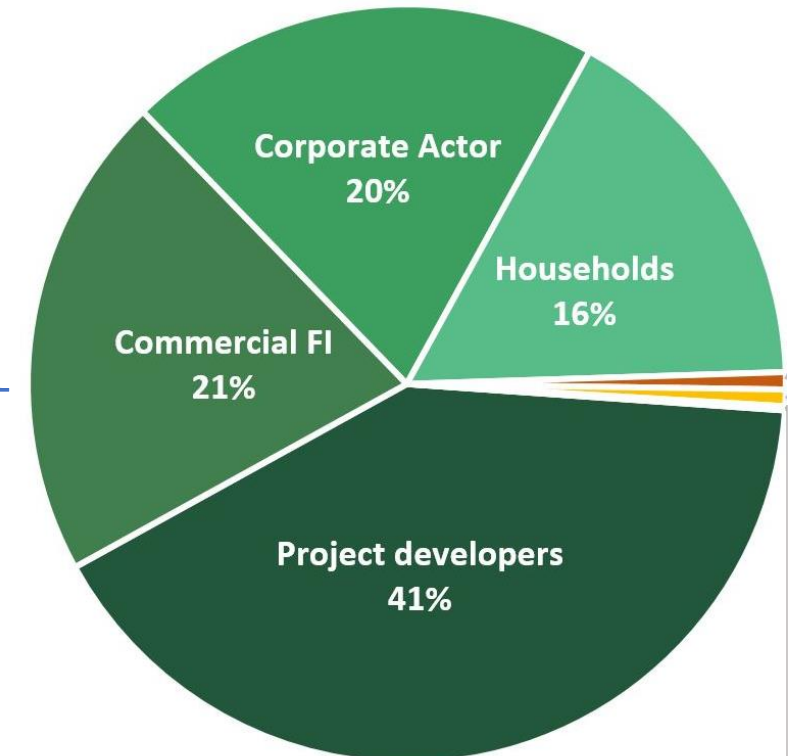
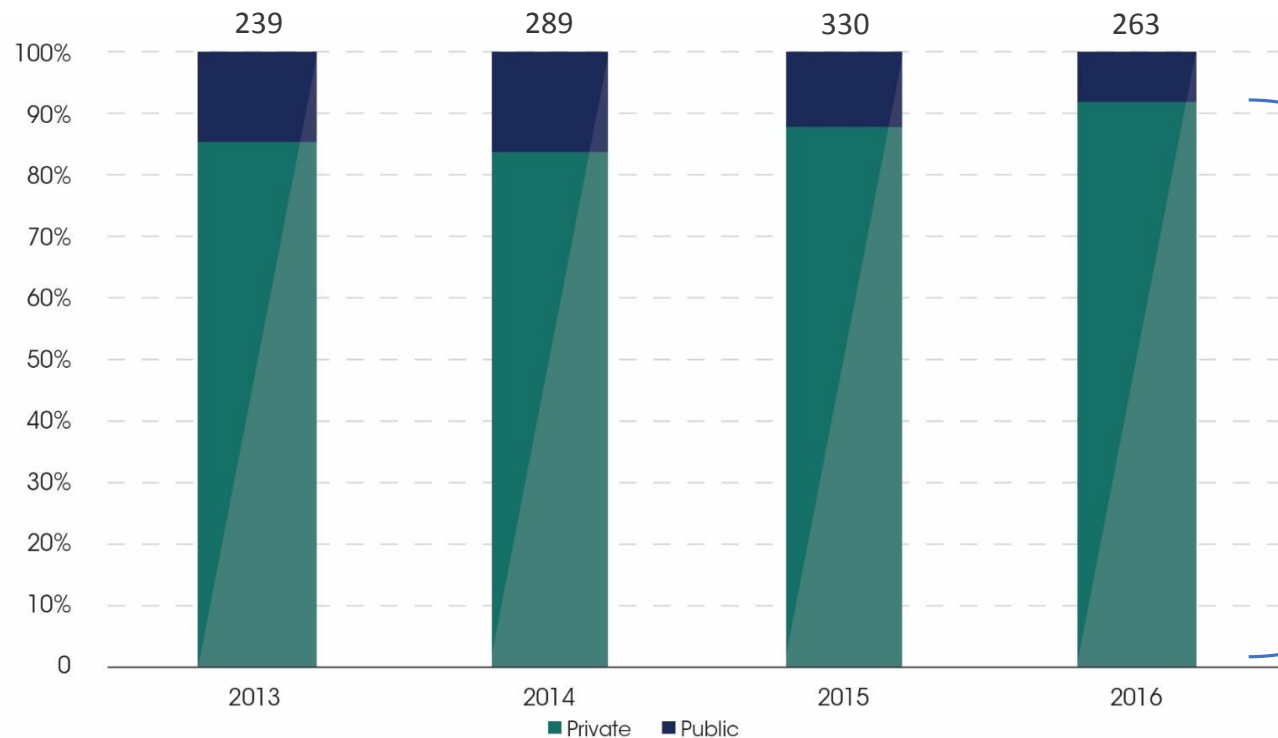
Majority of financing from DFIs comes in the form of loans.



Source: IRENA and CPI (2018)

Private investments: main sources

Project developers account for the largest portion of private capital for renewable projects.

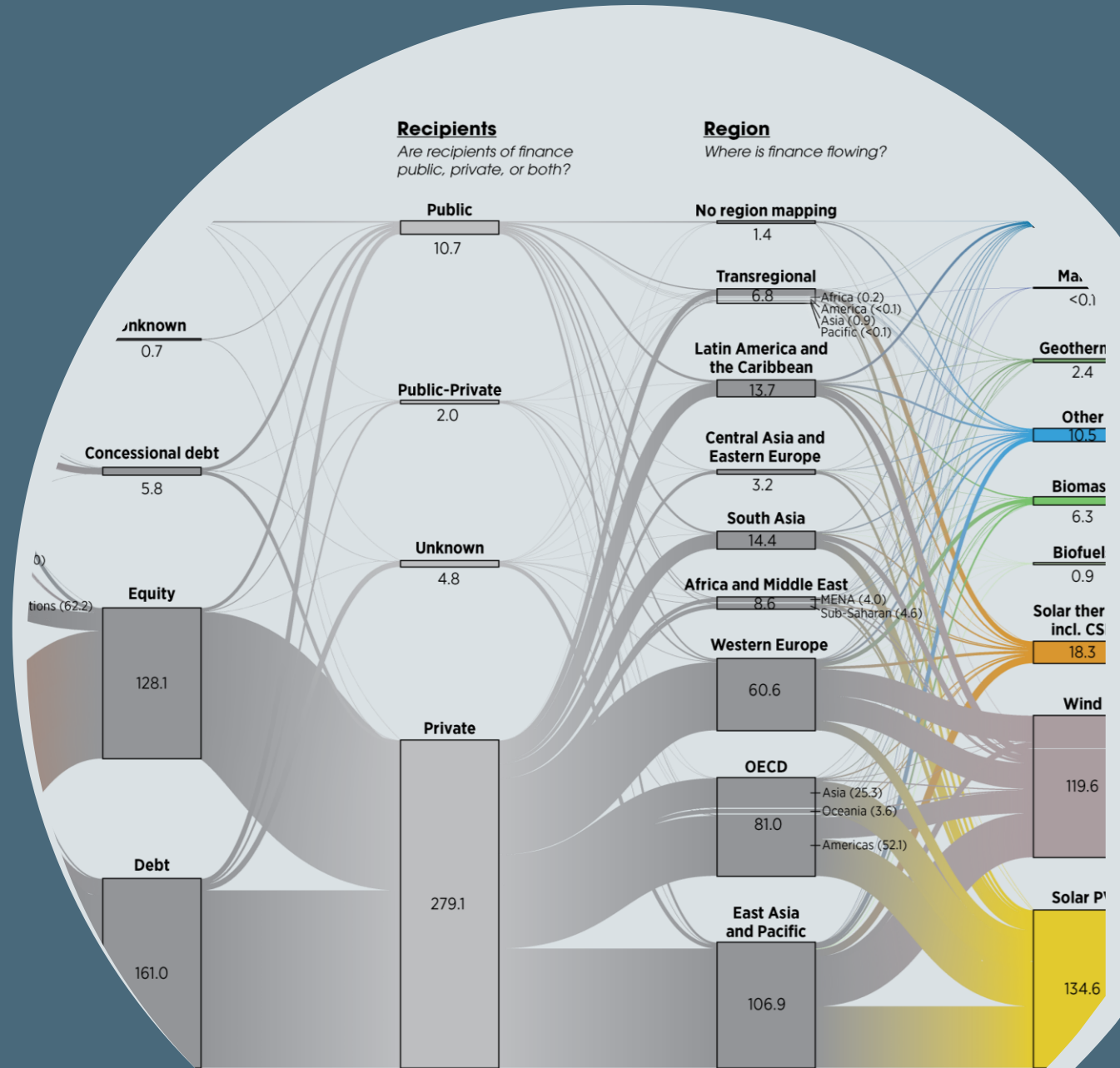


Source: IRENA and CPI (2018)

Institutional investors, PE/VC, Infrastructure funds, other
2%

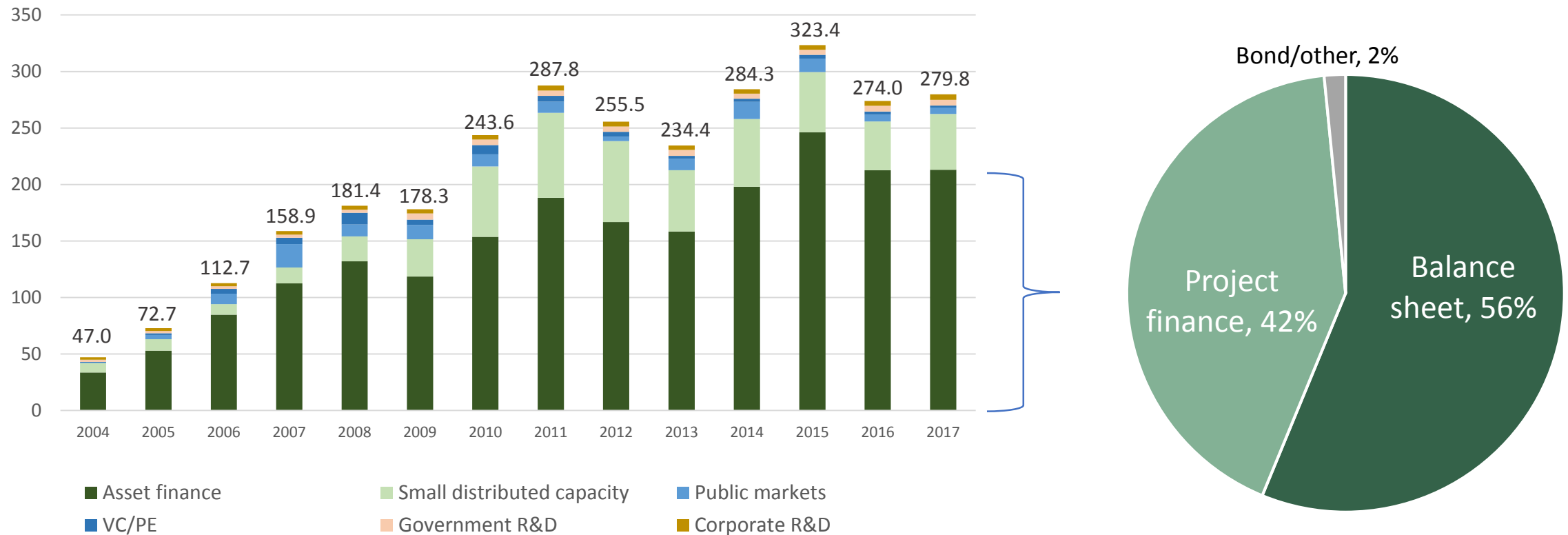
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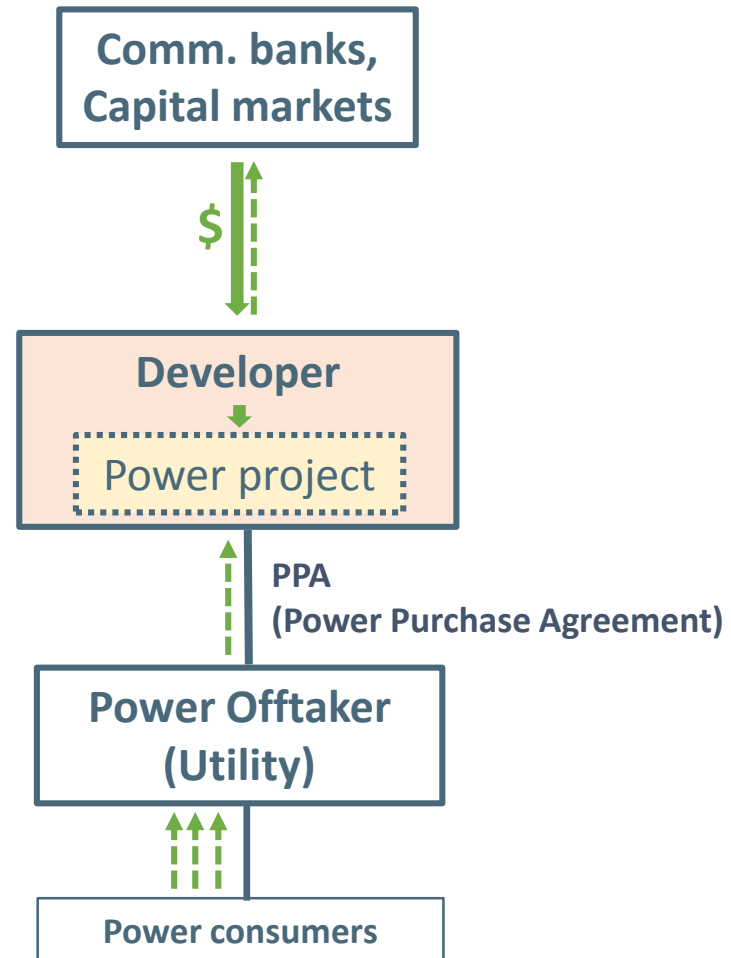
Asset finance breakdown

On-balance sheet financing of projects by energy companies amounted to \$121.5 bn in 2017, followed by non-recourse project finance (\$91.2 bn).

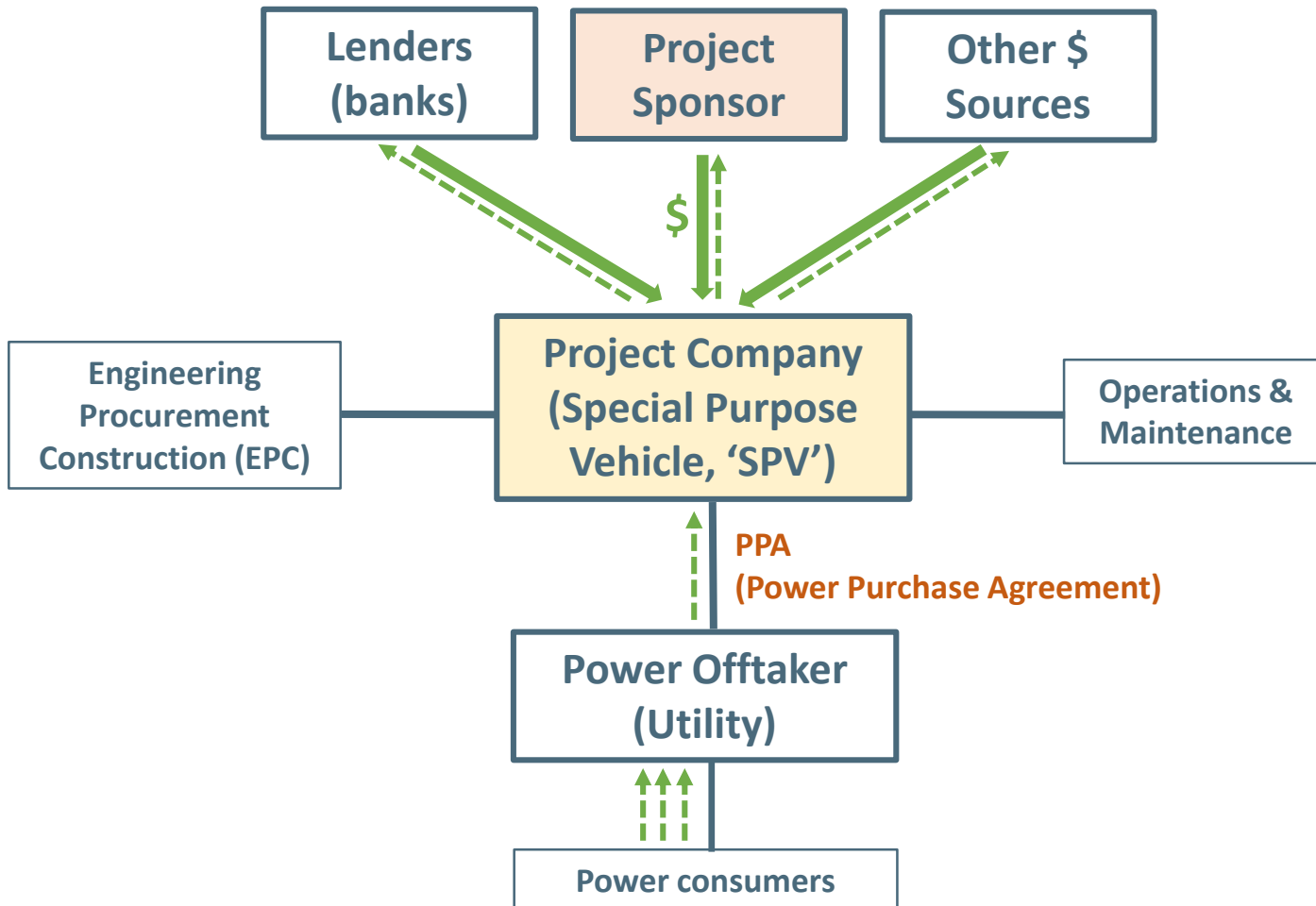


Source: Frankfurt School-UNEP/BNEF (2018)

Balance sheet financing



Project finance structure



- Regulators
- Legal advisors
- Technical advisors
- Environmental advisors
- Community groups

Project Risks & Risk Mitigation Instruments

Development & Financing

Construction

Operations

Economic Risk, Political and Regulatory Risk

Natural Events Risk

Exploration/resource risk

Grid access & Curtailment

Permits, Land rights

Time & cost overruns

Off-taker nonpayment

PPA

Contractor liability

Public acceptance

Non-payment guarantees,
LOC, escrow account

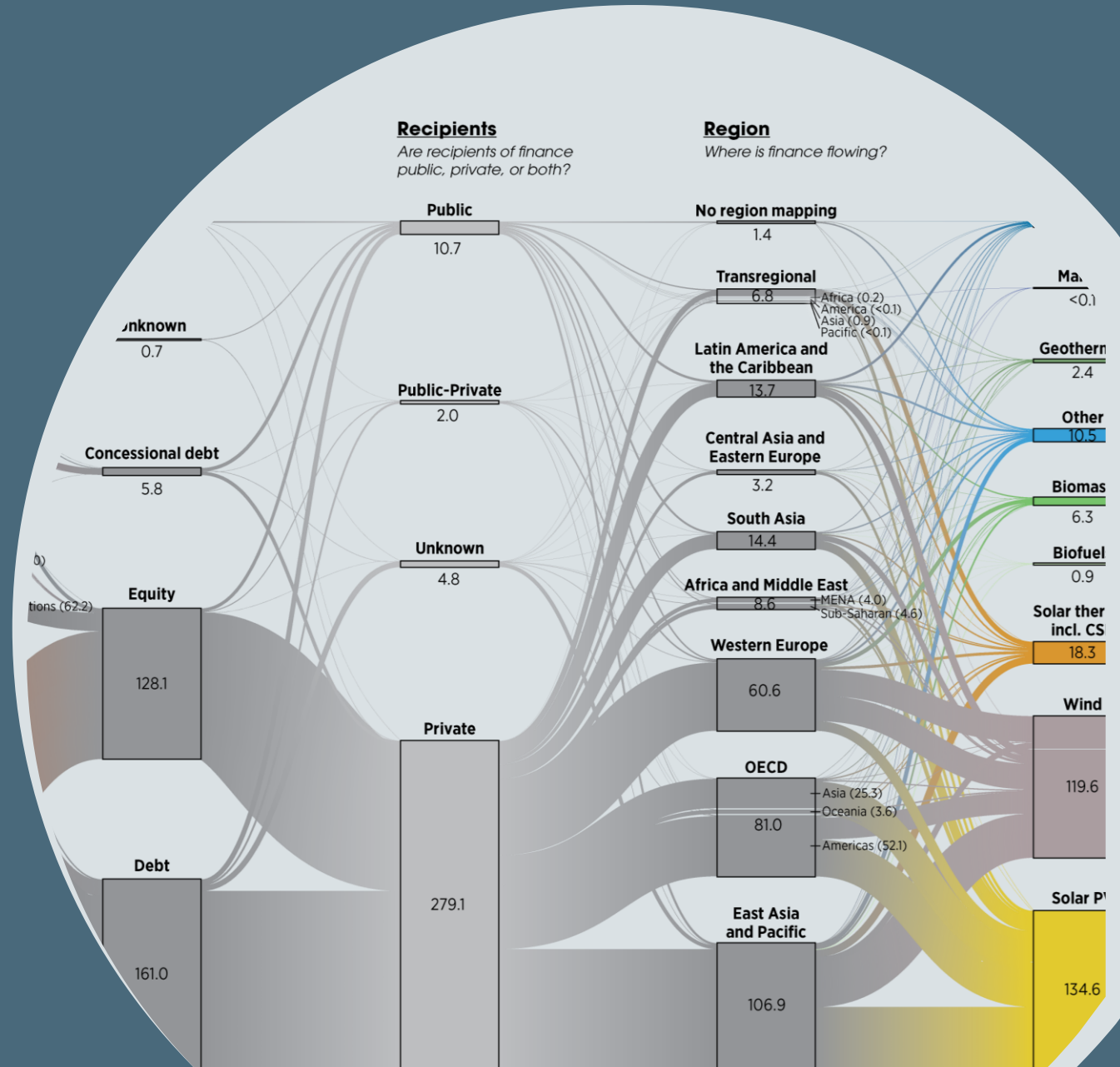
Exploration grants/insurance, Technical training

Currency/interest rate swaps, forwards, Local currency loans

Guarantees, Political risk insurance

AGENDA

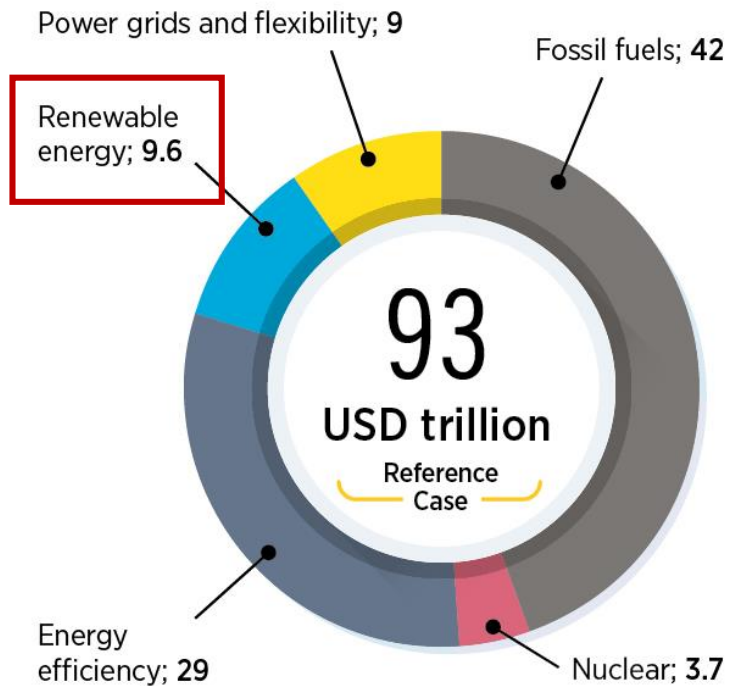
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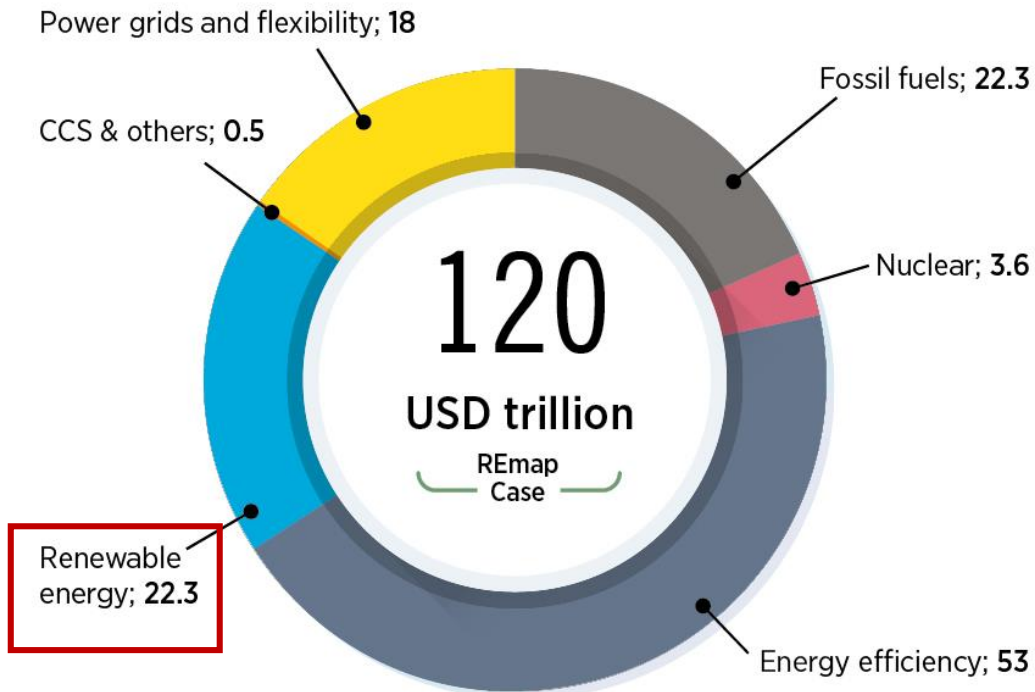
Investment shift to renewables and energy efficiency

Under the REmap (2°C) Case, investment of USD 120 trillion must be made in the 2015-2050 period in low-carbon technologies, of which USD 22.3 trillion would flow to renewables.

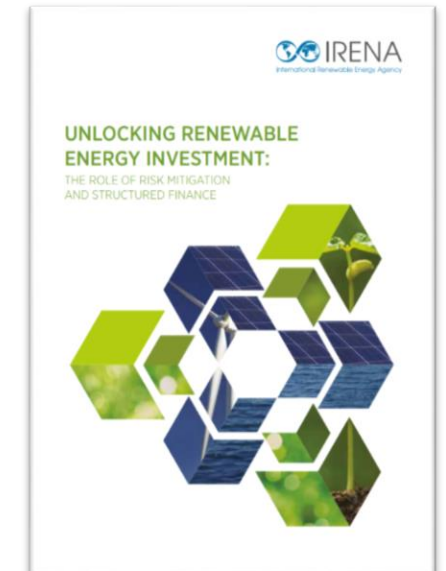
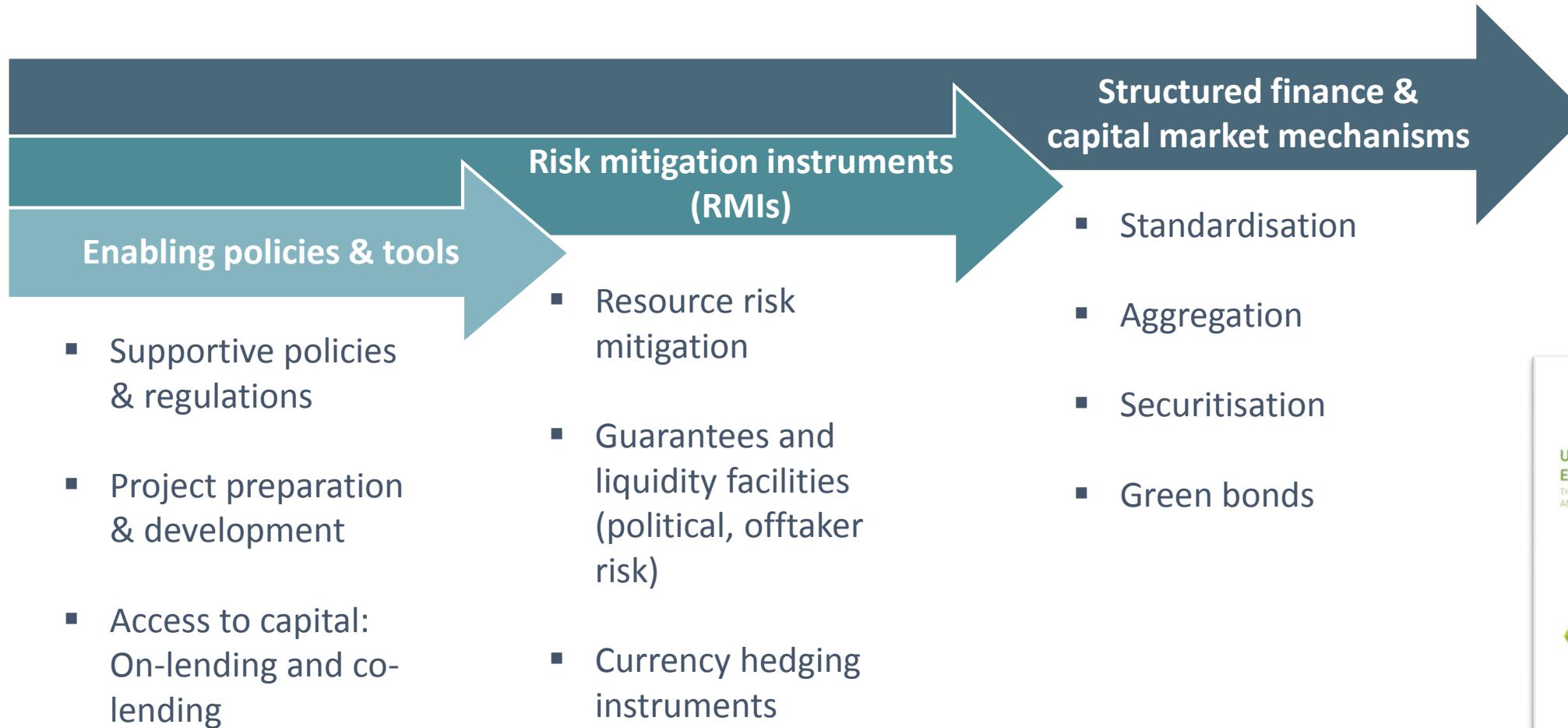
Reference Case energy sector investments between 2015-50 (USD trillion)



REmap Case energy sector investments between 2015-50 (USD trillion)



Unlocking renewable energy investments





Thank You



South East Europe Regional Workshop on Renewable Energy Project Development and Financing
Belgrade (Serbia), 11-12 June, 2018

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