



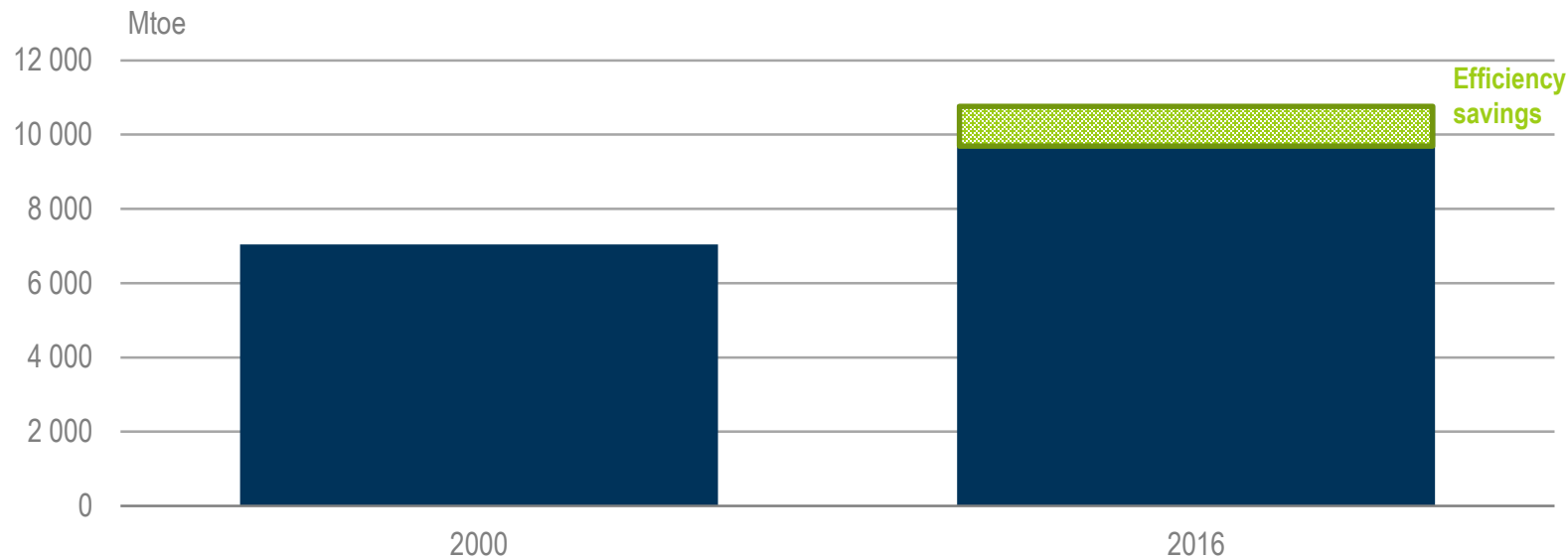
Energy efficiency's role in the energy transition

Jessica Glicker

Athens, May 24, 2018

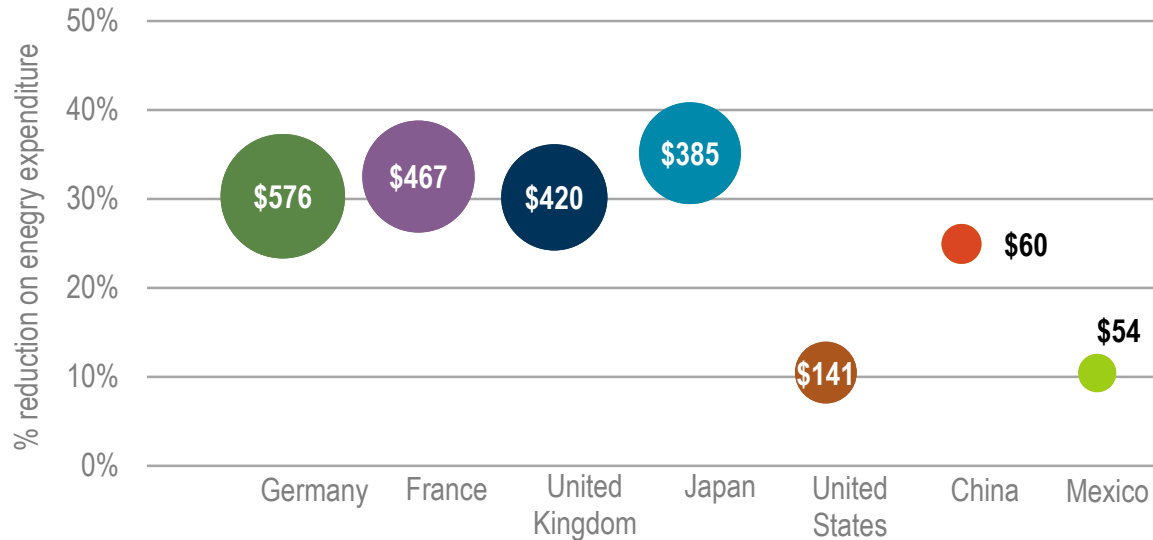


Global final energy consumption and savings from energy efficiency



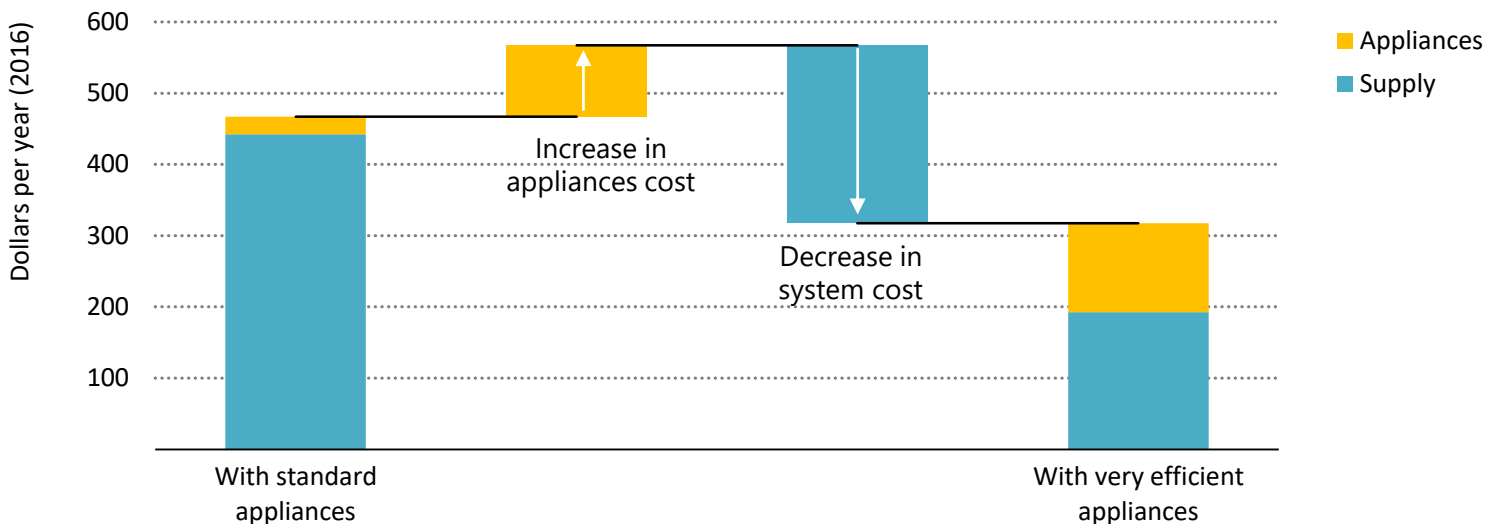
**Energy efficiency reduced global energy use by 12% in 2016.
This is an amount equivalent to the energy use of the European Union.**

Per capita annual household energy expenditure savings from efficiency



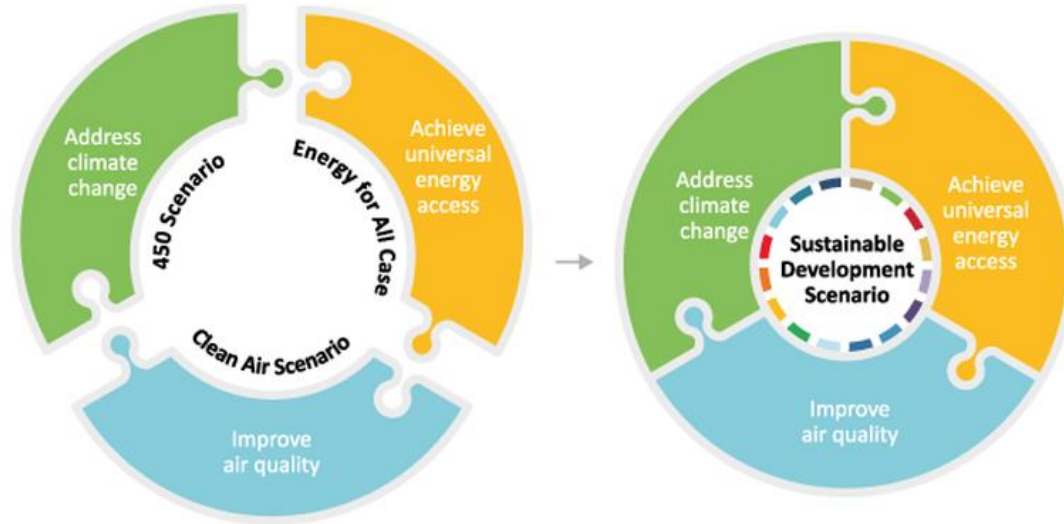
Efficiency improvements made since 2000 reduced energy bills in 2016. German consumers saved nearly USD 50 billion on their annual home and travel energy costs.

Cost of providing electricity access through off-grid solar PV, with and without efficient appliances, 2030



Source: Energy Access Outlook 2017

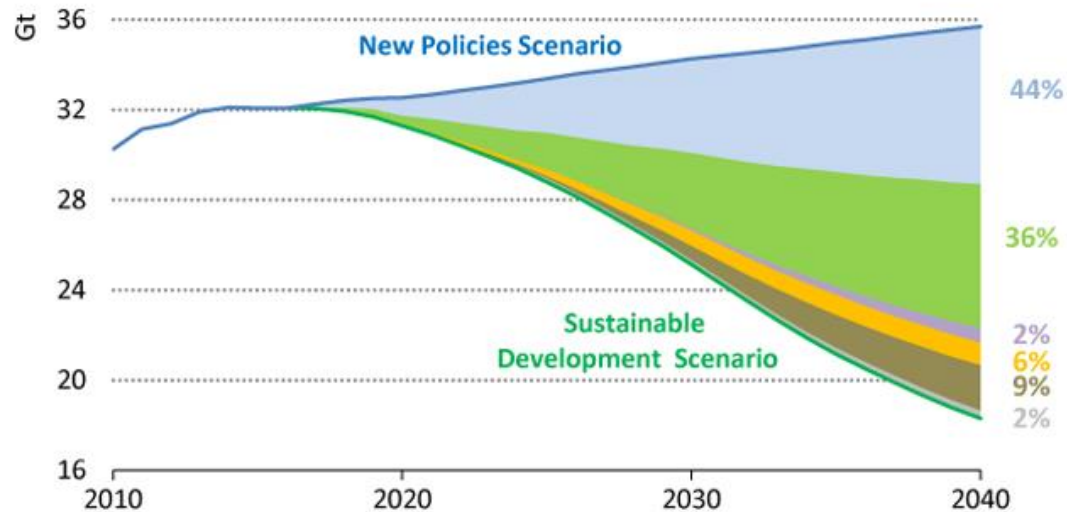
The use of efficient appliances reduces the amount of energy required to meet demand for energy services, reducing the cost of improving energy access.



The Sustainable Development Scenario integrates the main energy-related SDG targets.

Energy Efficiency and the Sustainable Development Scenario

Global CO₂ emissions reductions in the New Policies and Sustainable Development Scenarios

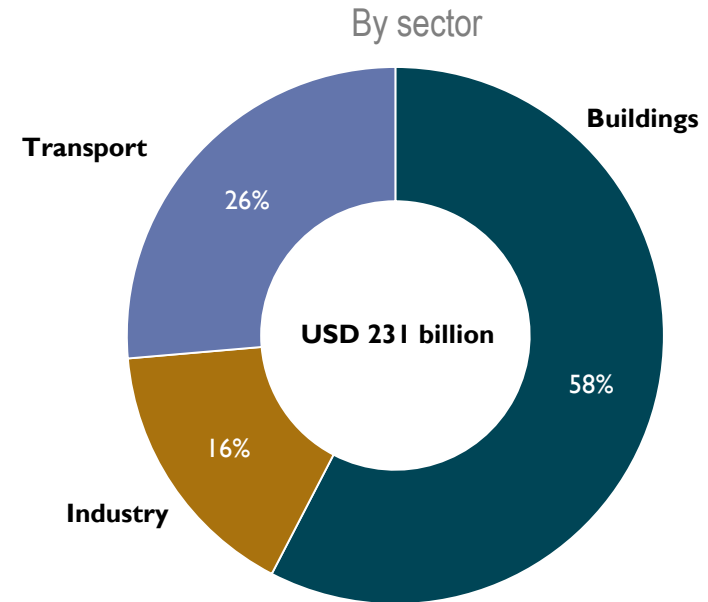
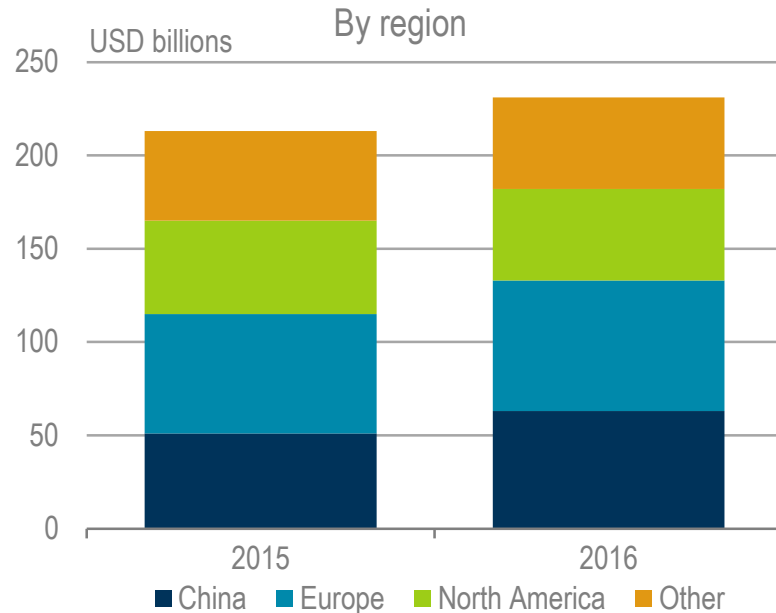


Energy efficiency accounts for the largest share of the cumulative CO₂ emissions savings in the Sustainable Development Scenario.

Energy efficiency investment and finance

Energy efficiency investment is growing

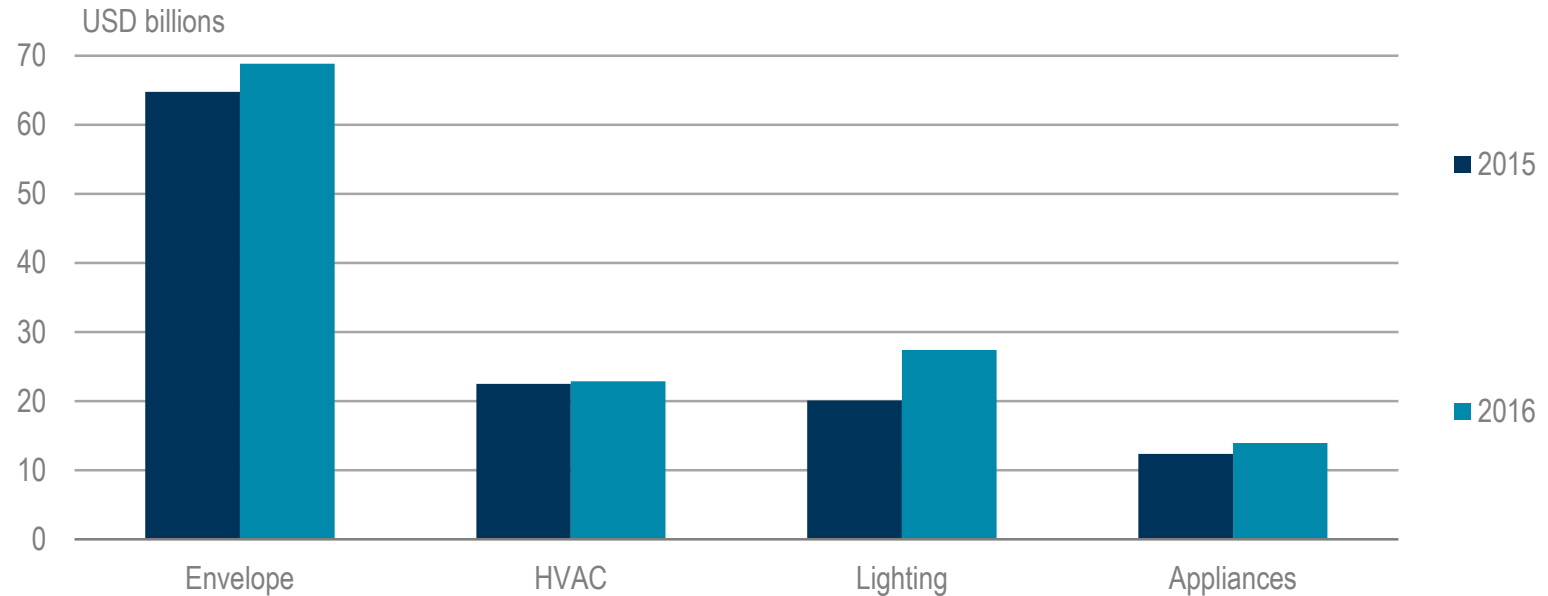
Energy efficiency investment by region and sector



Energy efficiency investment grew 9% in 2016, with growth strongest in China. The buildings sector continues to dominate global investment.

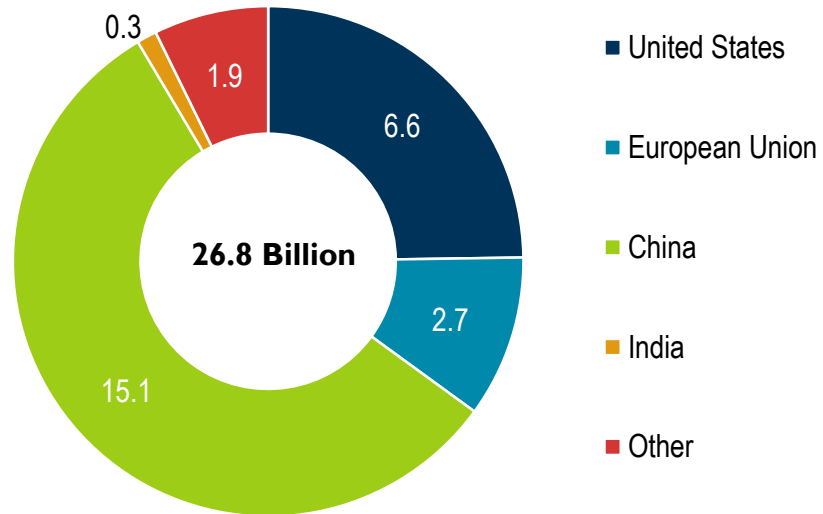
Building investment has seen big growth in recent years

Incremental energy efficiency investment in buildings,
2015-2016



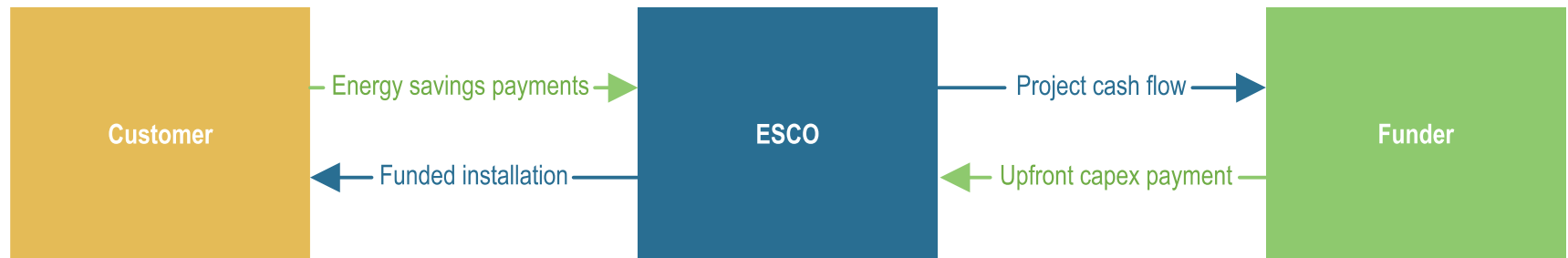
Over the past three years, energy efficiency investment in the buildings sector increased steadily, growing by 8% in 2015 and 12% in 2016.

ESCO revenue by region, 2016

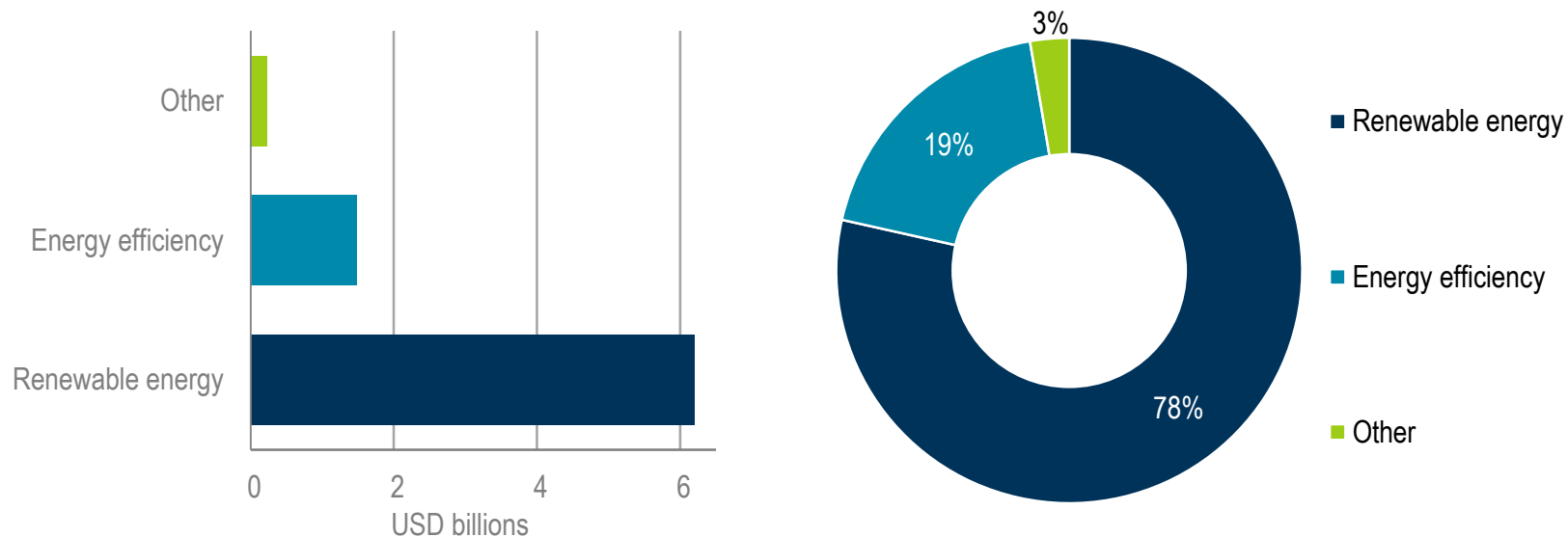


ESCO growth is driven by policy.

- **Energy Performance contracts (EPCs)** - agreements establishing a minimum performance of energy efficiency measures between the installer and the end user/customer.
- Customers can **self-finance** the project or seek **third-party lender** (ESCO, bank loan, etc).



Green bank network investments, 2011-2016



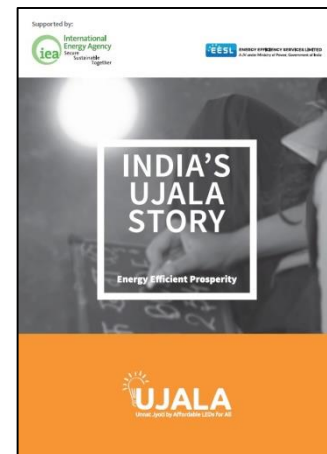
Green banks are playing an increasingly important role in funding energy efficiency and clean energy projects.

- Energy Efficiency Services Limited (EESL) is a publicly owned energy services company with the mission of delivering energy efficiency across India
- UJALA's aim is to replace 770 million inefficient lamps with modern, efficient and longer lasting LED lamps by 2019, without the need for any government subsidies
- The UJALA model mass public procurement, payments linked to savings

EESL UJALA programme performance, 2014-17

Financial year	EESL total revenue (USD millions)	UJALA revenue (USD millions)
2016-17	188.8	140.3
2015-16	110.1	96.7
2014-15	10.9	2.1

Source: Energy Efficiency Services Limited (personal communication 10 July 2017).

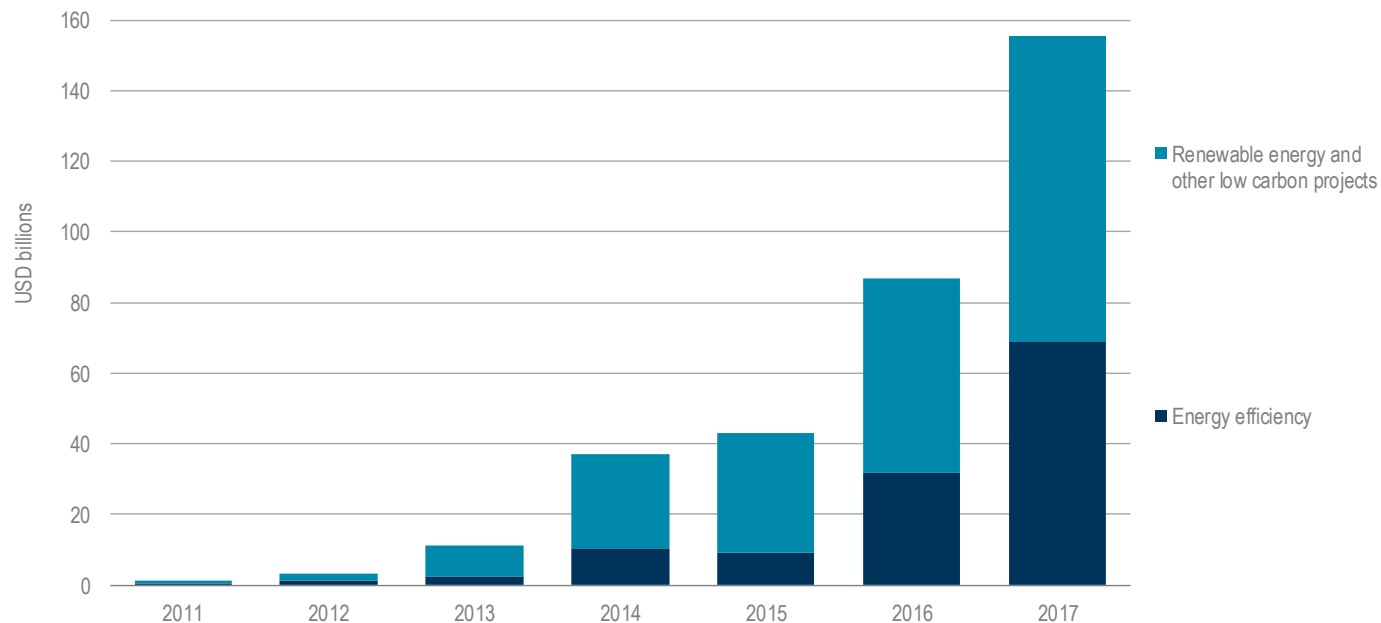


- The PACE programme covers **100%** of a project's hard and soft costs.
- Low interest rates for terms up to **20 years**.
- 20 year repayment - **positive cash flow**.
- PACE stays with the property and transfers to a new owner on sale.
- Programs are established with aggregation and scale in mind. **Programs securitize** ~ \$250M per quarter.



Source: GNE Finance, EuroPACE presentation, Covenant of Mayors Investment Forum; Brussels (21 February, 2018)

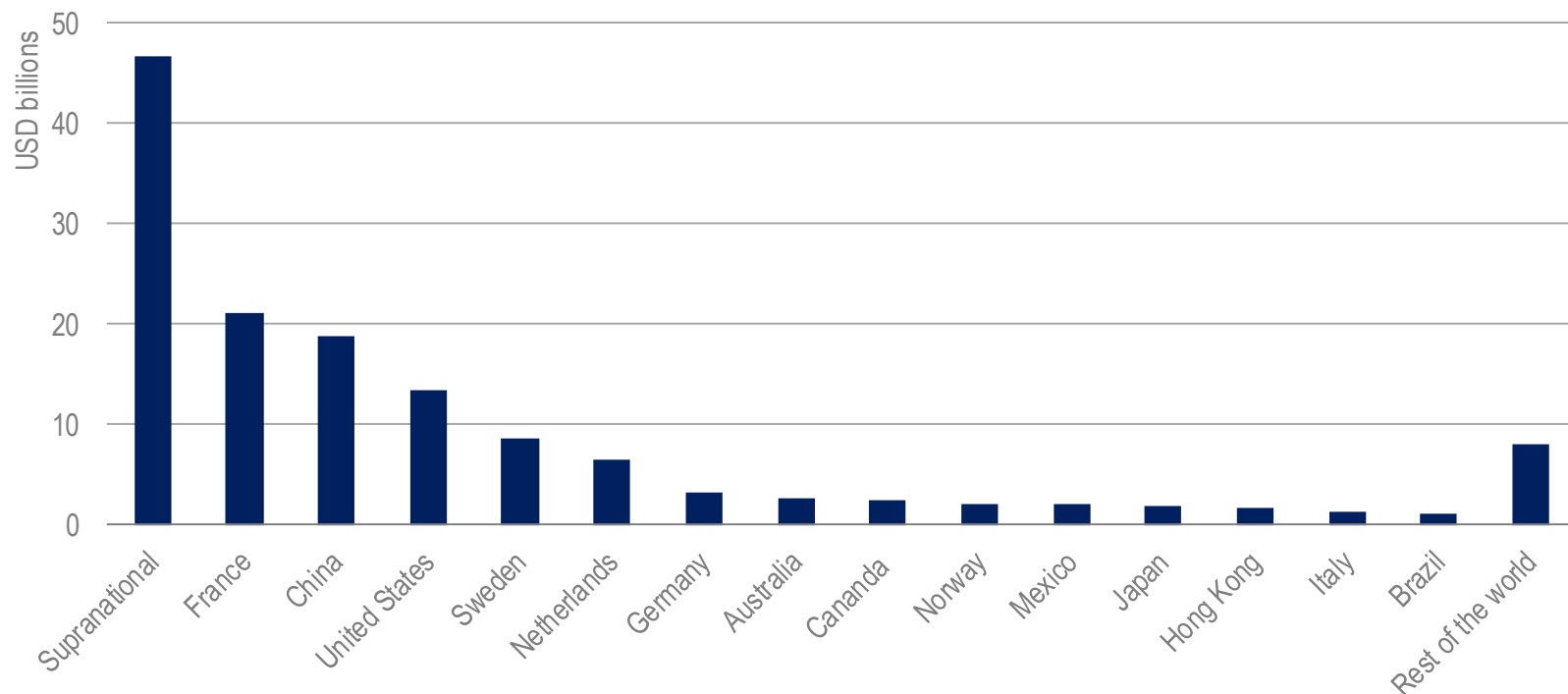
Certified green bond issuance, 2011-2017



**Green bond issuance is experiencing rapid growth.
Issuance for energy efficiency more than doubled from 2016 to 2017.**

Green bonds for energy efficiency

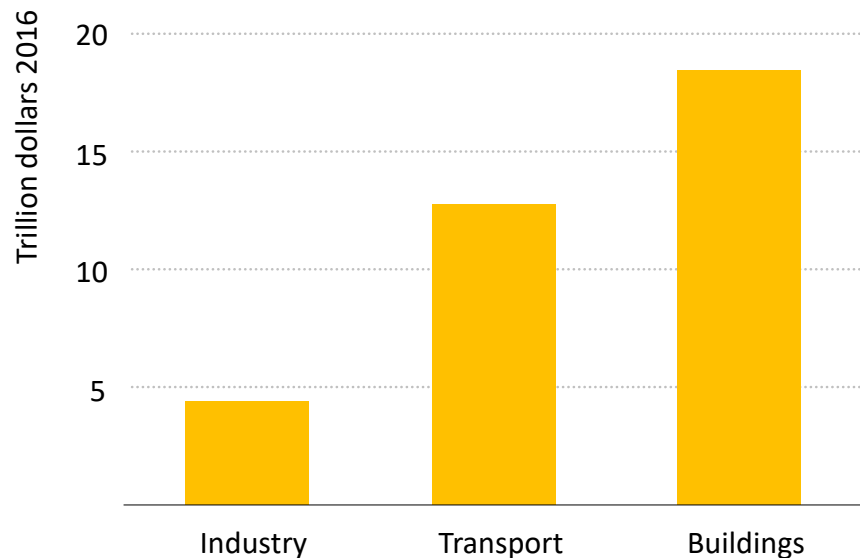
Certified green bond issuance for energy efficiency, 2011-2017



France and China lead green bond issuance for energy efficiency.

Fuel cost savings outweigh investment needs by a factor of three

Cumulative investments needs in energy efficiency in a clean energy transition scenario, 2017-2050



Energy efficiency investments needs in end-use sectors are large, but are outweighed by fuel cost savings; on average, each dollar invested saves three dollars over technology lifetimes.



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