



# Global Energy Developments: Trends, Ambitions and how to match them?

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ENGIE in action to 2°C

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The IEA works around the world to support an accelerated clean energy transitions that are

enabled by real-world **SOLUTIONS**

supported by **ANALYSIS**

and built on **DATA**



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# Global CO<sub>2</sub> emissions flat for 3 years – an emerging trend?

## Global energy-related CO<sub>2</sub> emissions

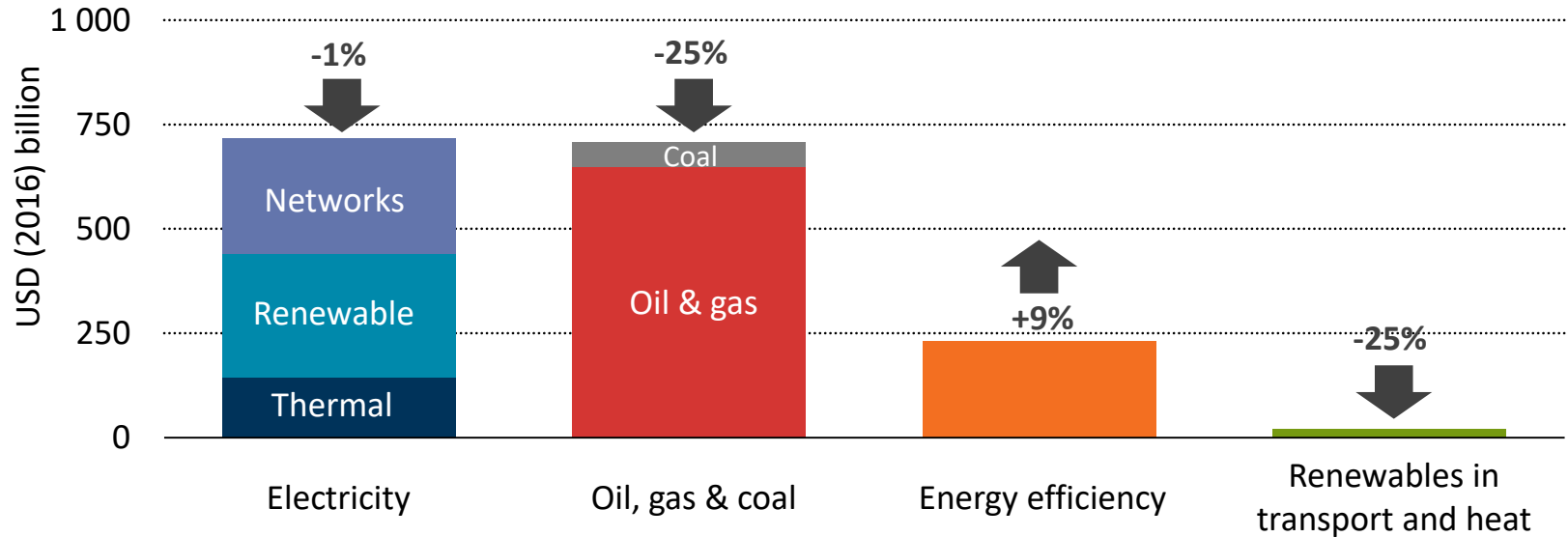


**IEA analysis shows that global CO<sub>2</sub> emissions remained flat in 2016 for the third year in a row, but a significant effort required to achieve a 2°C target**

# Global energy investment fell 12% in 2016, a 2<sup>nd</sup> consecutive year



## Global energy investment 2016



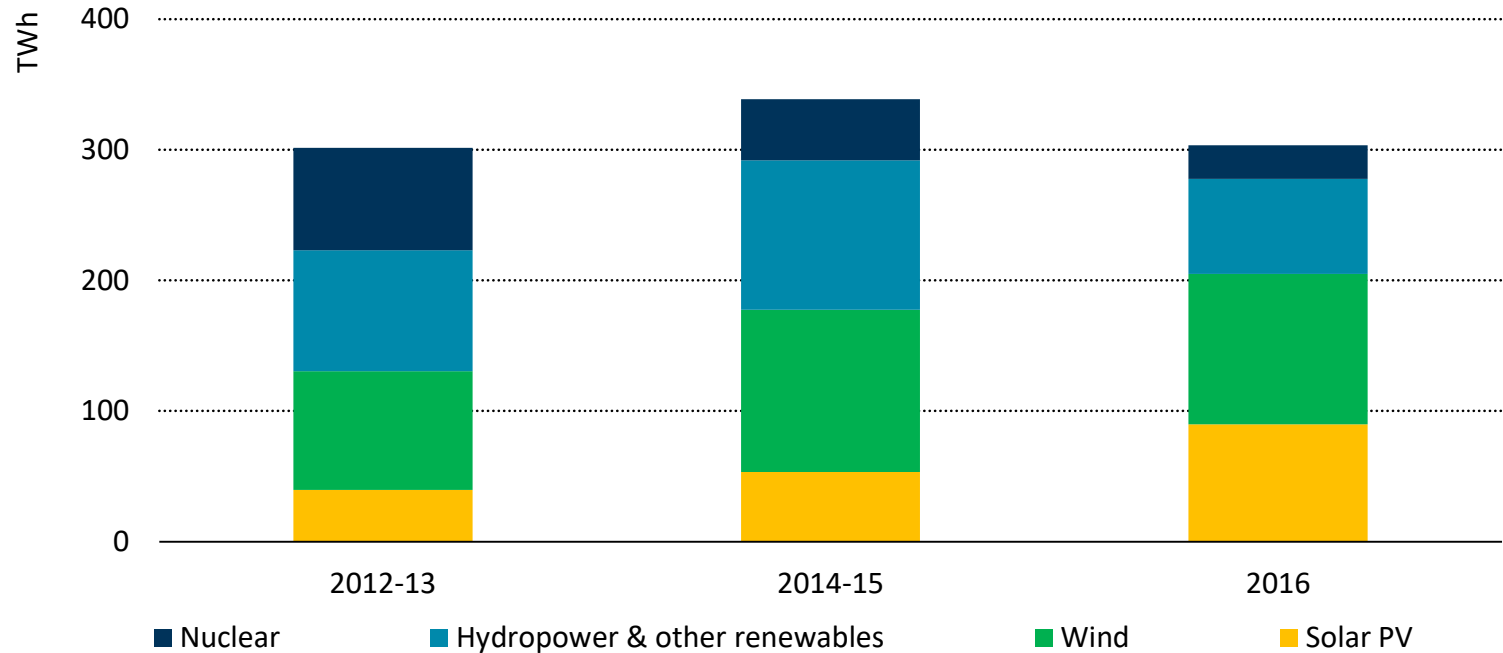
Source: IEA World Energy Investment

**Total energy investment was \$1.7 trillion in 2016. Electricity sector investment - underpinned mostly by renewable and grid investment - overtook oil and gas for the first time, while energy efficiency was the biggest growth sector.**

# Investment in clean power is not keeping pace with demand



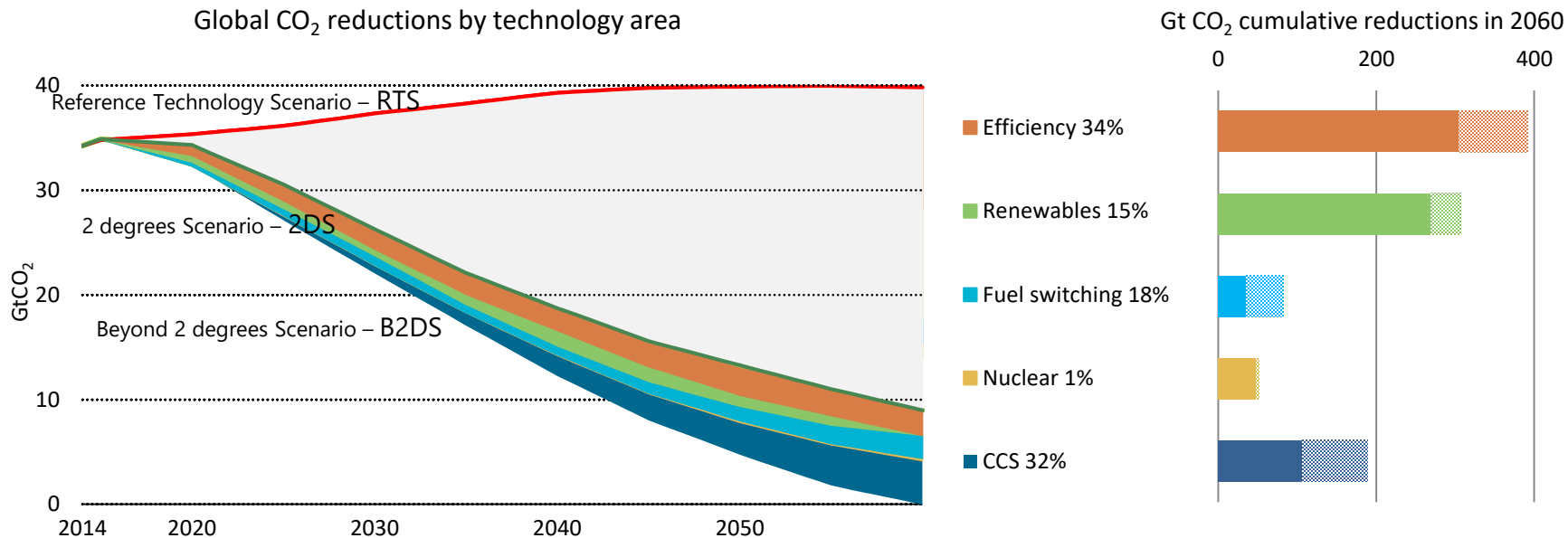
Expected annual power generation from final investment decisions (FIDs) for new low-carbon generation



**Only two-thirds of power demand growth is met by FIDs for clean power, which has remained stable the past 5 years. Despite the success of solar PV and wind, other sources are needed to fill the gap.**

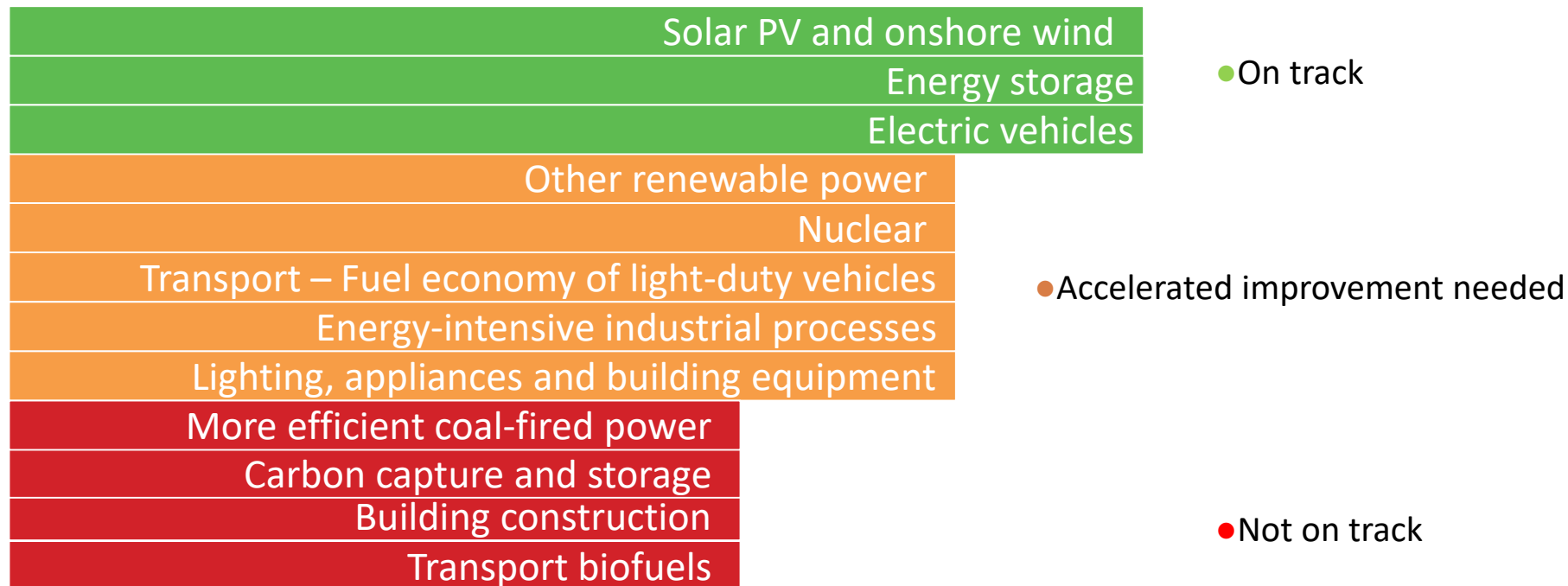
# How far can technology take us?

Technology area contribution to global cumulative CO<sub>2</sub> reductions



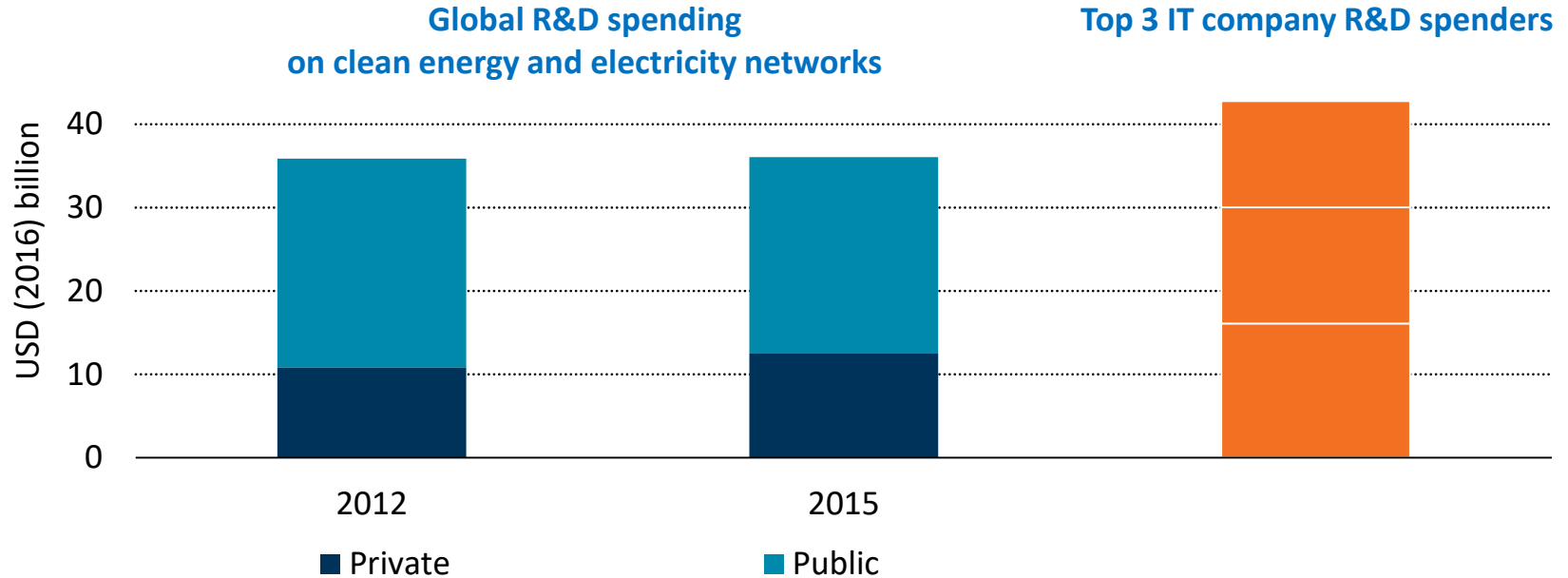
**Pushing energy technology to achieve carbon neutrality by 2060 could meet the mid-point of the range of ambitions expressed in Paris.**

# The potential of clean energy technology remains underutilised



Recent progress in some clean energy areas is promising, but many technologies still need a strong push to achieve their full potential and deliver a sustainable energy future.

# Global clean energy R&D funding needs a strong boost

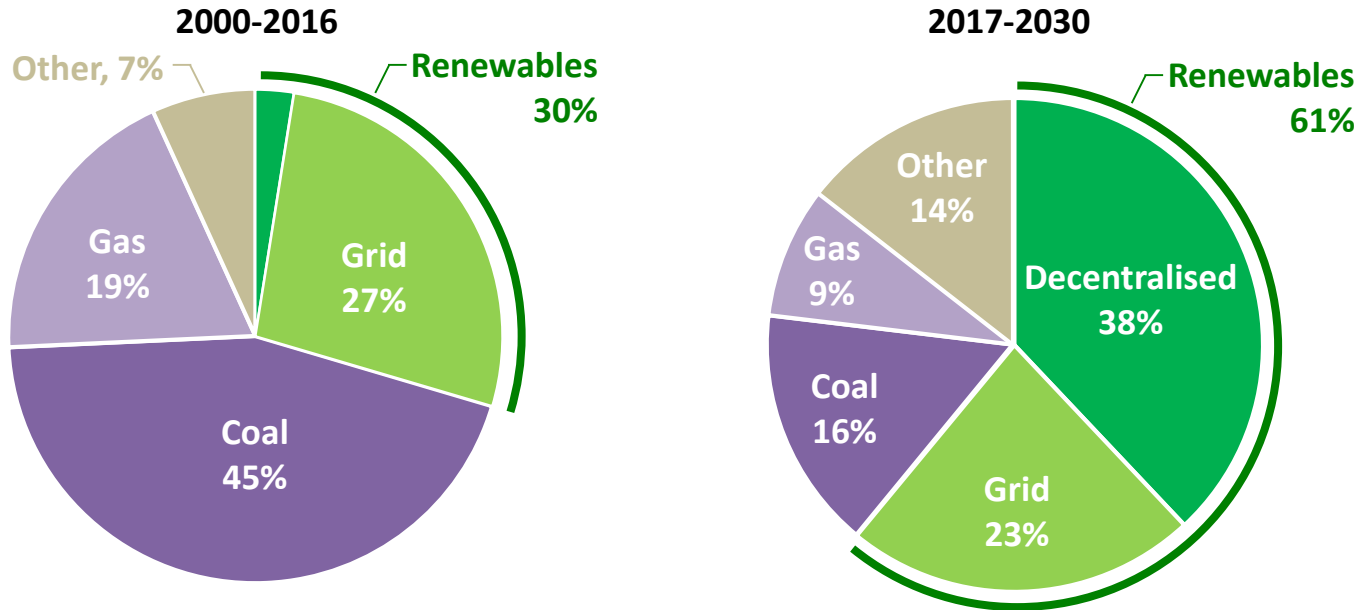


**We've tracked a steady \$37 billion/year of clean energy and electricity networks R&D spending, with room for growth from the private sector. As a share of GDP, China now spends most on energy R&D**



# A shift in the electricity access paradigm

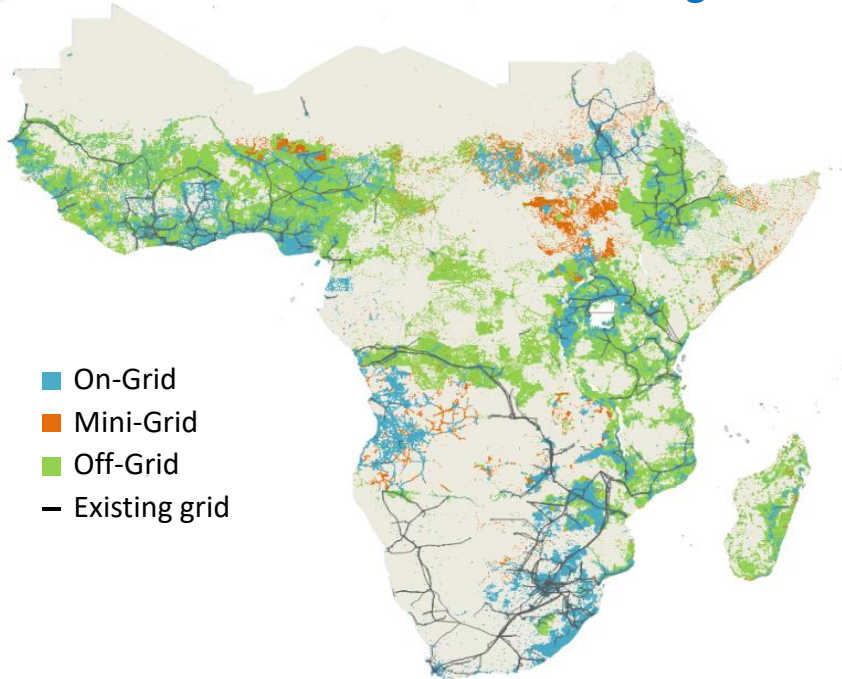
## Population gaining access by source



***Declining cost of renewables and innovative off-grid business models are transforming the way access is delivered, especially in rural areas***

# An IEA strategy to universal electricity access

## Least-cost solution for delivering universal electricity access in the Energy for All Case, 2030



- **Grid extension for 150 million additional people, with hydro accounting for the lion's share**
- **Decentralised solutions, mainly solar PV, for the remaining 450 million people in rural areas**
- **An additional \$26 billion per year is needed in electricity generation and grids**

***In 2030, 90% of those without access in sub-Saharan Africa are in rural areas; electricity for all needs an acceleration in the deployment of decentralised systems***



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