



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

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**

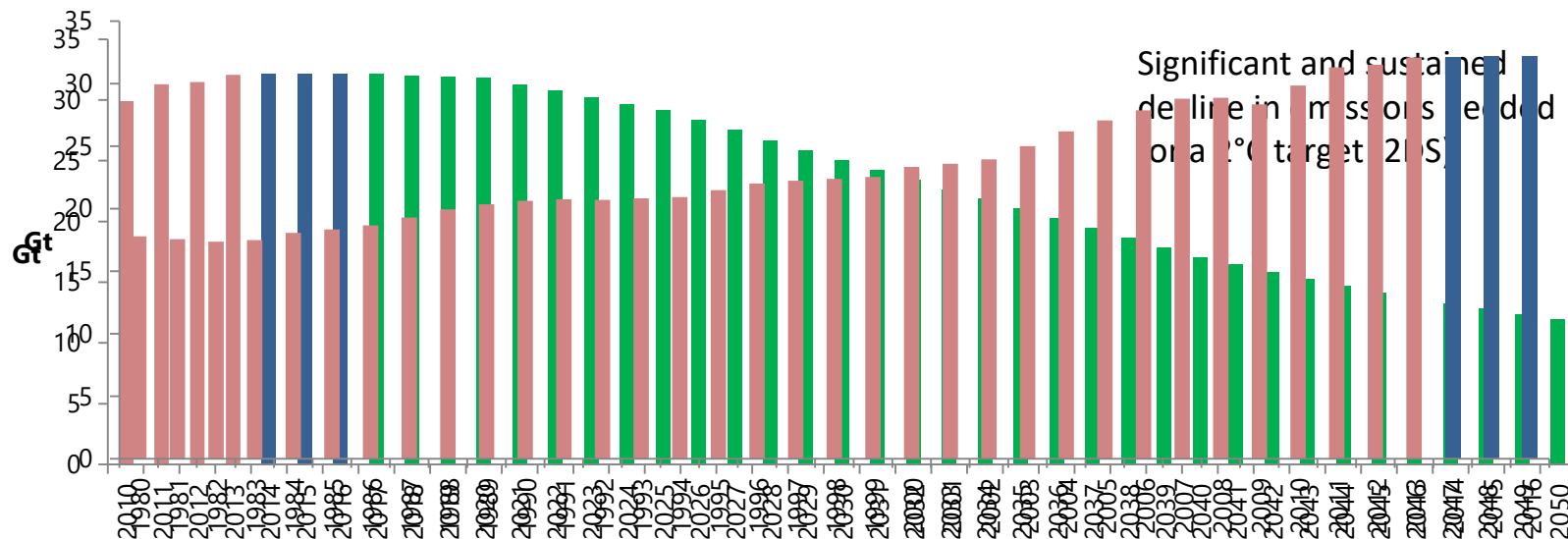
and built on **DATA**



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Global CO₂ emissions flat for 3 years – an emerging trend?

Global energy-related CO₂ emissions

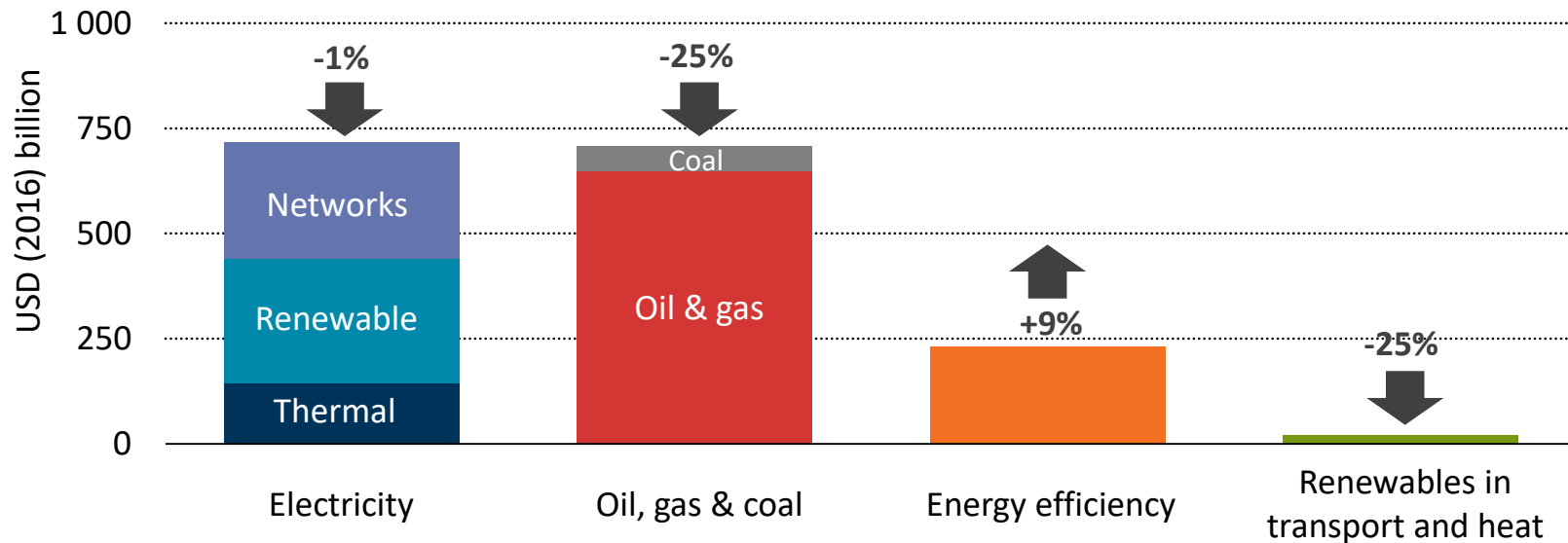


IEA analysis shows that global CO₂ emissions remained flat in 2016 for the third year in a row, but a significant effort required to achieve a 2°C target

Global energy investment fell 12% in 2016, a 2nd consecutive year



Global energy investment 2016

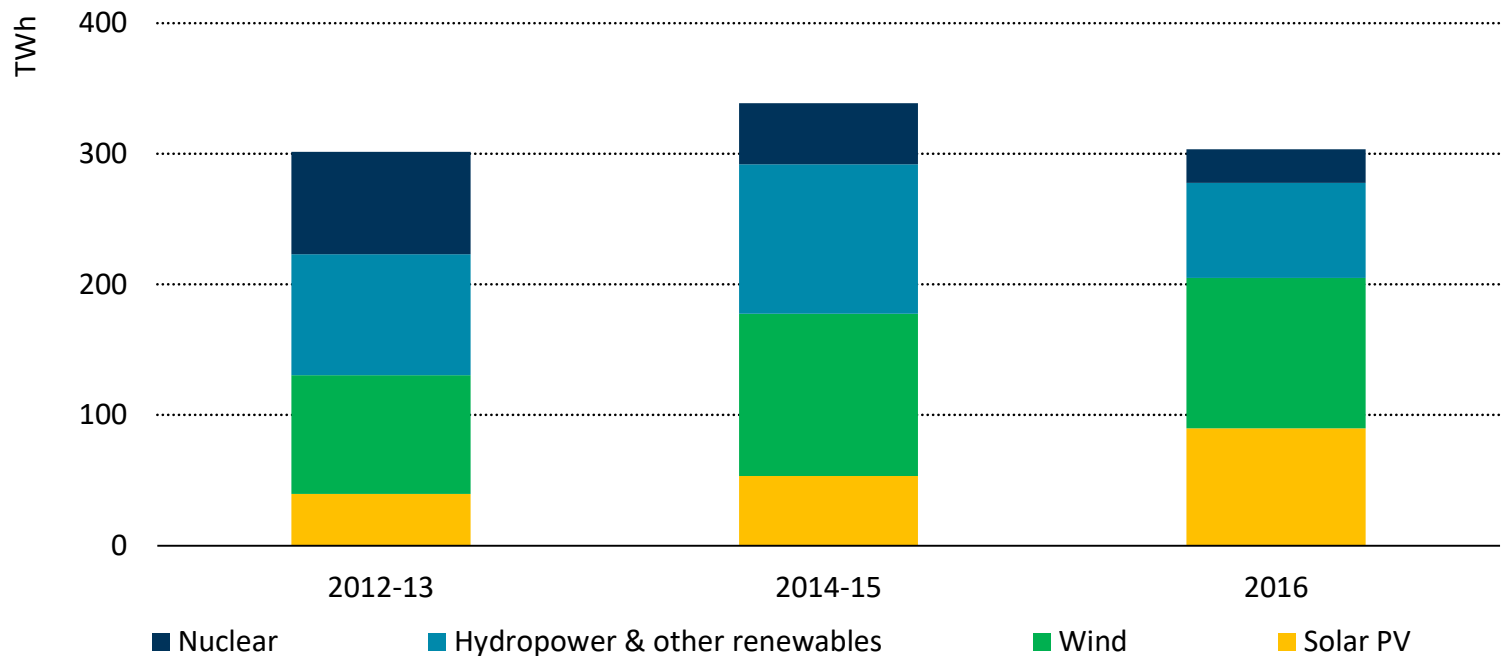


Source: IEA World Energy Investment

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

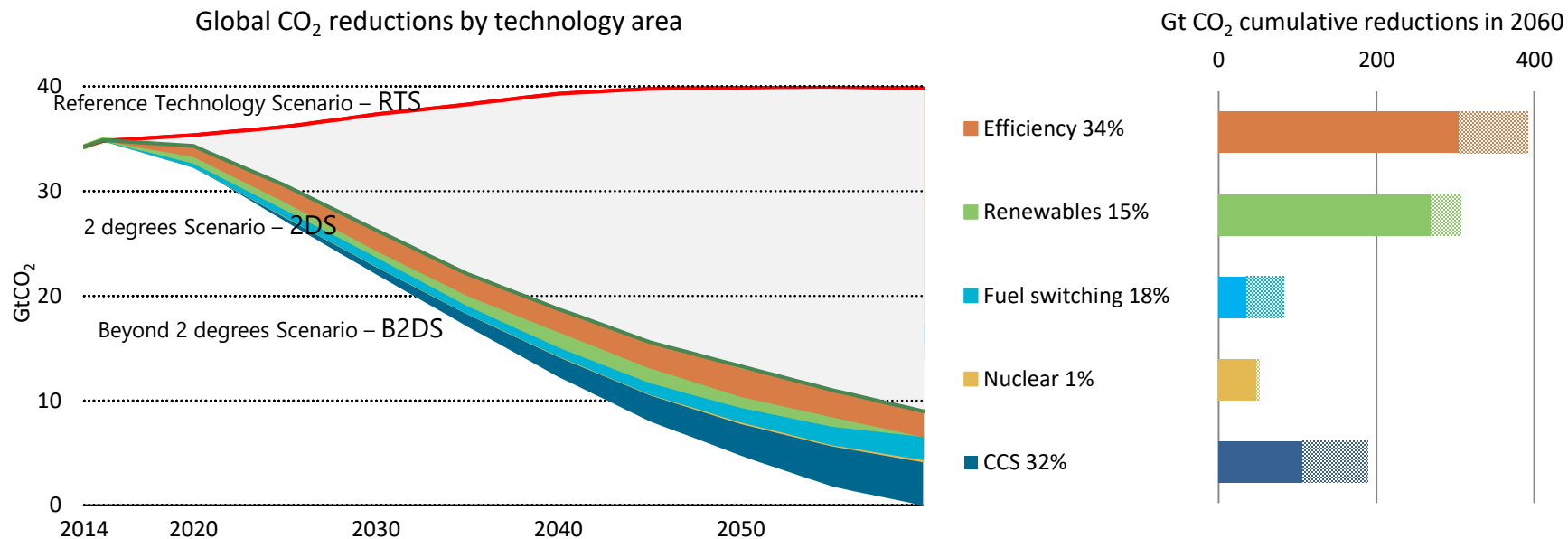
Expected annual power generation from final investment decisions (FIDs) for new low-carbon generation



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.

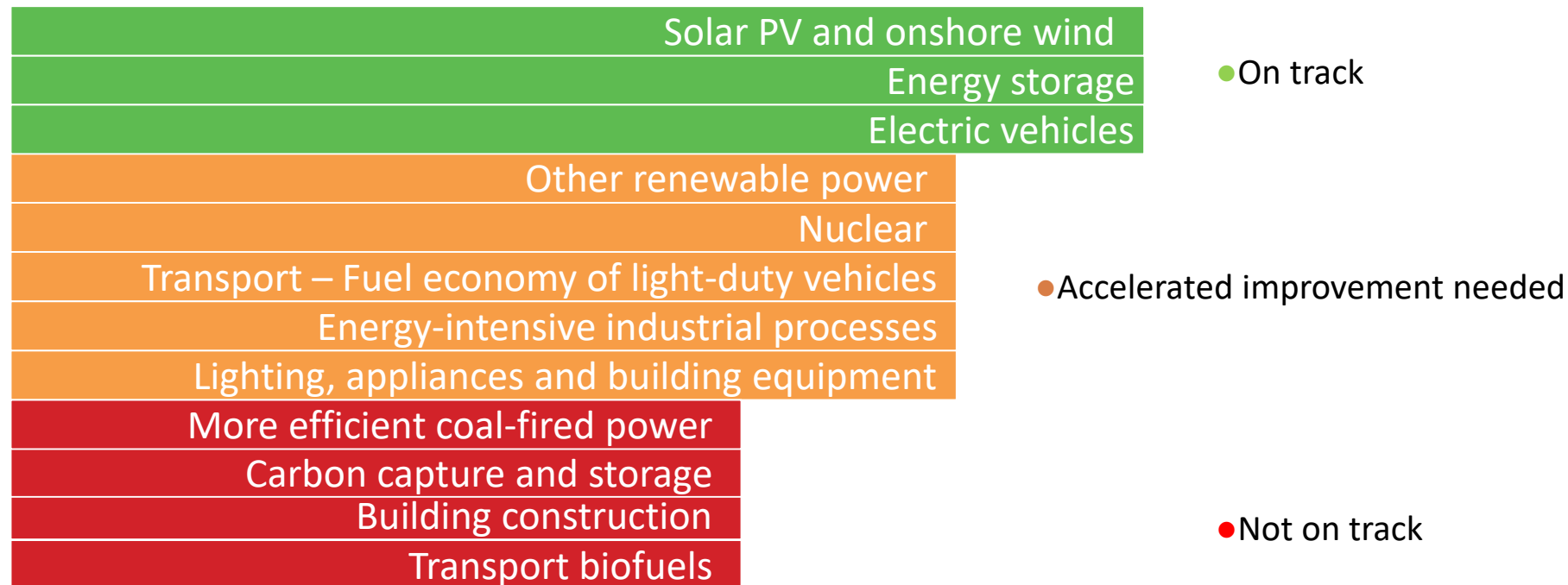
How far can technology take us?

Technology area contribution to global cumulative CO₂ reductions



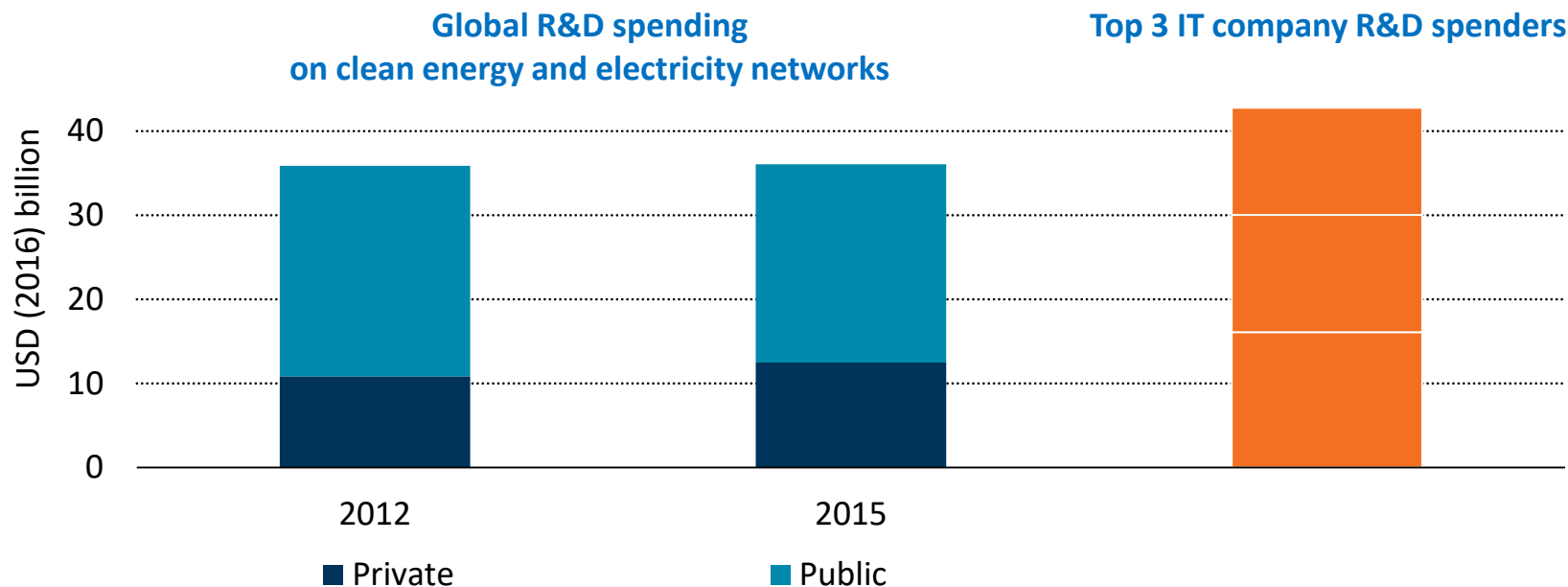
Pushing energy technology to achieve carbon neutrality by 2060 could meet the mid-point of the range of ambitions expressed in Paris.

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.

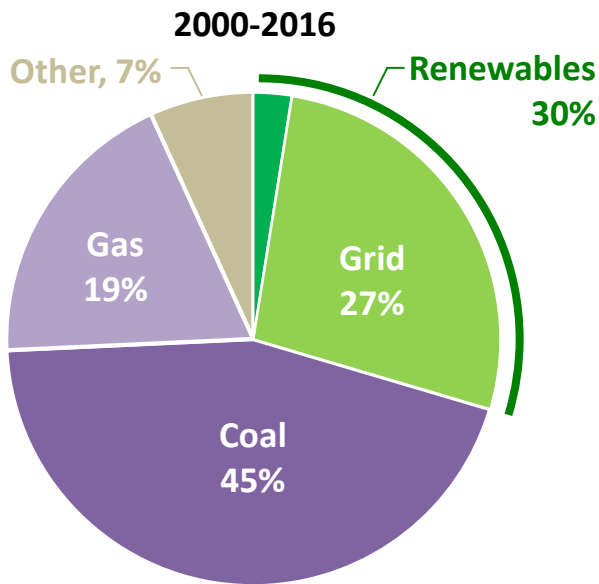
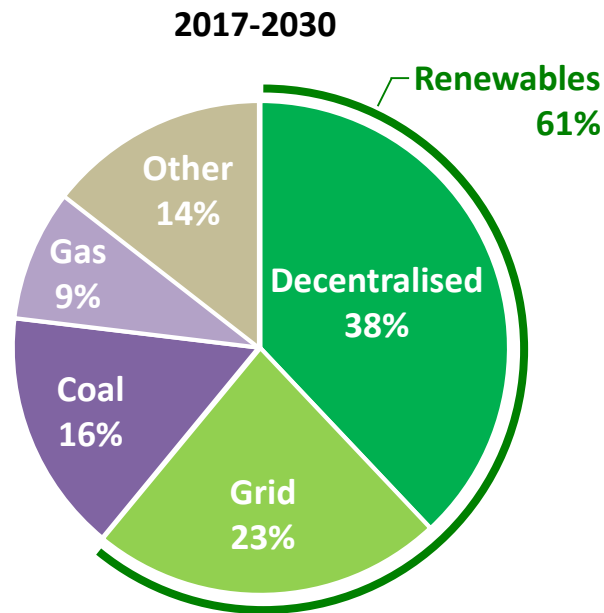
Global clean energy R&D funding needs a strong boost



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

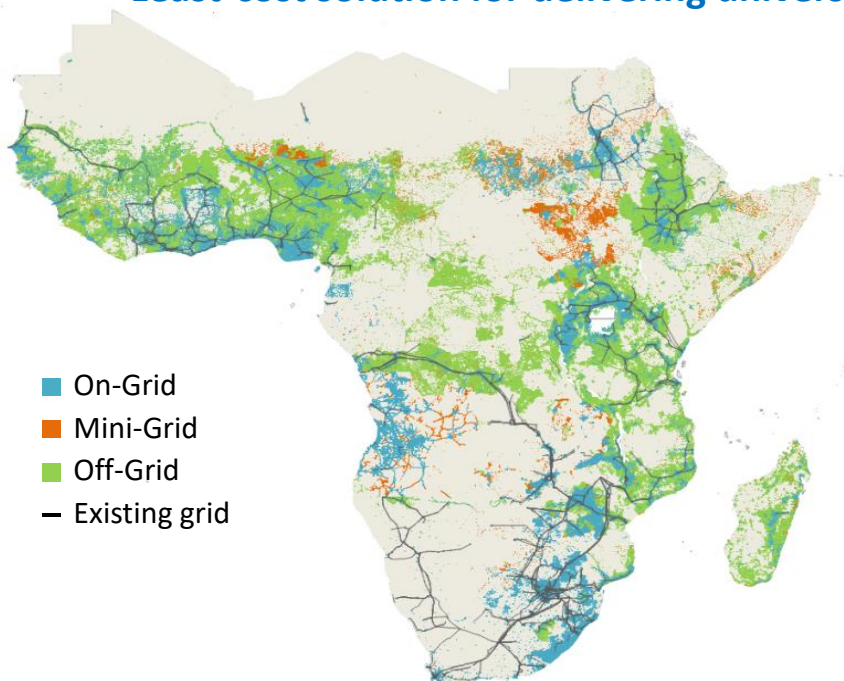
Population gaining access by source



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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