



# Energy Efficiency 2019

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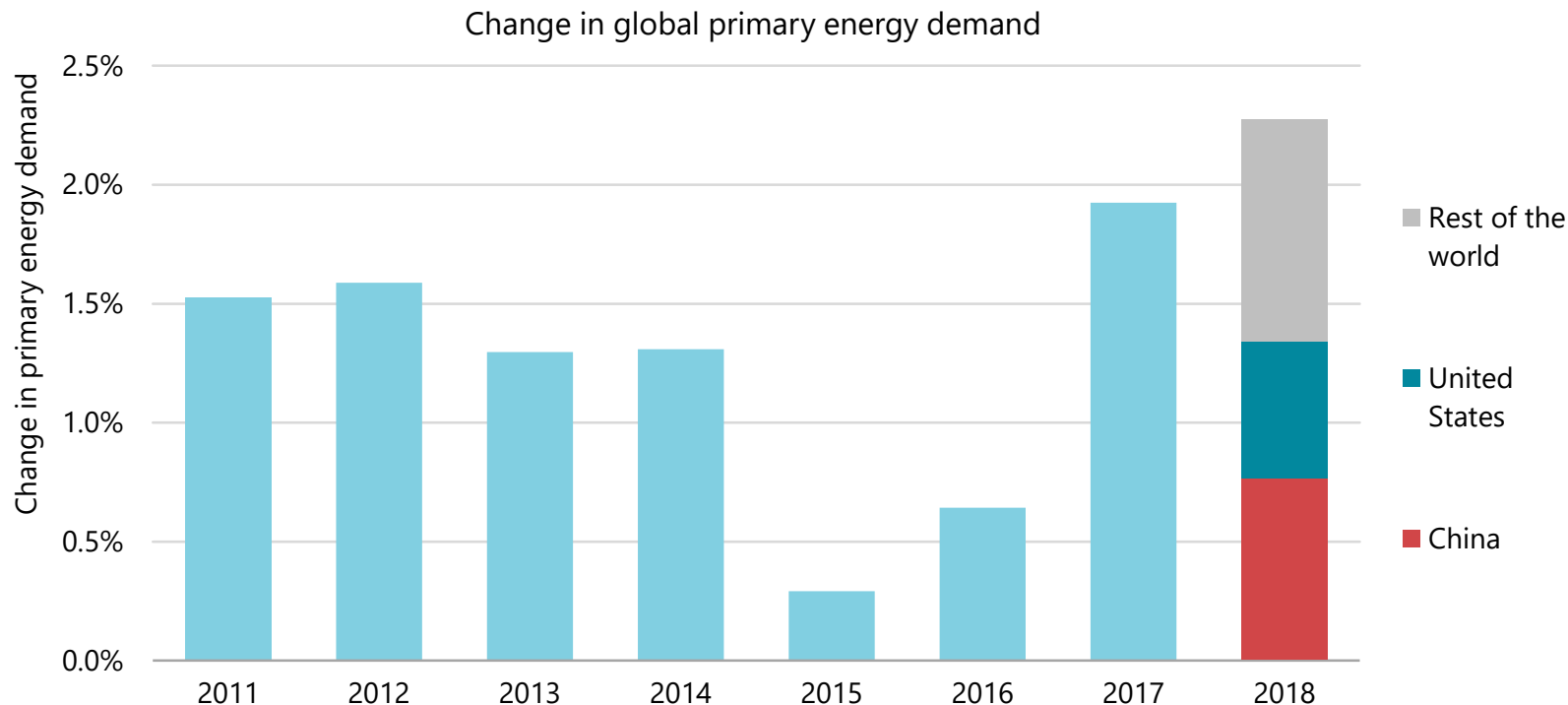
Brussels, CHEETAH project event, 25 Nov 2019

# Overview

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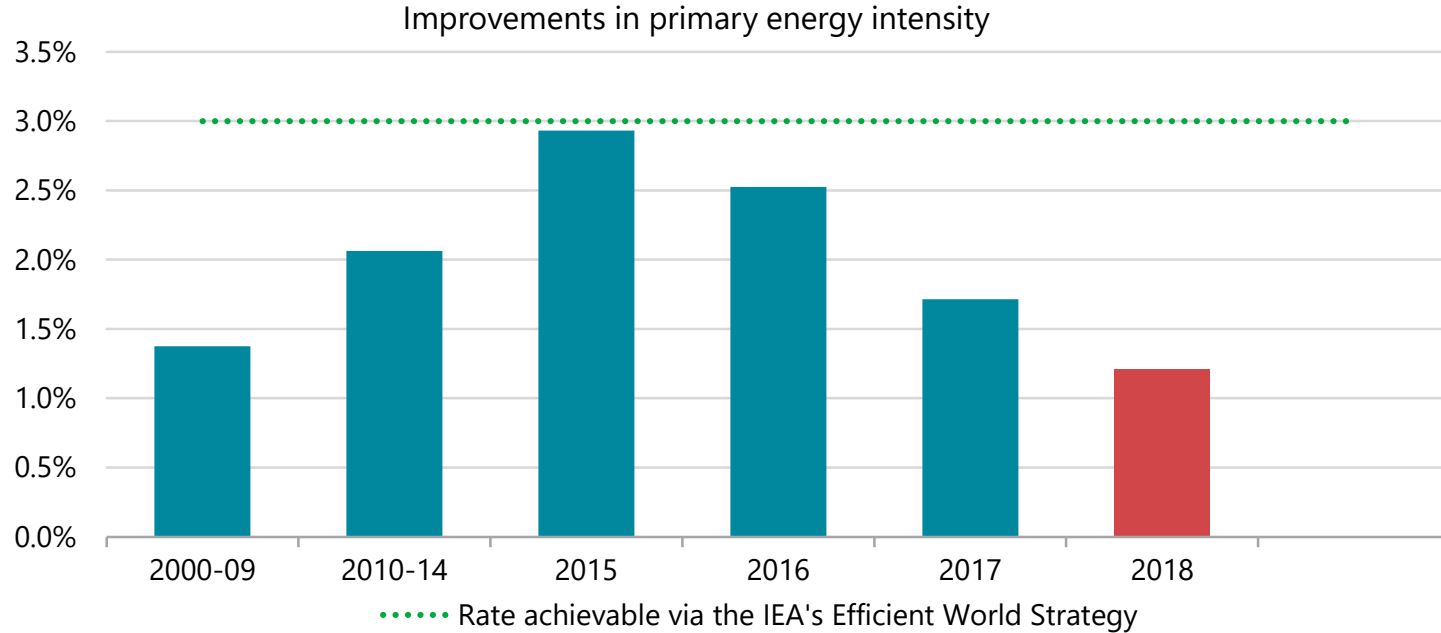
- Global energy efficiency improvements are slowing down. Opportunities to reduce costs and emissions are being lost.
- The slowdown is caused by a mixture of societal and economic trends that are driving more energy use, combined with some recent, exceptional factors.
- Energy efficiency policies are bringing benefits, but aren't doing enough to drive the investments necessary to overcome these wider trends.
- The opportunity for 3% annual gains identified by the IEA will not be realised without stronger policy action.
- As Governments seek to scale up energy efficiency, digitalisation presents both opportunities and risks, and new thinking will be required.

# 2018 demand growth was the fastest rate this decade



Global total primary energy demand rose by 2.3% in 2018, with the largest economies, US and China, responsible for more than 60% of growth. Renewables and gas grew the fastest.

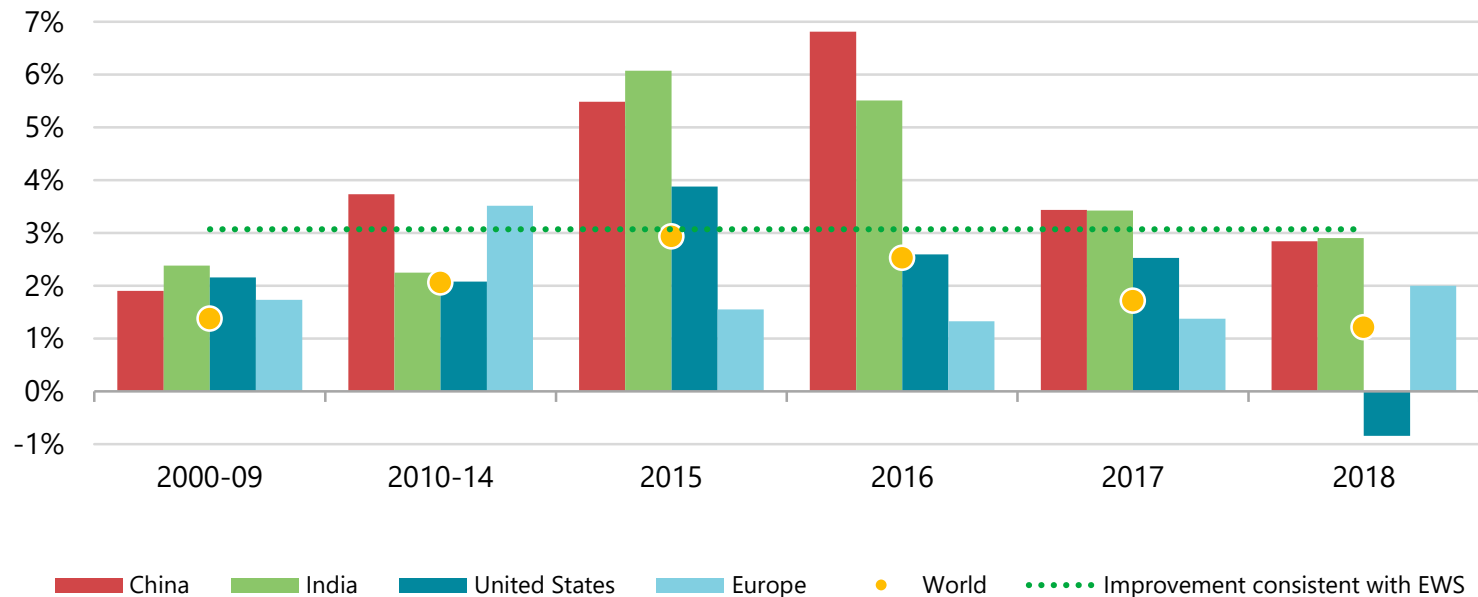
# Global energy efficiency improvements are slowing down



In 2018 the global economy produced 1.2% more value for every unit of energy used compared to 2017. Cost-effective opportunities exist to deliver an annual improvement rate of 3%.

# Primary energy intensity improvement rates varied by country

Primary energy intensity improvement in selected regions



In China and India, primary intensity improved by just under 3%, a slight drop on 2017 levels. In Europe, primary intensity improved by 2% while in the United States, it worsened by 0.8%.

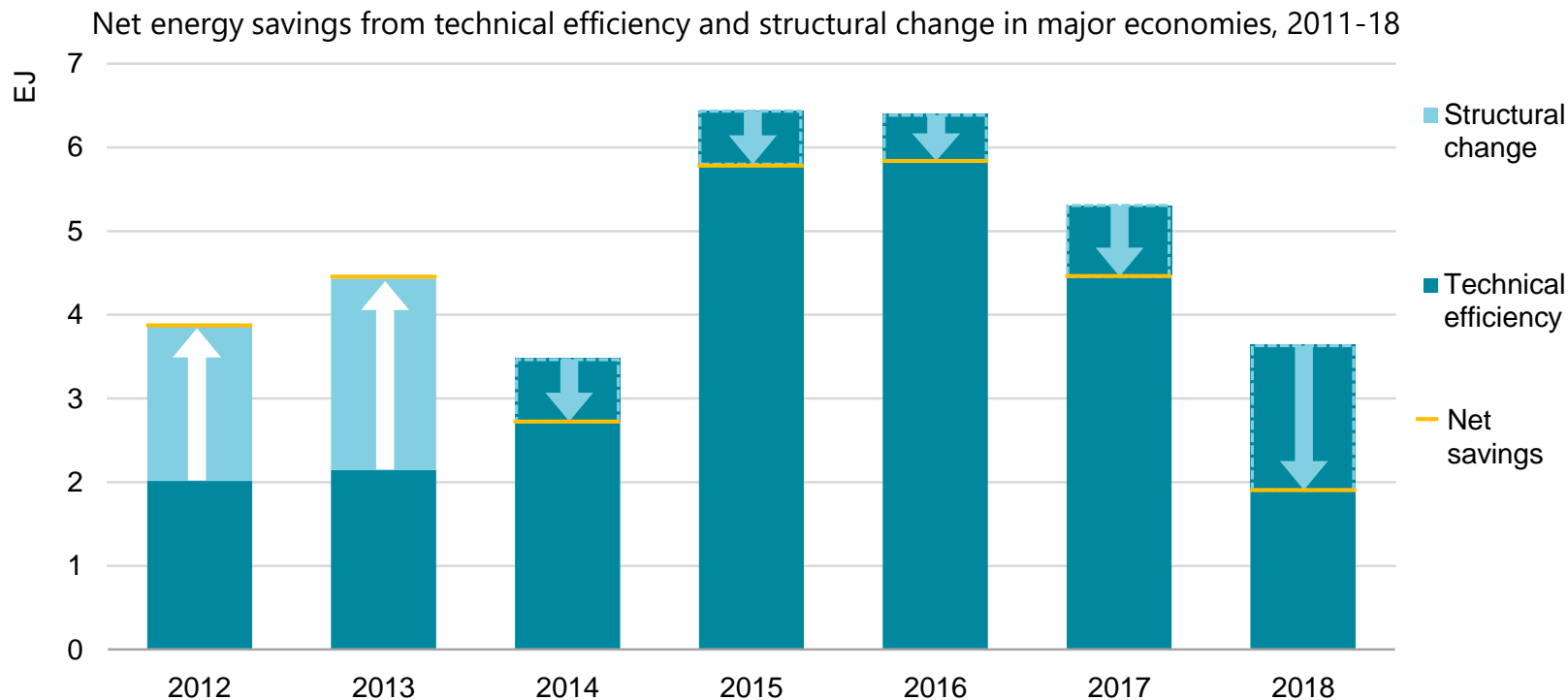
# What's behind the slowdown?

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Three factors are driving the efficiency slowdown:

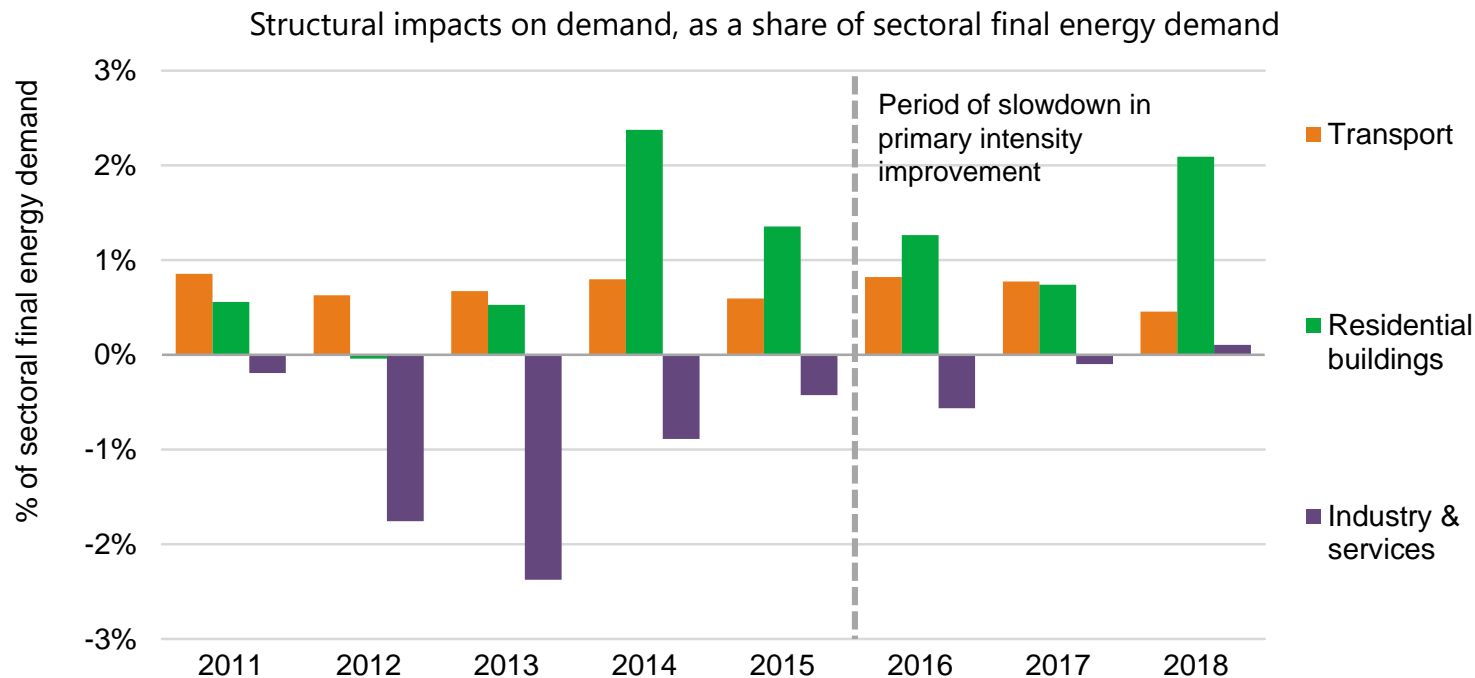
1. Short term factors: recent jumps in industrial activity and exceptional weather have pushed up demand
- 2. Broader trends: overarching structural trends are blunting the impact of technical efficiency improvements**
3. Policy progress and investment are flat, and are not keeping up with the upward pressures on demand

# Structural change is blunting technical efficiency gains



Structural factors can be as influential on energy demand patterns as technical efficiency gains. However, recent structural trends have worked against technical efficiency, creating more energy use.

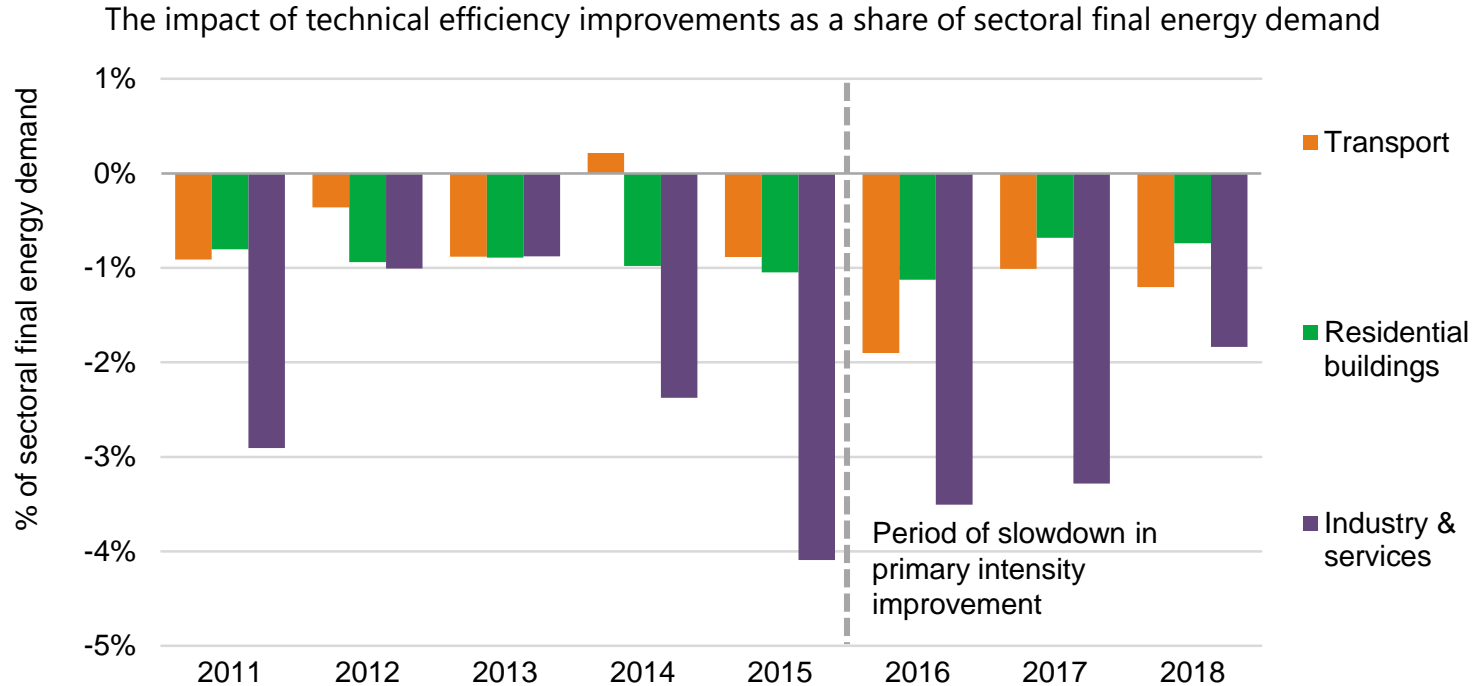
# Structural factors are no longer helping to reduce demand



Structural changes are increasing energy demand, particularly in residential buildings. In industry, structural change has recently switched: from a factor that decreases energy demand to one that increases it

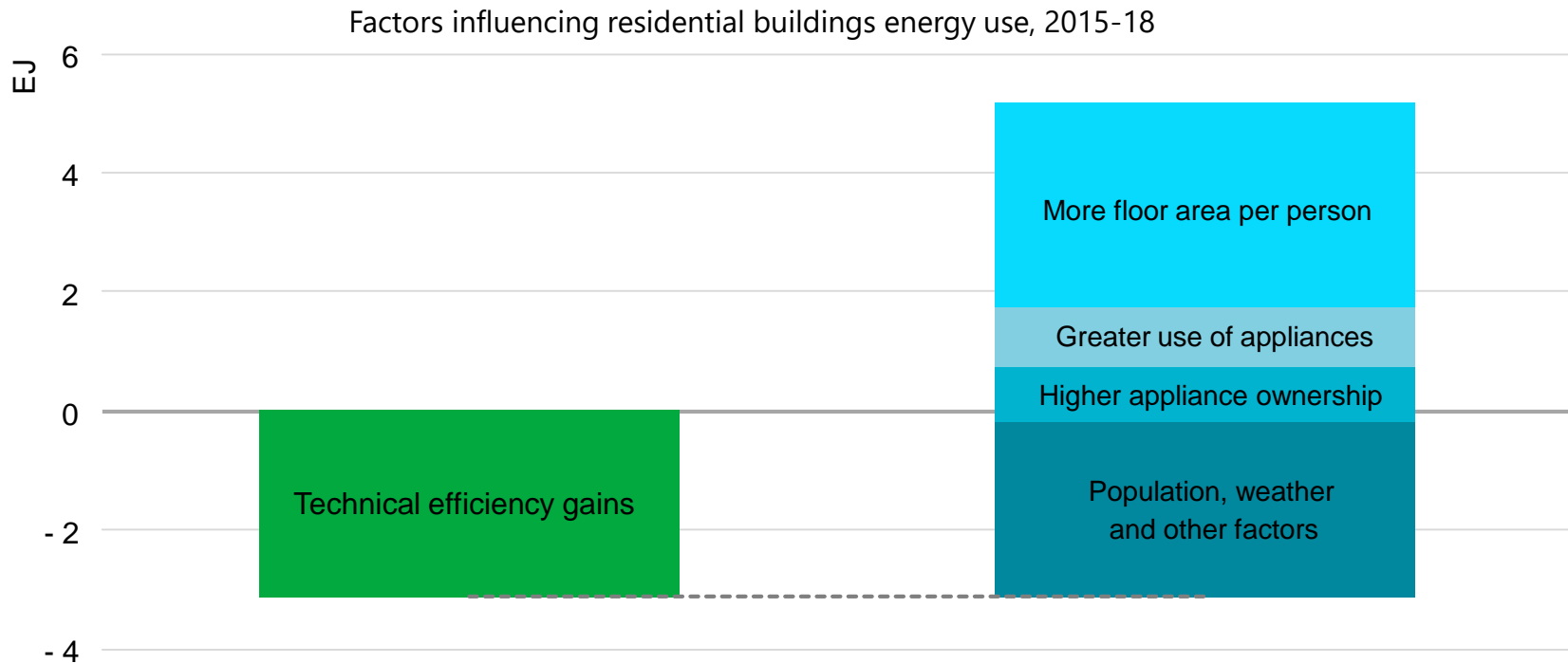


# Technical efficiency isn't having the impact it once was



In transport technical efficiency's impact is slightly above historical levels. Its impact in residential buildings is slowing, being outweighed by structural impacts. In industry, its impact has halved between 2015 and 2018.

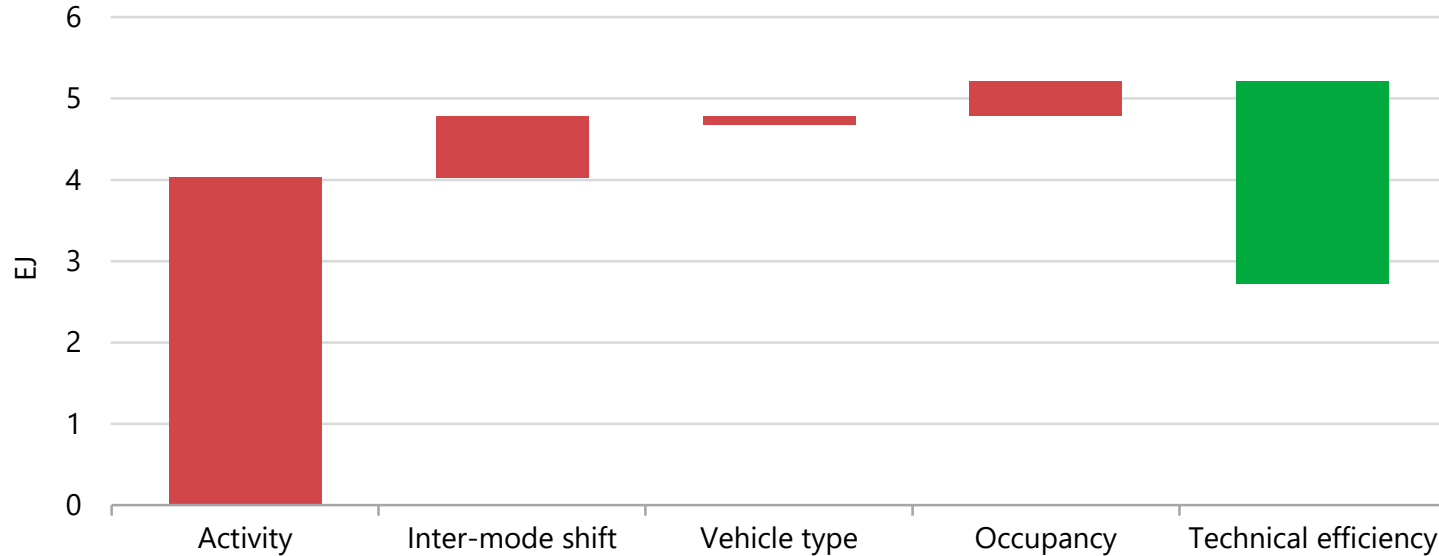
# Technical efficiency isn't keeping pace with societal trends



The technical efficiency of homes and appliances is improving, resulting in energy savings. However, these savings are overwhelmed by wider societal factors that create more energy use.

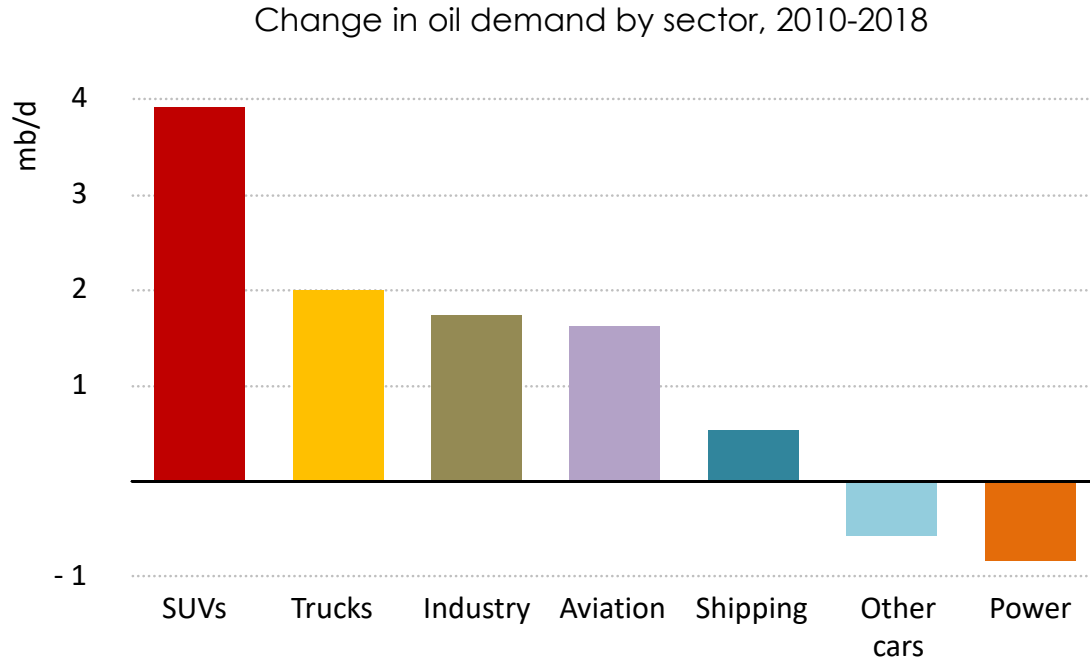
# Transport users' decisions are also affecting energy use

Factors influencing passenger transport energy use, 2015-18



Vehicles are more technically efficient but people are driving more, shifting to more intensive modes and larger vehicles, while travelling in smaller groups.

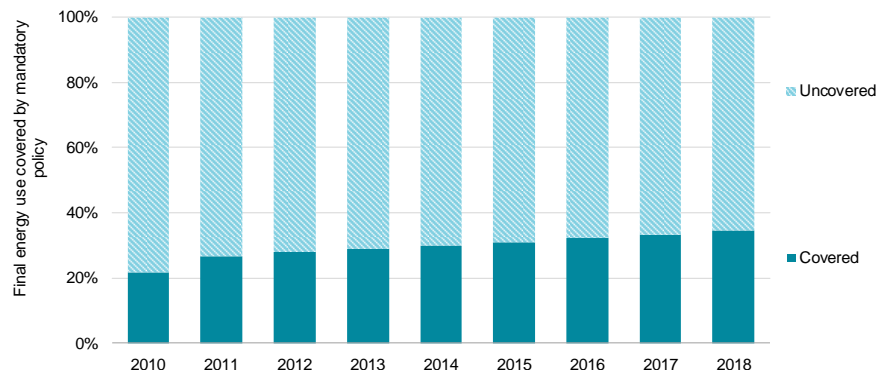
# The rise of SUVs has a material impact on oil demand



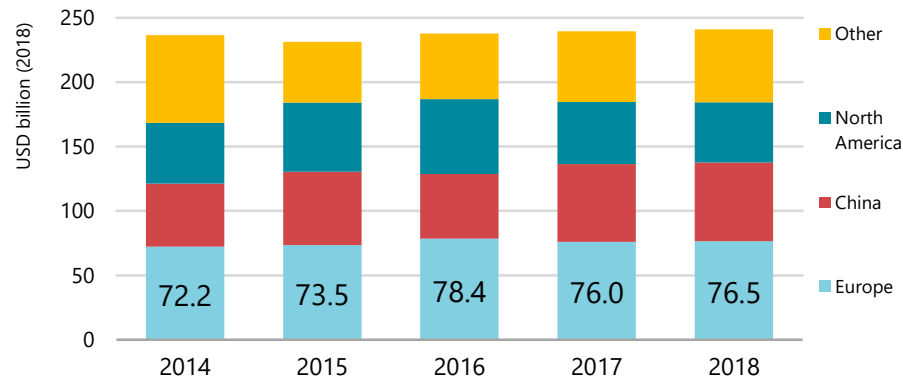
SUVs have become an important driver of global oil demand and the second-largest driver in CO<sub>2</sub> emissions growth. The global fleet of SUVs increased from 35 million in 2010 to over 200 million in 2018.

# Policy progress and investment are flat, just when they need to grow

## Mandatory policy coverage

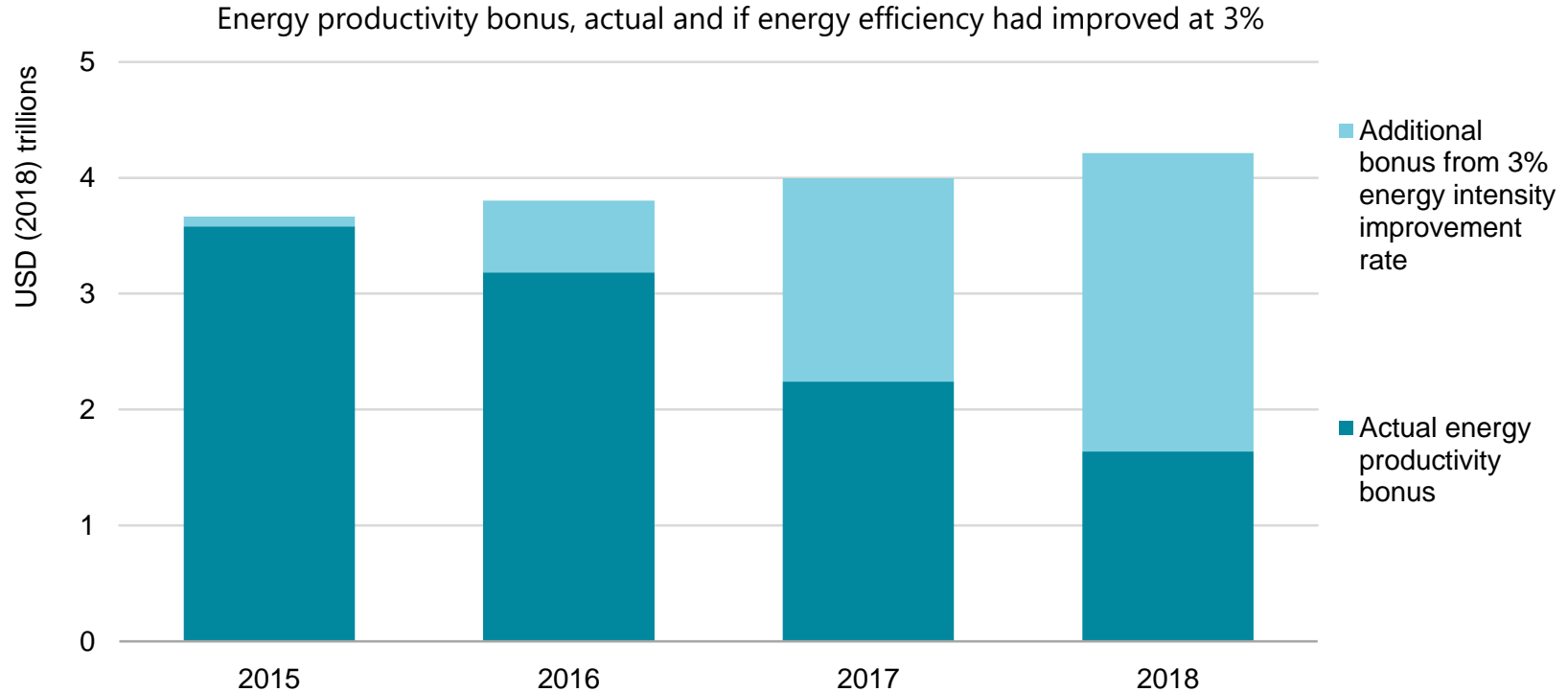


## Investments in energy efficiency by region



Efficiency policy progress is slow, and investments in efficiency stayed flat. Returning to a 3% annual improvement in intensity requires annual investments to double on average, between now and 2025.

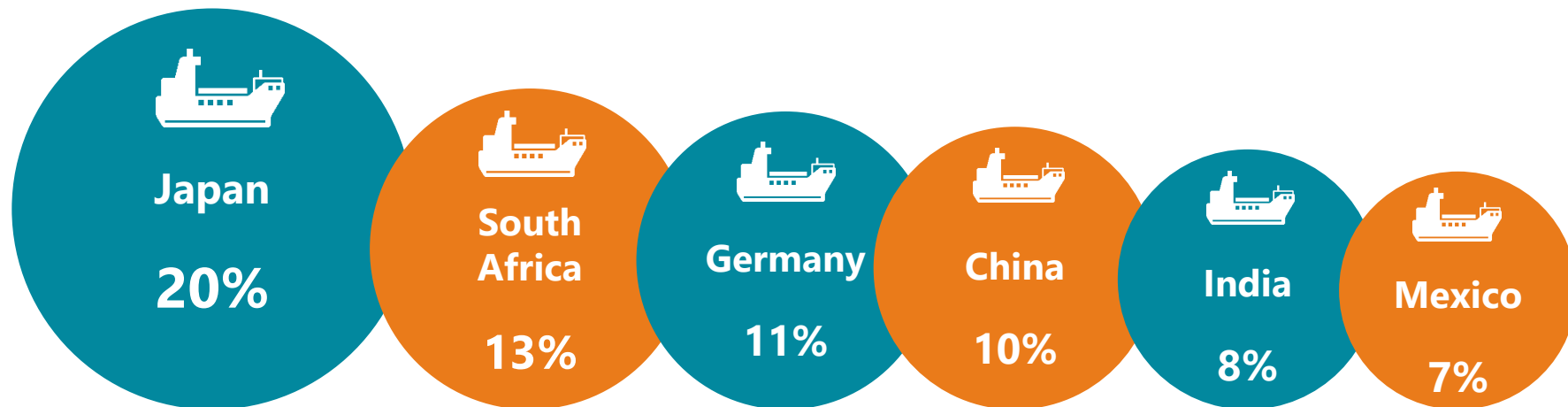
# The slowdown is a lost opportunity for the global economy



In 2018, global efficiency improvements equated to \$1.6 trillion in additional productivity over 2017. Without the slowdown, the gain could have been 2.5 times bigger.

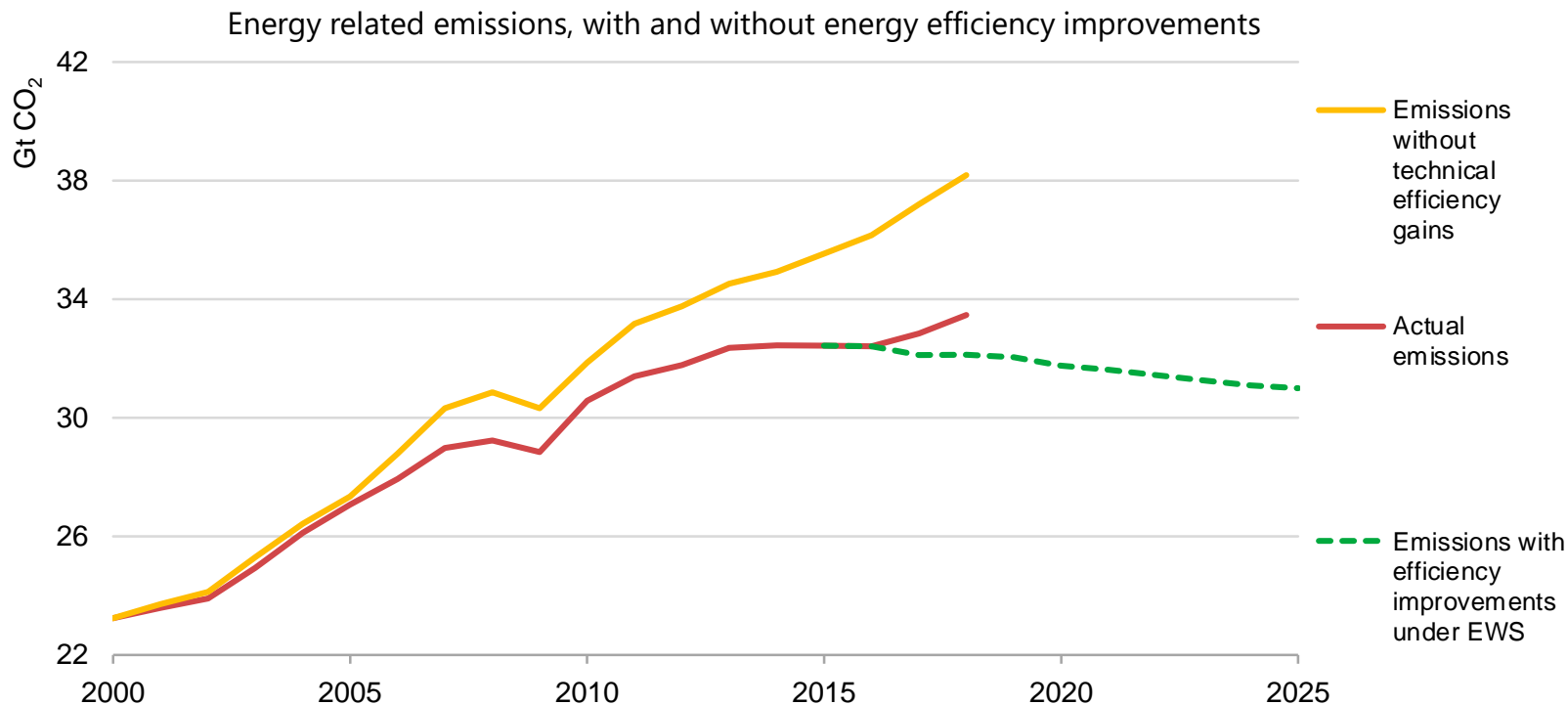
# Efficiency continued to deliver financial and energy security benefits

Efficiency gains have reduced oil imports by:



Efficiency bolstered the energy security of all fuels. Because of efficiency gains made since 2000, Japan and China reduced their 2018 oil import bill by \$20 billion each.

# Efficiency lowered emissions, but not as much it could have

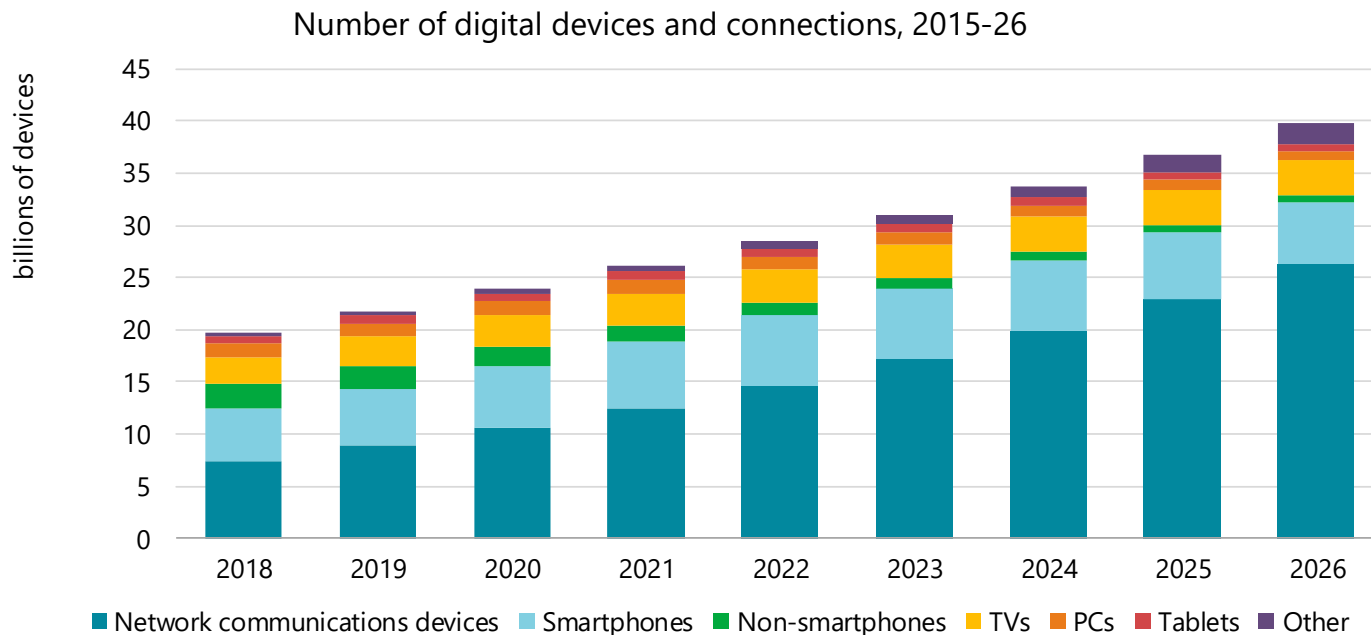


Energy-related emissions were lower thanks to efficiency but still continued to increase. Reversing the recent trend is possible with cost-effective energy efficiency measures.



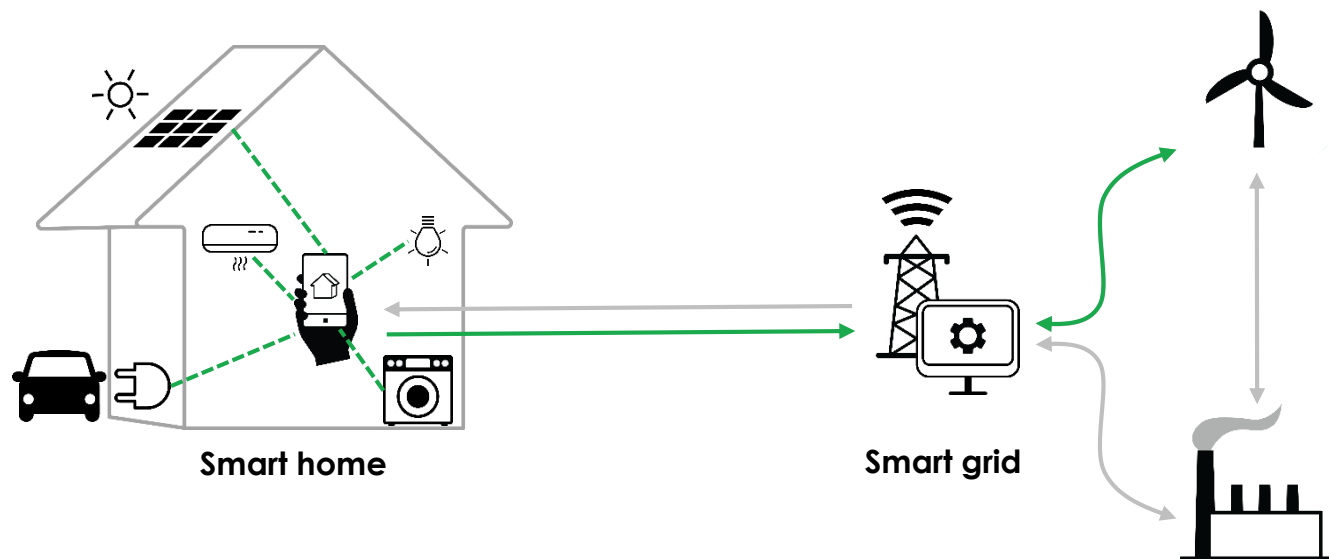
# Digitalisation: A paradigm shift?

# Policymakers can avail of the digitalisation opportunity



If current trends continue, digital technologies could double between now and 2026. This presents risks of higher energy demand but also new opportunities for energy efficiency.

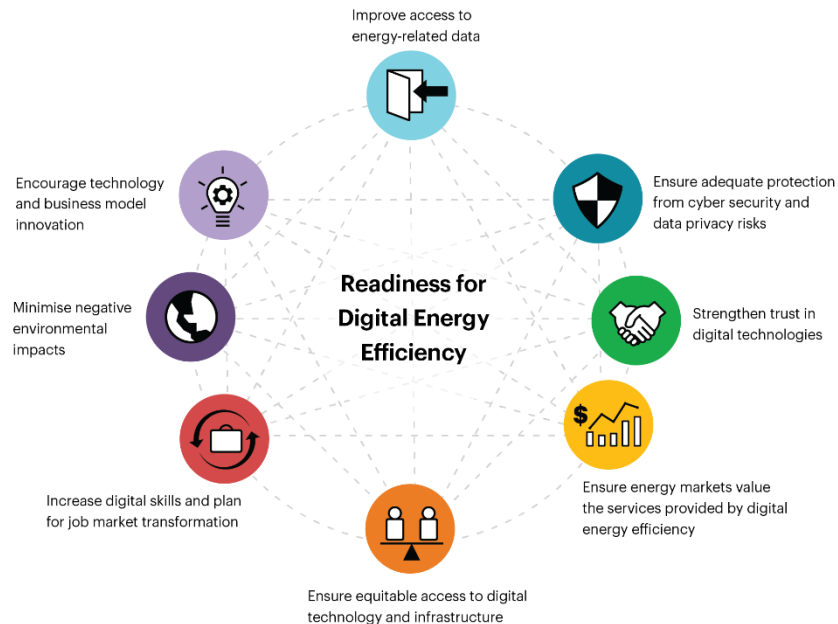
# Digitalisation: From end-use to system efficiency



Traditional efficiency policy addresses devices individually. Digitalisation, with the right policies, enables a progression to optimising the efficiency of the whole energy system.

# Digitalisation requires policy action

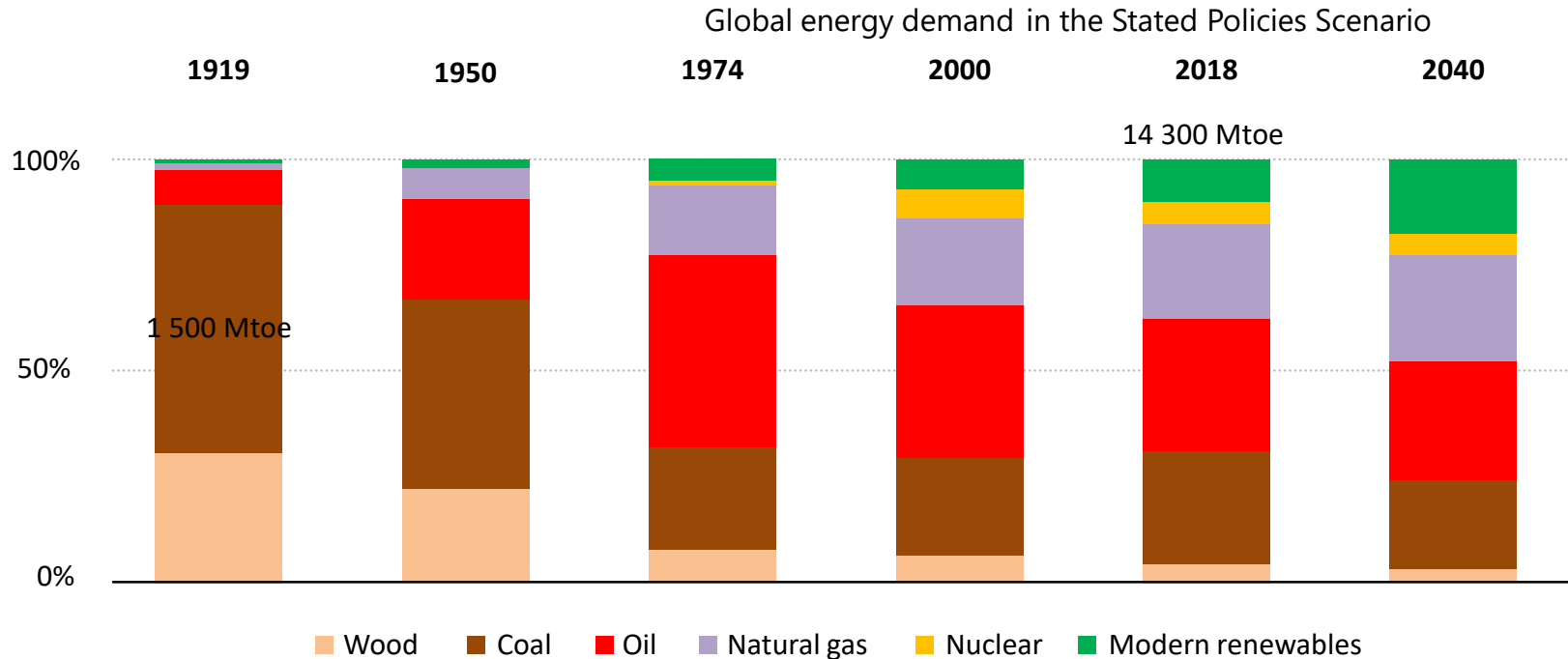
Policy principles comprising the Readiness for Digital Energy Efficiency framework



Policy makers must engage with a range of challenging issues if the world is to harness digitalisation for greater energy efficiency

# Energy efficiency insights from WEO

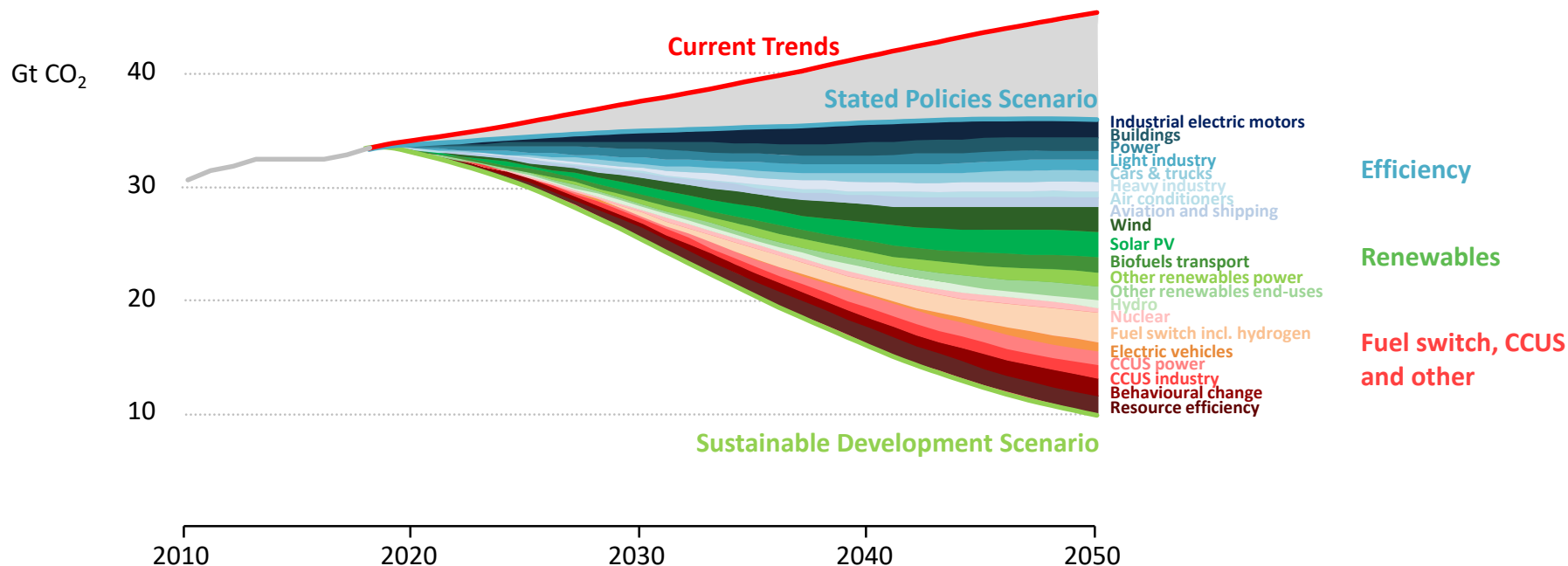
# Perspectives from energy history



The last century has witnessed multiple transitions to and from different fuels and technologies  
The challenge today is one of scale: global energy use is ten times higher than in 1919.... and growing

# No single or simple solutions to reach sustainable energy goals

Energy-related CO<sub>2</sub> emissions and reductions in the Sustainable Development Scenario by source



A host of policies and technologies will be needed across every sector to keep climate targets within reach, and further technology innovation will be essential to aid the pursuit of a 1.5°C stabilisation

# Mobilising urgent action



# Global Commission for Urgent Action on Energy Efficiency

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Honorary chair: H.E. Mr. Leo Varadkar, Prime Minister of Ireland.

Ongoing chair: H.E. Mr. Richard Bruton, Minister of Communications, Climate Action and Environment, Ireland

# Global commission for urgent action on energy efficiency

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- Objectives of the commission:
  - Examine how progress on energy efficiency can be rapidly accelerated through new and urgent policy action
  - Focus on policy actions that can be taken by countries across the globe
  - Produce a concise list of clear, actionable recommendations
- Commission will conclude its work by the middle of 2020.



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