

# Energy Technology Perspectives 2016

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Towards Sustainable Urban Energy Systems

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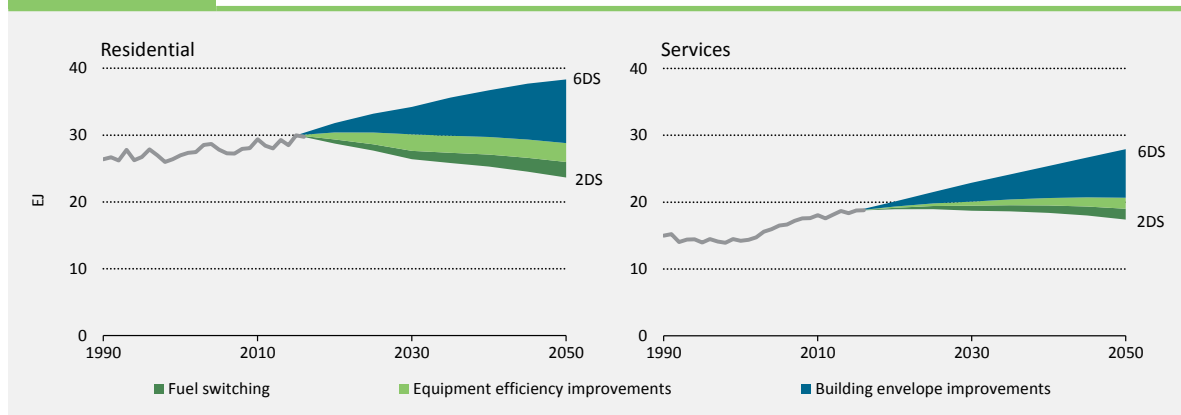
## Corrigendum

Please note that despite our best efforts to ensure quality control, errors have slipped into Energy Technology Perspective 2016.

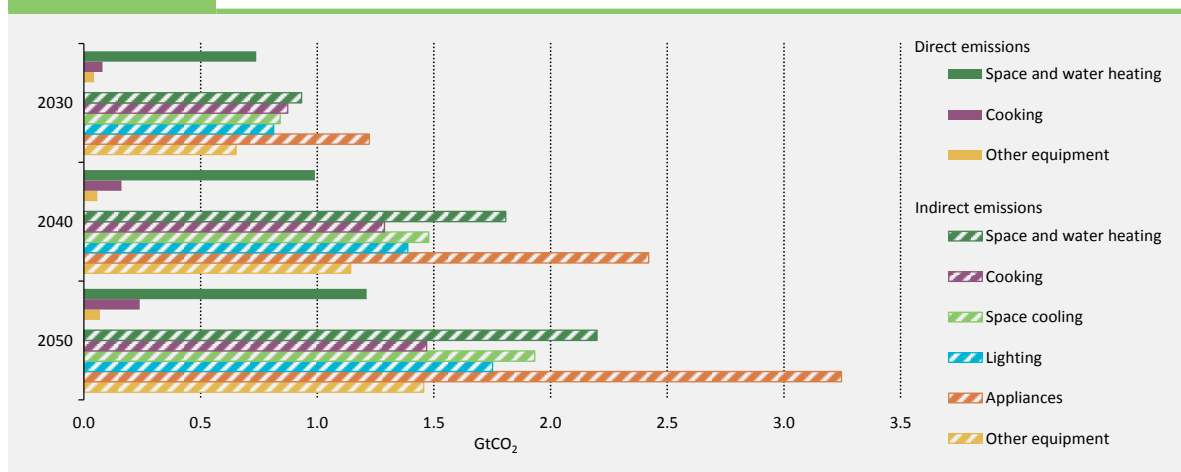
The text in pages 64, 99 has changed. It should be replaced by the following pages .



International  
Energy Agency  
Secure  
Sustainable  
Together

**Figure 1.21 Heating and cooling final energy savings, 6DS to 2DS**


**Key point** Envelope improvements represent two-thirds of space heating and cooling energy savings in 2050. Efficient equipment and shifts away from intensive fuels (e.g. biomass) account for another 180 EJ of cumulative energy savings to 2050.

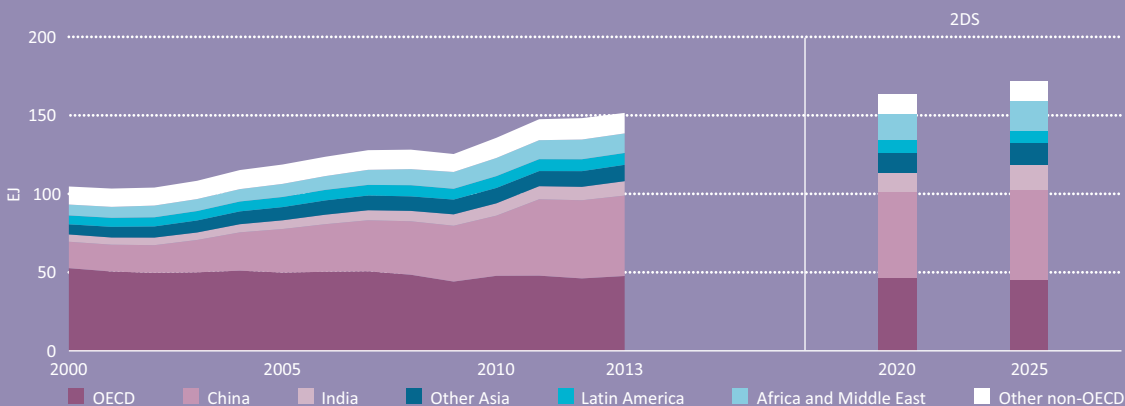
**Figure 1.22 Buildings sector direct and indirect emissions reduction, 6DS to 2DS**


**Key point** Energy efficiency and reduction of fossil fuel use, together with decarbonised electricity and commercial heat supply, can reduce buildings carbon emissions by more than 13 GtCO<sub>2</sub> in 2050.

### Buildings investment needs

Absolute cumulative investment needs in the buildings sector under the 2DS (excluding investments in building infrastructure) are roughly USD 45 trillion. Decarbonising the buildings sector in the 2DS requires cumulative additional investments of USD 16 trillion between 2016 and 2050 in comparison with the 6DS. These investments include costs for energy-consuming equipment purchases (e.g. boilers, heat pumps, clean cook stoves, solar thermal collectors and connections to district energy networks), purchases of lighting

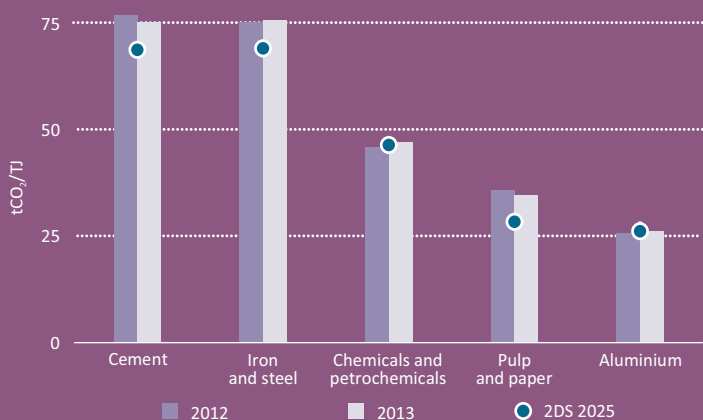
## 2.21 Global industrial energy use



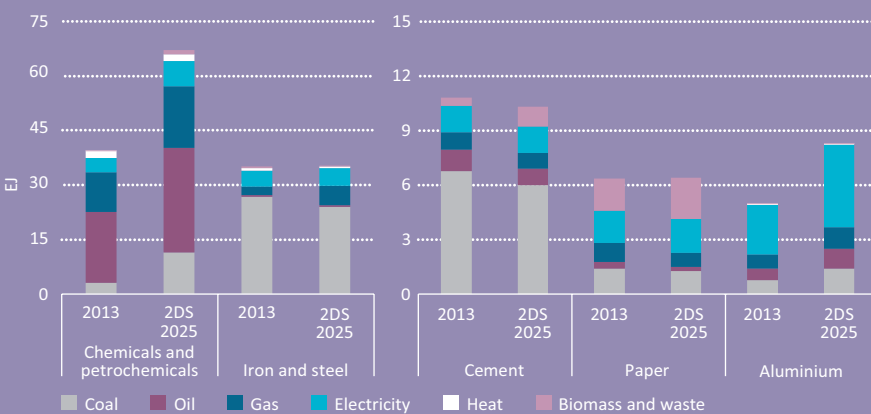
# 68%

OF INDUSTRIAL FINAL ENERGY IS USED IN FIVE ENERGY-INTENSIVE SUB-SECTORS

## 2.22 Direct energy-related CO<sub>2</sub> intensity



## 2.23 Industrial energy mix



### Key point

CCS in industry will need to be introduced by 2020 and rapidly scaled up

For sources and notes see page 125