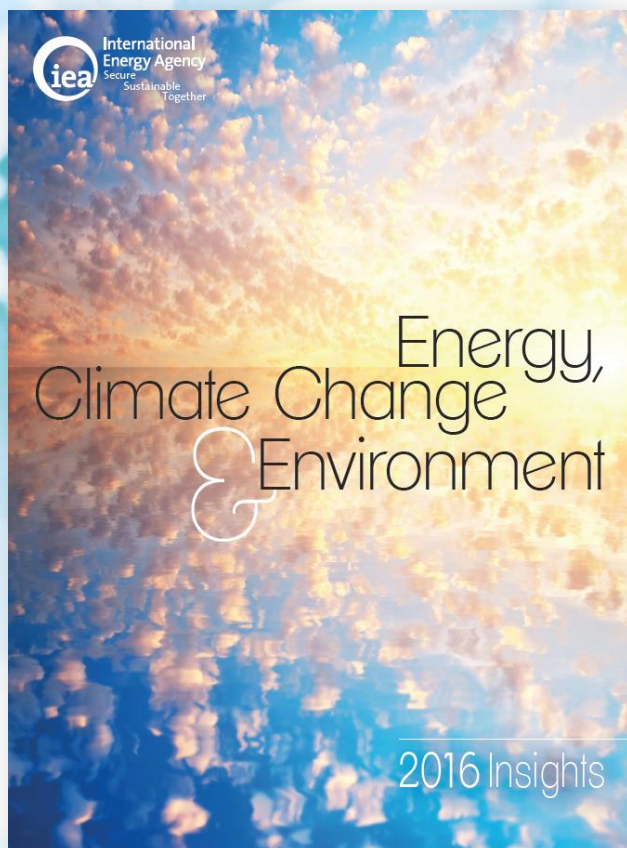




www.iea.org

Energy, Climate Change & Environment: 2016 Insights



**LCS-RNet Long-term
Strategy Workshop
COP22, Marrakech
November 11, 2016**

Liwayway Adkins
Environment and Climate Change Unit
International Energy Agency

The IEA works around the world to support an accelerated clean energy transition that is

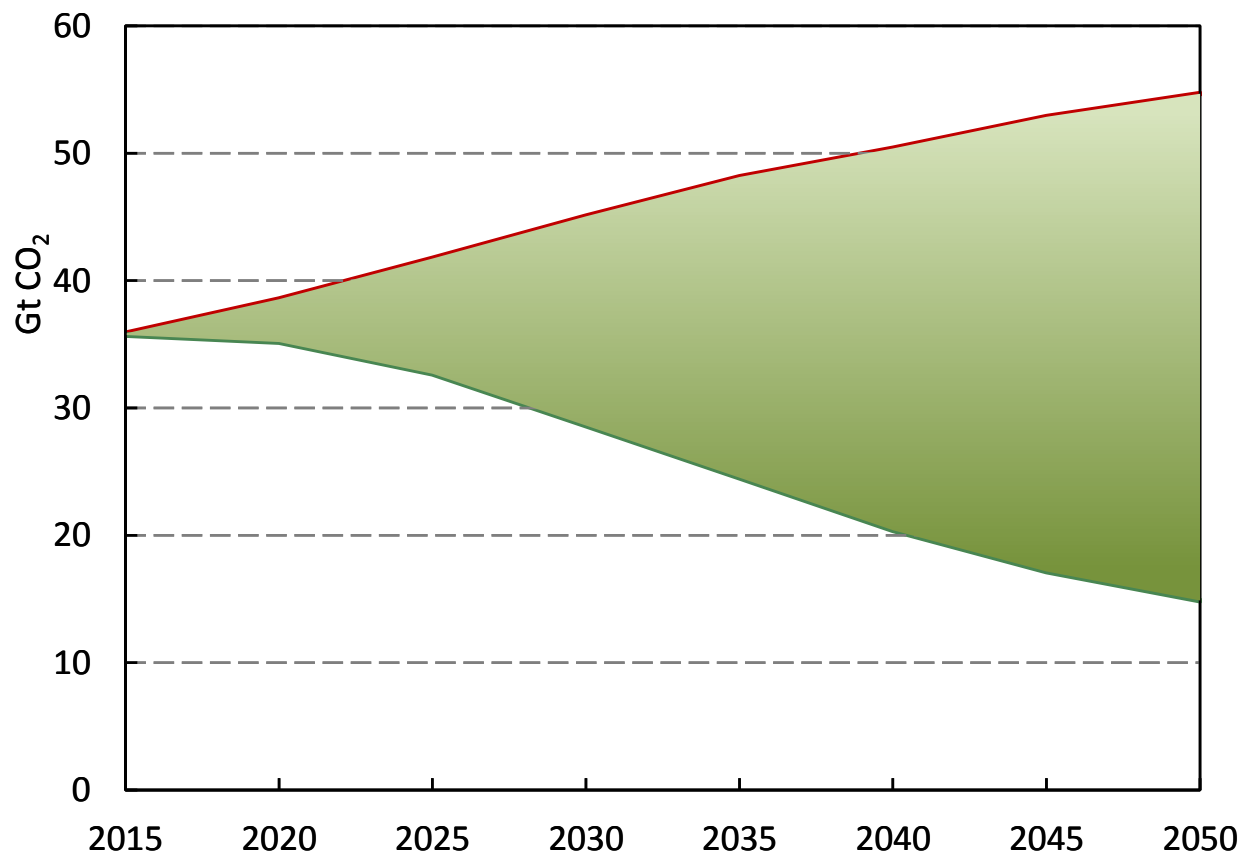
enabled by real-world SOLUTIONS

supported by ANALYSIS

and built on DATA

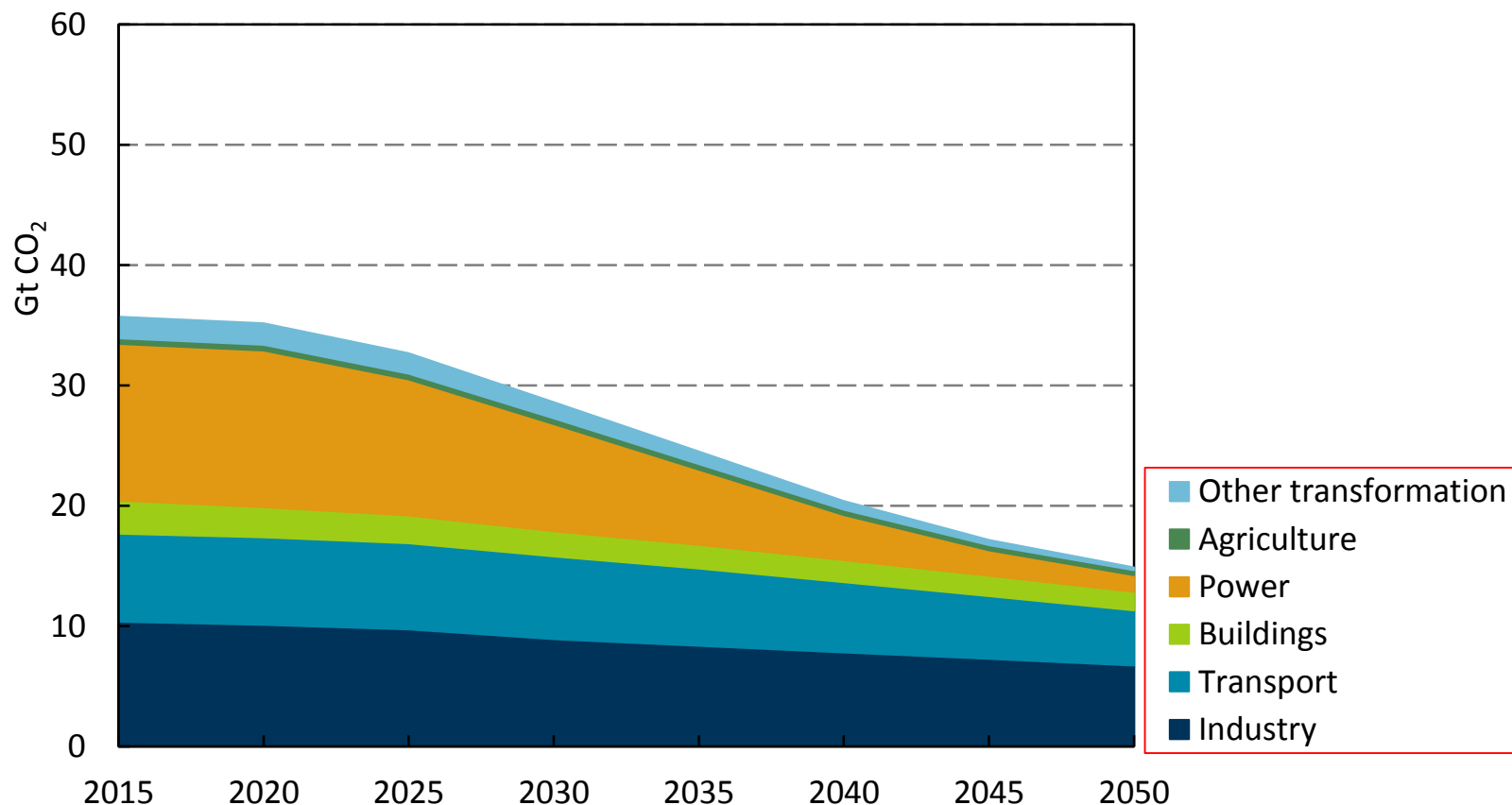
Staying well below 2°C degrees: How Paris has changed the energy challenge

Paris Agreement: “Holding the increase in the global average temperature to **well below 2°C** above pre-industrial levels and to pursue efforts to limit the temperature increase to 1.5°C above pre-industrial levels...”



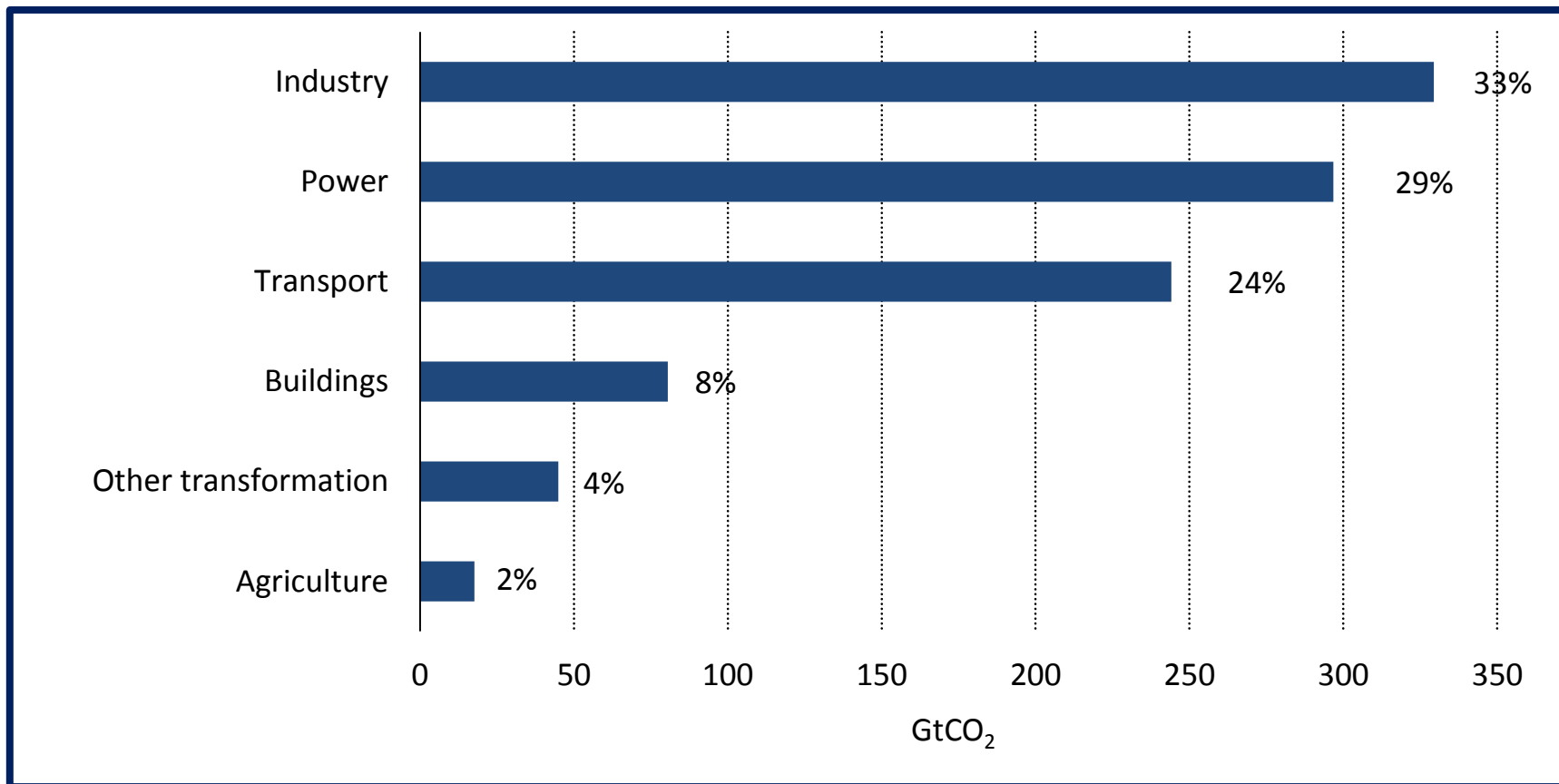
Staying well below 2°C degrees: How Paris has changed the energy challenge

Paris Agreement: “Holding the increase in the global average temperature to **well below 2°C** above pre-industrial levels and to pursue efforts to limit the temperature increase to 1.5°C above pre-industrial levels...”



Getting well below 2°C means tackling the emissions that remain in the 2DS

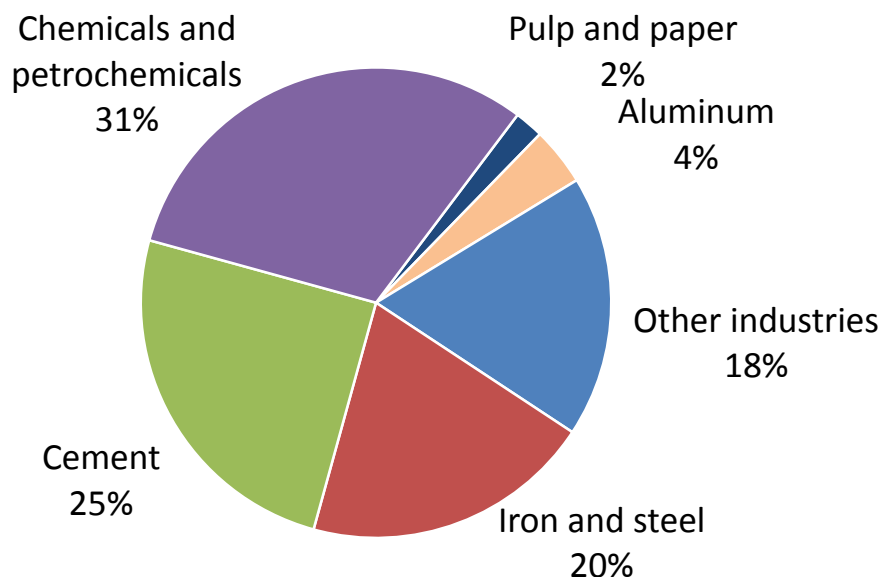
Cumulative CO₂ emissions over 2015-2050 under the 2DS



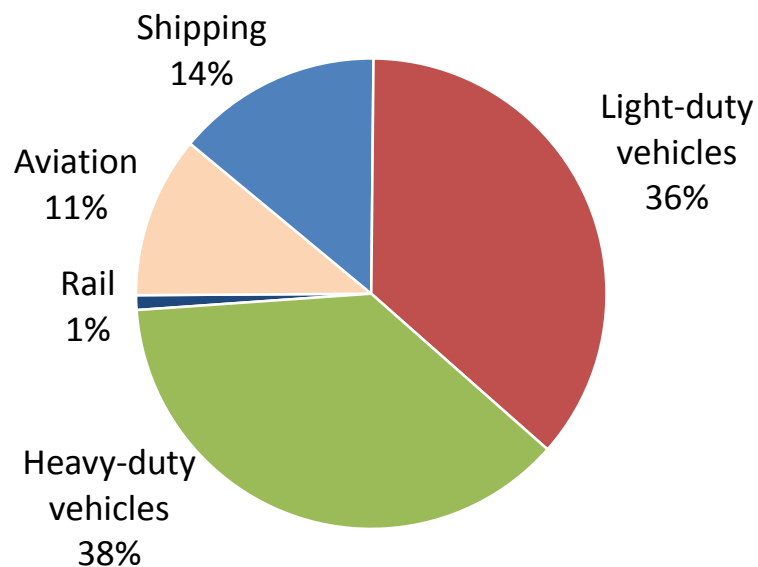
Industry, power and transport sectors dominate

2DS emissions in 2050: Sub-sector breakdown of industry and transport

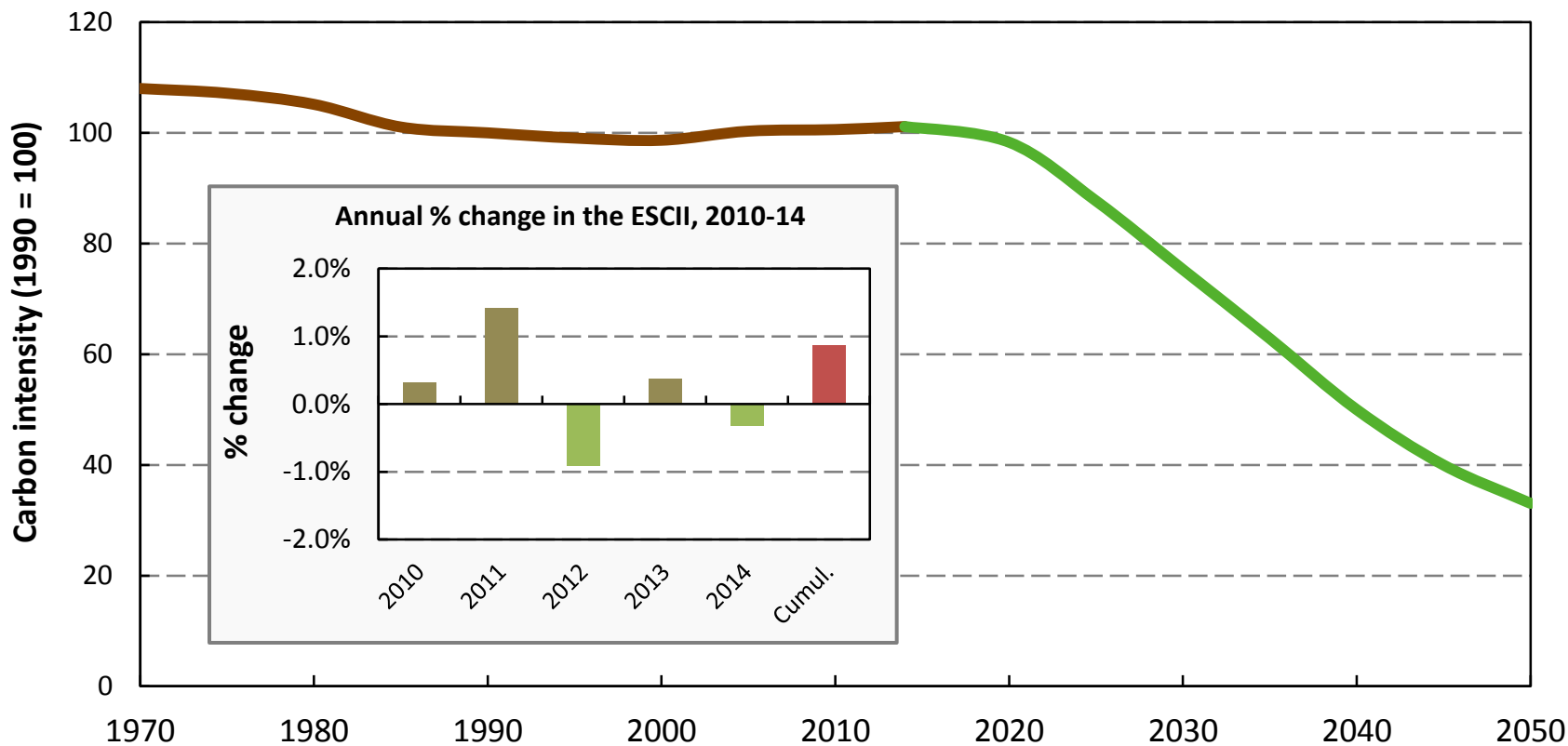
Industry
6 721 Mt



Transport
6 300 Mt

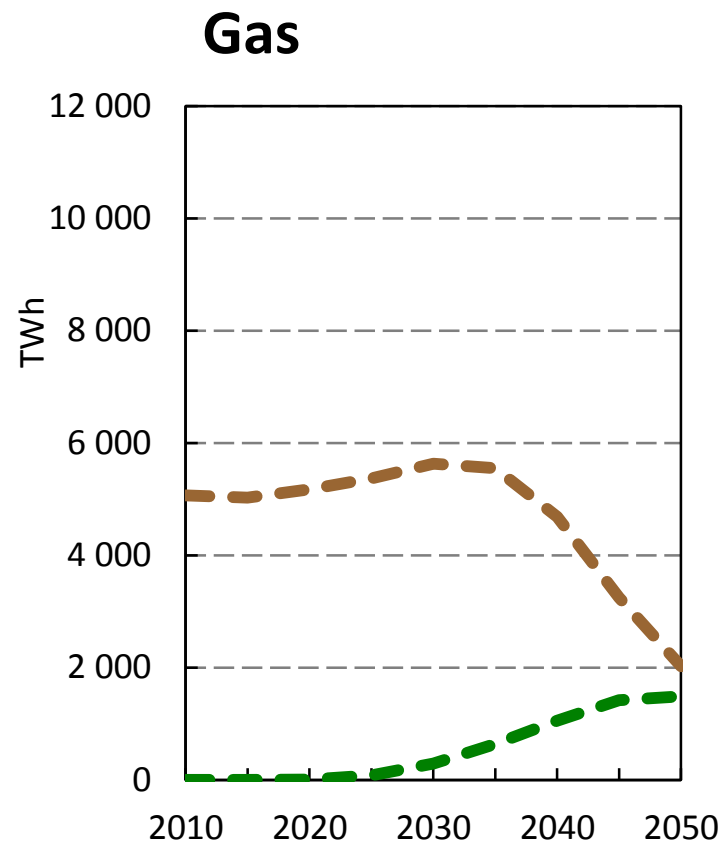
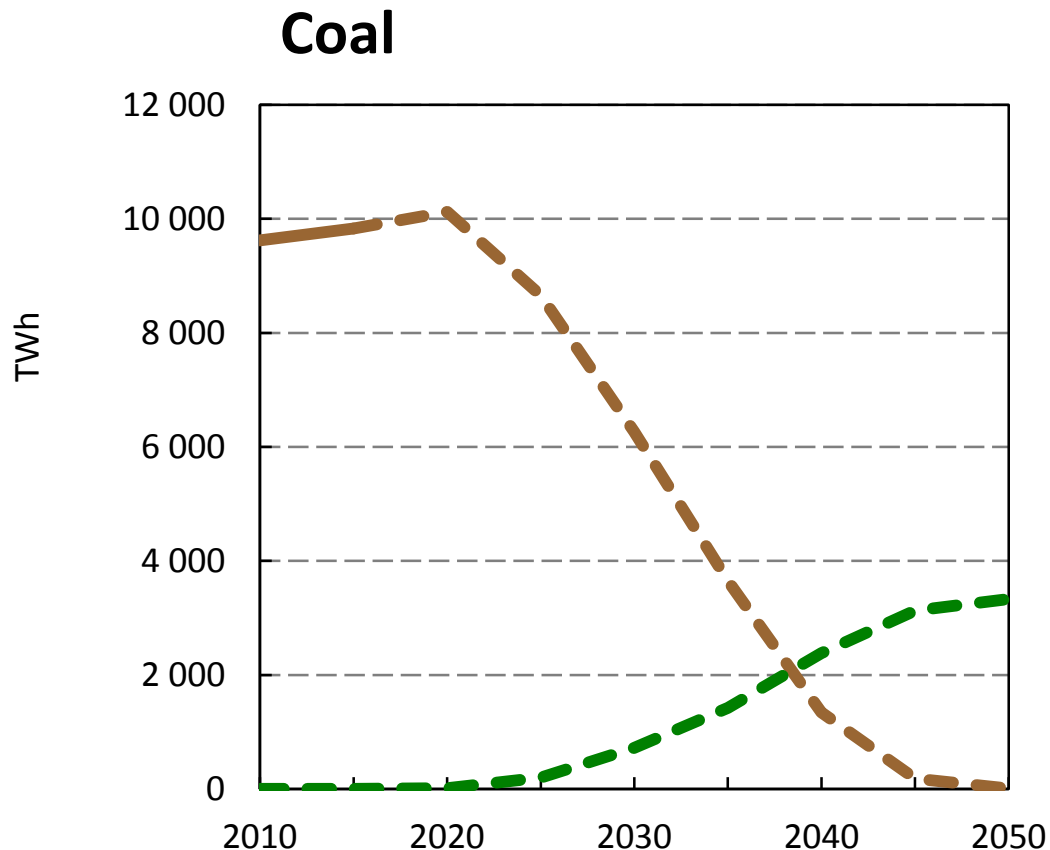


How are we doing in reducing the carbon intensity of our energy system?



As of 2014, the world's energy supply was 1.2% more carbon intensive than it was in 1990

Reducing emissions from incumbent fossil fuel facilities: a critical element of low-carbon scenarios

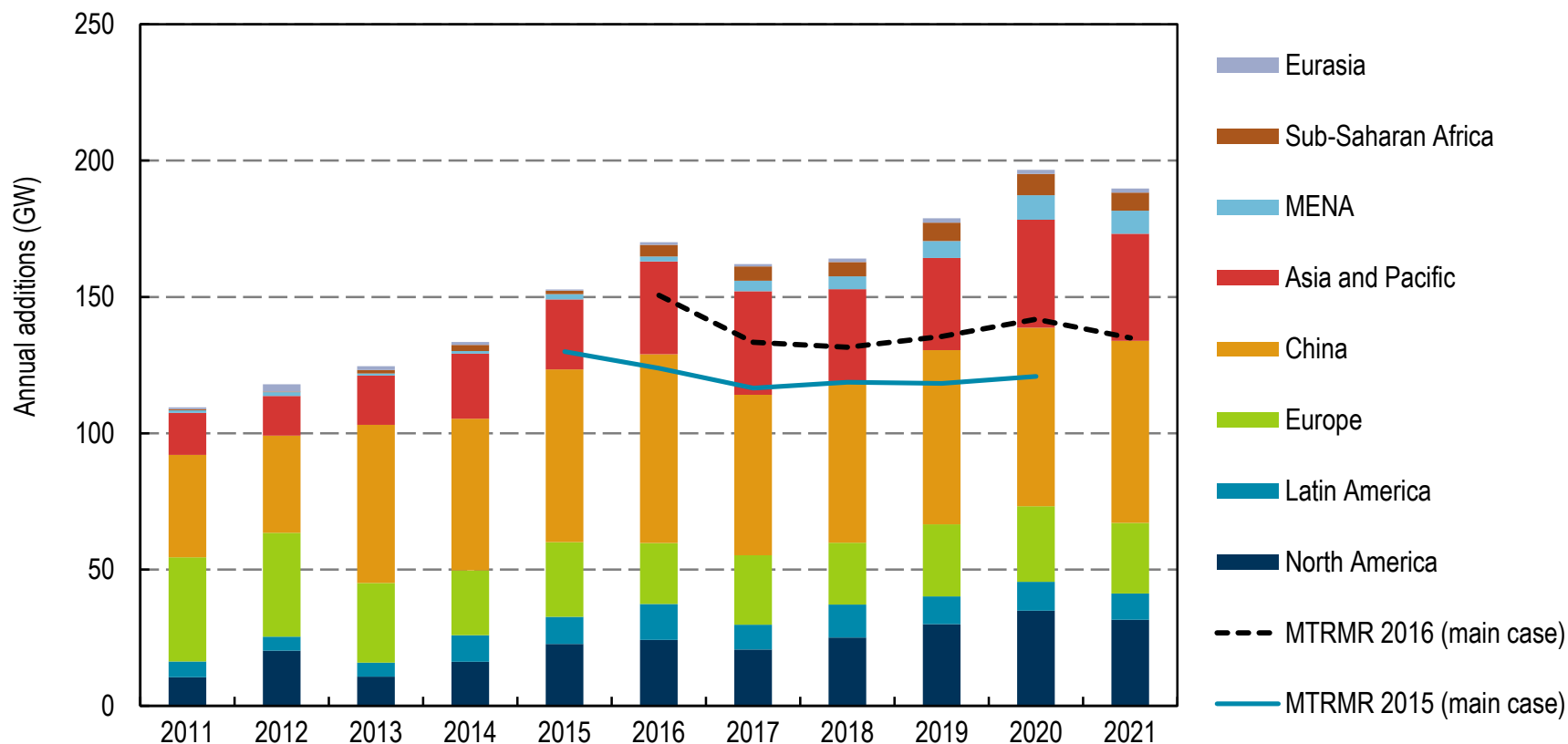


Addressing coal and gas plant emissions will be important to reduce global emissions

Role of moderate carbon prices

- Real-world carbon price expectations (USD 15/tCO₂ – 40/tCO₂ in 2030) are significantly lower than those consistent with 2°C scenarios (USD 100/tCO₂ in 2030)
- “Moderate” carbon prices still help:
 - support dispatch of low-carbon generation options
 - reduce need for subsidies for low-carbon investment
 - favor retirement of the most carbon-intensive plants
- Well integrated packages of policies are needed – not carbon pricing alone (auctions, EE policies, etc.)

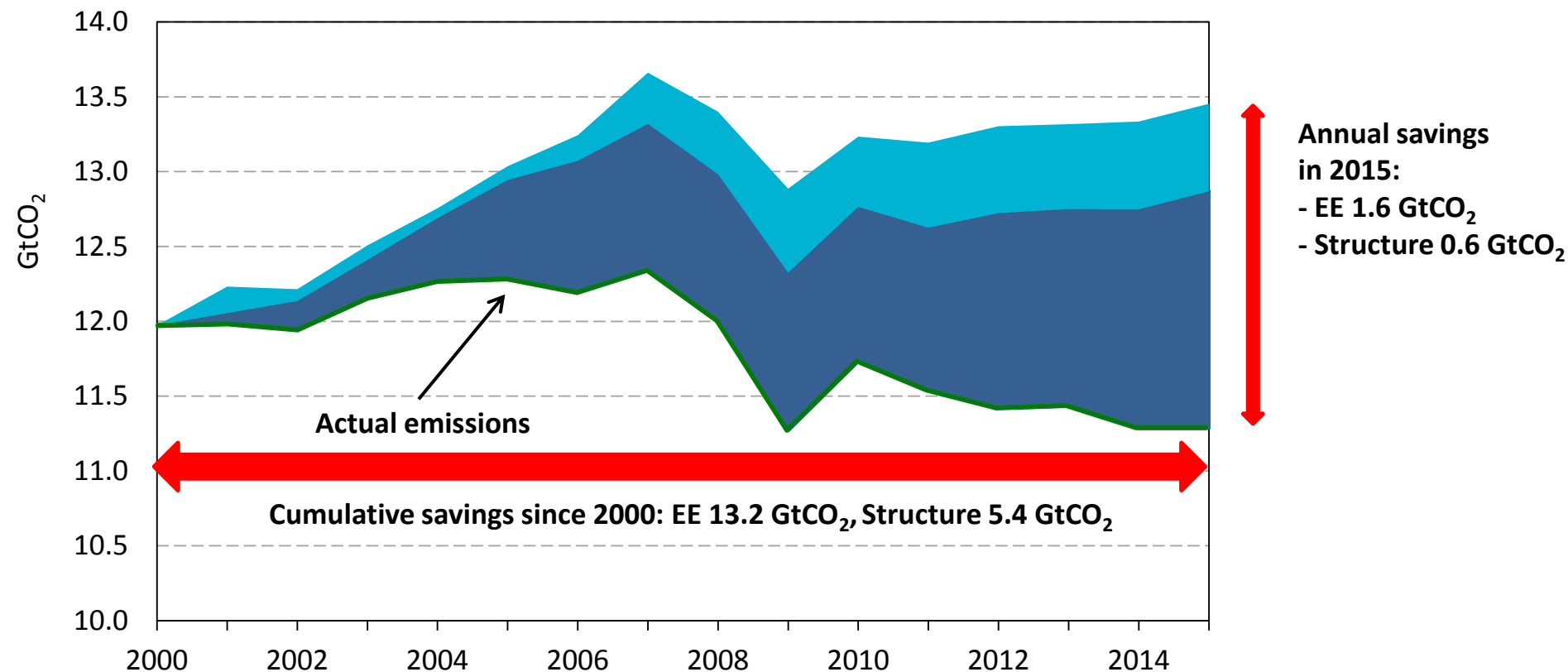
Renewables post-COP21



COP21 INDCs generated momentum for renewables development and deployment worldwide

Demand-side levers

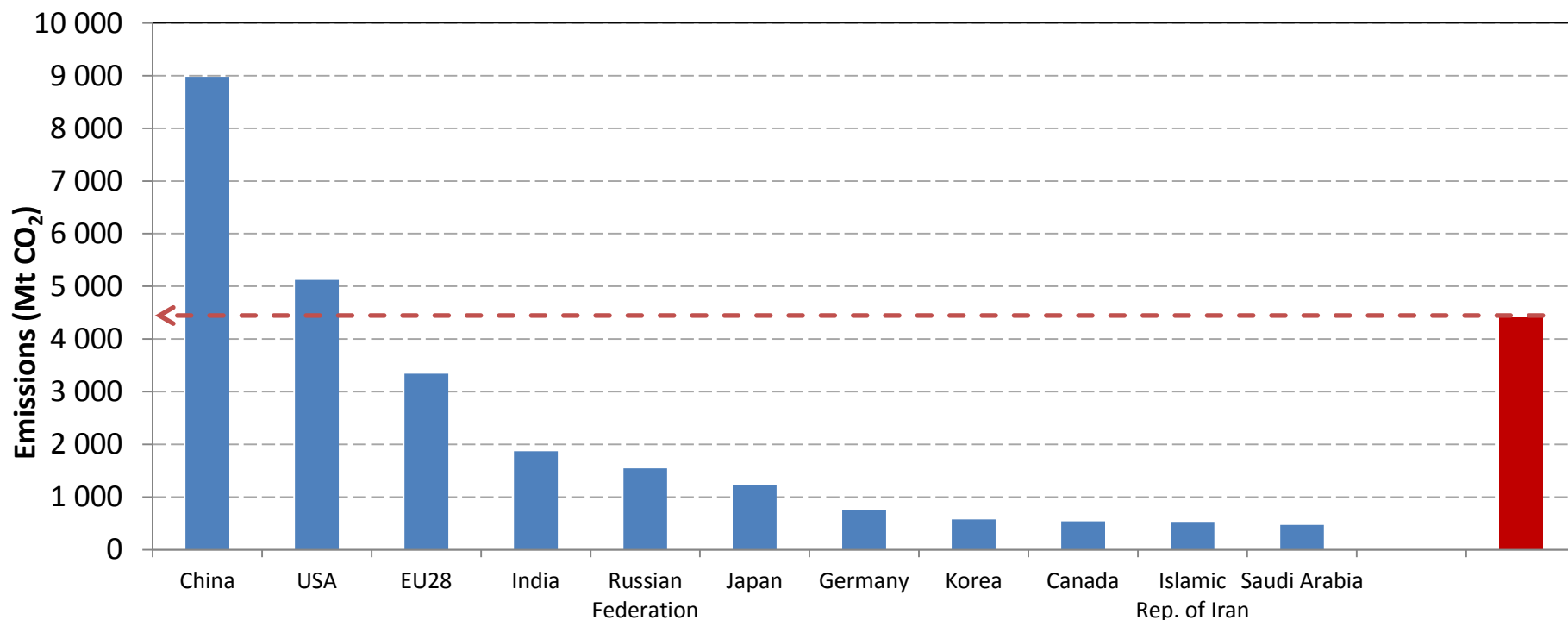
(decomposition analysis IEA member countries)



Greater use of energy efficiency, energy conservation and other demand-side levers is needed to reduce emissions; structural change also plays a role

SOEs are top emitters

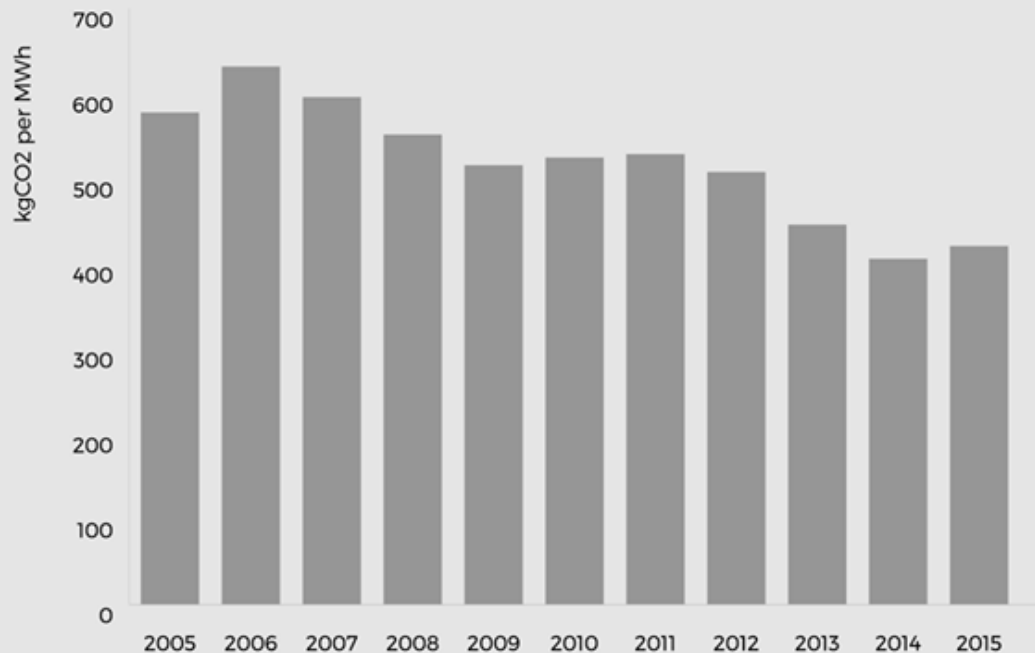
Looking beyond the 'what' and the 'how' to the 'who':
tailoring solutions to motivate state-owned enterprises



*Selected 50 SOEs would, by themselves,
constitute the third largest emitting 'country'*

Tracking and metrics

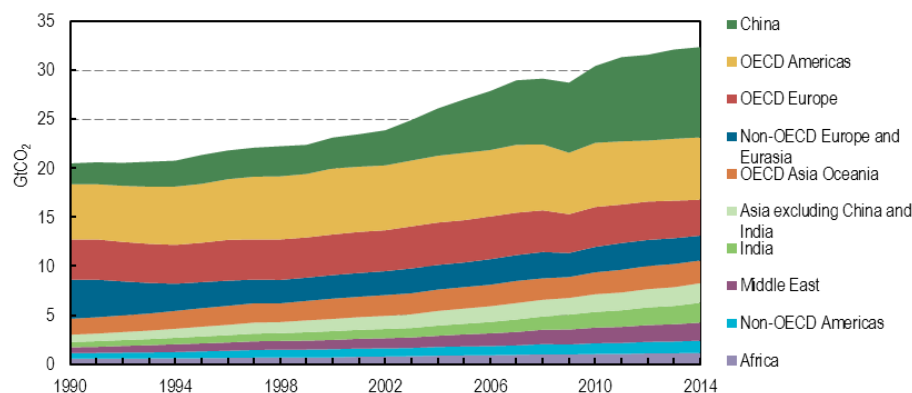
The **carbon intensity** of new power plants around the world has dropped by **27%** since 2005



Energy and emissions data

I. Interregional comparisons:

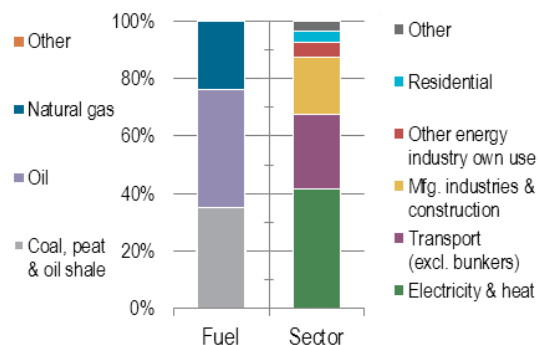
- CO_2
- $ESCII$
- $CO_2/capita$
- $TPES/GDP$



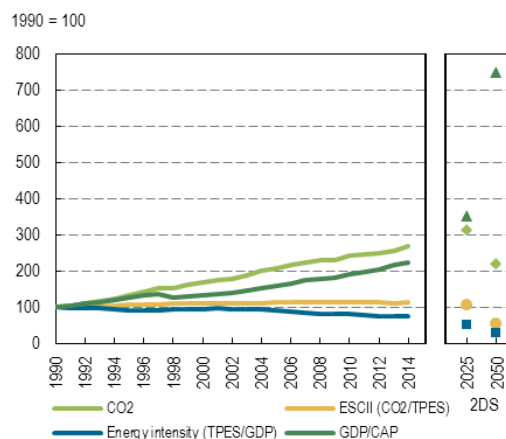
II. Regional data and indicators: three graphs

Ten global regions and world region for 1990-2014 and 2DS (2025 and 2050)

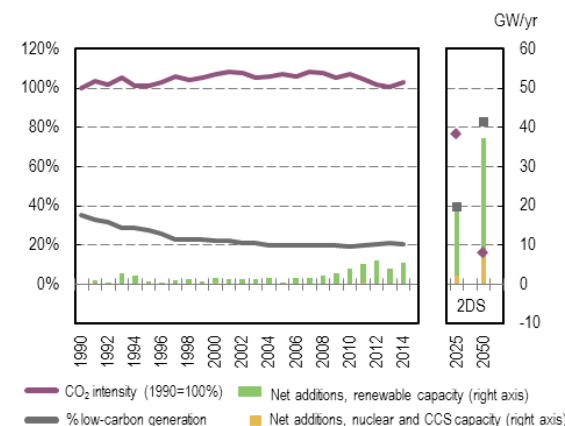
Example: Southeast Asia region



CO₂ emissions by fuel and sector, 2014



Energy sector-wide metrics



Electricity sub-sector metrics

Thank you

Liwayway Adkins

liwayway.adkins@iea.org