



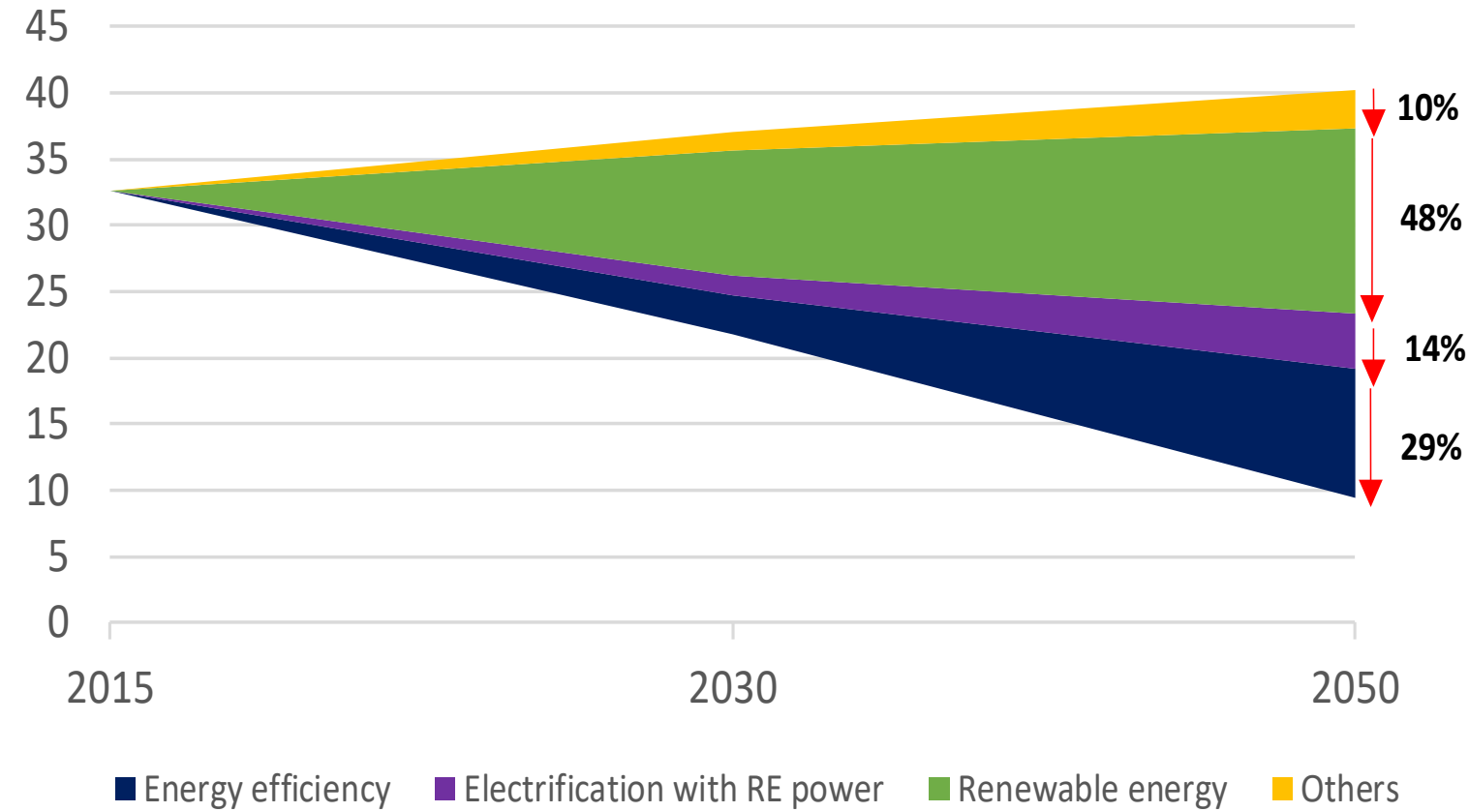
**European Union Energy Day:
International collaboration in clean energy research and
innovation**

2018 ADSW EU Energy Day
Abu Dhabi, 16 January 2018
Roland Roesch

Energy accounts for two-thirds of total greenhouse gas emissions

To meet 2°C climate target set at COP 23 in Paris 2015

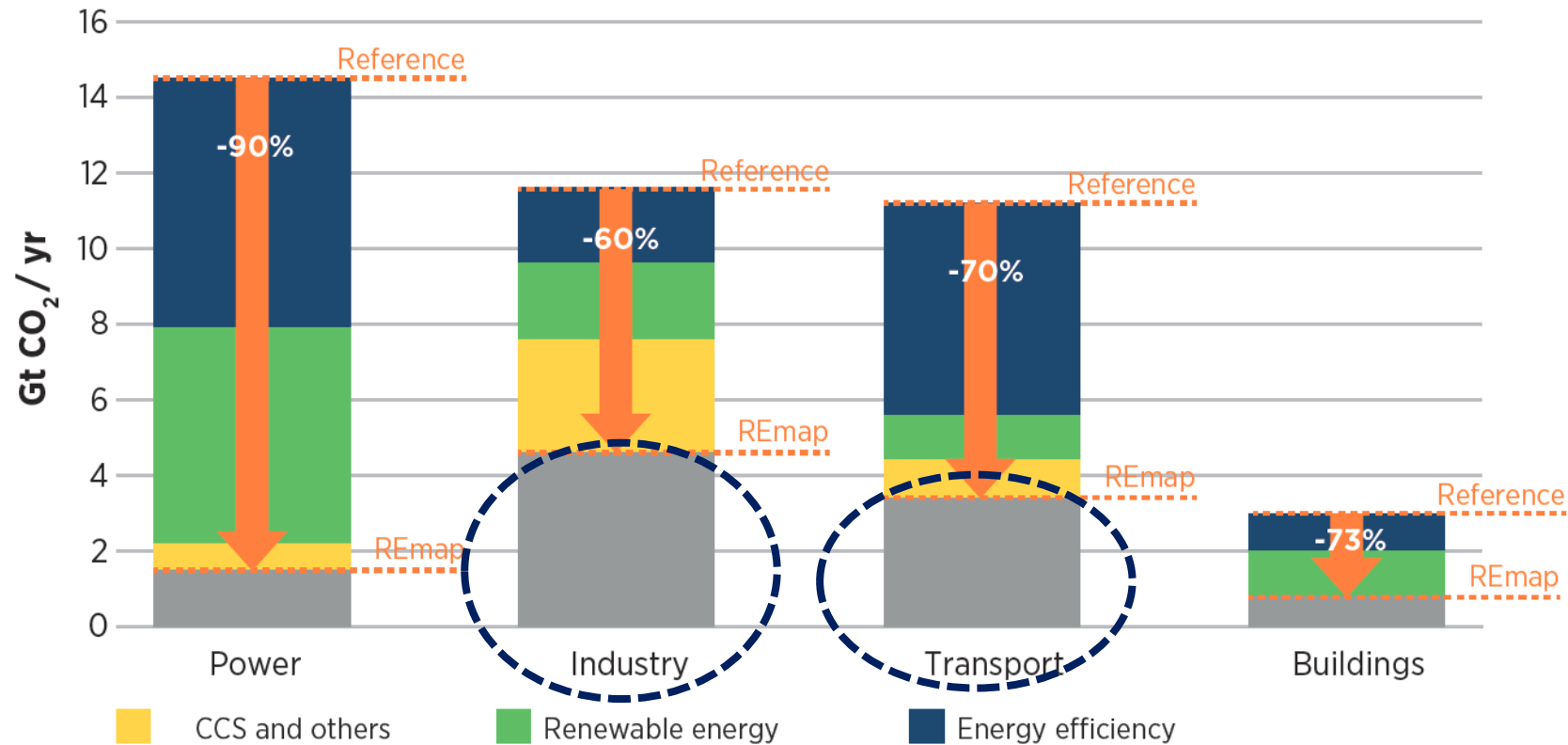
Total energy CO₂ emissions from all sectors (Gt CO₂/yr)



- Carbon intensity of energy:
 - needs to fall by 85% in 2015-2050
- Energy-emission budget:
 - 790 Gt CO₂ from 2015 till 2100
 - *At current emissions rate, carbon budget would be consumed by 2040*
 - RE and EE can achieve 90% of emission reductions needed by 2050
 - The growth rate in terms of **renewable share per year will need to increase seven-fold** over past rates

CO2 emissions by sector in REmap 2050 relative to the Reference Case

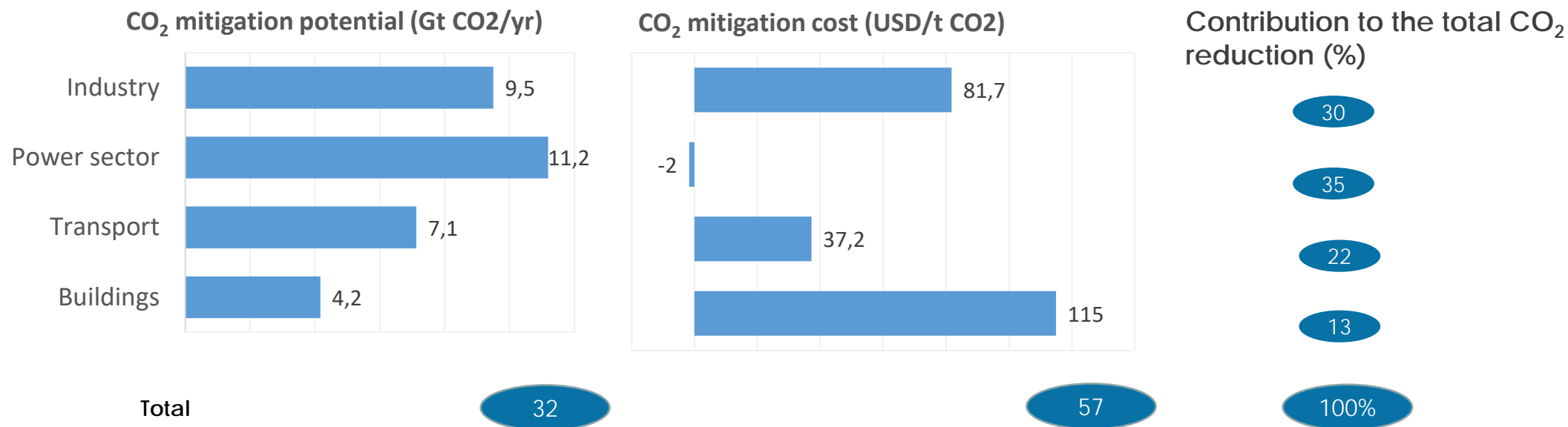
Needed emission reductions per sector in 2050



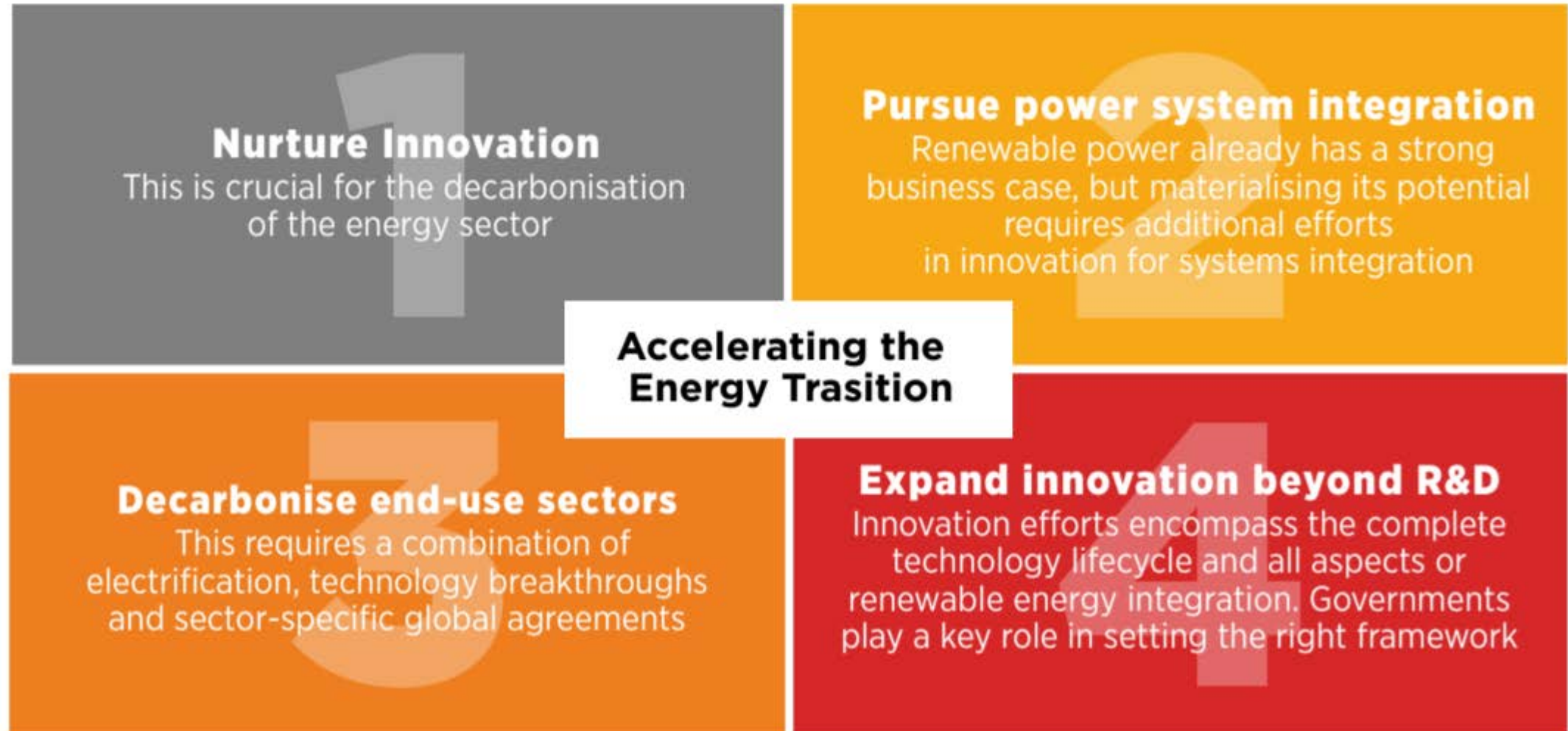
Source: IRENA (2017) Renewable energy innovation: accelerating research for a low-carbon future

- CO2 emissions from the power and buildings sectors will be almost eliminated.
- Industry and transport would be the main sources of emissions in 2050.

Mitigation potential and costs by sector



- Largest emission reduction potential exists in power and industry sectors
- Average abatement cost of technologies are highest in the building and industry sectors
- Options in the power sector are economically viable and for the transport sector nearly viable
- While power and transport may require continued improvement of available technologies, building and industry sectors may require breakthroughs



Thank you!



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