



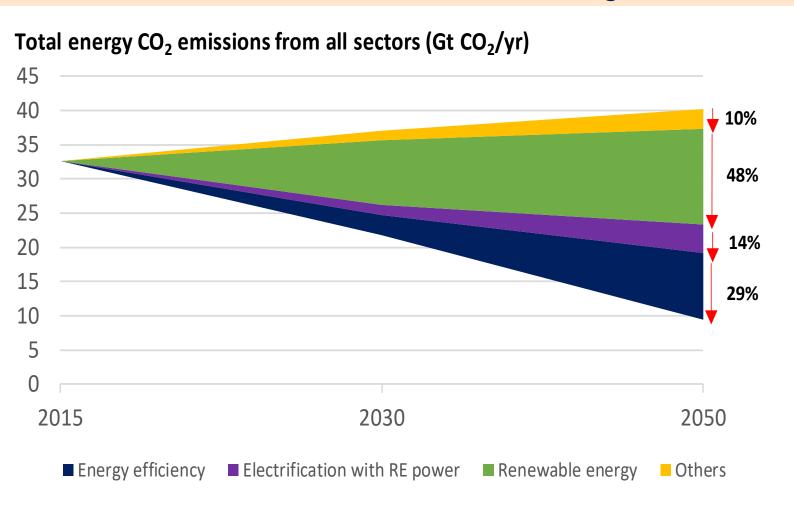
European Union Energy Day: International collaboration in clean energy research and innovation

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

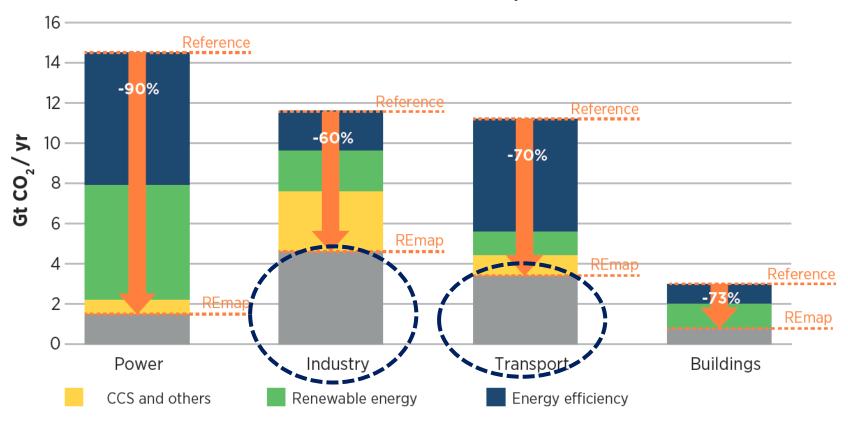


- Carbon intensity of energy:
 - o needs to fall by 85% in 2015-2050
- Energy-emission budget:
 - o 790 Gt CO₂ from 2015 till 2100
 - At current emissions rate, carbon budget would be consumed by 2040
 - of emission reductions needed by 2050
 - The growth rate in terms of renewable share per year will 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

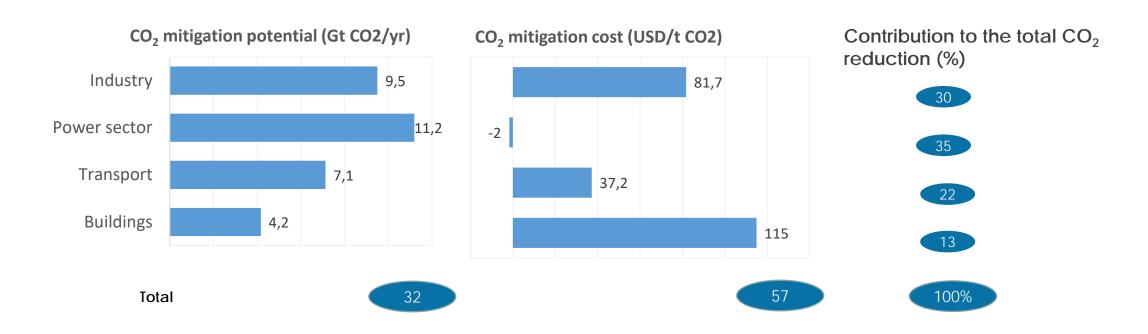


Source: IRENA (2017) Renewable energy innovation: accelerating research for a low-carbon future

- 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

Innovation to decarbonize the energy sector



Nurture Innovation

This is crucial for the decarbonisation of the energy sector

Pursue power system integration

Renewable power already has a strong business case, but materialising its potential requires additional efforts in innovation for systems integration

Accelerating the Energy Trasition

Decarbonise end-use sectors

This requires a combination of electrification, technology breakthroughs and sector-specific global agreements

Expand innovation beyond R&D

Innovation efforts encompass the complete technology lifecycle and all aspects or renewable energy integration. Governments play a key role in setting the right framework



Thank you!











