Renewables

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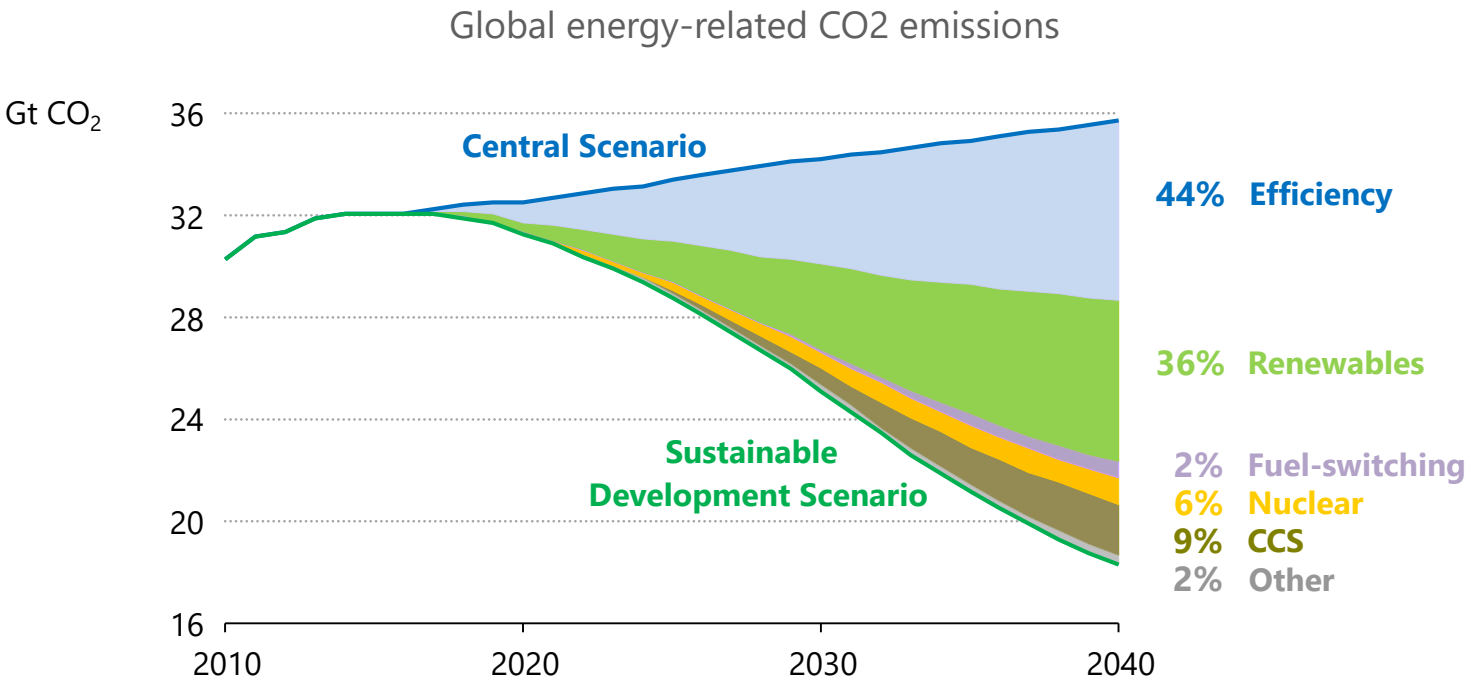
IEA

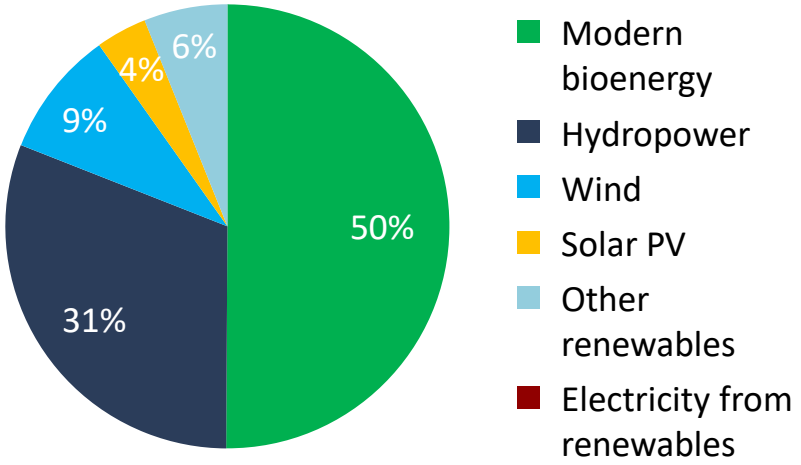
A sustainable development pathway is where we need to go



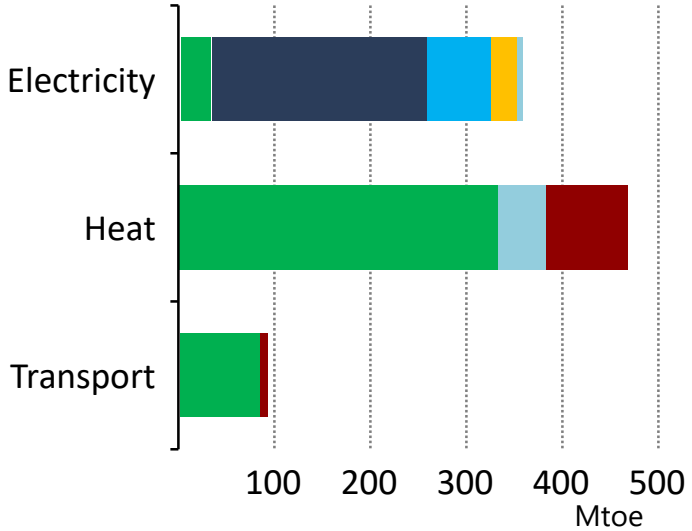
A wide variety of technologies are necessary to meet long-term climate goals

Modern bioenergy: the overlooked giant of renewables

Total final energy consumption from renewables, 2017

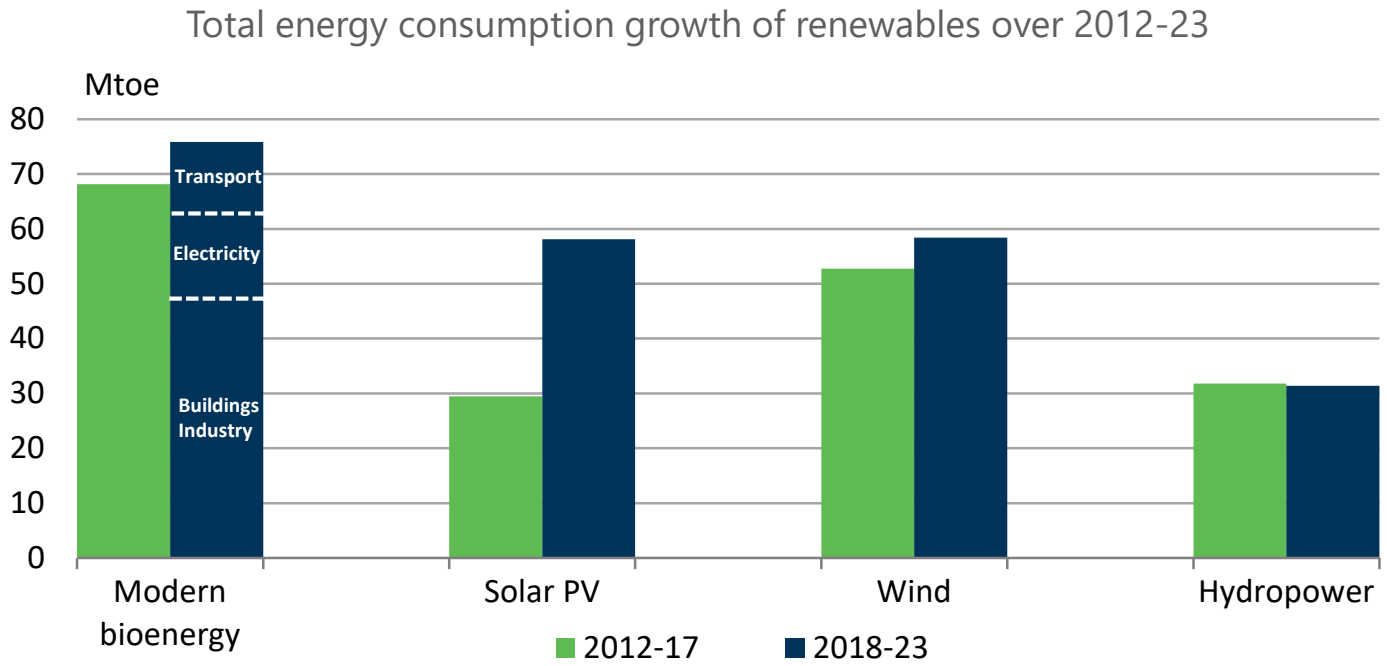


Total final energy consumption from renewables by sector, 2017



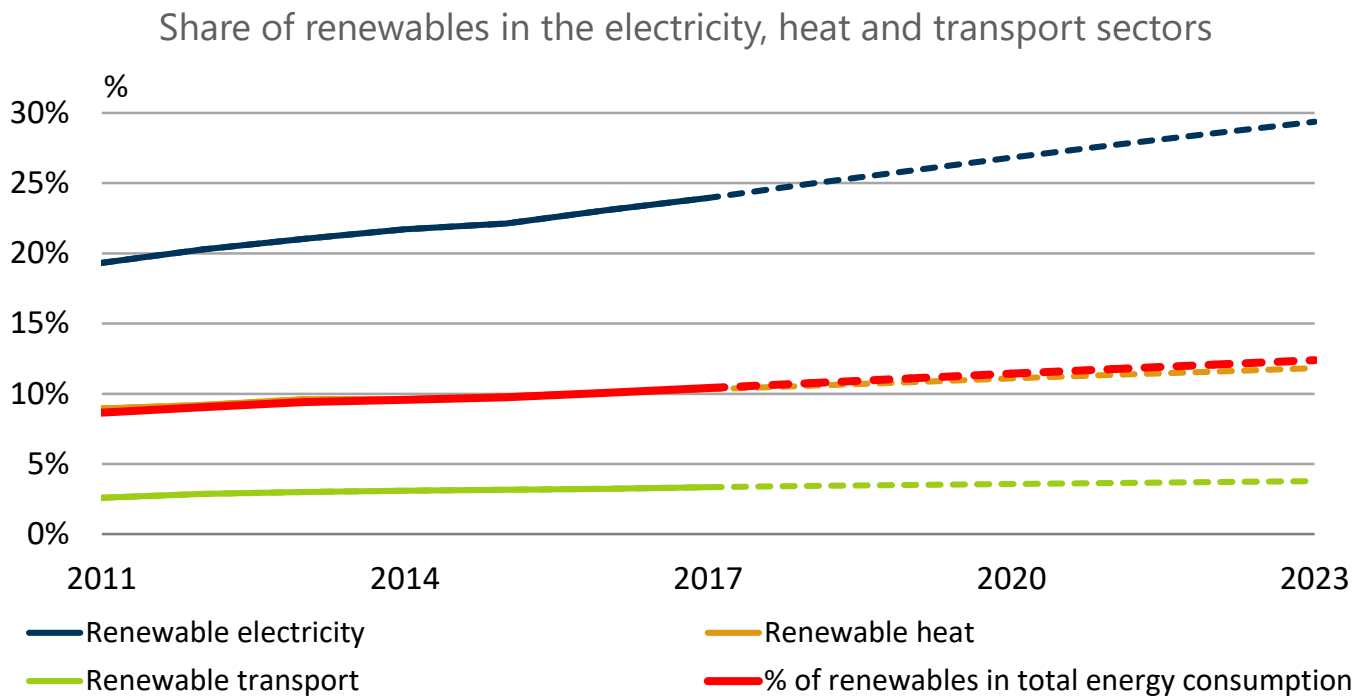
Modern bioenergy is the only renewable source that can provide electricity, direct heat and transport fuels
Two thirds of modern bioenergy heat is used in industry

Modern bioenergy set to lead renewables growth



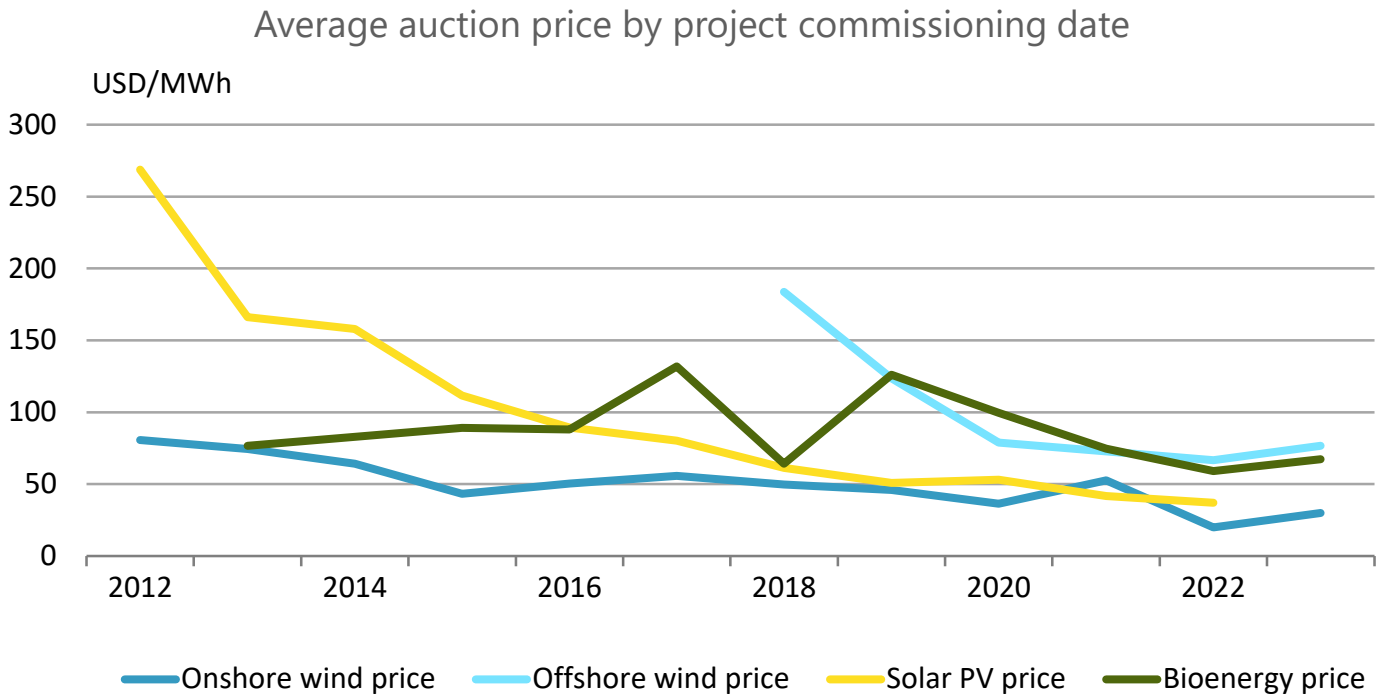
Total renewable energy consumption is expected to increase by almost 30% over 2018-2023, covering 40% of global energy demand growth

Renewables growth strongly differs by sector



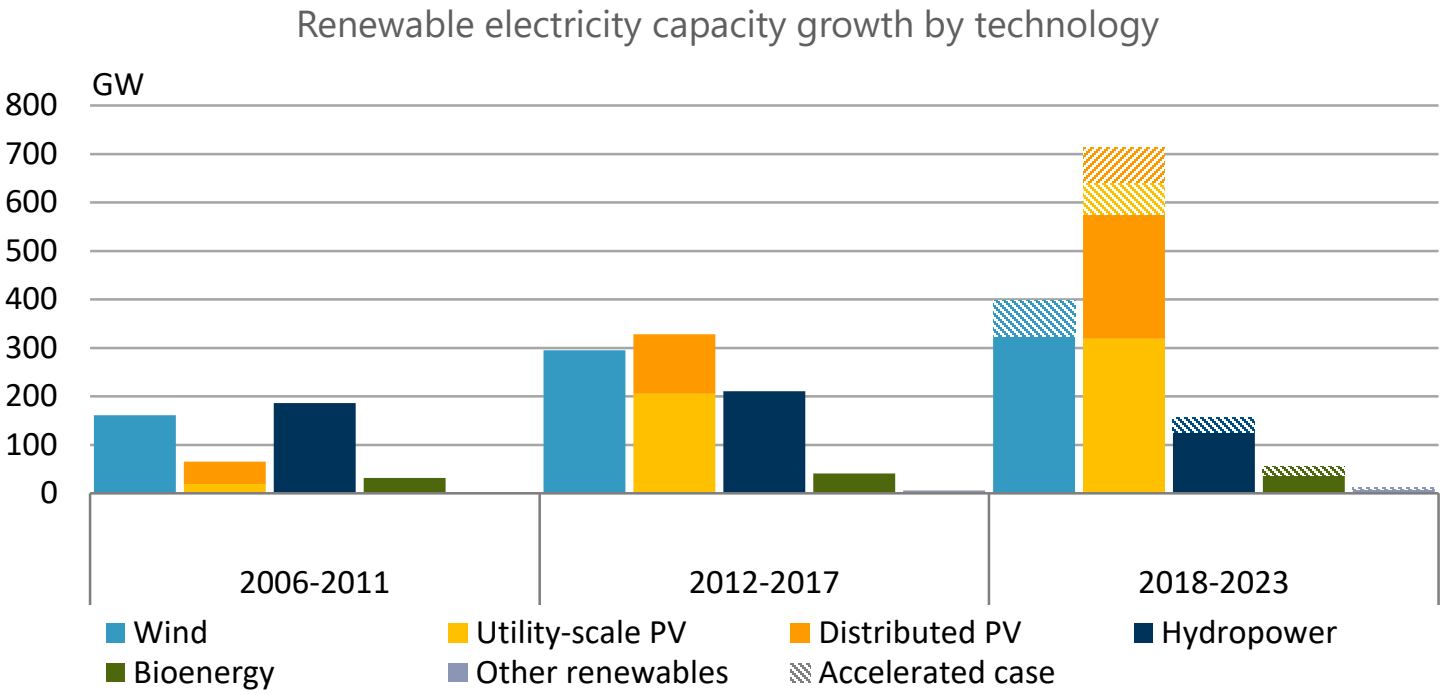
Electricity contributes to two-thirds of renewables growth by 2023, but it only accounts for one fifth of total final consumption. Overall, renewables need to significantly accelerate to meet long-term climate goals

Competition accelerating cost reductions



Around 60% of renewable capacity additions over 2018-23 driven by competitive remuneration schemes
Announced contract prices need to be verified as project delivery schedules and final costs may differ

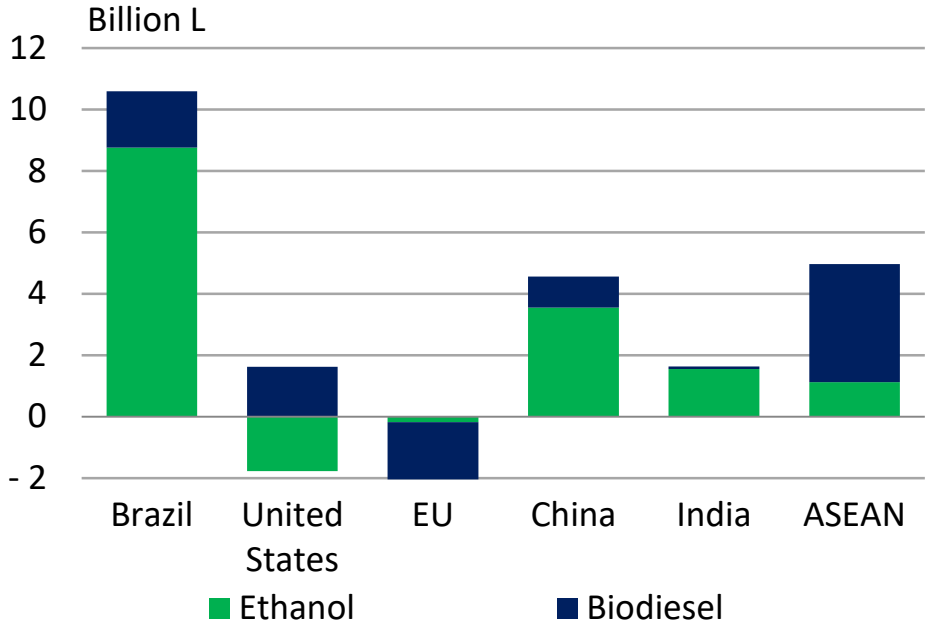
Renewables account for 70% of global capacity expansion



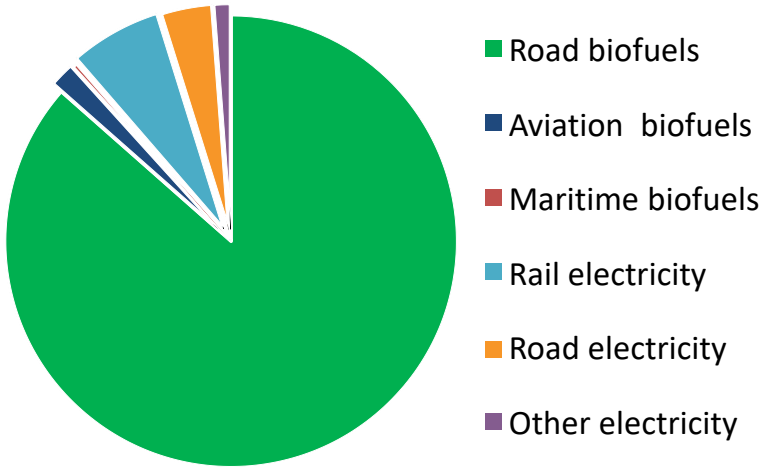
Distributed generation capacity growth makes the difference in solar PV's leadership
Cumulative PV capacity could reach 1.1 TW and wind over 0.9 TW by 2023 under the accelerated case

Asia and Latin America dominate biofuel production growth

Biofuel production growth 2018-23

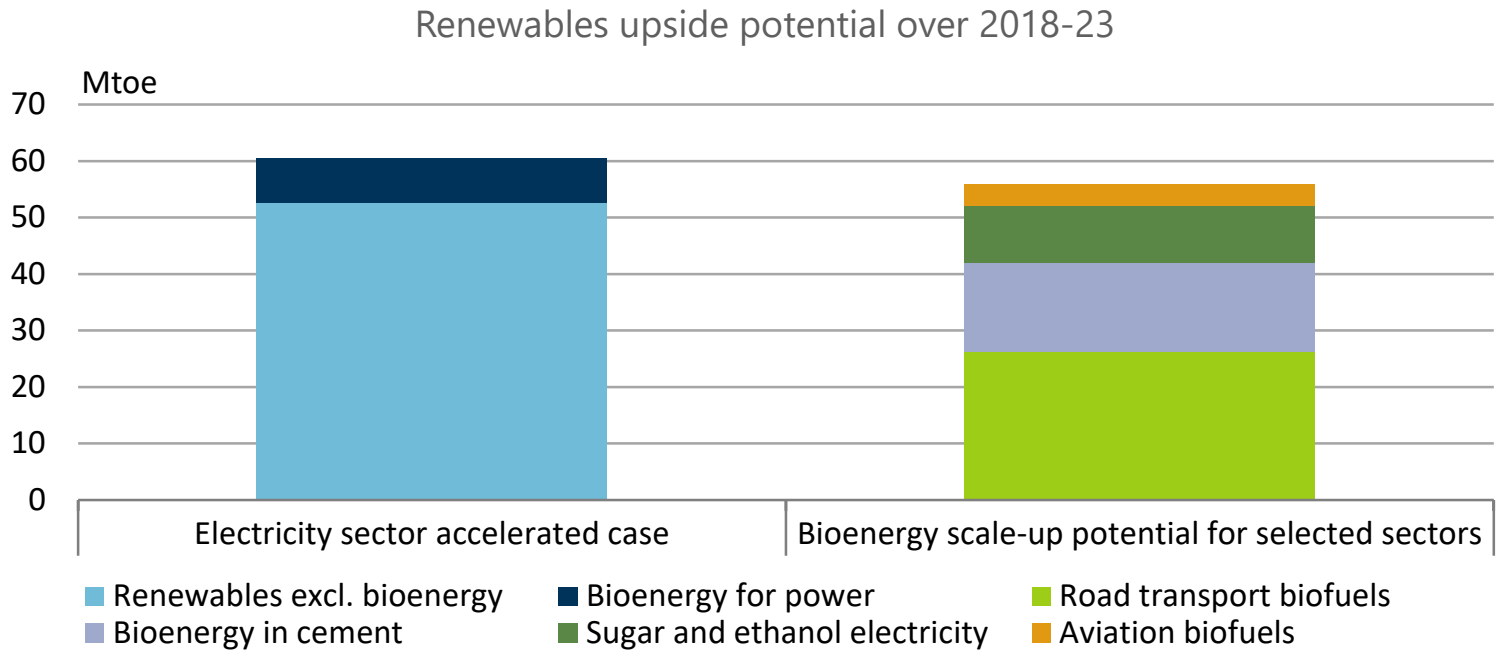


Renewables consumption in transport in 2023



Biofuels production grows by 16%; EVs electricity consumption triples, with renewables providing 30% of demand from electrified transport by 2023

Accelerated deployment is possible with right policies



Policies could accelerate renewable electricity growth by 25%; bioenergy could accelerate RE consumption across all sectors with an enhanced use of available waste resources

Conclusions

- Paris Agreement and COP24 Paris rule book will require significant efforts on energy efficiency and renewable energy
- There is no single solution to turn emissions around: renewables, efficiency & a host of innovative technologies, including storage, CCUS & hydrogen, are all required
- Even with ongoing cost reductions, government policy remains crucial to attract investment in renewables, ensure appropriate market design and reliable & cost-effective system integration
- Further accelerating the use of modern bioenergy hinges on policies & incentives to foster innovation and on rigorous sustainability frameworks
- Greater use of bioenergy, solar, wind, & other renewables is needed beyond the electricity sector, including through hydrogen-based feedstocks and fuels