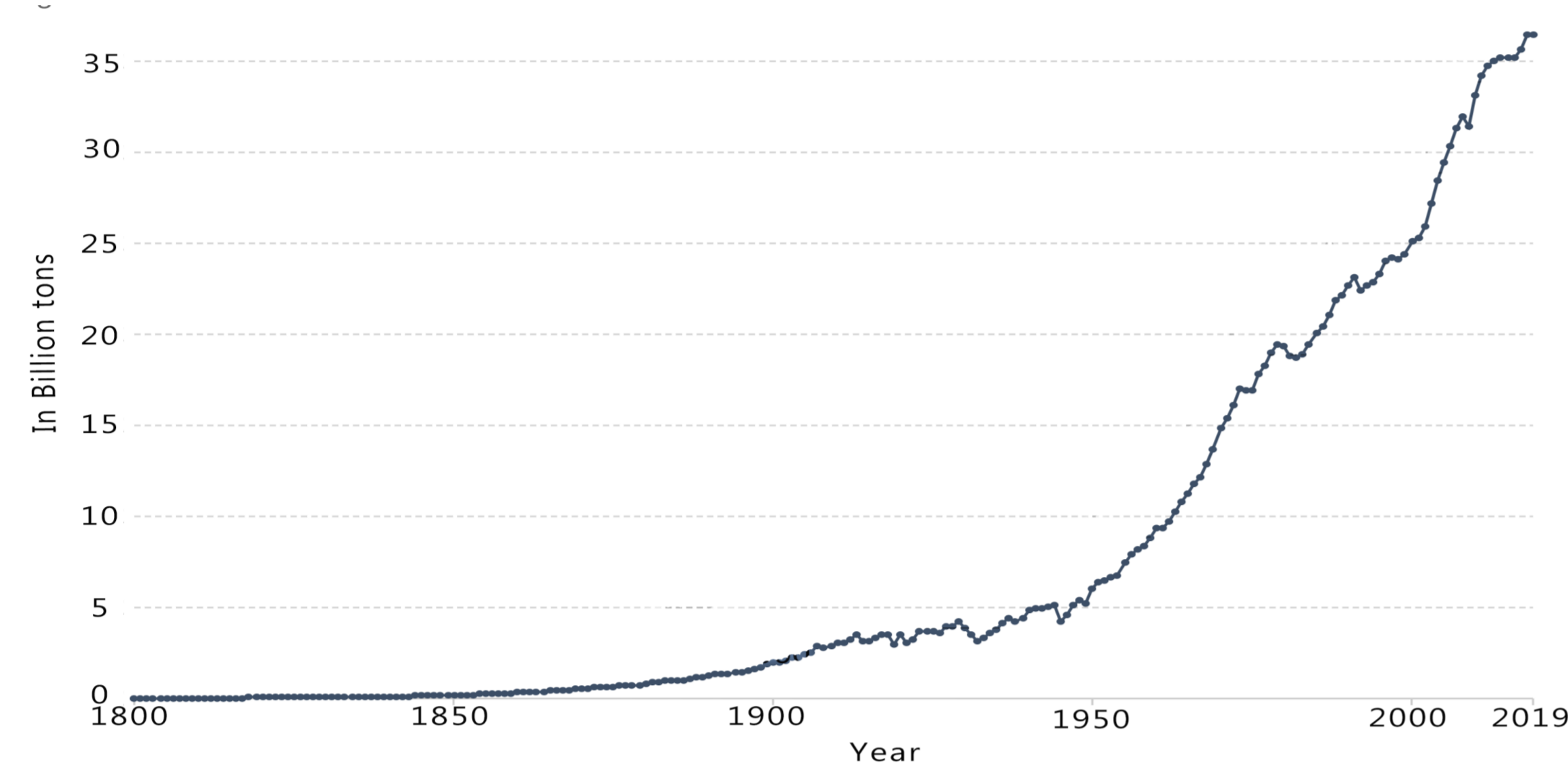


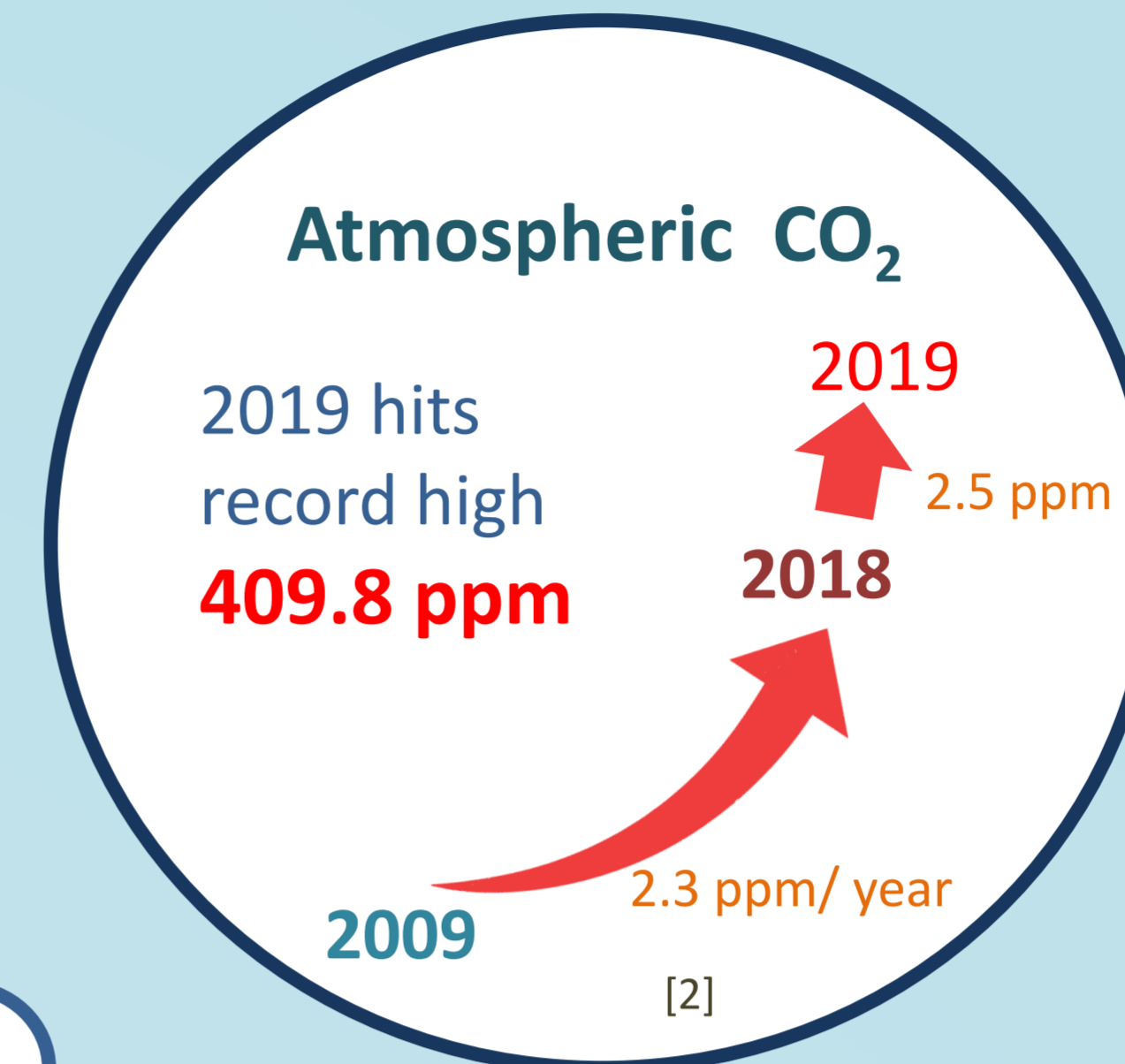
Why do we care?

- At present, **84.3%** of Global energy comes from fossil fuels !
- Around **66%** of global carbon-dioxide (CO₂) emissions comes from burning of fossil fuels.

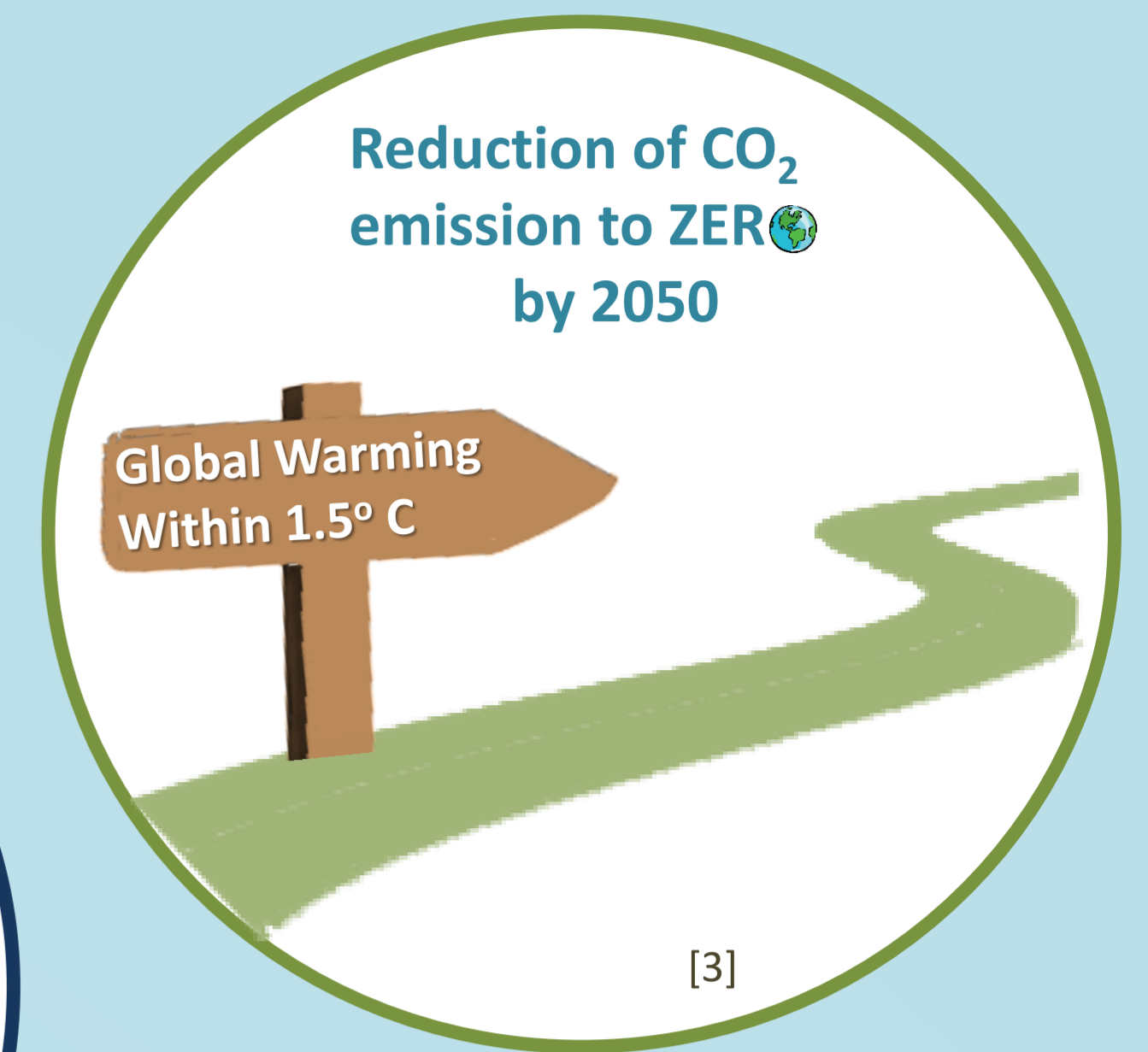
Annual CO₂ emission from fossil fuel



[1]



[2]



[3]

What can we do?

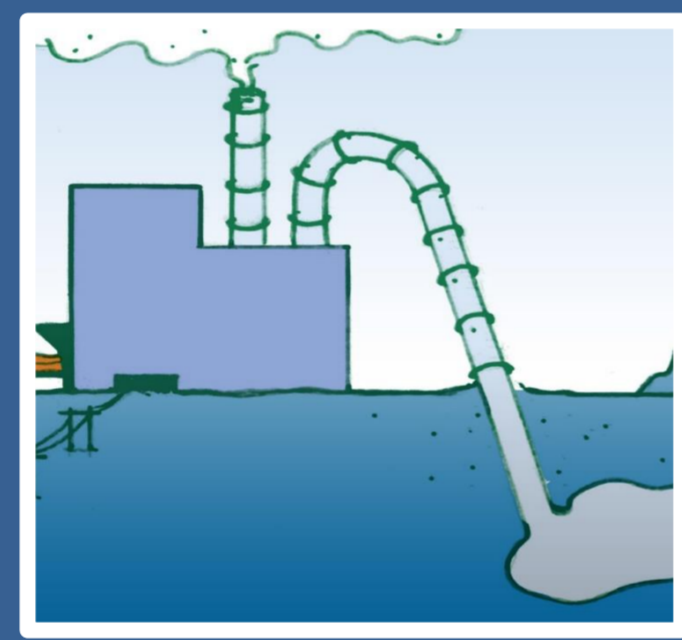
1



Efficiency in extraction and use of fossil fuels

- Shift to natural gas combined cycle (NGCC), and combined heat and power (CHP) plants
- Improved technology in extraction, transmission and distribution mechanisms
- Capture and treatment of fugitive methane
- Leak detection and repair for natural gas systems

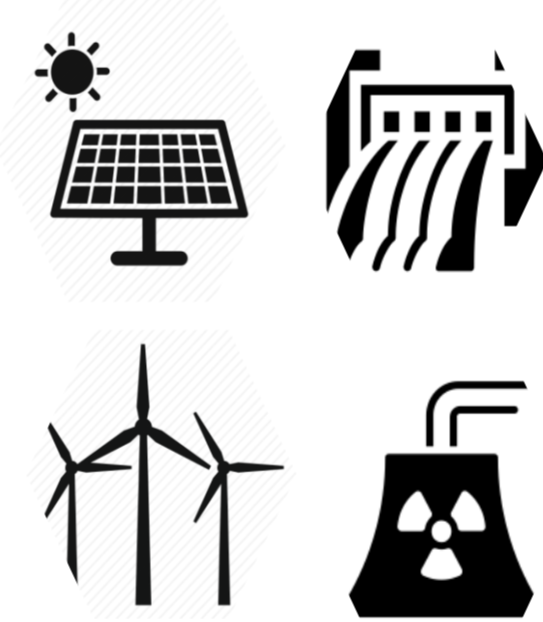
2



Carbon Capture and Storage (CCS)

- Storage of liquefied CO₂ in geological formation
- Still under development phase
- Land and water intensive process
- Safety, transportation and sustainability issues
- CCS combined with use of Biofuel (BECCS)

3



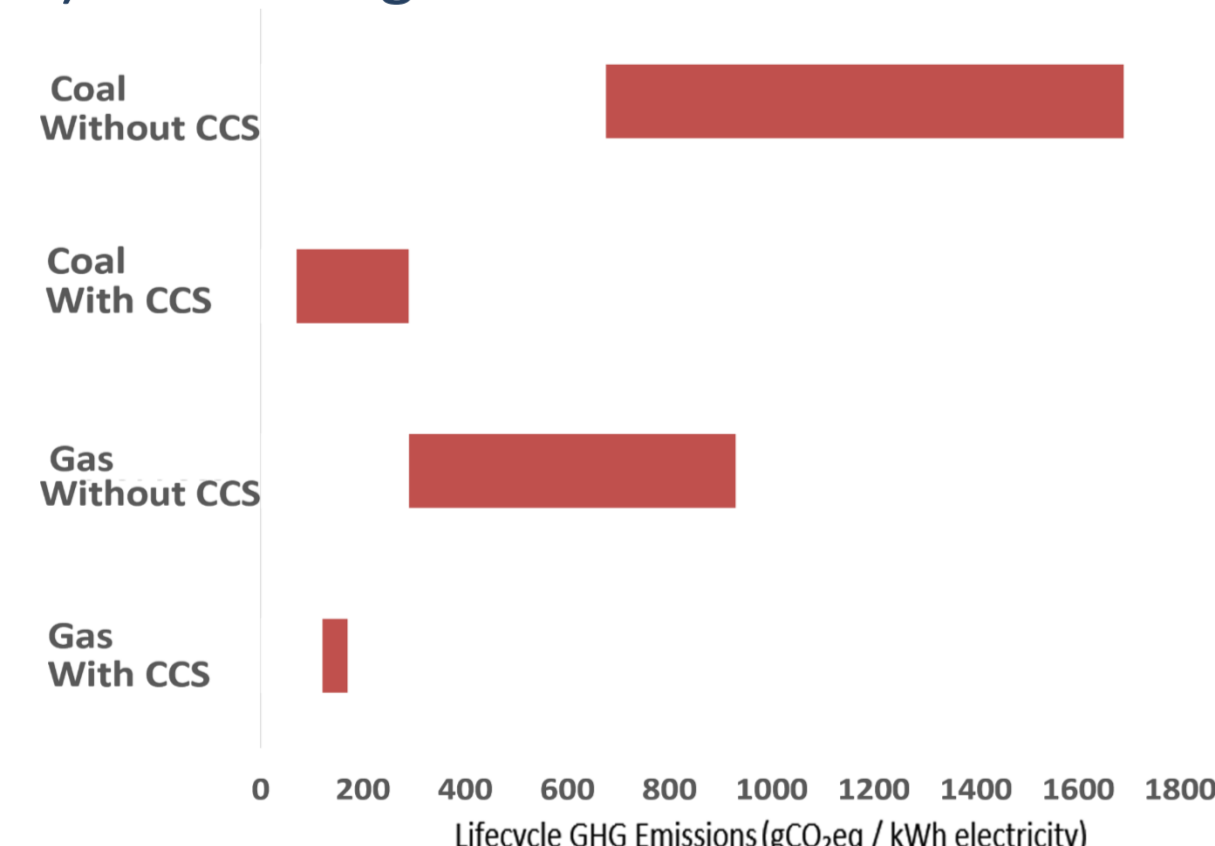
Shift to Renewable and Low Carbon sources

- Key role in Decarbonisation of energy system
- Energy suitable to all electricity systems
- Diverse and Decentralised sources
- Economically viable

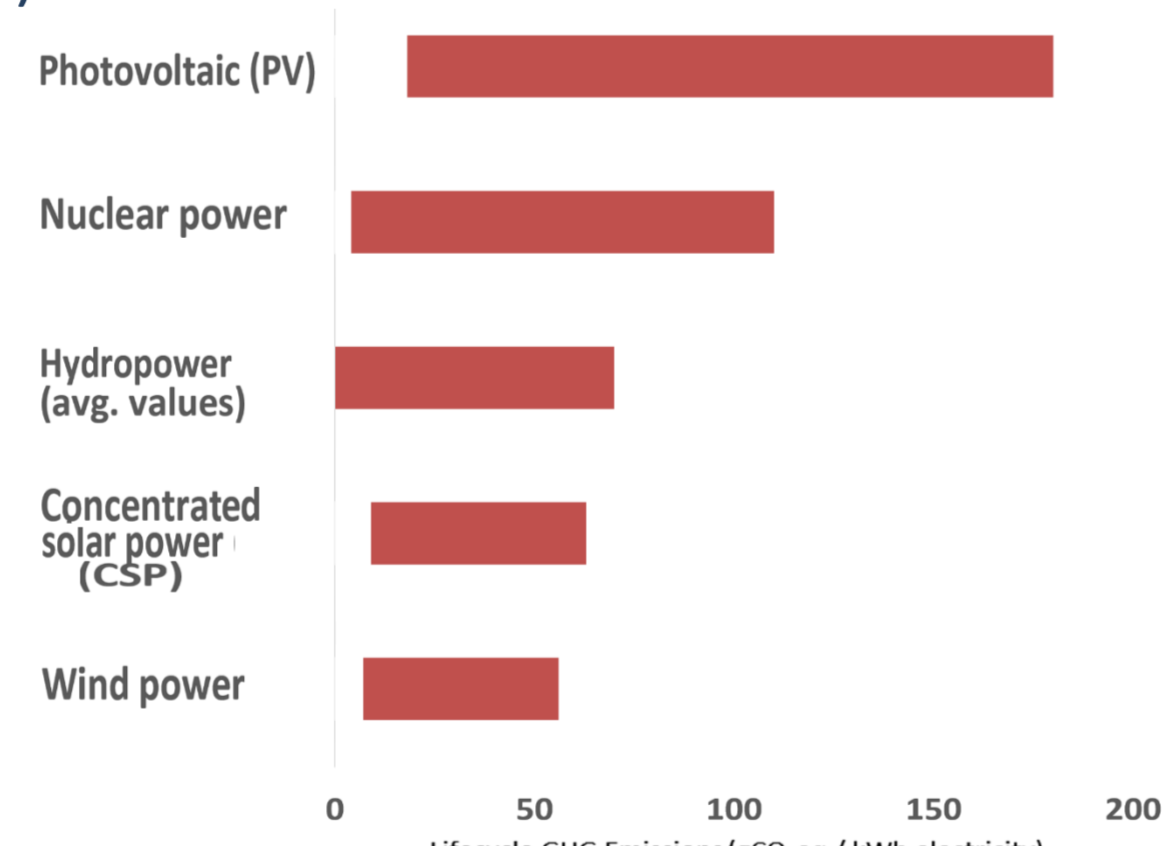
Potentials And Challenges

Potential Emission Reductions

a) With integration of CCS



b) Shift to Low-carbon sources



[4]

Challenges

- Infrastructure and operations of power systems
- System balancing of generation and load
- Capacity inadequacy
- Transmission and distribution of energy
- CO₂ transport in CCS
- Law and policy hurdles

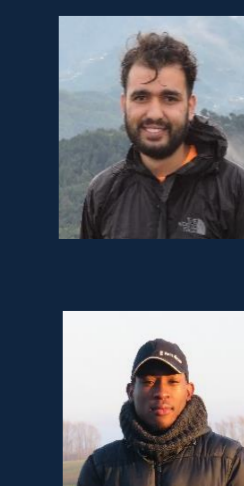
**TAKE
MESSAGE**

Despite a few challenges, strong potentials exist and reduction of GHG emissions from energy production is attainable.

References

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- [3] Rogelj, J., D. Shindell, K. Jiang, S. Ffifita, P. Forster, V. Ginzburg, C. Handa, H. Kheshgi, S. Kobayashi, E. Kriegler, L. Mundaca, R. Séférian, and M.V.Vilarinho, 2018: Mitigation Pathways Compatible with 1.5°C in the Context of Sustainable Development. In: Global Warming of 1.5°C. An IPCC Special Report on the impacts of global warming of 1.5°C above pre-industrial levels and related global greenhouse gas emission pathways, in the context of strengthening the global response to the threat of climate change, sustainable development, and efforts to eradicate poverty
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