Special Report on Renewable Energy Sources and Climate Change Mitigation

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Special Report on Renewable Energy Sources and Climate Change Mitigation

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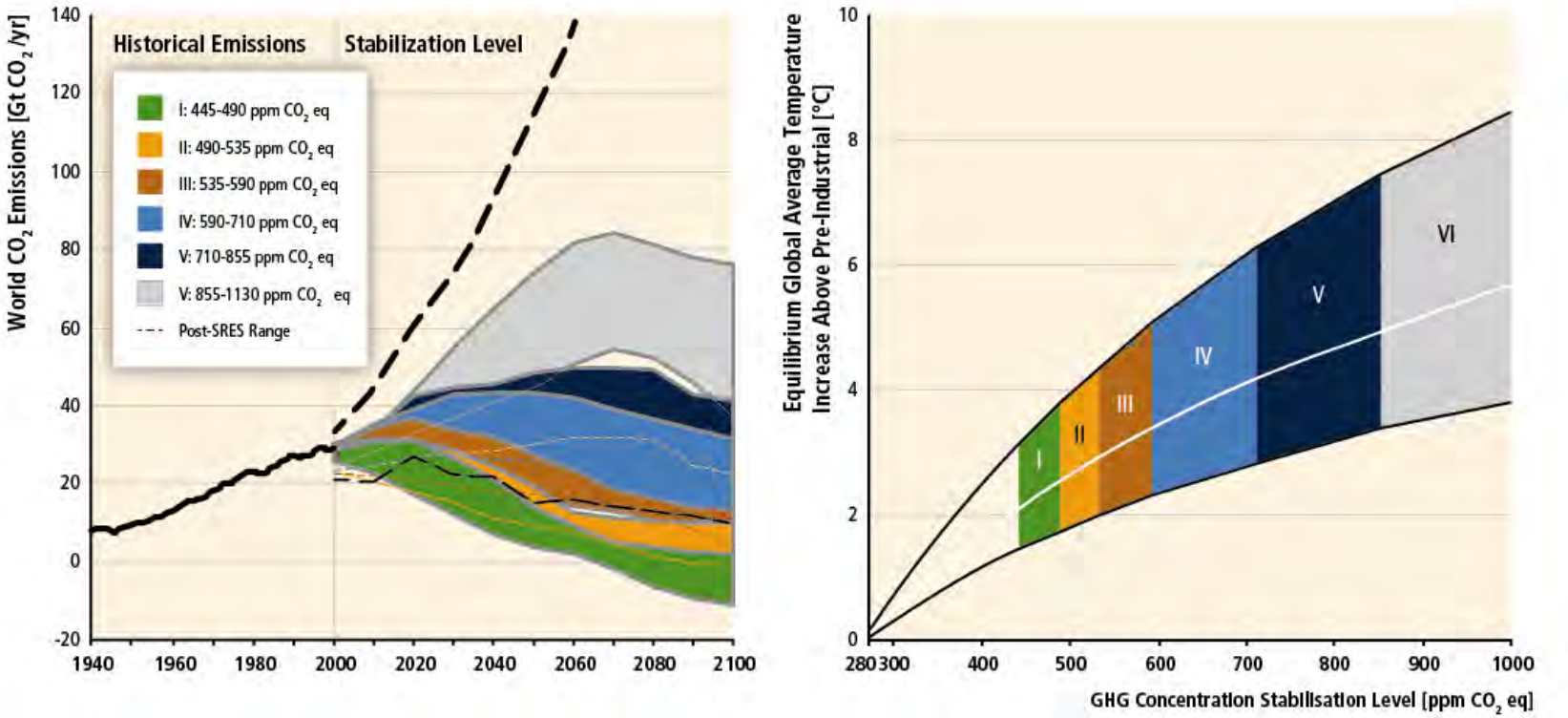
Demand for energy services is increasing.



GHG emissions resulting from the provision of energy services contribute significantly to the increase in atmospheric GHG concentrations.

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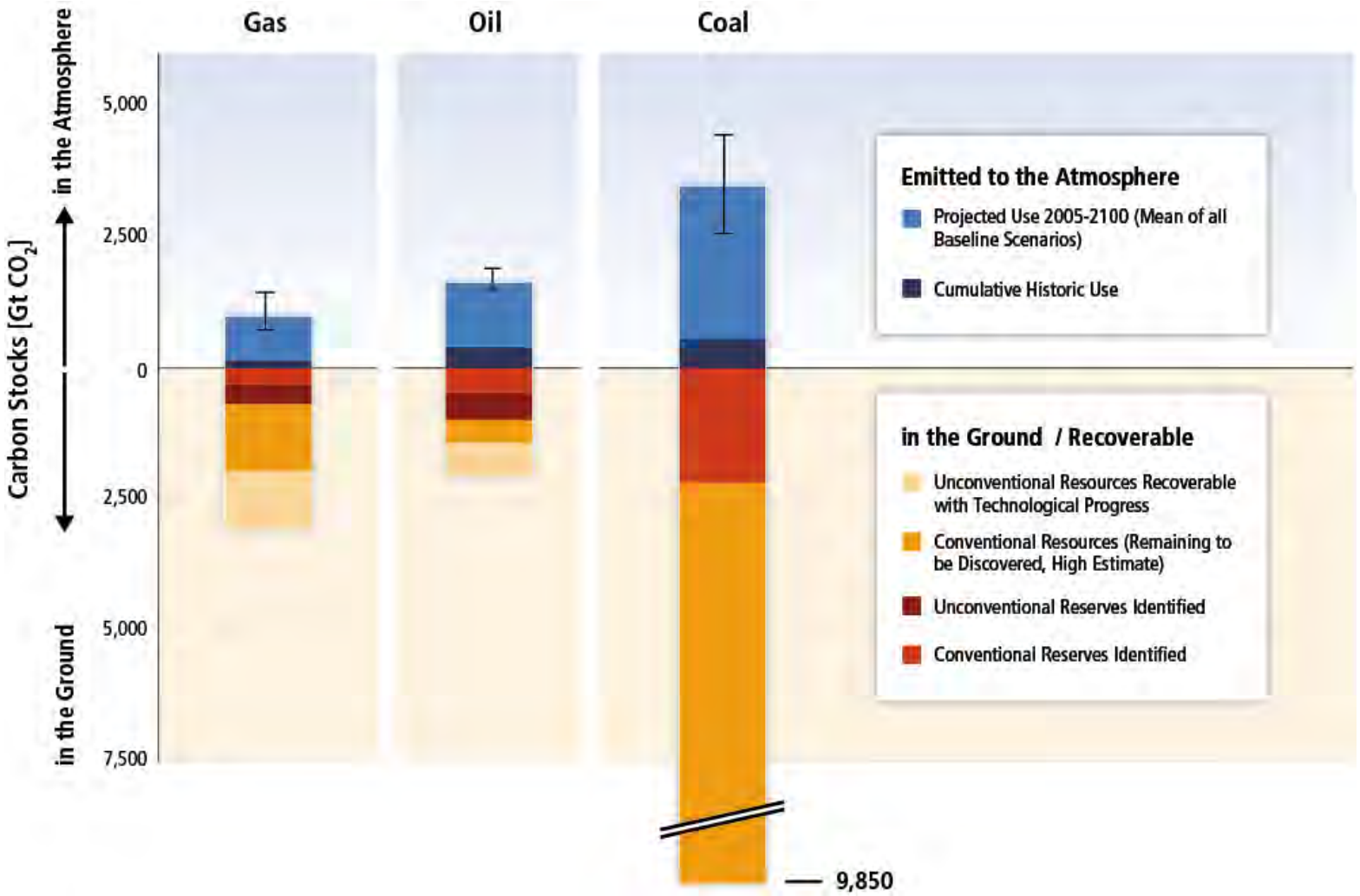
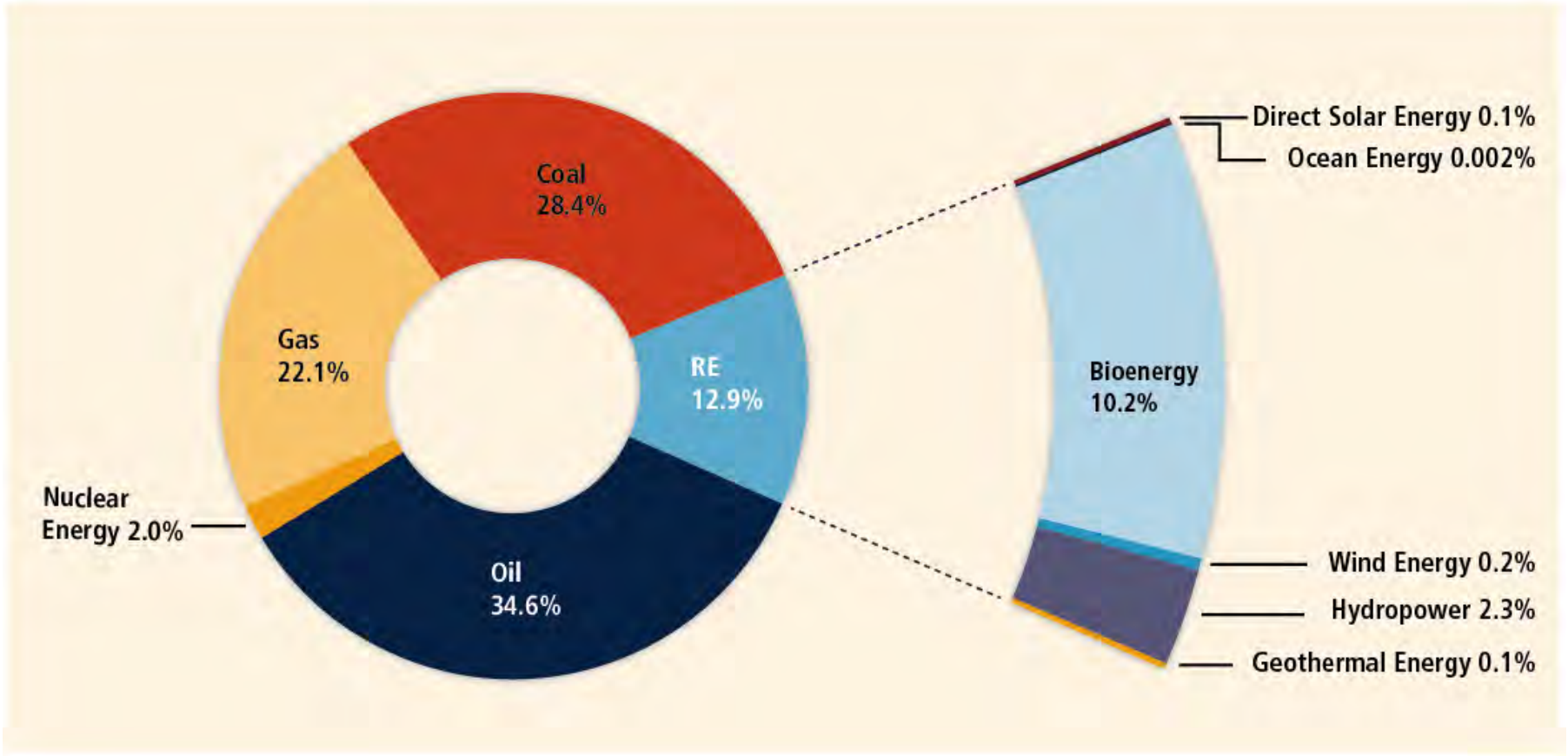
Potential emissions from remaining fossil resources could result in GHG concentration levels far above 600ppm.

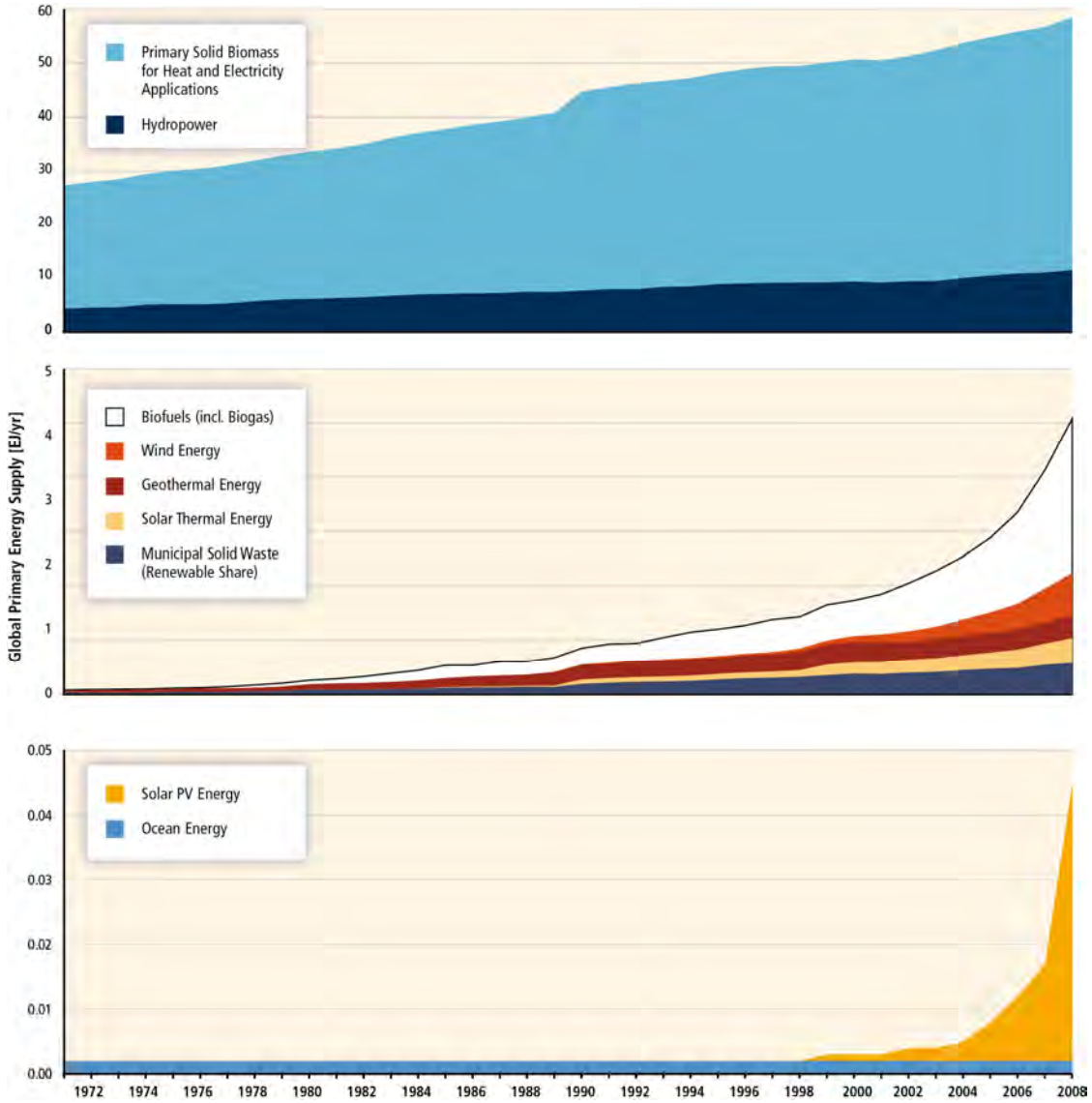


The current global energy system is dominated by fossil fuels.



Shares of energy sources in total global primary energy supply in 2008

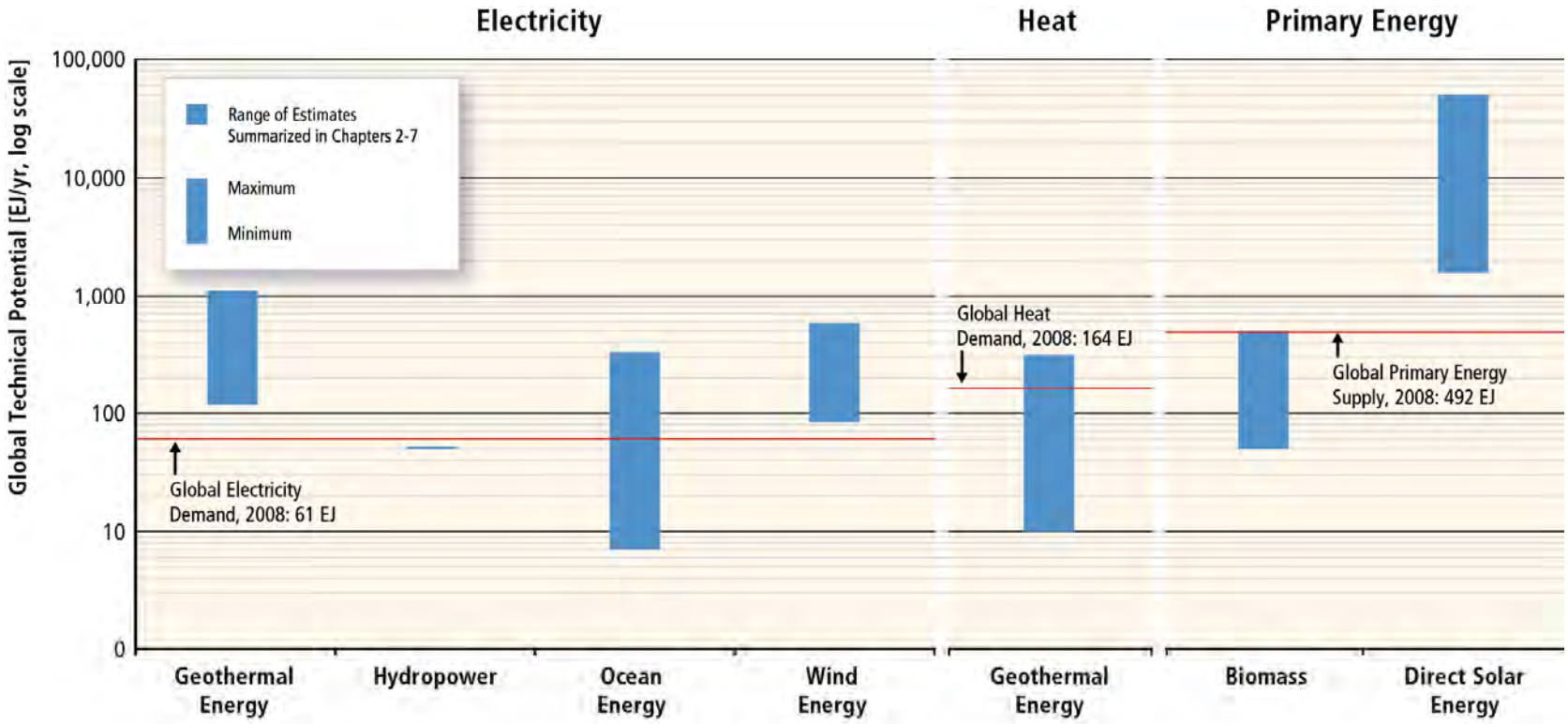
RE capacity has been increasing rapidly in recent years.



140 GW of new RE power plant capacity was built in 2008-2009.

This equals 47% of all power plants built during that period.

The technical potential of renewable energy technologies to supply energy services exceeds current demands.



Range of Estimates of Global Technical Potentials

Max (in EJ/yr)	1109	52	331	580	312	500	49837
Min (in EJ/yr)	118	50	7	85	10	50	1575

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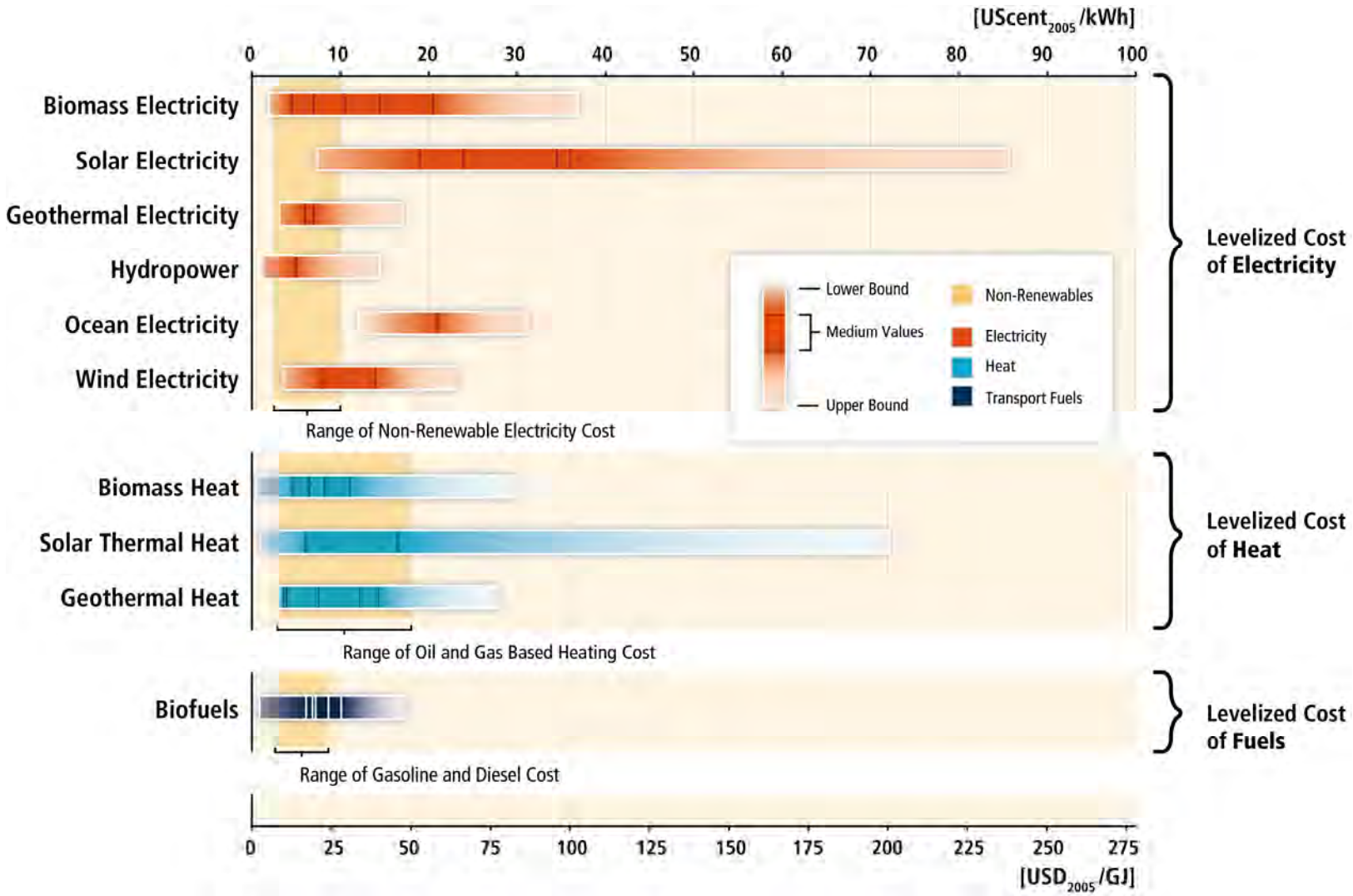
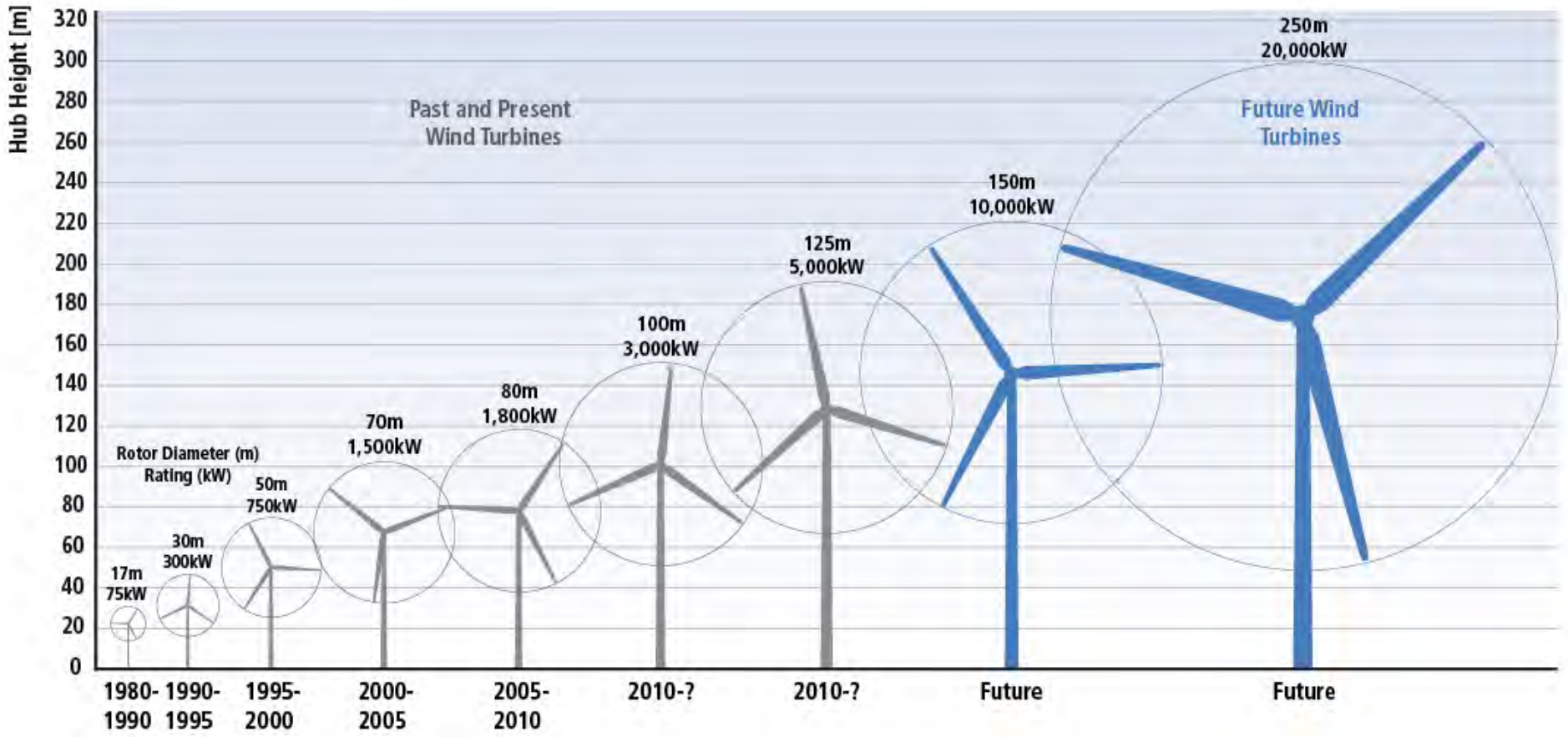
RE costs are still higher than existing energy prices, but in various settings RE is already competitive.



Technical Advancements: For instance growth in size of typical commercial wind turbines.



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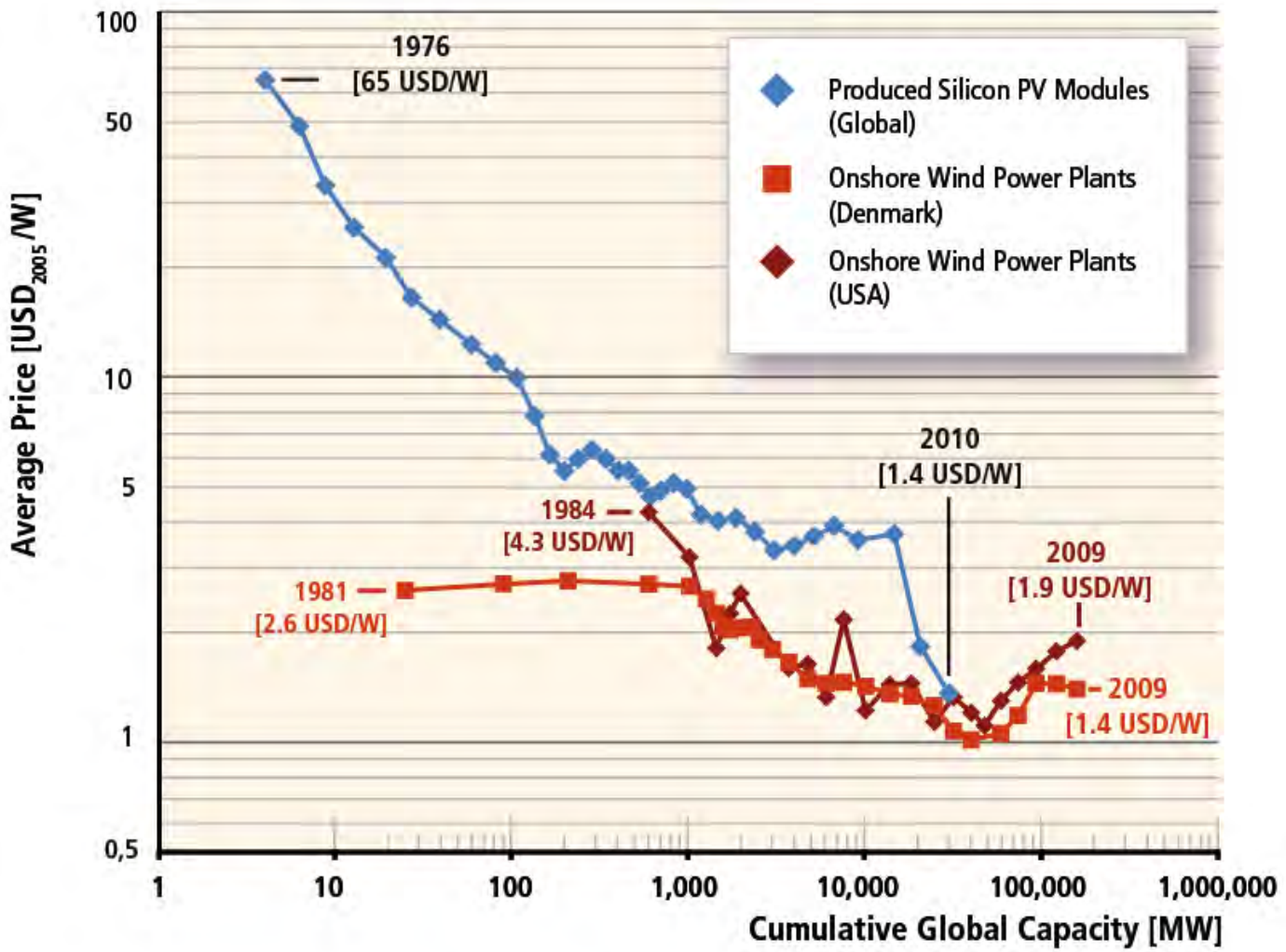
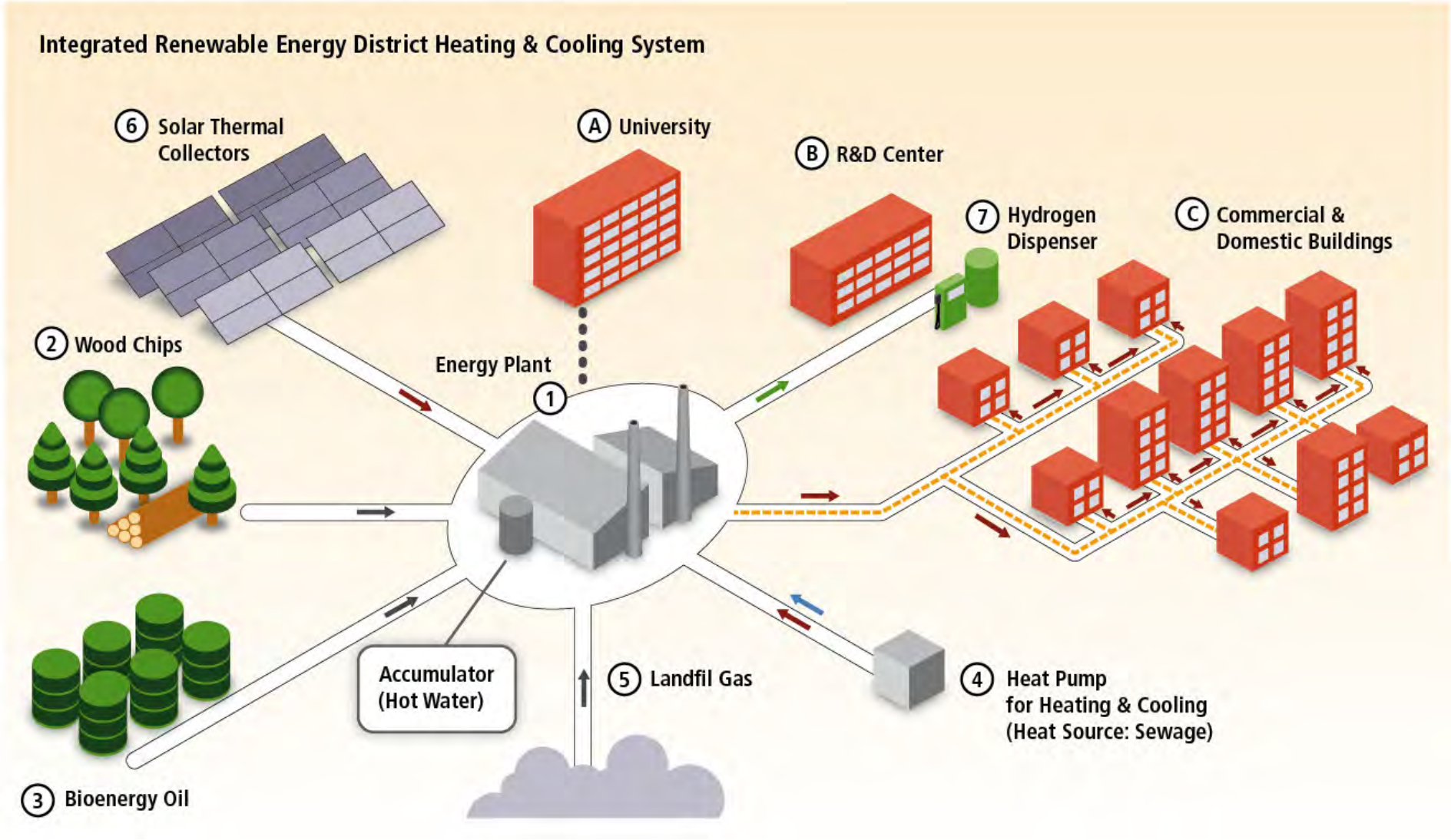
RE costs have declined in the past and further declines can be expected in the future.



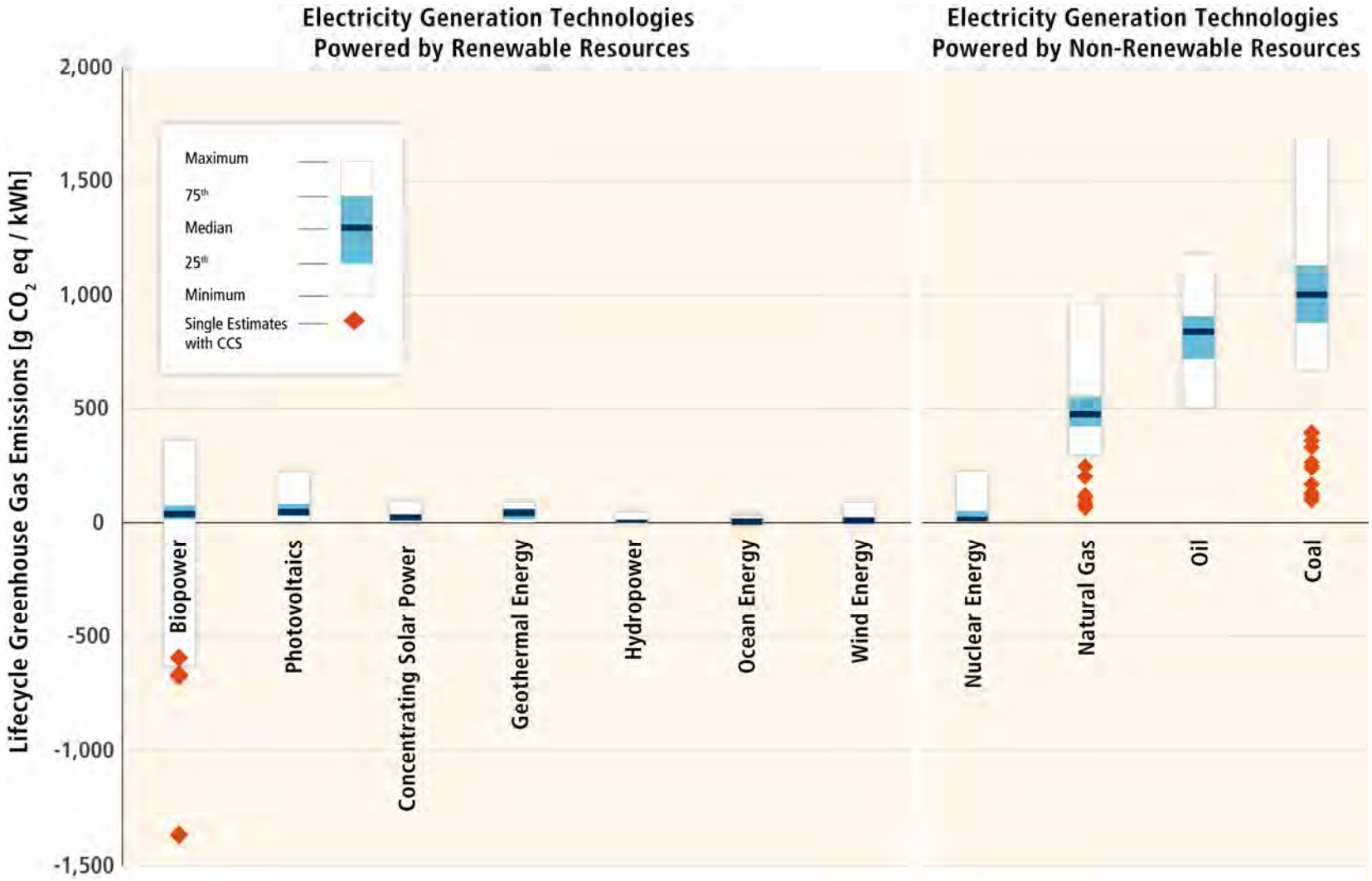
Few, if any, fundamental technical limits exist to the integration of a majority share of RE, but advancements in several areas are needed.

- Transmission and distribution infrastructure
- Generation flexibility
- Energy storage technologies
- Demand side management
- Improved forecasting and operational planning methods

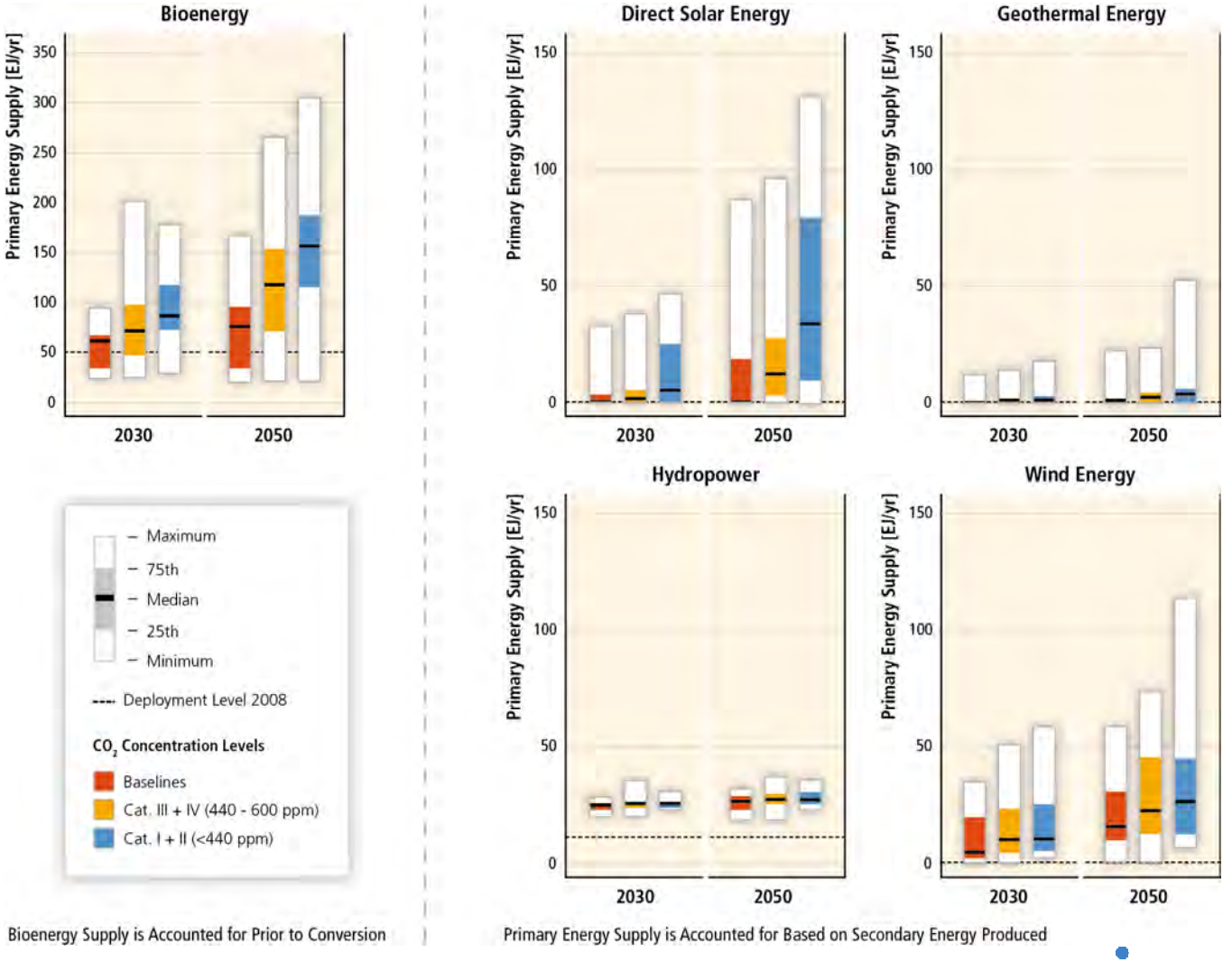
An integrated RE-based energy plant in Lillestrøm, Norway, supplying commercial and domestic buildings



Lifecycle GHG emissions of RE technologies are, in general, considerably lower than those of fossil fuel options.



RE deployment increases in scenarios with lower greenhouse gas concentration stabilization levels.



Bioenergy Supply is Accounted for Prior to Conversion

Primary Energy Supply is Accounted for Based on Secondary Energy Produced

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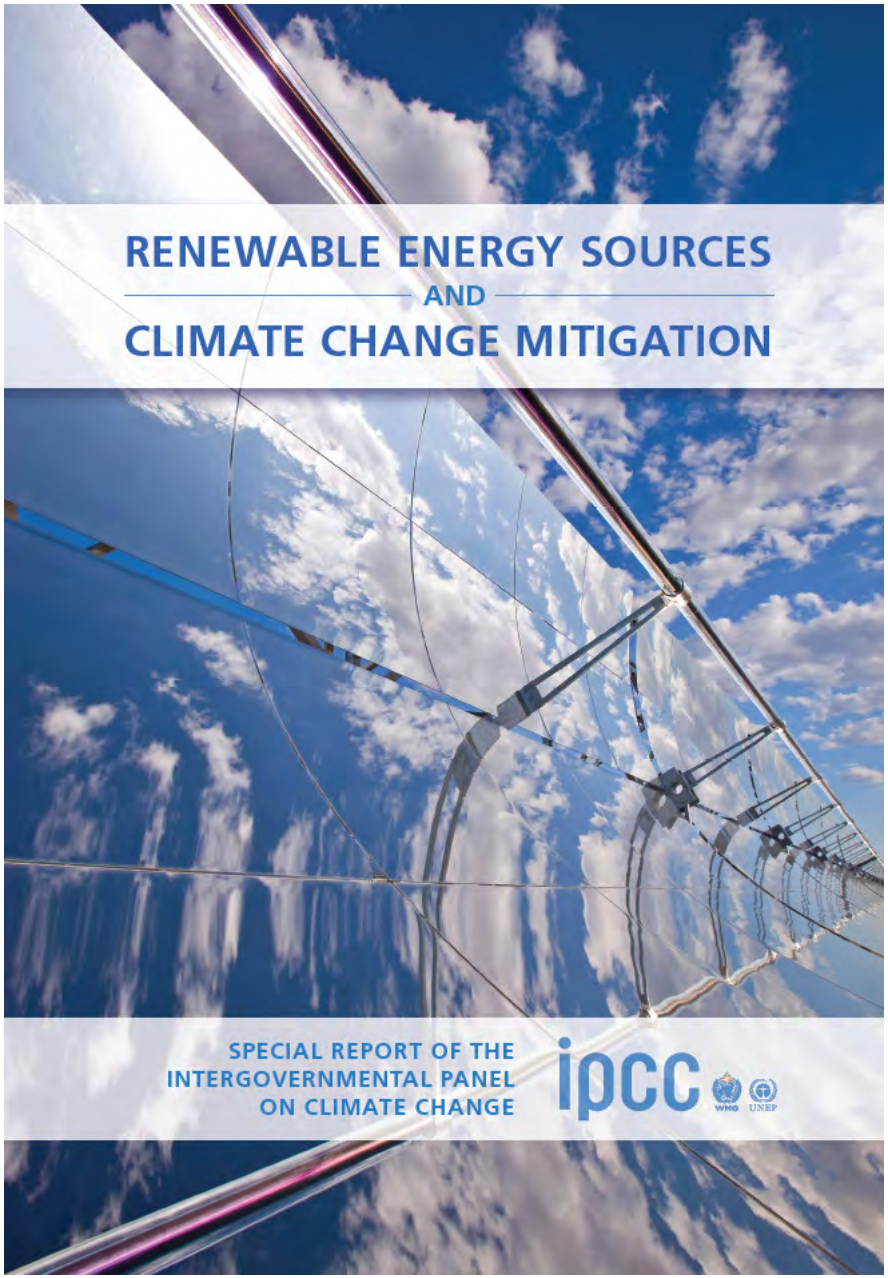

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Thank you for your attention!

Jean-Pascal van Ypersele
IPCC Vice-Chair
Doha Climate Change Conference
Doha, Qatar, 28 November 2012

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