

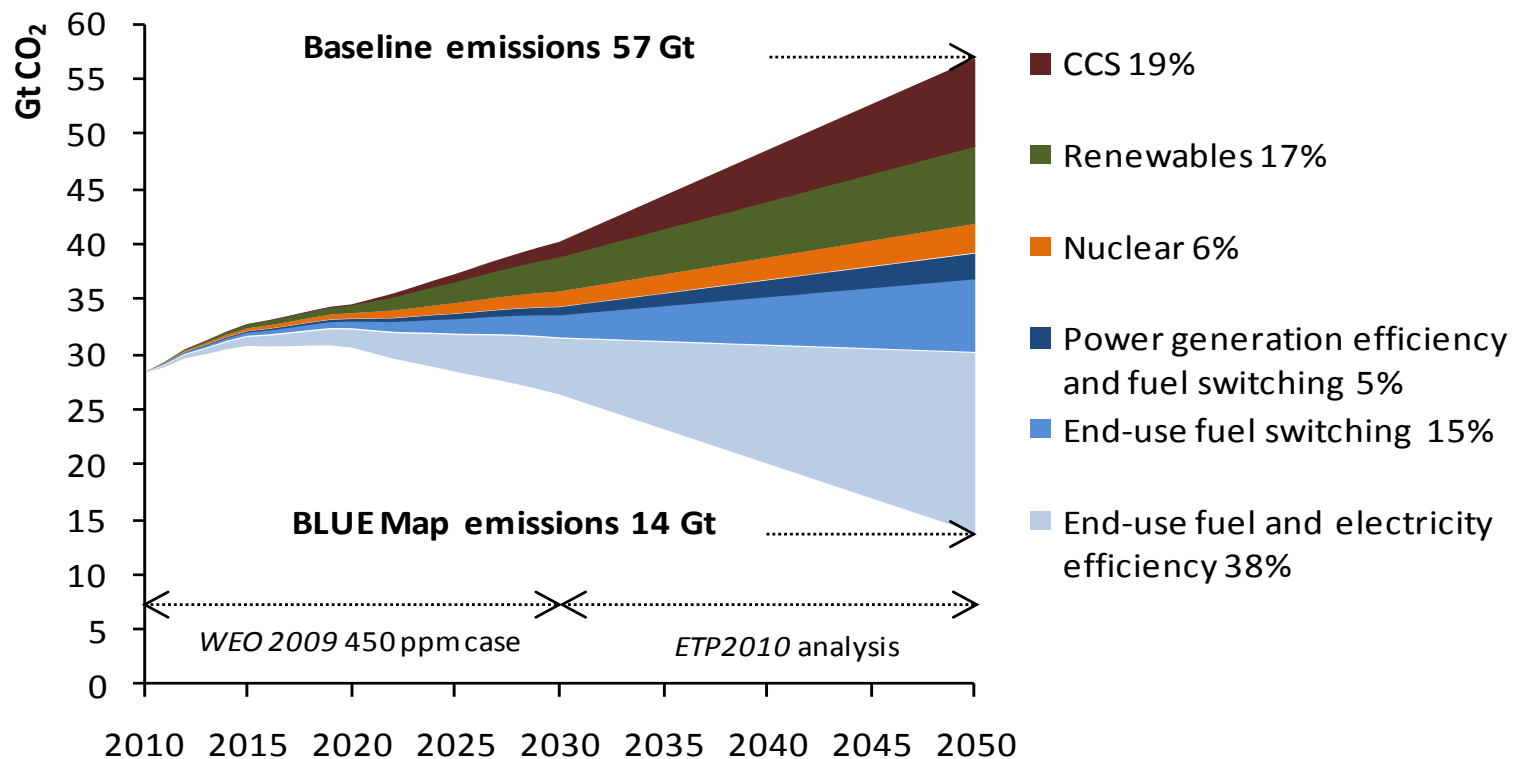


International
Energy Agency

Energy Technology Perspectives 2010

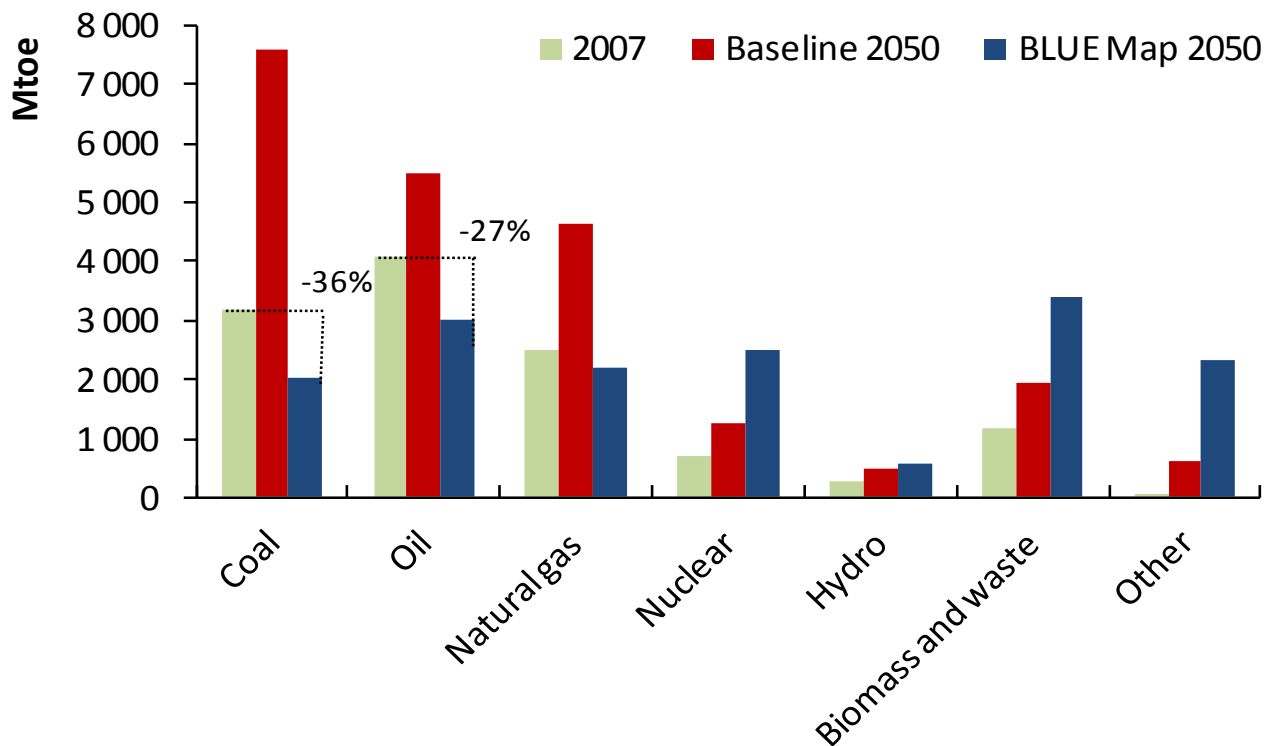
Key graphs

Key technologies for reducing global CO₂ emissions under the BLUE Map scenario



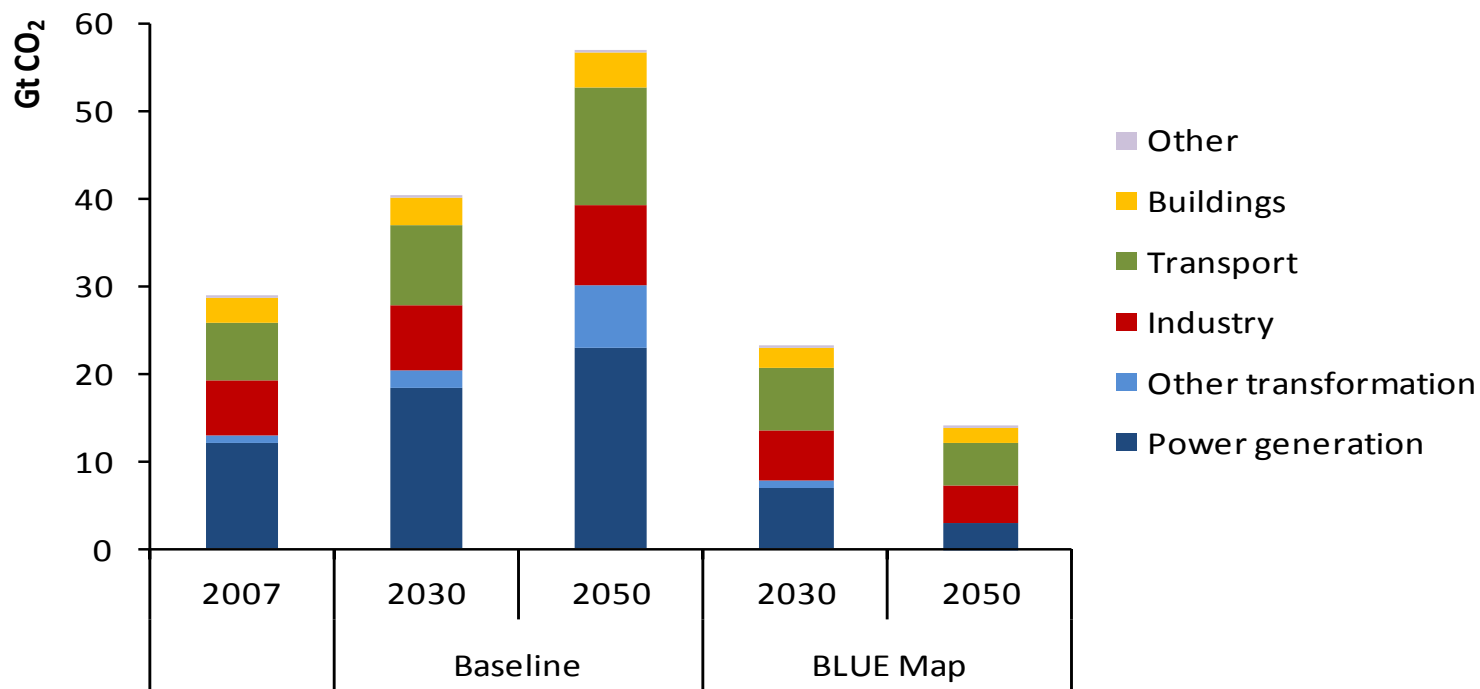
A wide range of technologies will be necessary to reduce energy-related CO₂ emissions substantially.

Primary energy demand by fuel and by scenario



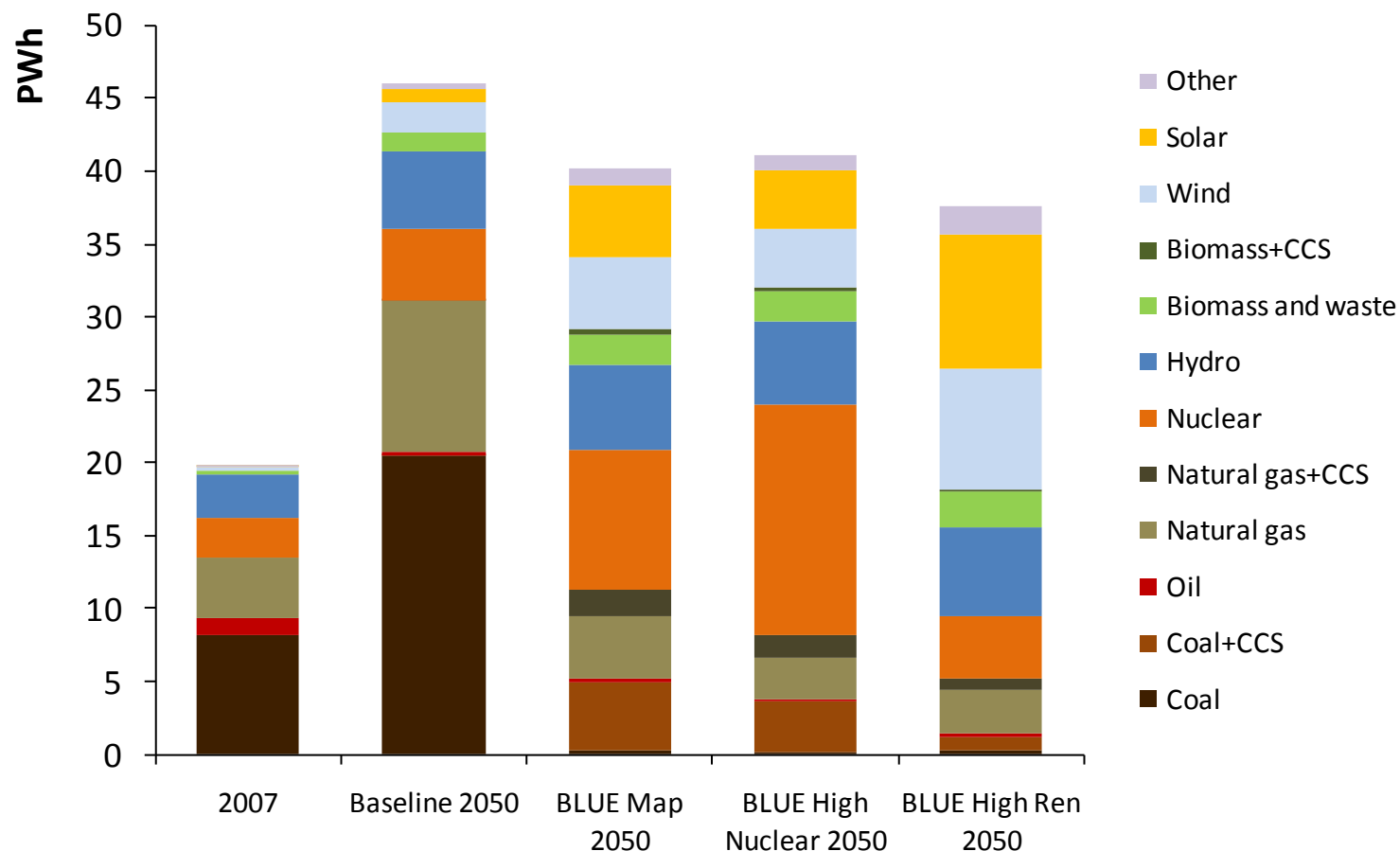
By 2050, coal, oil and gas demand are all lower than today under the BLUE Map scenario.

Global energy-related CO₂ emissions in the Baseline and BLUE Map scenarios



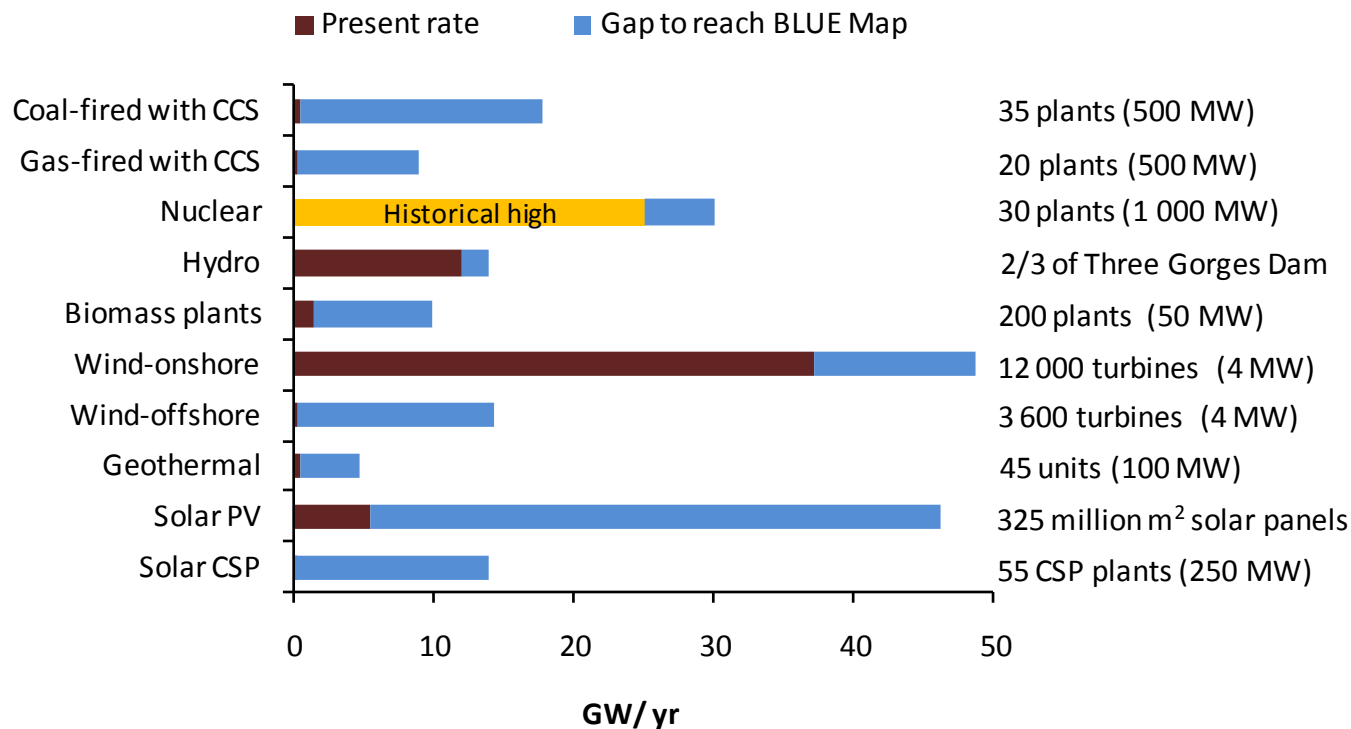
Global CO₂ emissions double in the Baseline, but in the BLUE Map scenario abatement across all sectors reduces emissions to half 2005 levels by 2050.

Decarbonising the electricity sector



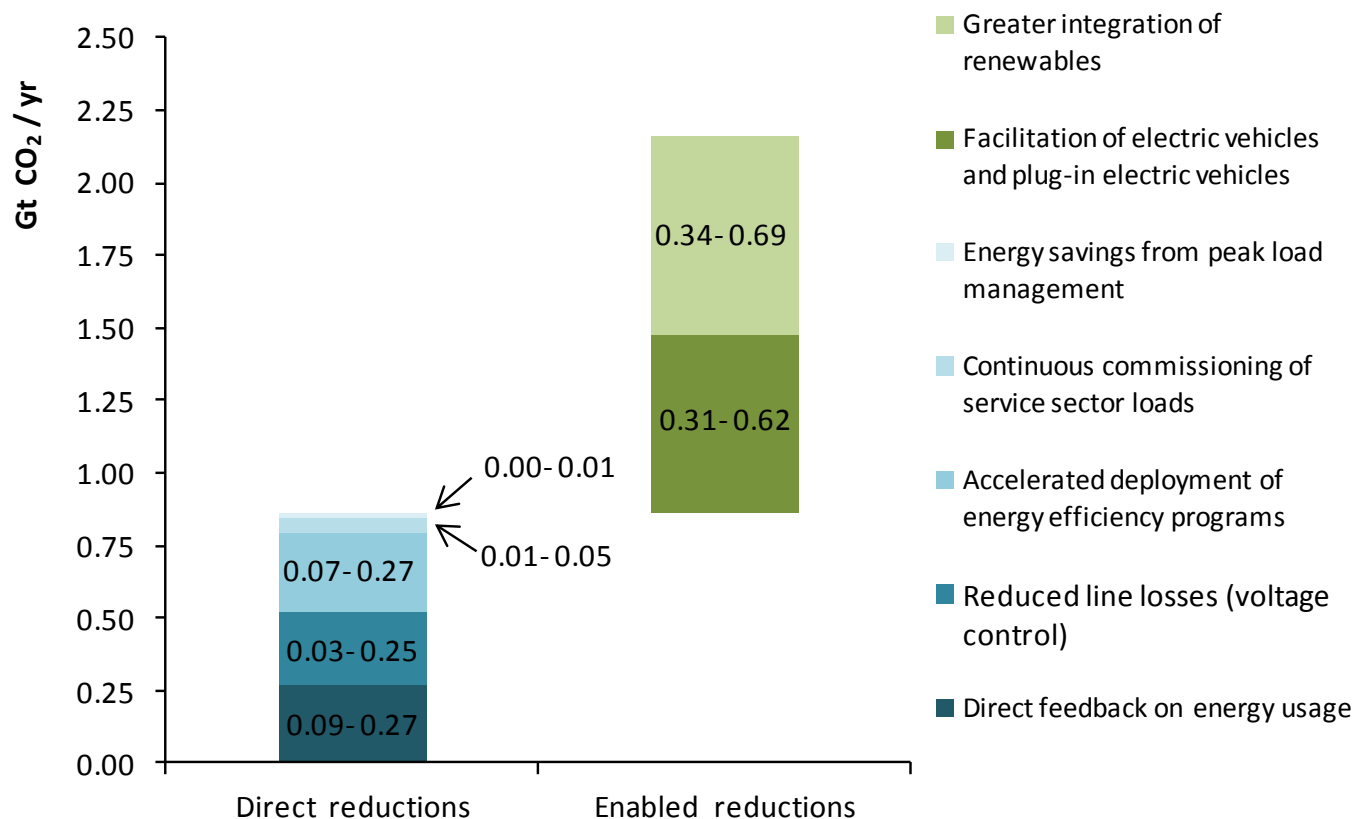
A mix of renewables, nuclear and fossil-fuels combined with CCS will be needed to decarbonise the electricity sector.

Average annual electricity capacity additions to 2050 needed to achieve the BLUE Map scenario



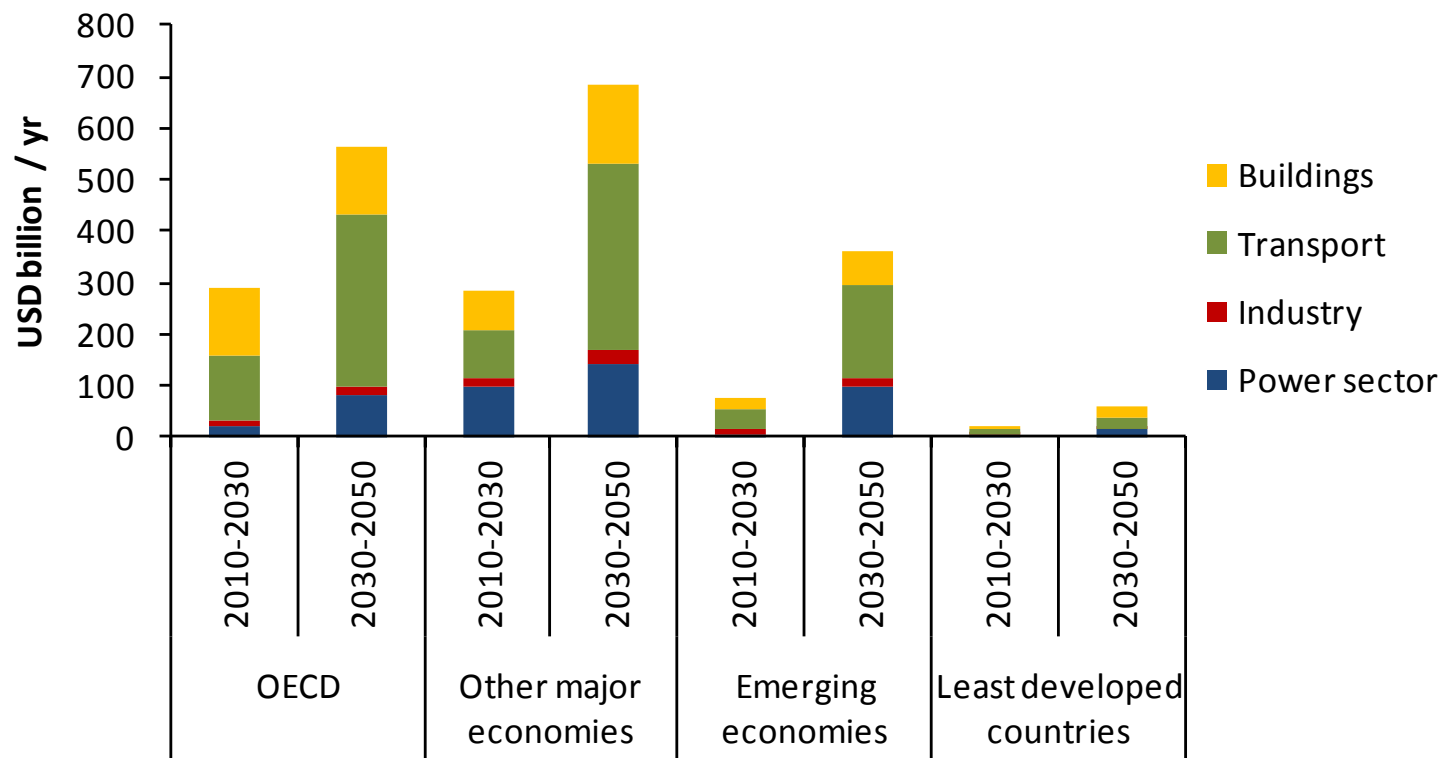
Annual rates of investment in many low-carbon electricity generating technologies must be massively increased from today's levels.

Smart grid CO₂ reductions in 2050 in the BLUE Map scenario vs. Baseline scenario



Smart grids can reduce CO₂ emissions both through better management of the grid and by facilitating the deployment of low-carbon technologies, such as renewables and electric vehicles.

Additional investment needs, BLUE Map scenario vs. Baseline scenario

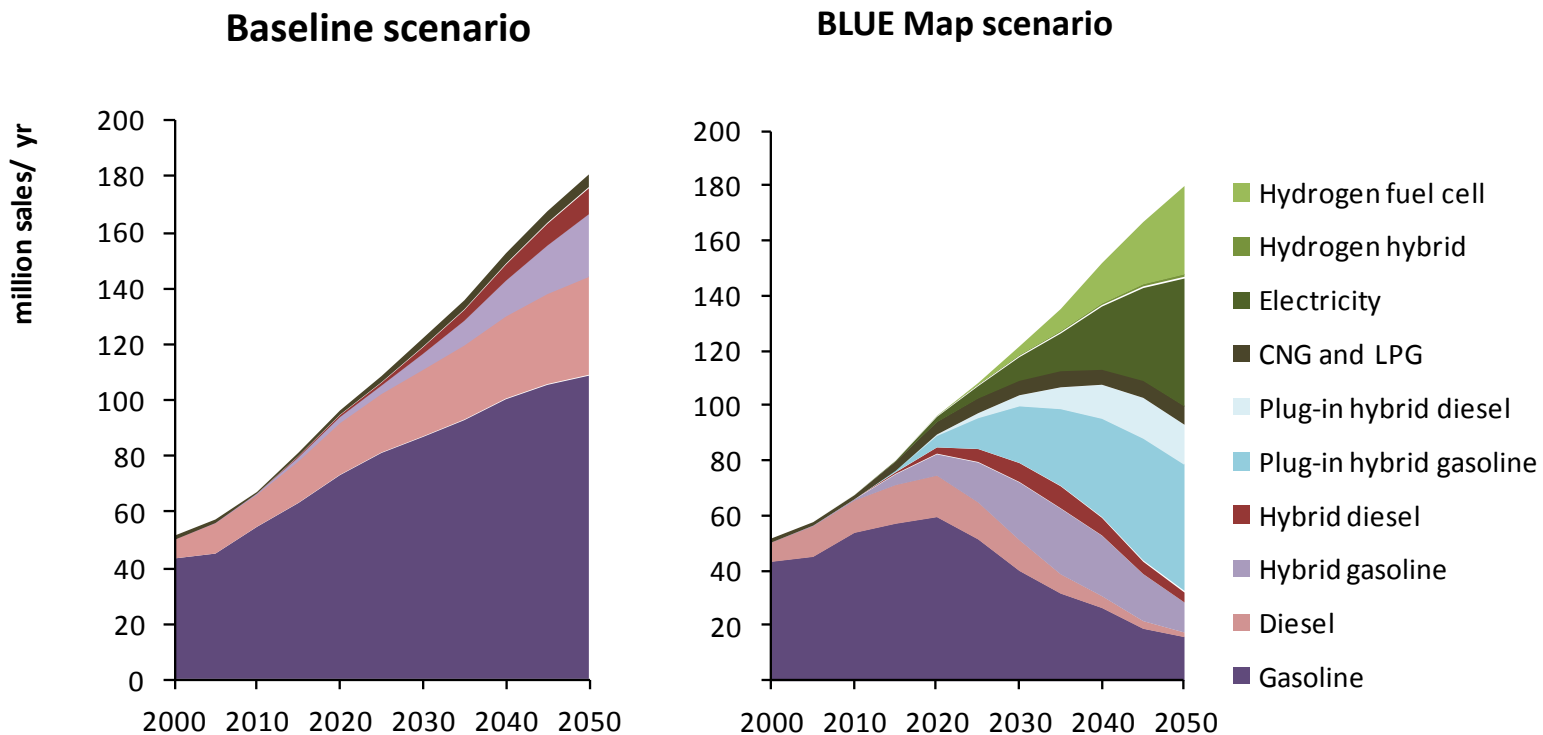


Over the period to 2050, most of the additional investment in low-carbon technologies will be needed in non-OECD countries.

Evolution of light-duty vehicle sales by technology

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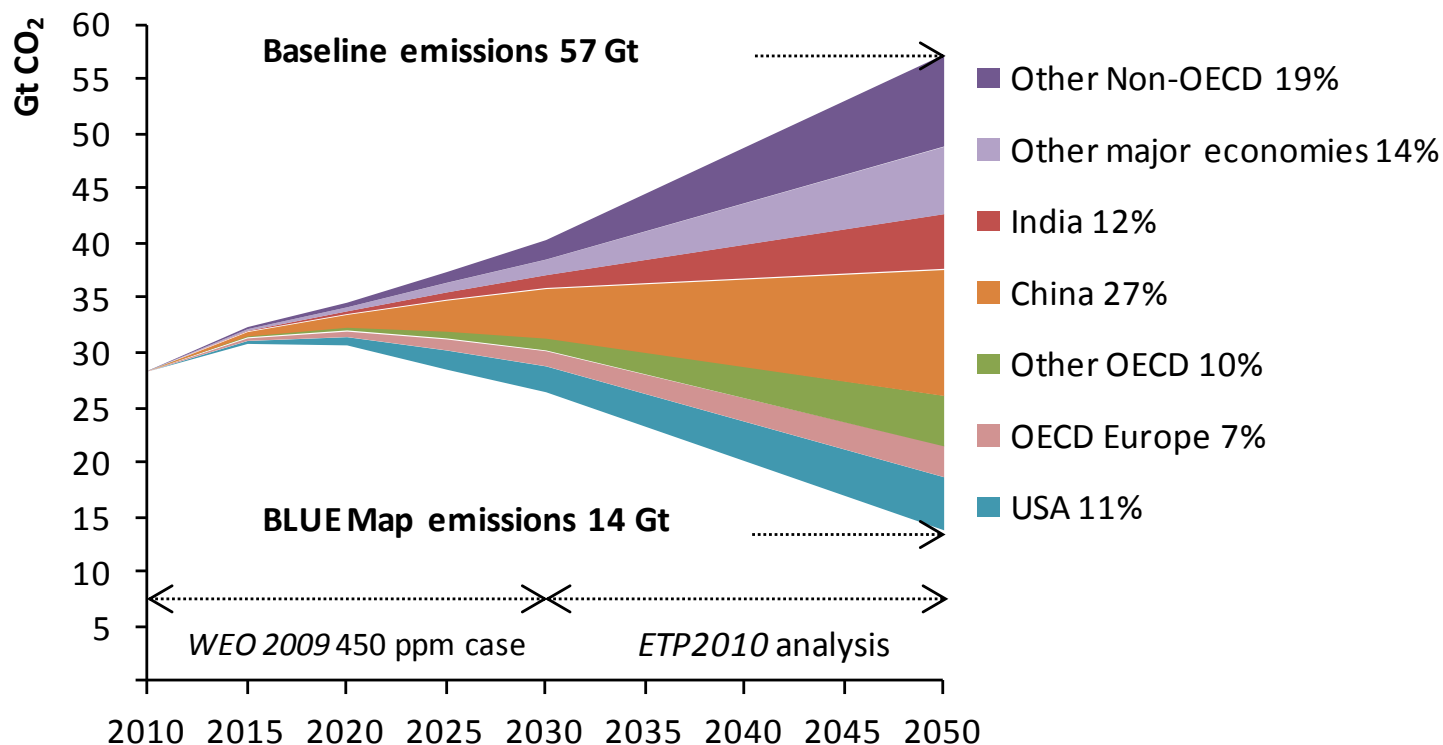
Scenarios &
Strategies
to 2050



In the BLUE Map scenario advanced technologies, such as plug-in hybrid, all-electric and fuel-cell vehicles, dominate sales after 2030.



World energy-related CO₂ emissions abatement by region



In the BLUE Map scenario, most of the reductions in energy-related CO₂ emissions are in non-OECD countries.

Environmental co-impacts of electricity generation technologies

Energy Technologies	Life Cycle Impacts (Pre- and Post-Generation)			Power Generation Impacts			CO ₂ Emissions t/MWh
	Air	Water	Land	Air	Water	Land	
Coal - USC	<i>Baseline Technology for Relative Assessments Below</i>						0.777
Coal - Biomass	Positive	Positive	Variable / Uncertain	Variable / Uncertain	Minimal	Minimal	0.622
Coal - CCS	Negative	Negative	Negative	Variable / Uncertain	Negative	Minimal	0.142
Coal - IGCC	Minimal	Variable / Uncertain	Minimal	Positive	Positive	Minimal	0.708
NGCC	Positive	Positive	Positive	Positive	Positive	Positive	0.403
Nuclear	Positive	Variable / Uncertain	Variable / Uncertain	Positive	Negative	Positive	0.005
Solar - CSP	Positive	Positive	Positive	Positive	Negative	Minimal	0.017
Solar - PV	Positive	Positive	Positive	Positive	Positive	Minimal	0.009
Wind	Positive	Positive	Positive	Positive	Positive	Variable / Uncertain	0.002

Most renewable technologies have positive environmental co-impacts compared to current coal ultra-super critical plant.