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Air quality co-benefits of global climate action under the Paris Agreement

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TFIAM48

April 2019, Berlin

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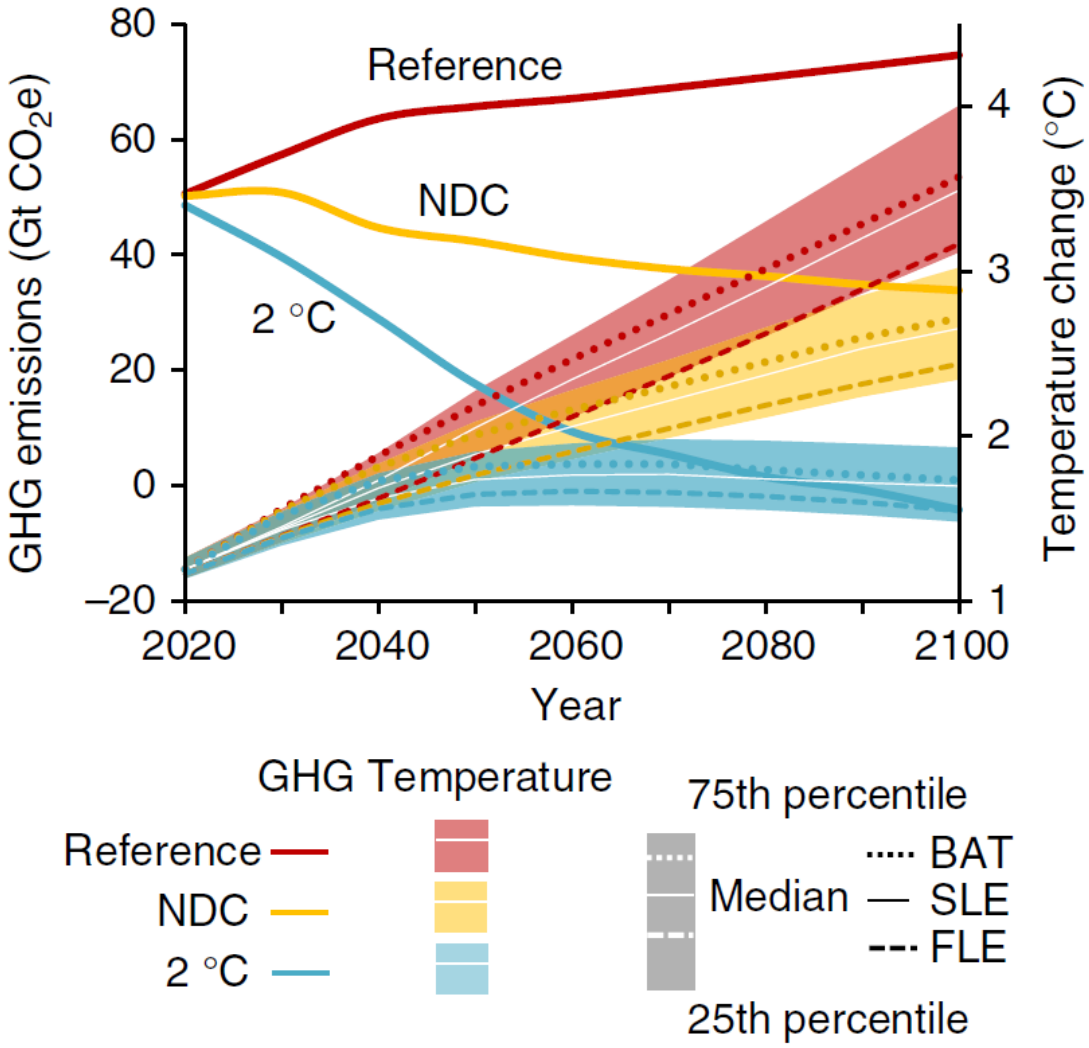
Air quality co-benefits of the Paris Agreement



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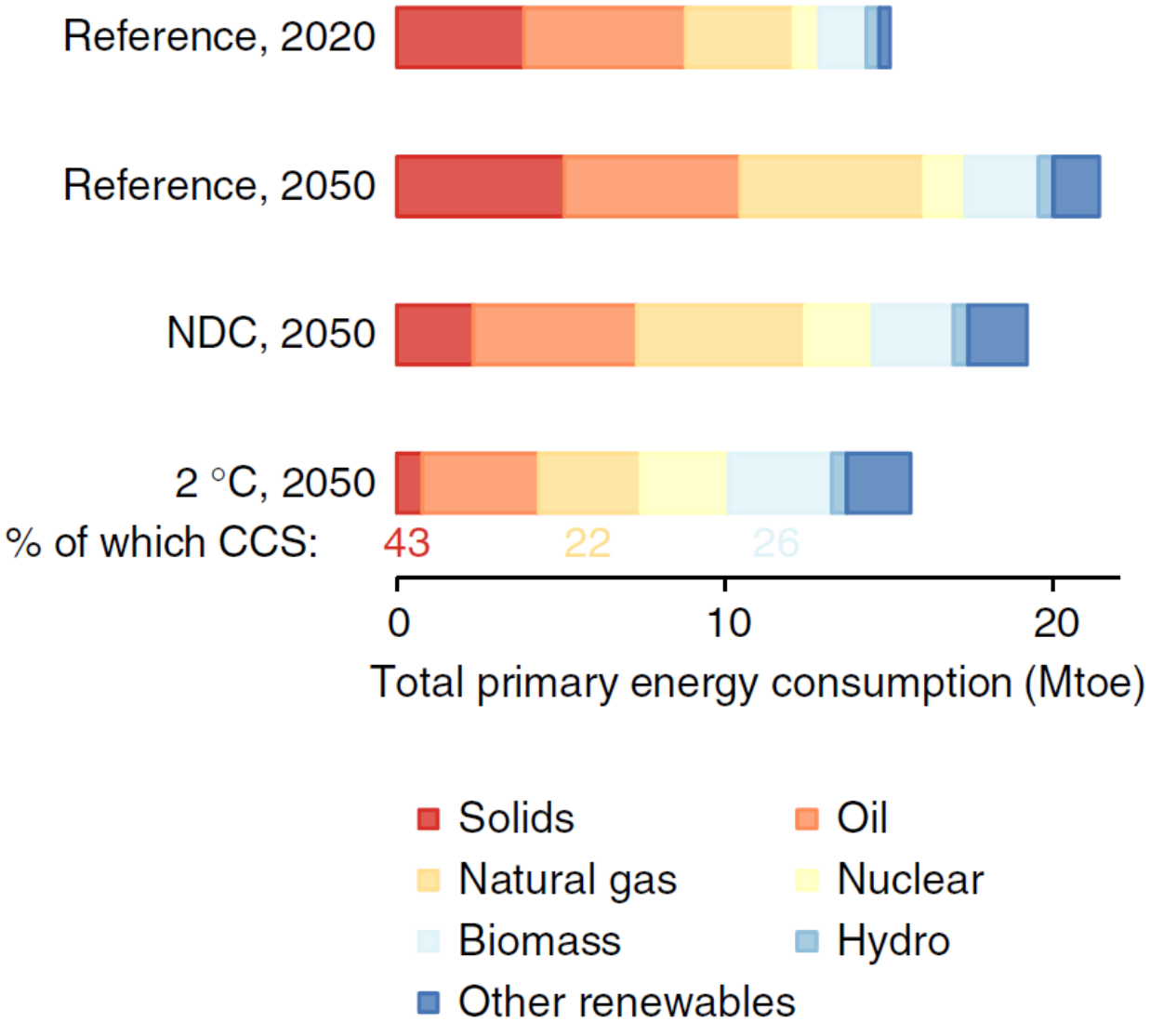
Transformation of the energy system



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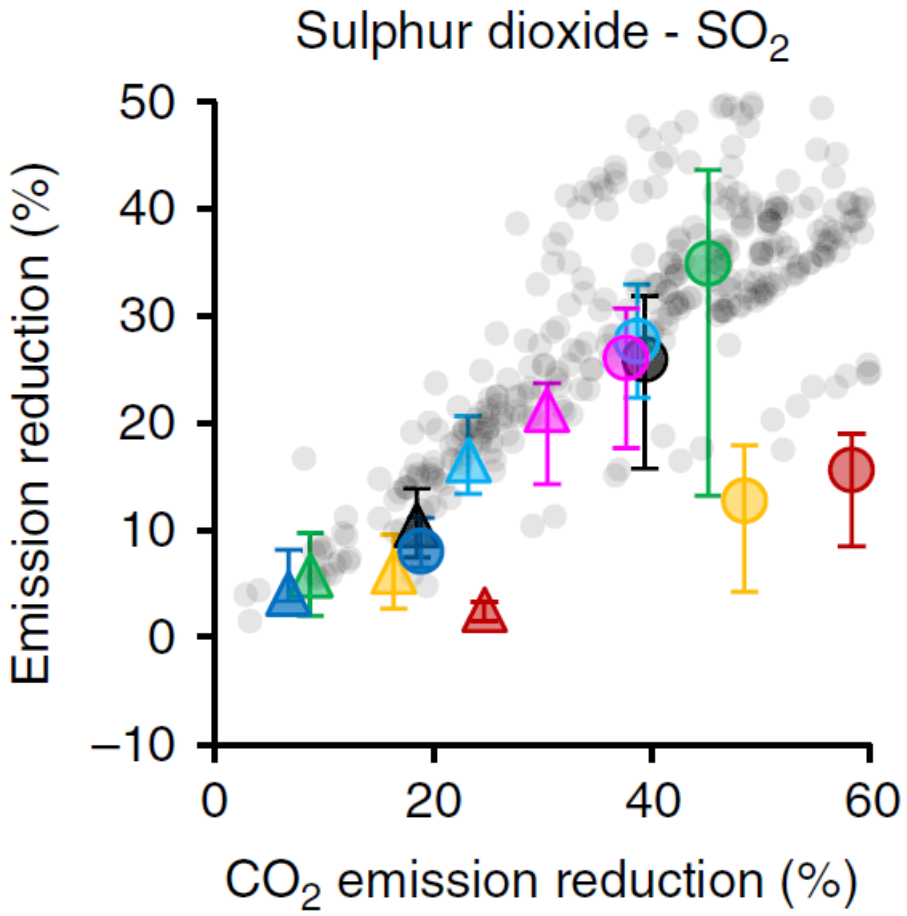
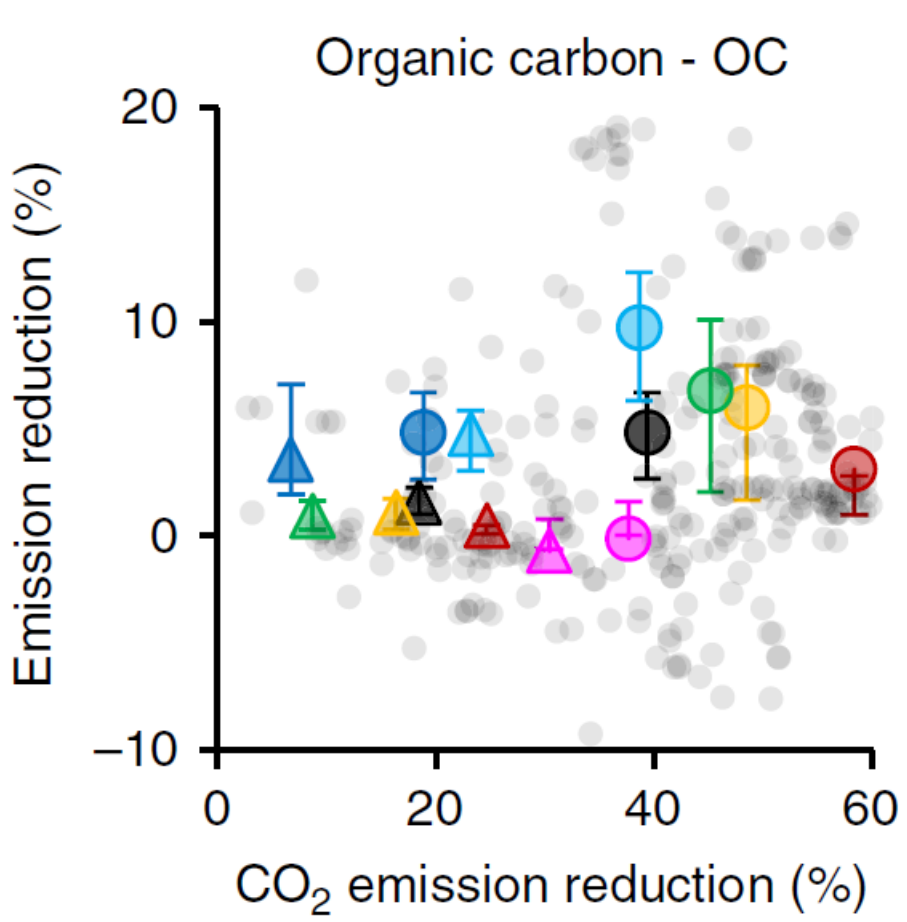
Co-benefits for emissions of air pollutants





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Particulate matter ($PM_{2.5}$) and ozone pollution

NDC 2030

2°C 2050

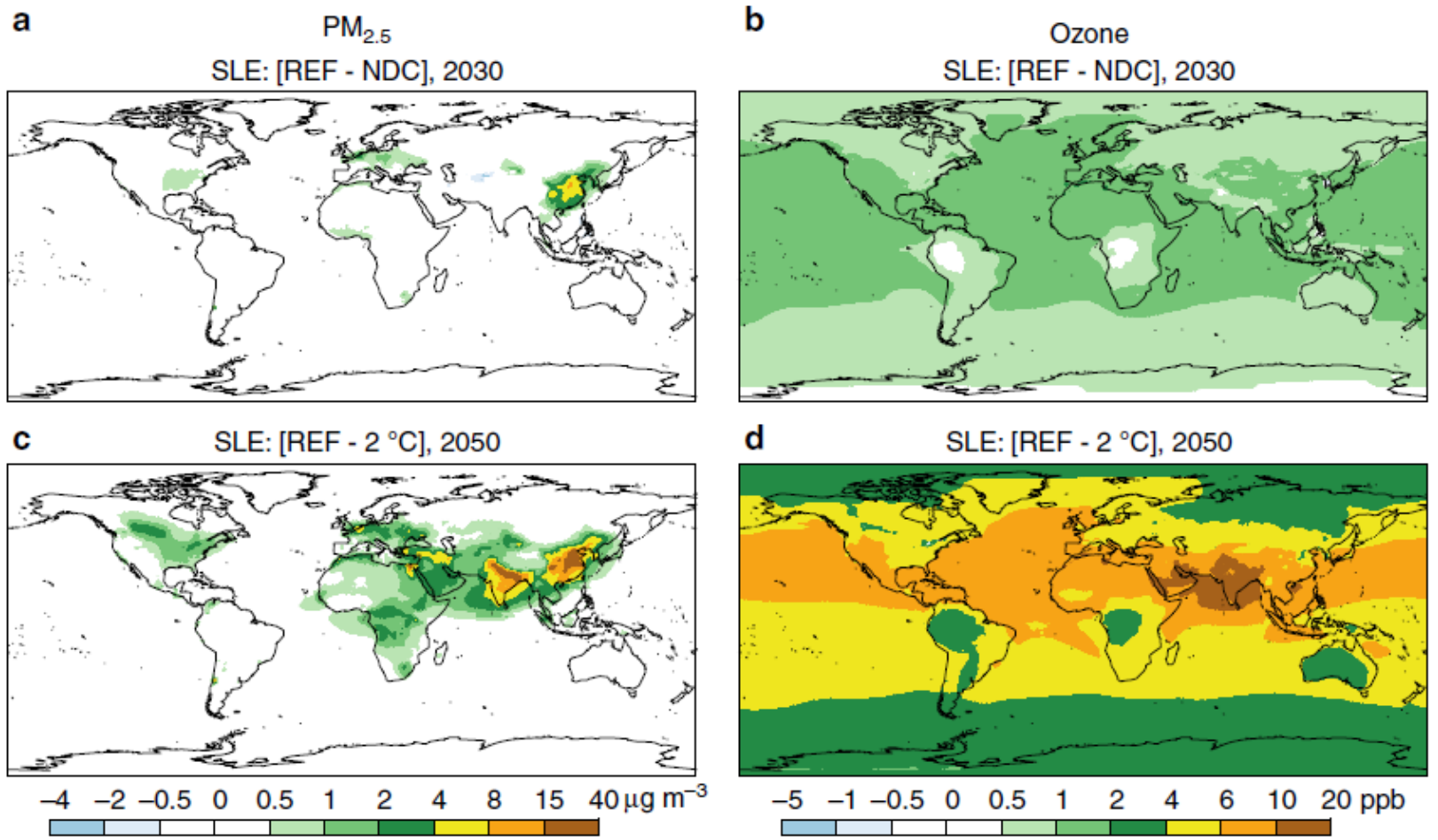

Fig. 3 Reduction of $PM_{2.5}$ concentration ($\mu g\ m^{-3}$) and ozone mixing ratio (ppb) due to climate change mitigation policies under the Stringent Legislation case of air quality. NDC scenario compared with the Reference in 2030 (REF—NDC) for **a** $PM_{2.5}$ and **b** ozone. 2 °C scenario compared with the Reference in 2050 (REF—2 °C) for **c** $PM_{2.5}$ and **d** ozone. Positive values indicate improved air quality

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Human health: Avoided premature deaths

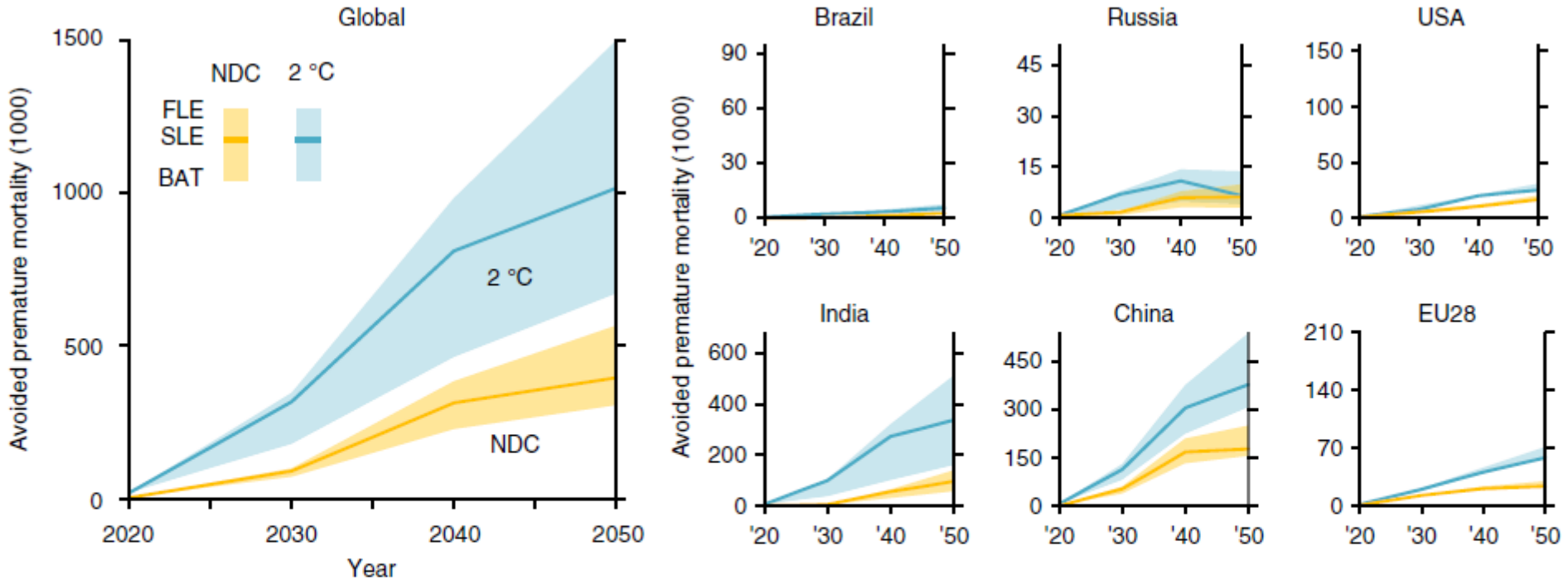
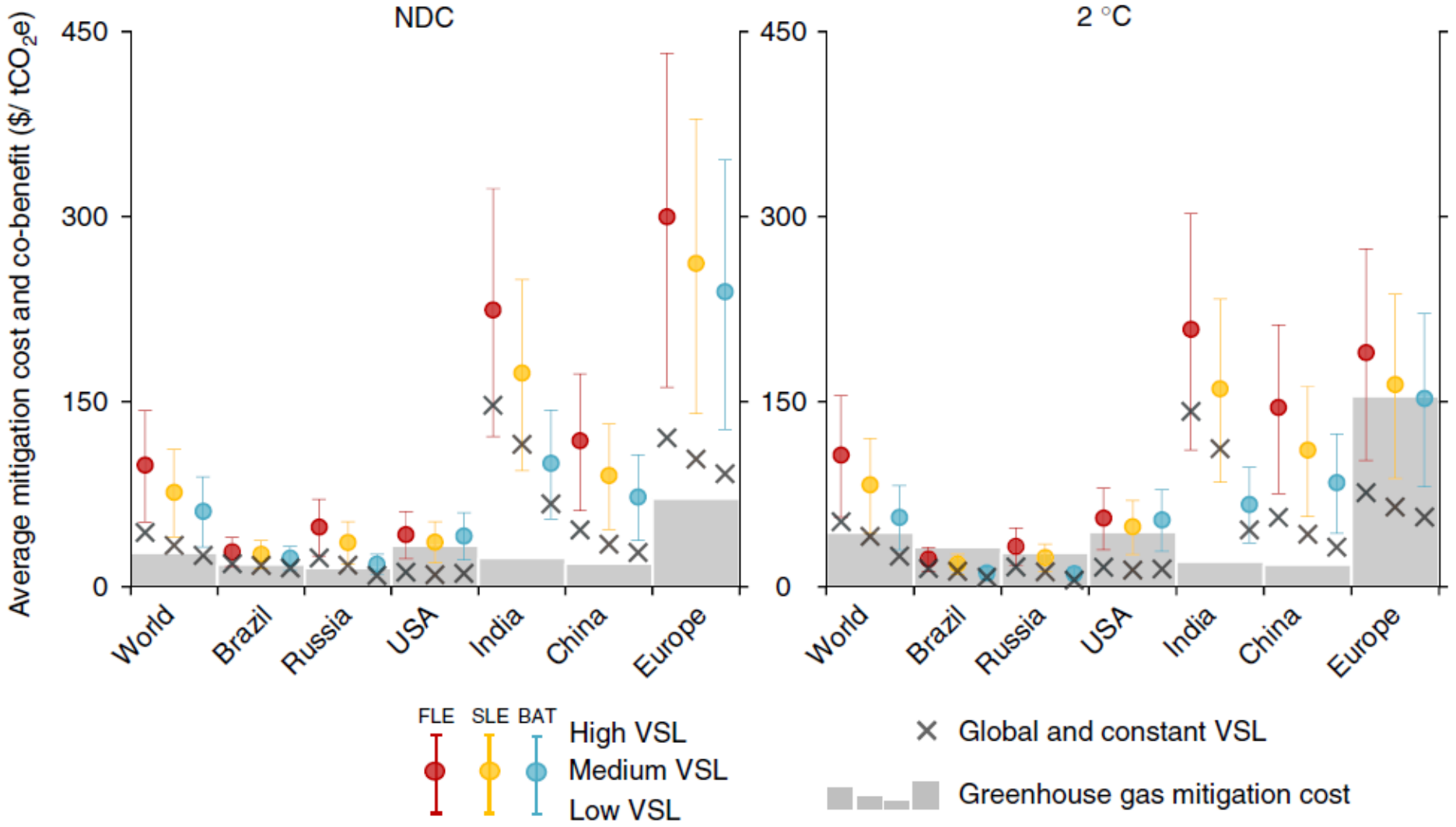


Fig. 4 Avoided premature mortality due to lower $PM_{2.5}$ concentration and ozone mixing ratio implied by climate change mitigation policies. Results shown are relative to the corresponding climate policy Reference case and use non-linear exposure-response functions based on Global Burden of Disease 2015[25], with the range encompassing estimates with Fixed Legislation (FLE), Stringent Legislation (SLE), and Best Available Technologies (BAT) air quality scenarios. In addition to global results, the figure shows avoided premature mortality (in thousands) for six regions. To display the absolute numbers in a way that makes the regional figures comparable against each other, the range of the vertical axes is scaled to 0.04% of the region-specific population in 2050

Cost of mitigation and value of co-benefits



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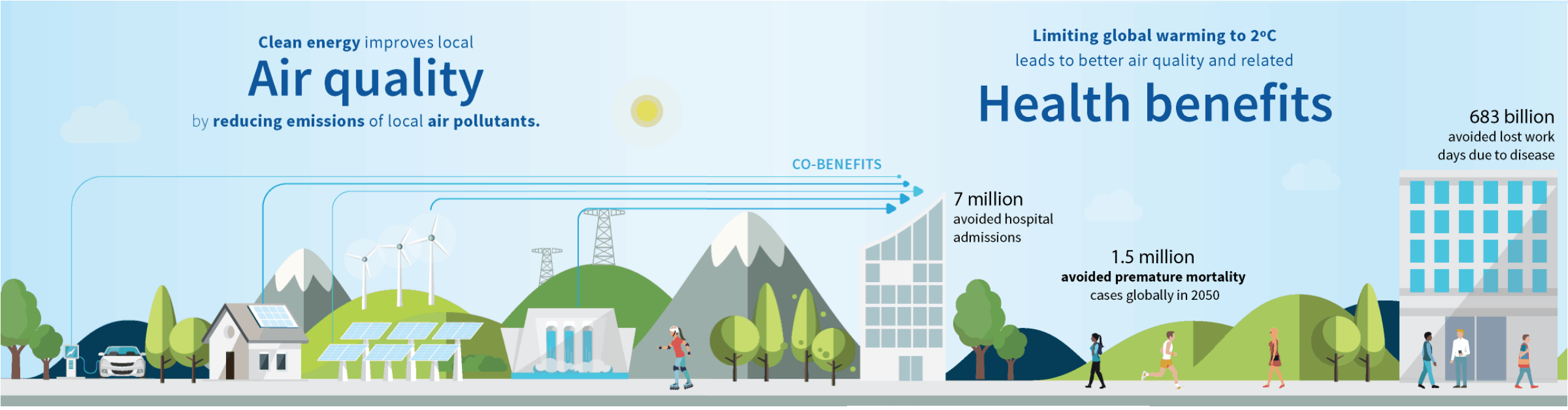
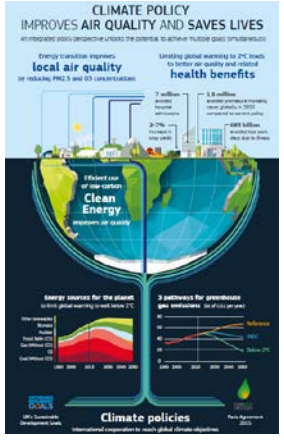
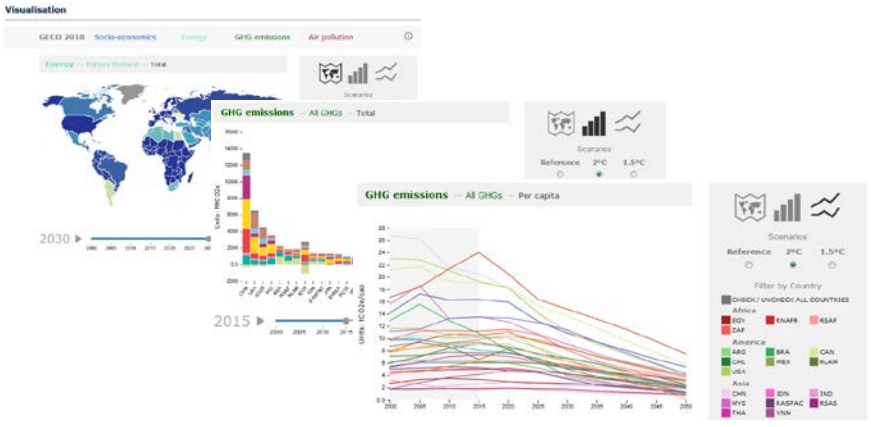
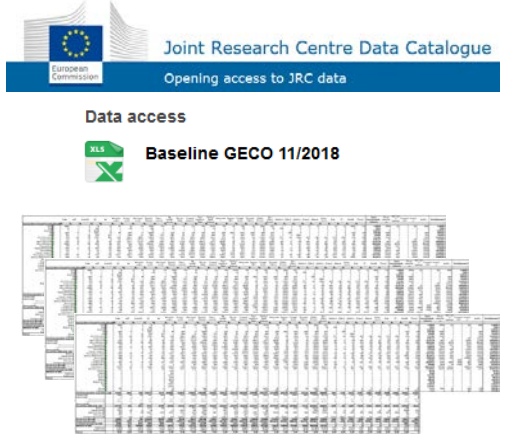
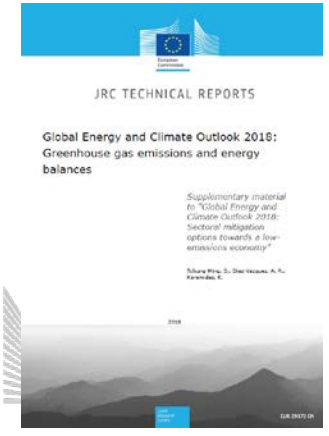
Visualization, communication and dissemination











Integrated modelling for long-term climate policy

Source: Weitzel et al. (April 2019). Model-based assessments for long-term climate strategies, *Nature Climate Change*

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Thank you

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