Global Energy Policy Research | GEPR

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When exploring various climate futures, scenarios with no, or no additional, climate policies are often referred to as 'baseline' or 'reference scenarios' (Section 1.6.1.1; Annex VII: Glossary). Among the five core scenarios used most in this report, SSP3-7.0 and SSP5-8.5 are explicit 'no-climate-policy' scenarios (Gidden et al., 2019; Cross-Chapter Box 1.4, Table 1), assuming a carbon price of zero. These future 'baseline' scenarios are hence counterfactuals that include less climate policies compared to 'business-as-usual' scenarios – given that 'business-as-usual' scenarios could be understood to imply a continuation of existing climate policies. Generally, future scenarios are meant to cover a broad range of plausible futures, due for example to unforeseen discontinuities in development pathways (Raskin and Swart, 2020), or to large uncertainties in underlying long-term projections of economic drivers (Christensen et al., 2018). However, the likelihood of high emission scenarios such as RCP8.5 or SSP5-8.5 is considered low in light of recent developments in the energy sector (Hausfather and Peters, 2020a, 2020b). Studies that consider possible future emission trends in the absence of additional climate policies, such as the recent IEA 2020 World Energy Outlook 'stated policy' scenario (International Energy Agency, 2020), project approximately constant fossil and industrial CO_2 emissions out to 2070, approximately in line with the medium RCP4.5, RCP6.0 and SSP2-4.5 scenarios (Hausfather and Peters, 2020b) and the 2030 global emission levels that are pledged as part of the Nationally Determined Contributions (NDCs) under the Paris Agreement (Section 1.2.2; (Fawcett et al., 2015; Rogelj et al., 2016; UNFCCC, 2016; IPCC, 2018). On the other hand, the default concentrations aligned with RCP8.5 or SSP5-8.5 and resulting climate futures derived by ESMs could be reached by lower emission trajectories than RCP8.5 or SSP5-8.5. That is because the uncertainty range on carbon-cycle feedbacks includes stronger feedbacks than assumed in the default derivation of RCP8.5 and SSP5-8.5 concentrations (Ciais et al., 2013; Friedlingstein et al., 2014; Booth et al., 2017; see also Chapter 5, Section 5.4).

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