

## Meeting the Paris Agreement and Supporting Sustainability - quantifying synergies and trade-offs

Topic: Planetary Boundaries and IOA

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This paper explores trade-offs and synergies between climate goals as foreseen in the Paris Agreement and other sustainable development goals (SDGs) by means of an integrated scenario analysis. Economic, environmental but foremost social and equality impacts of a transition to a low-carbon-society are analyzed from a global and European (based on the GMRIO-model GINFORS) as well as from an Austrian perspective (based on the national IO model e3.at (economy-energy-environment in Austria)).

Two scenarios have been defined and numerically projected with the global model GINFORS: the BAU scenario describes the development without further ambitious low-carbon policies until 2050. The COP21 scenario comprises policies and measures inducing changes in behaviour and consumption that support not only the goal to limit the global temperature increase below 1.5 °C but also progress towards more sustainability with regard to other planetary boundaries.

The core experiences from the scenario experiments for the global and European level can be summarized as follows:

• The Paris goal can still possibly be reached, but only if ambitious political and societal changes around the world will arise in the immediate future.

• If climate and resource conservation action is combined, substantial progress towards sustainable consumption and production can be achieved and would lead to economic benefits.

The Austrian model e3.at provides a detailed analysis of the impacts of both scenarios on the sustainability dimensions for the Austrian society until 2050. The policy measures of the global scenario are transferred to Austria and investigated with the e3.at model in more detail. Synergies and trade-offs among the various policy objectives for Austria are explored. The results are specifically useful for a critical discussion of the relationship between the international climate policy and SDG agendas as well as for the identification of strict and socially acceptable mitigation pathways.