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Creating global scenarios of environmental impacts with structural economic models

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Propositions

1. Climate scenario models should take into account the full repercussions of a changed climate on the economy into account (This thesis, Chapter 2).
2. If input-output analysis based frameworks are to be used for climate change scenarios and some form of aggregation of the input-output tables is necessary for practical reasons, spatial aggregation is to be preferred over sectoral aggregation (This thesis, Chapter 3).
3. The 2°C climate target for 2050 will not be met if global gross domestic production triples (This thesis, Chapter 4).
4. The build-up of renewable energy infrastructures until 2050 will not be obstructed by resource constraints (This thesis, Chapter 5).
5. The industrial ecology research field should examine the inter-industry flows as recorded in supply – use tables in an unit invariant manner which would also support integration of life cycle assessment and input-output analysis. (Suh et al., 2010. Journal of Industrial Ecology 14(2), 335-353).
6. Given the importance of carbon capture and storage in the current 2°C climate target scenarios, it is worrisome that this mature technology is not already widely used and mostly used for enhanced oil and methane recovery. (Leung et al (2014) Renewable and Sustainable Energy Reviews 9, 426–443 and data from www.globalccsinstitute.com)
7. Acceleration is defined as the rate of change of velocity of an object with respect to time. If the accelerated influence of the economy on the natural environment is studied then the rate of change with respect to time has to be plotted. If one would do so, we find that the last decade can be described as the great deacceleration instead of the great acceleration. (Steffen et al (2015) The Anthropocene Review 2(1) 81 –98).
8. Past developments of greenhouse gas (GHG) emissions say little about the future development of GHG emissions if the underlying GHG emission drivers are not known but past developments of GHG emission trends do tell us how much of our GHG budget is left.
9. The 1973 oil crisis was in some way a blessing in disguise because it started the renewable energy technology development trajectory (e.g. “Energie Anders”).
10. The industrial ecology research field should be sensitive to results from policy research, otherwise the industrial ecology research field will become irrelevant.
11. Large datasets and model frameworks will wither without institutional embedding.
12. State of the art does not mean good, although it is frequently used as such.