

Success of climate talks vital for 2 C target

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This is shown by the first comprehensive multi-model-based assessment of so-called Durban Platform scenarios, conducted by a team of international scientists led by the Potsdam Institute for Climate Impact Research (PIK) and the Fondazione Eni Enrico Mattei (FEEM) in Italy. The Durban Platform is the current negotiation track at the Warsaw climate talks that aims to reach a global climate agreement by 2015 to come into effect in 2020.

"The negotiations in Warsaw represent an important step in the negotiation process towards a [climate agreement](#) by 2015," lead author Elmar Kriegler from PIK says. "While there are legitimate doubts about whether the Durban Platform negotiations can deliver on their promise, our analysis shows the importance of meaningful reductions in global emissions by 2020 to keep the 2 degree target within reach." The later emissions get cut, the greater the necessary reduction rates to avoid more than 2 degrees warming, and hence the greater the impact on energy prices and economic growth.

"Even a delay of just 10 years of a climate agreement coming into effect would raise the economic challenges substantially, if emissions reduction efforts remained at their currently moderate level," Kriegler says. The results are part of the comprehensive LIMITS project (Low Climate Impact Scenarios and the Implications of Required Tight Emission Control Strategies) on the implementation of 2 degree strategies in the major economies and will be published in a special issue of the journal *Climate Change Economics*. The scientists investigated a set of different outcomes of the Durban Platform negotiations process and their

implications for reaching the 2 degree target with seven integrated assessment and energy-economy models to ensure the robustness of results.

Carbon dioxide removal could be key technology

Nonetheless there might be some flexibility for policy makers in implementing a [global climate](#) agreement towards the 2 degree target, according to the study. Translating the 2 degree target into emissions reductions requires choosing a maximum likelihood of temporarily overshooting 2 degrees that would still be tolerated. The choice of this tolerance level was found to have a significant effect on longer term emissions reduction requirements and economic impacts. However, the near term requirement of strengthening global climate policy was unchanged, as global emissions declined after 2020 in any scenario of global climate action coming into effect by 2020. In addition, taking CO₂ out of the atmosphere in the 2nd half of the century could be a key element of implementing the emission pathways in the Durban Platform scenarios, for instance through technologies using energy from biomass combined with Carbon Capture and Storage. Plants absorb CO₂ to grow and could be processed in biogas plants, with emissions captured and being stored underground.

This could be an option to compensate higher short term emissions with deeper [emissions](#) cuts in the long run, but at the expense of a higher likelihood of temporarily overshooting 2 degrees. At the same time, it would raise a number of concerns, because the CCS technology is not yet available for large-scale use and scaling up bio-energy comes with considerable risks by increasing the competition for arable land. "It is very risky to rely too much on removing CO₂ from the atmosphere in the second half of the century," says Kriegler. "While we may need carbon dioxide removal even if global climate action is implemented in 2020, we would need much more of it if action is delayed further.

Despite all these complexities, the message is fairly simple," adds Kriegler. "In the longer term, there are a number of options to get to 2 degrees. But those will only remain on the table, if global climate action is substantially strengthened over the coming decade, so that [global emissions](#) decline after 2020."

"This shows that the Durban Platform negotiations can still deliver an outcome consistent with the 2 degree target, but only if they can successfully implement global climate action on a long term target by 2020," adds co-author Massimo Tavoni of FEEM. "Further delays in reaching an agreement would require much higher emission decline rates and would lead to much larger economic costs".

More information: To be published in a special issue of *Climate Change Economics* in early 2014.

Provided by Potsdam Institute for Climate Impact Research

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