

EGU21-1425

<https://doi.org/10.5194/egusphere-egu21-1425>

EGU General Assembly 2021

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## Net-zero greenhouse gas targets: pathway and when reached equally important

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The concept of net zero emissions is now a central element of government and business commitments to addressing climate change, with more net zero policies and pledges being rolled out on an almost daily basis. However, of major concern is the limited awareness of how critical the emissions reduction pathway is in achieving desired climate outcomes. The focus of the climate policy community remains on the target date rather than the path to get there, and net zero "by 2050" is considered by many as the required policy characteristic in achieving temperature targets. Ultimately, the rate and magnitude of future warming relies on the amount, type, and timing of greenhouse gas emissions. Based on different combinations of these factors, it is both possible to succeed or fail in achieving temperature goals even if the global community reaches net zero by 2050. For similar reasons, it is also possible to miss the net zero by 2050 target and still succeed in meeting temperature goals. Therefore, it is important to clarify the role of the decarbonization pathway taken and offer recommendations to ensure that net zero pathways succeed in achieving global climate goals. In this analysis, we show how different net zero paths can lead to a range of temperature outcomes, and how we can strengthen the probability of meeting globally agreed upon climate goals by establishing complementary near-term targets. Key components of ensuring success in achieving temperature targets include incorporating a carbon dioxide budget and acting early to reduce methane emissions. Not only do these actions make achieving our goals more likely, but they also make the path forward more affordable and less dependent on technology not yet available at scale. Overall, improved understanding of the role of the path to net zero would create greater flexibility in effectively fulfilling commitments; open opportunities for trading across groups of greenhouse gases with no loss in climate benefits; and make it easier and cheaper to accomplish corporate and government goals.