Transformation of India’s transport sector under Global Warming of 2°C and 1.5°C Scenario - DTU Orbit (21/08/2019)

The Paris agreement stresses on concerted efforts to limit global temperature increase to 2°C and make efforts towards achieving 1.5°C temperature stabilization. Countries announced actions under the Nationally Determined Contributions outlining domestic mitigation actions to achieve the global target. Understanding the impact of these actions on achieving these ambitions requires an assessment of long term national level scenarios. Limited studies currently exist that model long term scenarios at national level addressing the impacts of Nationally Determined Contributions and the additional actions required, especially at the sectoral level. The paper compares four alternate future scenarios for India spanning till 2050, with a specific focus on the passenger and freight transportation. The analysis is performed using the ANSWER MARKAL model and complemented with methodologies to estimate transportation demand under strong decarbonisation pathways. The results show that 1.5°C scenario would need immediate actions and deep transformations. Demand side actions would, in addition to infrastructure investments require transforming human behaviour through use of information technology, internet and sharing economy. Clean vehicle technologies need to play a much bigger role and fossil fuel dependence would be moderated with the dominance of electricity, hydrogen and biofuels. The higher share of electricity in transport is complimented with accelerated decarbonisation of electricity. This transformation required for 1.5°C scenario calls for innovations that would be driven through national and sectoral policies and explicit carbon prices.