

Examining Global Scenarios for Long-term Passenger Travel: balancing Sustainability and Low Carbon Transitioning Goals

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1. Objective

In the years since the last IPCC 2007 report, substantial research efforts have been made for the advancement of a number of global transport scenarios studies featuring the assessment of conditions and potential combination of technologies and policies to bring about a global transformation of the transport sector into a low carbon system by 2050. These efforts are focused on the identification of the mix of technologies for low carbon fuels/energy carriers, the efficiency gains for new vehicles and the structural changes in urban form and infrastructure provision for different pathways for carbon emission reduction. Less attention has been given to understanding how the transitioning to a low carbon global transport system will result in a favorable resolution of sustainable transport goals. This paper examines four scenario studies to determine extent to which sustainability is kept in balance with low carbon emission goals.

2. Data/Methodology

The analysis draws elements from the conceptual theoretical framework that distinguishes between the concepts of accessibility and mobility in framing the concept of sustainable urban mobility, to find its possible interpretations for the regional and global level. The analysis considers the scenarios for long term passenger travel and in the cross-examination of the propositions and trends concerning the disaggregated elements in use in all the scenarios in terms of Activity: passenger travel, Structure: travel shares by mode and vehicle type; Intensity: fuel efficiency, Fuels: fuels use by fuel type and emissions per unit of fuel use. The four scenarios studies considered in this analysis are: IPCC 2007; International Energy Agency 2009, Towards a Low-Carbon Transport System STL-ITPS, 2011; and the Global Energy Assessment 2012.

3. Results/Findings

The analysis helps contextualize the in-balance in the assessment of futures for global transportation concerning sustainability. It demonstrates that a comprehensive analysis of the global future of transportation requires a clear exploration of how a low carbon transport system attends to goals for the enhancement of accessibility with the least amount of units of mobility throughput.

4. Implications for Research/Policy

Transport sustainability and the transition to a low-carbon transportation system are long term aspirations of the international community. Acceptability of the process and measures necessary for implementing any of the transformational pathways may improve with the understanding of effects of low carbon future options on sustainable mobility.