Effectiveness of setting vehicle fuel economy standards in reducing transport CO₂ emissions in the Kingdom of Bahrain

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Abstract

Climate change has become a key environmental issue that requires global collaboration to mitigate. The world countries, including the Gulf Cooperation Council (GCC) countries, have agreed in Paris 2015 to reduce carbon dioxide (CO₂) emissions. Potentials for reducing CO₂ emissions from transport sector in developing countries seem promising. This research aims to investigate the emission reduction potential for setting vehicle fuel economy standards in Bahrain. Accordingly, a number of future scenarios are developed using the Long Range Energy Alternatives Planning System (LEAP) for the period 2019-2030. A descriptive matrix is also produced to compare the effectiveness of setting three different fuel economy standards: high, medium and low. The modelling results show that setting high fuel economy standards can reduce transport CO₂ emissions by 17%. These standards have also the best performance according to the descriptive matrix results. However, setting medium vehicle fuel economy standards seems more realistic: it is effective and is accepted by stakeholders groups. This research recommends incorporating fuel economy standards into the environmental specifications for new light duty vehicles in Bahrain. These standards may also be incorporated into the unified specifications set by the GCC’s Standardization Organization. This is to help the GCC countries in meeting their CO₂ emission reduction commitments agreed in Paris 2015.

Keywords: Bahrain, transport, LEAP, CO₂ emissions, fuel economy standards