Implementing energy efficient pavements: A socio-economic analysis of the development and implementation of energy efficient pavements with low rolling resistance

The demand for the implementation of more energy efficient means to reduce carbon and particle emissions is increasing. Within the transportation sector, lowering carbon emissions is a high priority for the European Commission which is required to meet specific targets. A key driver for the transportation sector is to make road networks more energy efficient by implementing pavements with low rolling resistance, leading to lower fuel consumption. Through a series of projects focusing on reducing rolling resistance conducted since 2010, the Danish Road Directorate (DRD) has developed a durable, energy-efficient asphalt pavement. Socio-economic analyses conducted to quantify the benefit to society associated with implementing these asphalt pavements have demonstrated very high benefits. The demonstrated results in terms of durability, energy efficiency and socio-economics have resulted in substantial government funding being provided for demonstration trials on 50 kilometers of energy-efficient pavement in 2018. The implementation of energy-efficient pavements will enable Denmark to contribute to the out-of-quota 2030-emission cuts in line with EU regulations.