

Abstract

Assessment of Alternative Fuels for Transport

Transport is almost exclusively dependent on oil products as fuel, and the transport sectors share of global CO₂ emission is increasing. At the same time oil prices have been rapidly growing for the last years and oil prices are expected to stay at present high level or even continue to increase. The transport sector needs to contribute to meeting the policy targets of phasing out the use of fossil fuels and consequently a need to identify economically attractive alternatives to fossil fuels for transport.

The Danish Energy Agency together with COWI has undertaken a thorough updating, adjustment and expansion of the *Alternative Fuels for Transport* model and analysis that COWI did in 2006 in order to establish a common ground for the assessment of a variety of alternative fuels and vehicle technologies, including electricity, hydrogen, 1 and 2 generation biofuels, biogas, synthetic fuels, and other alternative fuels, and the associated vehicle technologies.

The model estimate the economic costs, climate forcing impact, energy efficiency and environmental impacts of 15 different fuels and vehicle technologies for a standard type passenger car, truck and bus at present, in medium term and long term perspective. The model is based on a Wells-to-Wheels approach, including all steps of the process from production of feedstock, conversion into fuel, distribution and consumption in the vehicle, i.e. a largely global approach. One very important feature is the option to include Indirect Land Use Change and different assumptions on electricity generation in the assessment of the climate forcing impact of the different fuels.

The assumptions and the results have been discussed with a large number of key players in order to reach a reasonable level of consent about the results. The results of the modelling analysis obviously reflects the assumptions and expectations on price and technology developments, but offers fairly clear conclusions on the perspectives of the different alternatives to fossil fuels. The paper and the model are available on the Danish Energy Agency website.

The key results, main assumptions and methodological issues and challenges will be presented and discussed at conference.

Senior project manager Camilla Rosenhagen, camr@cowi.dk