RP2002

EWTT DEMAND FORECASTNG

Forecasting car buyer choice

Research Question

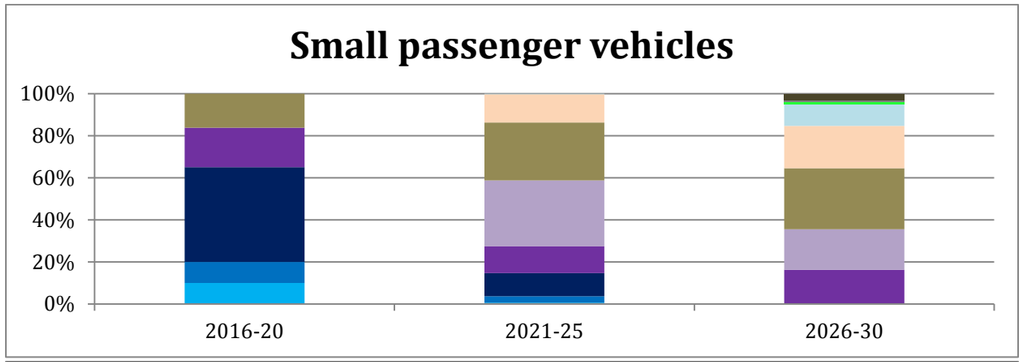
What is the probability of buyer purchasing light vehicle (that is) fitted with specified fuel efficient technology?

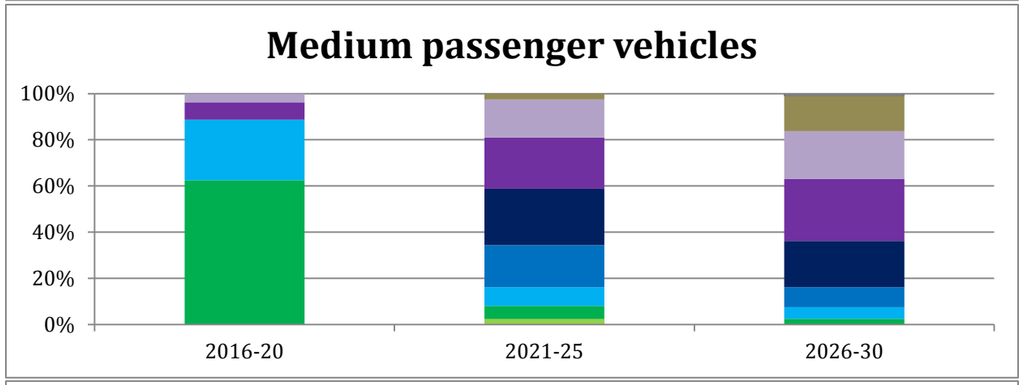
Objective: Developing emission rates that are necessary for forecasting greenhouse gas emissions from light vehicles in Australia.

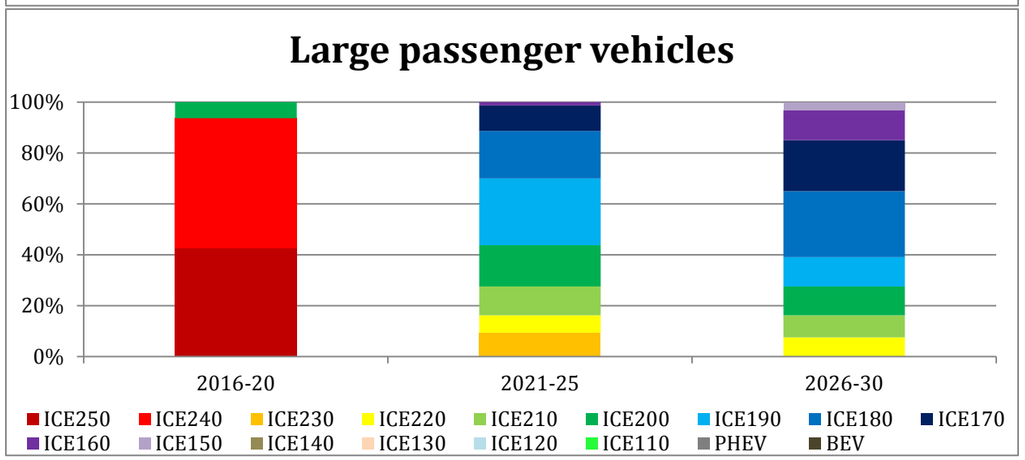
Methodology

The research uses novel stochastic approach for determining the uptake of fuel efficient technologies, including Hybrid electric vehicle (HEV), Plug-in hybrid electric vehicle (PHEV), Battery electric vehicle (BEV), and Fuel cell vehicle (FCV) in the future vehicle fleet. The study determines the market equilibrium by considering the probability density functions of vehicle price, vehicle running cost and buyer's willingness-to-pay for vehicle fuel efficiency. The probability density functions are developed by stochastic methods that consider data gathered through comprehensive literature review regarding costs of fuel efficient technologies, cost of electricity, battery development, annual vehicle mileage, energy efficiency of PHEV and BEV, buyer's attitude towards fuel efficiency.

Results – Distribution of new vehicles by fuel efficient technologies







Note: ICExxx denotes internal combustion vehicle that emits 'xxx' grams greenhouse gas emissions per kilometre of travelled distance (rate is based on the Federal Test Procedure emission test)

Conclusions

During 2015-2030 car buyers in Australia will predominately purchase internal combustion engine vehicles. The uptake of the BEVs and PHEVs is going to gain momentum at the second half of the 2020es but it is going to be very limited. FCV are not going to be viable alternative for car buyers. Greenhouse gas emission rates of new internal combustion vehicles will be decreasing at moderate rate in the next 15 years.

Anticipated impacts

This study provides knowledge that can be used for determining practical and statistically robust confidence intervals for emission rates that can be used for forecasting and modelling greenhouse gas emissions from private cars. The results can assist stakeholders from research, government and industry to assess risk when forecasting transport GHG emissions.

Further information

http://www.lowcarbonlivingcrc.com.au/research/program-2-low-carbon-precincts/rp2002-integrated-etww-demand-forecasting-and-scenario

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