Fuel Efficiency Policies in the Land Transport Sector in Thailand

Data, policy and analysis

Executive Summary
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Ranked as the world's 12th and 5th largest production hub for passenger cars and motorcycles, respectively, Thailand has a well-established vehicle industry, which significantly contributes to the national economy and the level of employment. In 2015, 0.77 million cars and 1.63 million motorcycles were newly registered in Thailand. With an annual production capacity of just over two million cars and two million motorcycles, more than half of the produced cars are now for export, whereas more than 80% of the produced motorcycles are for domestic sale. Having already a relatively high light duty vehicle ownership of about 211 cars per thousand capita in 2015, about one-third of final energy consumption in Thailand is consumed within the transportation sector. Hence, fuel efficiency policy is considered a promising candidate to effectively reduce energy consumption, as well as to reduce greenhouse gas and pollutant emissions.

With a focus on the passenger car and motorcycle segment for the time period from 2013 to 2015, various data, especially the number of and technical specifications of new vehicle sales as well as the respective model-specific fuel consumption (normalised to the energy content of gasoline, in Lge/100km), has been collected to analyse the evolution of new vehicle fuel economy and CO_2 emissions. Between 2013 to 2015, sales-weighted average fuel consumption of new passenger light duty vehicles (PLDV) has not changed much, worsening from approximately 6.98 to 7.08 Lge/100km (equivalent to about 171.70 to 174.19 gCO_2/km), which means that it is slightly above the 2013 world average value of 7.0 Lge/100km (GFEI, 2016b). However, the trend towards higher fuel consumption of newly registered PLDVs, which is mainly due to an increase of average vehicle size after the sales of exceptionally high numbers of smaller vehicles under the First Car Policy in Thailand during 2012 and 2013, can be reversed through effective fuel economy policies in the near future.

Policy measures to address fuel efficiency can be grouped into three main categories, namely consumer information (e.g. through fuel economy labelling), regulatory measures (e.g. fuel economy or CO_2 emission standards) and fiscal incentives (e.g. through fuel economy or CO_2 emission based vehicle taxation). Thailand so far has already implemented two out of the three approaches to a certain extent: a fuel economy labelling scheme – the so-called Eco Sticker – which was introduced in October 2015. Furthermore, since January 2016, the excise tax on new vehicle purchase is CO_2-based. However, the fuel economy policies in place need to be improved and expanded in order to provide the desired incentives towards the use of more fuel-efficient vehicles to the consumers.

Specifically, there is still room for improvement in two sectors, namely pick-up trucks and motorcycles. For the pick-up truck segment, improved fuel economy can be achieved by shifting from less efficient and more polluting pick-up trucks to more efficient and less polluting pick-up trucks, and to limit the role of pick-up trucks to the transportation of goods rather than the everyday use for passenger travel in congested and spatially-constrained cities. On the other hand, even though the fuel economy of motorcycles is far better than passenger cars due to its low weight, the large number of motorcycles makes it attractive to improve its fuel economy, especially if electric motorcycle is considered due to the potential reduction in local air and noise pollution.

Throughout the course of this study, various discussions, interviews, meetings and expert workshops were hold jointly with related governmental authorities, to raise the issue of effective fuel economy policy development among stakeholders. A gap analysis has been conducted to identify key issues, barriers and opportunities on the way towards implementing more effective fuel economy policies.

Finally, a set of three main recommendations has been commonly identified and proposed for discussion among stakeholders:

1) **Improve the mandatory fuel economy label.** The fuel economy label needs to provide information, which shows the fuel economy of the car under consideration in relation to the average fuel economy of all passenger cars of that year. Specifically, the stylised slider, which places the fuel consumption of a vehicle under consideration on a scale between 0 and 10 L/100km (or, if necessary, in a small area to the right indicating that fuel consumption is greater than 10L/100km) gives no clear idea about fuel efficiency, especially since the slider scale starts at a theoretical 0 L/100km and then linearly increasing up to 10 L/100km. A vehicle having a fuel consumption of 5 L/100km, which, in relation to the Thai average fuel consumption of about 7.15 L/100km would be rather efficient, cannot be identified as such, since the slider position in the middle of the scale does not suggest a particularly good performance. Furthermore, it needs to allow the consumer to understand whether the car under consideration achieves a relatively good, average, or poor fuel economy, and how much money can be saved or lost by buying the car under consideration.

2) **Revise the excise tax scheme for new cars.** Under the new excise tax scheme (CO_2 based), most vehicles will be somewhere between 100 and 200gCO_2/km. This emission band is very large while the excise tax difference is only 5% depending on whether the car emits more or less than 150gCO_2/km. Hence, it is necessary to reduce and simplify the number of carve-outs for specific vehicles and technologies, in favour of a long-term move towards a continuous linear function to relate vehicle specific carbon emissions (in gCO_2 per km) to the level of excise tax instead of using the current step function, and raise the incentive to buy more efficient vehicles by making the price increase for inefficient vehicles more progressive (i.e. increase the slope of the linear function), or even provide rebates for very efficient cars. Foster the uptake of plug-in hybrids and battery electric vehicles by excluding them from the excise tax. Omit the differentiated taxation for hybrid vehicles. If vehicles suitable for the use of E85 biofuel blends shall be incentivised, a fixed CO_2 credit can be provided for these vehicles (in gCO_2 per km, effectively reducing the tax level by shifting the car under consideration towards lower emissions and taxes). As for motorcycles (MC), additional fiscal incentives may be necessary considering that the already low MC excise tax of 3% does not attract MC manufacturing companies to participate in the voluntary fuel economy standard so far, which suggests a strong potential for including MCs in the excise tax system and/or revising the MC excise tax to encourage efficiency for a large fleet of vehicles.

3) **Consider the introduction of additional fiscal measure to stimulate use of fuel efficient vehicles.** To further incentivise the uptake of efficient vehicles in the short term, focus on the use of additional fuel economy based (Lge per 100km) or carbon emission based (gCO_2 per km) fiscal measures instead of the rather complex task of introducing fuel economy standards. These fiscal measures can include an annual, carbon emission based vehicle registration tax or an increase of the fuel tax.