

# Consumer preferences for energy efficient cars in Norway

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## Overview

There is currently a large knowledge gap in terms of understanding how consumers make decisions which involve an energy consumption component. In particular, it is unclear which factors are salient in consumers' decisions, the relative importance of these factors and how these factors change by consumer group and product type. It has long been recognised that consumers fail to minimize the total costs of their energy-consuming investments due to a range of market and non-market based failures. This has become known as the 'Energy Efficiency Gap'. A better understanding of consumer behaviour is particularly important when it comes to addressing this gap and encouraging more efficient purchases. Specifically, how important is energy consumption information in the consumer decision making process and how does this change depending on the consumer type, location and the product in question?

The energy efficiency gap also applies to new car purchases. Greience et al (2005) found that "if consumers value the discounted present value off fuel savings over the full life of new vehicles, an increase in MPG [fuel efficiency] of almost 30 percent could be expected from the use of these same technologies even without a feebate policy." In other words, consumers undervalue the benefits of fuel efficiency vehicles when choosing which cars to purchase.

This focus group study is part of a larger effort, the CONSEED project (CONSUMER Energy Efficiency Decision Making), to study how different consumer groups make energy efficiency investment decisions. The study will explore whether improving existing EU labelling schemes by including monetary usage information could result in consumers making more energy efficient investment choices. The existing literature provides some support for this hypothesis. Kallbekken et al. (2013) show that providing monetary usage information for tumble dryers reduced the average energy use of appliances sold by 12% in the short term and 4.9% in the medium to long term.

## Methods

We first conducted one focus group with car sales personnel on April 5<sup>th</sup>. The nine participants were all male, and were all based at car dealerships in Oslo or nearby districts. Results from this focus group were used to inform the questions for the second set of focus groups: We conducted three focus group interviews between April 27<sup>th</sup> and May 3<sup>rd</sup> 2017 with a total of 26 participants. The criterion for participation was to have bought or leased a new car from a dealership during the last three years, or to plan to do so within the next six months. Hence, all participants had recent experience with the car purchasing process. The consumer group participants were selected for balance on gender (54% female), age (23-65 years), and place of residence (all main regions of the country represented). In light of the high share of electric and hybrid vehicles in new car sales in Norway, the discussion did not only focus on the fuel efficiency of gasoline or diesel cars, but also on the electricity use of electric and hybrid cars.

## Results

The sales people expressed that consumers know to some extent what car model they want before they enter the dealership, in particular whether they want an EV or not. They were consistent in saying that many consumers are concerned about reducing the total cost of ownership, and that this is a major reason for high EV sales. The share of customers who lease a car rather than buy it has increased substantially in the last few years, and this has important bearings on the issue of purchase cost versus operating cost (it makes the overall question partly redundant). The sales people estimate that 40-50% lease gasoline and diesel cars, and 85% lease EVs. An important driver for this shift is that it has become more difficult to sell cars second hand, which push even more people to lease their car.

Energy cost might not be the main reason why customers buy more energy efficient (EV and hybrid) models according to the group. Many consumers think it is too risky to buy diesel cars because of potential regulations.

The sale people were relatively dismissive of the usefulness of the current EU label. When presented with alternative labels displaying energy costs or operating costs the response was much more positive. The group was divided as to whether the cost should be displayed per year or per month, and whether or not the cost of leasing/ownership should

be included in the calculation. One participant, supported by several others, suggested to use instead a dynamic (online or app-based) cost calculator that could visualize the total cost – and make it personalized.

The results from the three consumer focus groups were not entirely consistent with the sales people's belief that operating costs matter a great deal relative to the price of the car. The attributes influencing the choice of car model most frequently mentioned by the consumers were price (17), space (11), safety (10), comfort (8) and reliability (8). Running costs and fuel consumption combined were mentioned by eight, while the environment was mentioned by seven participants. Hence, attributes relating to energy efficiency were considered relatively important. Participants said they conduct extensive research online, and decide on the type of car before visiting the dealership, at which point a small number of alternatives are considered.

The choice of fuel technology greatly influences energy efficiency. Most participants said this choice was made early in the process, often before visiting a dealership, implying that this choice is not very sensitive to information provided in the dealership. However, a few participants left the choice to later in the process. When asked what they perceived as the advantages of electric vehicles (EVs), most people referred to cost savings, and many specifically mentioned that EVs are exempt from road tolls. Many also stressed the environmental benefits. Some mentioned EVs' access to bus lanes. The most important perceived drawbacks, by far, were limited driving range and charging inconveniences (lack of access at home, few public charging stations, and duration).

When asked about the relative importance of purchasing versus running costs, most assigned higher weight to the purchasing cost, and only 8 of 26 participants had calculated the running costs for different models under consideration. On the other hand, energy costs were consistently mentioned as one of the most important operating costs. When asked why fuel consumption matters, only one participant said environmental concerns were most important, while 21 said economic concerns dominated. The remaining said both concerns were equally important.

When asked whether they had seen the mandatory EU-label for cars, only one participant answered positively, while 23 explicitly said they could not recall seeing it. Some said it looks similar to labels on appliances and buildings, which appear to be more widely recognized.

After being shown the label, the vast majority found its contents useful. The primary reasons given were that it facilitated comparison of different models' emissions and fuel consumption. Only five participants found the contents not useful. For supplementing the current label, running costs were mentioned by five participants as additional information that would be useful. Maintenance and service costs were mentioned specifically. Other types of information requested were safety test scores, horsepower, and passenger/load capacity. The groups were shown sequentially four different proposals for new labels with running costs, each exemplified for two different VW Golf models, one running on gasoline and one on electricity. The labels varied across two dimensions: whether including only energy costs or a wider set of running costs and whether expressed per month or per 10 km. The sample clearly preferred the wider set of running costs, while the result is less conclusive on whether to express costs per month or per 10 km, with the former seen as more useful and the latter more influential.

The final idea proposed to the groups was a web-based calculator into which personal variables can be entered, to give a more precise and complete cost estimate. The idea received only positive reactions, and many said they would use such a calculator. Three participants had actually raised this idea before it was presented. A point relevant for all the cost estimates, stressed by some participants, is that they should be issued by a governmental body.

## Conclusions

The objective of the overall study is to explore whether including monetary usage information could result in consumers making more energy efficient investment choices. The focus group results suggest that the current EU car label is not widely recognized, but consumers did find the information useful when presented to them. Most participants expressed, however, that it would be more useful to receive information about operating costs (including energy costs), but results were not conclusive regarding whether these should be estimated per month or per 10 km. Both the sales people and consumers believed it would be even more useful to introduce a web-based calculator into which personal variables can be entered, to give a more precise and complete cost estimate.

## References

- Greene, D. L., Patterson, P. D., Singh, M., & Li, J. (2005). Feebates, rebates and gas-guzzler taxes: A study of incentives for increased fuel economy. *Energy Policy*, 33(6), 757–775.
- Kallbekken, S., Sælen, H. and Hermansen, E. T. (2013) Bridging the Energy Efficiency Gap: A Field Experiment on Lifetime Energy Costs and Household Appliances. *Journal of Consumer Policy*, 36(1), pp. 1-16.