Passenger Vehicle Fuel Economy Standards and Labeling Program
Dynamics of Indian Car Market

<table>
<thead>
<tr>
<th></th>
<th>1999-2000</th>
<th>2006-07</th>
<th>2009-10</th>
</tr>
</thead>
<tbody>
<tr>
<td>Number of Cars sold, million</td>
<td>0.698</td>
<td>1.460</td>
<td>1.880</td>
</tr>
<tr>
<td>Average Weight, kg</td>
<td>NA</td>
<td>987</td>
<td>1037</td>
</tr>
<tr>
<td>Average Fuel Consumption, liters/100 km</td>
<td>NA</td>
<td>6.53</td>
<td>6.0</td>
</tr>
</tbody>
</table>

- The annual car sales in 2020 would increase to over 5.5 million per year.
- The total stock of cars in India in that year would exceed 46.5 million.
- The annual fuel (petrol and diesel) requirement would be in excess of 24.5 million ton of oil equivalent.
- Oil imports has already crossed over 70%.
Design & Framework

• Standards & Labeling would developed and notified by MoP/BEE under Energy Conservation Act, and implemented by MoSTRH under Motor Vehicles Act
  – Would be based on km/l
• Use of CAFC standards, rather than MEFC standards
• Convergence with existing processes
  – Preference to coincide with fuel quality/emissions upgrades
  – Need to address fuel demand consequences of upweighting
  – Achievable improvements are based on available fuel quality
  – Relatively low penetration of EVs by 2020
  – Testing (both for initial type approval and for conformity of production) would be carried out according to TAP requirements; consequently for enforcement purposes, standards will be notified in terms of CO2 production
Approach

To accelerate reduction in the average fuel consumption of new cars introduced in the Indian market, a two pronged approach is proposed:

• Medium and long term fuel consumption standards for new cars to provide a regulatory signal to manufacturers to continuously reduce the average fuel consumption of cars sold by them over the next 10-year period.

• Introduction of labeling of all new cars that are sold in the market, with the labels providing consumers with information on the fuel consumption of a car model, and of the relative fuel consumption of the model compared to other models in the same weight class.

This will create:
• Market pull for low fuel-consumption models.
• Market transformation in the automobile market towards high efficient car models by decreasing fuel consumption levels.
Standards Approach

• Non-significant share of EVs

• Define Standards for 2015-16
  – Enhancement of Existing designs
  – Standard could be met through fine tuning and optimization of current designs;

• Requirement of 2020-21 standard
  – Completely new Technology
  – Would require complete redesigning and retooling.
Hypothetical 2006-07 CAFC standard line (for petrol cars, and converting fuel consumption in diesel cars into equivalent petrol consumption) is\(^1\):

\[ FC = 0.0057 \times W + 1.41 \]

Where
FC is the CAFC standard (in liters of petrol/100 km), and
\( W \) is the corporate average kerb weight of cars sold by a manufacturer in the year (in kg)
Hypothetical 2009-10 CAFC standard line (for petrol cars, and converting fuel consumption in diesel cars into equivalent petrol consumption) is\(^1\):

\[
FC = 0.0071 \times W - 0.725
\]

Where

- FC is the CAFC standard (in liters of petrol/100 km), and
- W is the corporate average kerb weight of cars sold by a manufacturer in the year (in kg)
Enforcement of Standards

2015-16 Standards

• The fuel consumption of vehicles will be measured according to the TAP test procedures notified under the Motor Vehicles Rules. For compliance purposes, the 2015-16 corporate average CO\textsubscript{2} production standard to be used with the TAP test procedures is:

\[ C = 0.06 \times W + 76, \]

where

- \( C \) is the Corporate Average CO\textsubscript{2} production in gms/km, and
- \( W \) is the Corporate Average Sales Kerb Weight (in kg).
Enforcement of Standards

2020-21 Standards

• For compliance purposes, the 2020-21 corporate average CO$_2$ production standard to be used with the TAP test procedures is:
  
  \[ C = 0.055 \times W + 66 \]

• In case, EURO V or higher grade Fuel is not available:
  
  \[ C = 0.055 \times W + 71, \]
Fuel Consumption of all Models sold in 2009-10
Star Label Categorization of Model-wise Fuel Consumption Data
Label Design

• Stars (1-5) display the relative efficiency of the model in the weight class; arrow indicates exact star rating of model

• Each box represents a weight class; the coloured box represents the weight class of the model

• Fuel consumption of the model is displayed in km/l

• Important specifications like brand, model, type, fuel type, etc.
The kerb-weight classes (converted from reference weight classes defined by TAP)

<table>
<thead>
<tr>
<th>Kerb Weight (Kgs)</th>
<th>Exceeding</th>
<th>Upto</th>
</tr>
</thead>
<tbody>
<tr>
<td>330</td>
<td>390</td>
<td></td>
</tr>
<tr>
<td>390</td>
<td>445</td>
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<tr>
<td>445</td>
<td>500</td>
<td></td>
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<tr>
<td>500</td>
<td>560</td>
<td></td>
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<tr>
<td>560</td>
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<td></td>
</tr>
<tr>
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<td>700</td>
<td></td>
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<tr>
<td>700</td>
<td>815</td>
<td></td>
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<tr>
<td>815</td>
<td>930</td>
<td></td>
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<tr>
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<td>1040</td>
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<tr>
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<td>1830</td>
<td>1950</td>
<td></td>
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<tr>
<td>1950</td>
<td>2060</td>
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<tr>
<td>2060</td>
<td>2230</td>
<td></td>
</tr>
<tr>
<td>2230</td>
<td>2460</td>
<td></td>
</tr>
</tbody>
</table>

Above 2460
Implementation

• Agreed standards and labeling programme will be notified immediately
  – MoSTRH will initiate amendment to TAP

• Manufacturers will report to MoSTRH:
  – fuel consumption data, in terms of CO2, (measured during type test) for each model
  – Annual sales of each model

• MoSTRH will calculate the Corporate Average Kerb weight and Corporate Average CO2 Production for each manufacturer after 2015-16 and 2020-21
  – The calculated CACP should be less than the CACP for the same CAKW on the standard line
  – Non compliance will lead to penalty under the Energy Conservation Act

• Manufactuers will apply for label based on the labeling programme and the fuel comsumption of a model measured during type test
  – Check testing will be done through CoP testing
  – Labeling fee will cover outreach costs
  – Immediate voluntary labeling; mandatory from 1.4.2012
Thank you for your attention,

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