

Comments on Consultation Paper on Passenger Car Fuel Economy Labeling and Standards Framework -- Issued by Bureau of Energy Efficiency on October 21, 2011

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The Bureau of Energy Efficiency has released a consultation paper on Passenger Car Fuel Economy Labeling and Standards Framework for 2015 and 2020. Based on this proposal the Government of India will issue the notification on fuel economy standards and a labeling programme under the Energy Conservation Act. As these standards are being defined for the first time in the country it is very important that the guiding principles, objectives, specific targets and the intended benefits are carefully assessed, verified, and notified for adequate stringency and effective impacts.

Centre for Science and Environment therefore shares the following section-wise comments to indicate the changes that are needed to make this proposal more robust and effective.

Section-wise comments and recommendations**1. Section -- Background and objective (pp 2-3)**

The proposal must state the energy and environmental goals of this regulation: This section has stated the challenge of growing vehicle numbers and its impact on energy demand; and, the need for strong signals to consumers and manufacturers to reduce average fuel consumption of new cars.

However, the proposal must also include the overall goal related to energy security and other environmental goals as well as align with the relevant policies of Government of India including the Integrated Energy Policy, National Climate Action Plan and National Habitat Mission, the official position on energy intensity cuts by at least 20-25 per cent by 2020 among others. The proposal must also state and justify the magnitude of oil savings possible with the help of this regulation. This will help to determine the level of stringency for the overall industry-wide fuel consumption reduction targets in 2015 and 2020 as well as the specific targets for the car manufacturers. This rationale is important for the desired stringency of the targets. This is also a crucial missing link in the document right now.

We recommend:

- **This section should be modified to state the overall goals, the guiding principles, target reduction and fuel savings expected from this regulation.**

2. Section -- What it means for consumers? – The proposed labeling programme (pp 4-7)

This section defines the fuel economy labeling of car models.

We do not agree with the proposal that “there is no lower-end to the one star range” (p4). The proposal justifies this on the ground that “...some car models with high fuel consumption will continue to be in demand to meet specific needs...” and the purpose is not to ban any car. This is a serious deviation from BEE's own practice of labeling of other products. If this approach gains legitimacy then BEE's labeling of other appliances can also be compromised.

The principle of this argument is also not acceptable as without minimum standards for one star a sizeable section of luxury brands will remain unaffected. Even though their overall market share is small, the principle of this technical derogation for luxury brands is not acceptable.

We demand

- **Minimum standards for the fuel economy labeling programme**
- **Specify the periodicity of three years for revision and upgrade of the labeling to reflect the actual changes in the market and keep the programme dynamic. The proposal does mention that the labeling programme will be calibrated in 2014-15 for the next phase. But the periodicity for continuous update should be specified.**

3. Section: Proposed Corporate Average Fuel Consumption standards. What it means for manufacturers? (pp 8-15)

i) The proposal omits to mention the actual limit values and the improvement targets: This section proposes the Corporate Average Fuel Consumption (CAFC) standards for cars (in litres per 100 km) for 2015-16 and 2020-21. But strangely enough, it has omitted to mention the actual limit values or standards for CAFC for 2015-16 and 2020-21. The standard is represented as an upward sloping line relating the fuel consumption level to kerb weight of the vehicles. This has been presented in the figure 6 (p15). An equation has been given to calculate and estimate the fuel consumption of a car model of a given weight according to the standard line.

The proposal expects people, stakeholders and regulators to decode the standard values and the target improvement from the indicative standard line presented in the Figure 6 and the equation therein. But the proposal has not given the requisite official data on fuel economy, weight and sales of car models in a year for each manufacturer that are needed for such estimation. So it is not possible to know the sales weighted CAFC target for the industry as well as for individual manufacturers.

Why this proposal which is meant for public consultation is overtly careful about holding back on the real targets and limit values? This attempt to obfuscate the real targets raises question about the official intent.

All other governments state the limit value/standard in the regulatory document. The most relevant example is that of the European Union. The structure of the Indian proposal is quite similar to the structure of the corporate average CO₂ standards of Europe but targets are different. The Article 1 of the regulatory document of the European Commission (Regulation (EC) No 443/2009 of the European Parliament and the Council of 23 April 2009) states – “*This regulation sets the average CO₂ emissions for new passenger cars at 130 gCO₂/km.....*” It further states that the overall objective of the European Union that guides the standard setting is to -- “*pursue the objective of a 30% reduction of greenhouse gas emissions By 2020 from 1990 level....*” etc.

We demand

- **The BEE proposal and the subsequent notification must state the actual CAFC limit values/standards for the industry as well as manufacturer-wise targets for 2015-16 and 2020-21. This will make the targets transparent, intelligible and publicly verifiable. It is the obligation of the Government of India to state the actual limit value of the standard and improvement targets of the regulation and not hide them. There cannot be legal sanction for hiding the actual regulatory targets.**

ii. Proposed standard signals car industry to slow down. Gives legitimacy to guzzling

CSE has attempted to estimate the proposed limit values and the target improvement from the proposed standard line (figure 6) based on the available data on sales, fuel economy and weight of car models from the Society of Indian Automobile Manufacturers and market sources. This has helped to demystify the proposed targets. The proposed CAFC limit value for 2015-16 is 5.7

litres/100km. For 2020-21 two limit values have been proposed – 5.1 litres /100 km assuming uniform Euro V compliant fuel quality across the country or 5.4 litres /100 km without it.

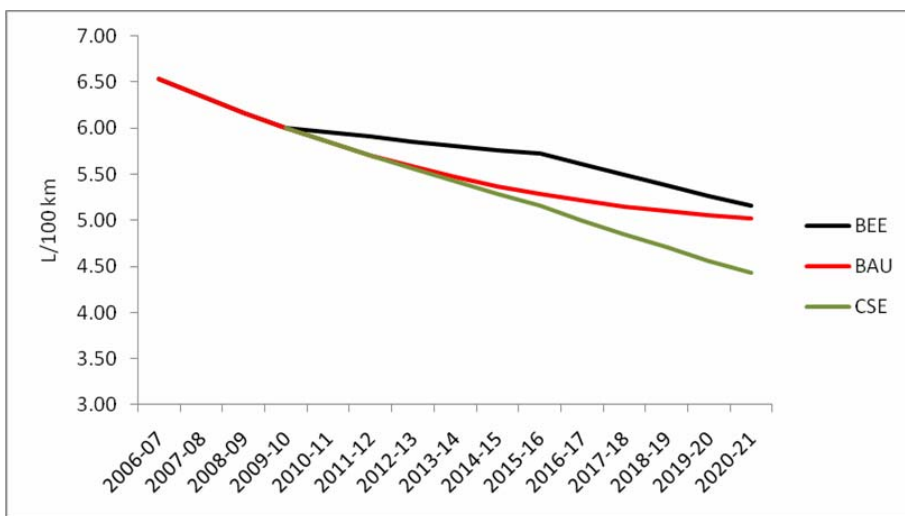
These are very poor regulatory targets as evident from the proposal itself. The proposal has mentioned the actual average fuel consumption in the base year 2009-10 as 6 litres/100 km (p2). From that standpoint the standards have aimed for only 0.45 per cent reduction in fuel consumption per year until 2015 and 2.27 per cent reduction thereafter until 2020. This translates into a mere 14.4 percent reduction in fuel consumption between 2010 and 2020. This is a measly 1.28 per cent improvement a year over 10 years.

This is significantly lower than the rate of improvement that the industry has already achieved without any standards. The proposal itself has indicated that between 2006-07 and 2009-10 the natural rate of improvement has been 2.8 per cent per year. This improvement was possible even with increase in average weight of the cars from 987 kg in 2006-7 to 1037 kg in 2009-10. The transition to Euro III/IV emissions standards during this period was an opportunity to make substantial technology upgrades.

It is disturbing therefore, that the proposal is legalizing slow down from the natural rate of improvement. This will allow margin for increase in average weight, higher energy guzzling, and worsening of the trend with no real fuel saving benefits. If this trend worsens the average fuel consumption levels will again go up. But this will be cushioned by the official standards and that is how official standards have been designed. But this is a very wrong principle.

It is therefore important that the standards protect the current natural rate of improvement at atleast at 2.5 percent a year until 2015 and 3 per cent per year subsequently. This will make the target effective, help realize the full potential of the market and enable substantial fuel savings in 2020. This is also consistent with the proposed improvement targets stated by the low carbon report of the Planning Commission. Otherwise, the official standard will allow margin to the industry to worsen the trend as is evident from graph 1 (Comparison of BEE standard line, business as usual, and the limit value improving the natural rate of improvement of the industry).

Graph 1: Comparison of BEE standard line, business as usual, and the limit value improving the natural rate of improvement of the industry



With baseline average fuel consumption of cars at 6 l/100km, as the proposal has mentioned, the baseline oil use is around 9 million tons of oil equivalent in 2010. This without any intervention will increase to 25 million tons of oil equivalent in 2020.

A review of the global fuel economy targets carried out by the Indian Council of Clean Transportation that has also considered the BEE proposal for 2020 has shown that with this the fuel use can be reduced to only 22.9 million tons of oil equivalent -- a small reduction of 1.7 mtoe in 2020. In 2030 fuel use gets further reduced from 80.8 mtoe to 69.8 mtoe or a reduction of 10.9 mtoe. The cumulative oil savings from 2010 to 2020 will be around 4.8 mtoe, whereas cumulative oil savings from 2010 to 2030 would be around 65 mtoe.

But we are proposing a target that is asking the car industry to do a little better than what they have already achieved. In this case the 2020 fuel savings can be double and the cumulative savings can almost triple.

We demand

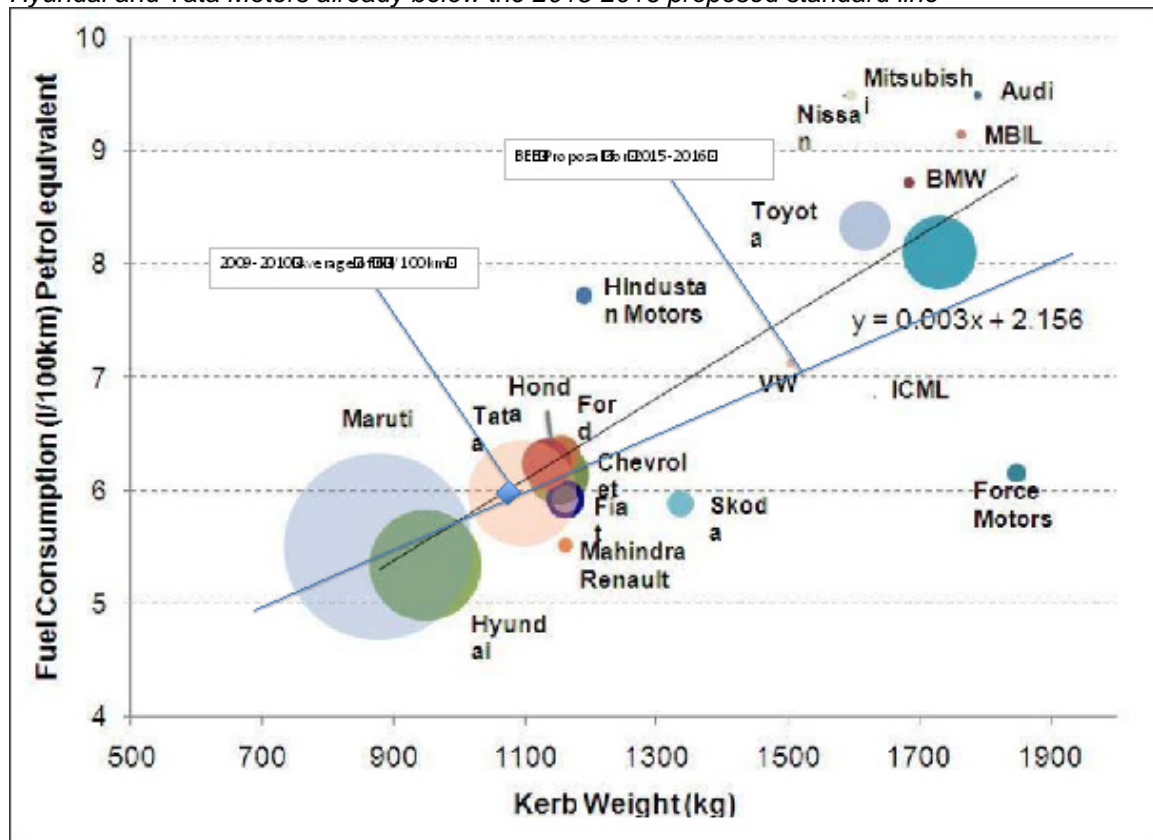
- **The CAFC standard should protect the baseline improvement in fuel economy level that the car industry has already achieved and improve on that. The proposal has indicated that 2.8 per cent annual improvement has already been achieved between 2006-7 and 2009-10. Therefore, the new standards must aim to protect this at 2.5 percent annual improvement until 2015 and subsequently achieve 3 per cent improvement a year.**
- **With this it is possible to have the standard of 4.4 litres/100 km or 104 gCO₂/km in 2020. This is also in line with the proposal of the low carbon report of the Planning Commission and consistent with the stated goal of India to reduce the energy intensity of the economy by 20-25 percent until 2020.**
- **It is important to note that the European Union with much higher average weight of car fleet today -- 1300 kg is setting a more ambitious CO₂ target of 95 g/km in 2020. But India with average weight of 1037 kg and with a better baseline emissions/fuel economy today is aiming for only marginal improvement. Also Europe is aiming for 95 g/km in 2020 without any assumption of significant hybrid penetration.**

iii. The proposal must state the manufacturer-wise targets

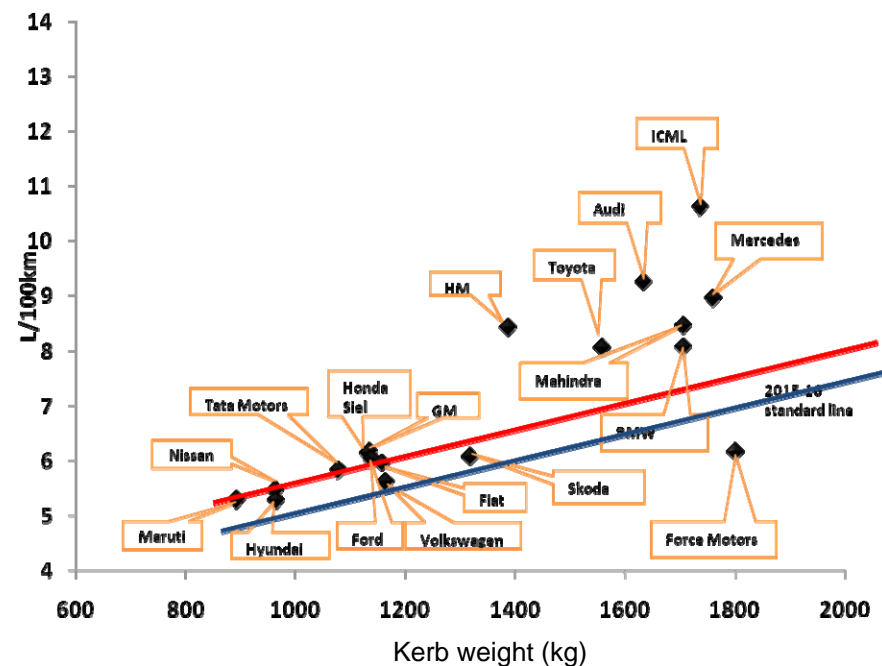
The proposal has also not mentioned how the manufacturer-wise target will be derived from the industry-wide target based on their unique product mix. The available BEE assessment of the position of different car companies now and the superimposition of the BEE standard line on it suggests that some of the major carmakers will not have to do anything until 2015. For instance, based on the 2009-10 performance Tata Motors and Hyundai are meeting the proposed standard of 2015-16. Only after 2015 the limit value gets a little tighter especially for the heavier vehicles, but not stringent enough. (Graph 2: Position of the major car makers vis a vis the proposed standard line for 2015-16)

Further analysis based on the 2010-11 data shows that the proposed standards do not challenge the major car makers including Maruti Udyog Ltd, Tata Motors, Hyundai and a few others and they are the bulk of the market. Only Maruti Udyog Ltd, Tata Motors, Hyundai are more than 70 percent of the market (Graph 3: Position of various car companies in 2010-11 vis-à-vis the standard line of 2015-16 and 2020-21).

Graph 2: Position of the major car makers vis a vis the proposed standard line for 2015-16
Hyundai and Tata Motors already below the 2015-2016 proposed standard line

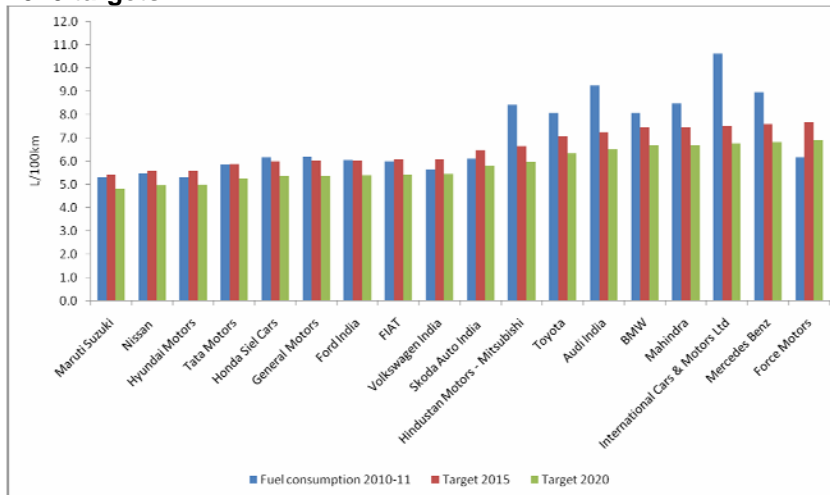


Graph 3: Position of various car companies in 2010-11 vis-à-vis the standard line of 2015-16 and 2020-21



Currently, the standard line is only tighter for a few small players in the heavy segment. The slope of the standard line in 2020 needs to be lower and flatter for adequate stringency for all classes of manufacturers (Graph 4: Comparison of the actual CAFC of the car companies in 2010-11 with 2015 and 2020 targets).

Graph 4: Comparison of the actual CAFC of the car companies in 2010-11 with 2015 and 2020 targets



We demand:

- **As the standard for different weight categories depends on the slope of the standard line, flatten the slope of the standard line for higher fuel savings from the heavier classes while distributing some of the burden to other segments as well.**
- **We therefore recommend changing the slope of the standard line for 2015 from 0.059 to 0.05 and for 2020 from 0.054 to 0.042.**

iv. The hypothetical standard lines used for 2006-7 and 2009-10 to compare with standard lines are misleading and has no scientific basis. This should be removed:

It is very strange that the proposal has indicated two hypothetical standard lines for the years 2006-7 and 2009-10 (pp 11-12). For some inexplicable reason these hypothetical lines are not the average sales weighted fuel economy level of the fleet for that year but the average of the worst performing manufacturers in the market. This has made the lines very lenient. These have been used to contrast and give the impression that the proposed targets are a lot better. But in reality – as seen earlier, the actual improvement targeted between 2009-10 and 2020-21 is only 10-12 per cent – less than 1 per cent a year. The worst performing line has been used as an “all capped line” to show that all other vehicles in the market fall below this line. It is wrong to compare the average of the worst with the actual sales weighted average. This has absolutely no scientific validity.

It has not been explained why the actual best fit average fuel economy curve of 2009-10 (figure 1 (pg 5) that has been considered in the same proposal for the labeling programme has not been considered for the standard setting.

This completely defies logic and is scientifically untenable. This also brings back an earlier attempt by the SCOE committee of the ministry of transport and highways in 2008 to construct a weak baseline for 2006 based on the worst performing vehicles and use that to justify the weak

regulatory target. This misleading approach must be dropped altogether. Government of India cannot give legitimacy to motivated misinformation.

The proposal has used these hypothetical standards also to conclude that these indicate heavier vehicles have shown slower improvement for heavier cars. But the proposed standard line has also not done enough justice to the targets for the heavier vehicles. Though the proposed targets are comparatively stricter for heavier cars, the slope of the curve is still steep and allows leniency for the heavier models.

Since the entire proposal revolves around the slope of the standard line (Figure 6) it may help to compare that with the slope of the standard line of the European standard line to understand the relative stringency of these lines (See box: European and Indian formula: Demystify the equation).

Box: European and Indian formula:

Present the Indian equation in a transparent and intelligible way

The European regulatory document also specifies a formula for estimating the sales weighted corporate average CO₂ emissions in the Annexe 1. Their equation is transparent on the real target, mass and the slope of the standards. For example:

Specific emissions of CO₂ = 130 + a x (M-Mo)

Where 130 is the limit value, M= mass of the vehicle in kg, Mo = 1372,0 the average mass of the industry, a = 0.0457 slope of the standard line

The Indian formula for 2015-16 reads as:

CAFC = 0.0025 x CACW + 3.171 in fuel consumption terms; and, CACP = 0.059 x CACW + 75 in CO₂ terms.

If interpreted in the European way the Indian proposal will read as follows.

CACP = 0.059 x CACW – 0.059 x 1037 + 0.059 x 1037 + 75

Therefore, CACP = 136.2 + 0.059 x (CACW – 1037) so that,

136.2 gm/km (proposed limit value) = 0.059 (slope of the standard line) x (Mass of the vehicle – average mass of the industry which is 1037 kg)

Similarly, the 2020-21 formula of

CACP = 0.0054 x CACW + 65 is equivalent to

CACP = **121** + 0.054 x (CACW – 1037)

When put this way the standard and the average mass becomes transparent and intelligible. But more important it immediately brings out the laxity of the Indian standard which is otherwise not obvious to a lay reader from the proposed official formula. The slope gradient proposed for 2015 in India is 0.059, while the slope proposed for 2020 is 0.054. In Europe the slope of 2015 is 0.0457. The European slope is flatter and that makes the standards for the heavier vehicles tighter. The European standards line for 2015 is tighter and flatter and therefore relatively more stringent.

We demand:

- **The hypothetical standards lines for 2006-07 and 2009-10 are completely removed from this proposal. The actual sales weighted fuel economy average for the base year 2009-10 be used to decide the improvement targets for 2015 and 2020. Hypothetical lines are based on worst performers and cannot be compared with the sales weighted corporate average line of the standards. This is not scientific.**

v. The proposal must specify adjustment of the standards periodically to reflect the change in average weight of cars in the market.

It is well known that any target improvement can get lax if the average weight of the fleet increases. Meeting the same target with a higher mass is easier and this also reduces the fuel economy benefits. That is the reason why the regulation has to make a provision for a periodic adjustment of the targets according to the changing mass in the market. The proposed legislation should mandate that.

It is evident from the proposal that the average weight of the car fleet is increasing and has increased by more than 5 per cent between 2006-07 and 2009-10. The latest available data for the year 2010-11 shows that the weight increase has continued and the rate of fuel economy improvement has slowed down. It is this trend that the regulations will have to address.

Europe has mandated correction for weight increase. The regulation of the Europe on the current CO2 standards had made this provision. The Article 13 (2) of the Regulation (EC) No 443/2009 of the European Parliament and the Council April 23 states that “.... every three years thereafter, measures shall be adopted to amend Annexe 1 to adjust the figure To the average mass of new passenger cars in the previous three calendar years.”

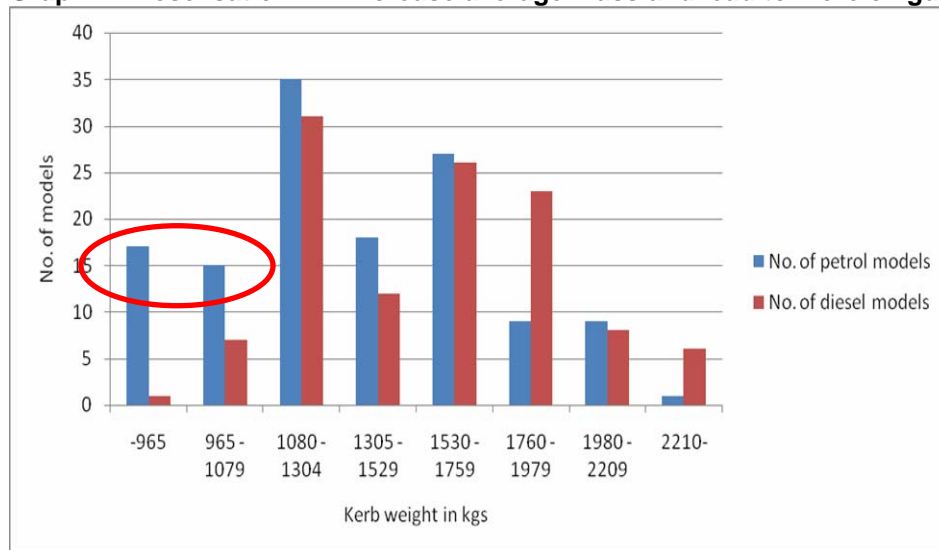
We demand

- **A provision be made in the proposal to correct the limit values every three years based on the market trends in the average weight of the car fleet.**

vi. India has an added challenge of dieselization that will further aid in weight increase compromising fuel saving benefits

In India cheap diesel has created unique incentive for dieselisation of car segment. Diesel cars are already close to 40 per cent of the new car sales. But dieselization has not given real fuel economy benefit as diesel cars are heavier, and have bigger engines. In fact official definition of small car is -- petrol car with 1200 cc engines and diesel car with 1500 cc engines. More diesel cars will aid in shift to heavier cars in the fleet.

Currently, the average mass of Indian car fleet is 1037 kg as mentioned in the proposal. It is interesting that in the weight category of 900-1070 kg which corresponds to the average mass of the current fleet (1037 kg) there are fewer diesel car models. Most of the diesel models are in the heavier weight classes. This indicates that increased demand of diesel cars will push demand to heavier classes – beyond 1079 kg. It is also evident that while 85 percent of the petrol cars sold in India have less than 1200 cc engines, 64 percent of diesel cars are around 1500 cc, the rest is above. Bigger engines will always use more fuel. This defeats the objective of improving India's energy security. (Graph 4: Dieselisation will increase average mass and lead to more oil guzzling).

Graph 4: Dieselisation will increase average mass and lead to more oil guzzling**We demand**

- **Increase the stringency for the heavier and bigger cars that also have more diesel models. This will also disincentivise bigger cars and SUVs**
- **Link fiscal incentive and taxes with fuel efficiency of the cars.**
- **Implement higher taxes on diesel cars to nullify the incentive from cheap fuel and also control dieselization. This will also help to resolve the trade off between fuel efficiency and public health impacts. Parallel improvement in emissions standards will have to support fuel economy improvement initiatives.**

vii. Linking stringency of the fuel economy standards with fuel quality is not scientifically tenable or acceptable: For 2020-21, the proposal has recommended two set of emissions standards – a more lenient standards of 5.4 litres/100 km if Euro V fuel quality is not available across the country and 5.10 litres/100 km if it is available. The reason for this has not been justified or substantiated on any scientific basis. This is fallacious as is evident from the global evidences that show Euro III fuel – currently the nation-wide fuel in India -- is not a constraint on fuel economy improvement either for IC engines or hybrids.

It is important to note that the fuel economy data already published by SIAM shows that there are popular and high selling car models in the Indian market that have much improved level of fuel economy than both the standards proposed for 2020. These include Alto, i10, i20, Verna, Spark etc. These are operating with the current level of fuel quality in the market and with better fuel consumption levels than the proposed standards for 2020. The bogey of fuel quality should not be use to mislead the debate.

Also the super efficient electric hybrid is usable with the currently available fuel in India. One of the fastest growing hybrid markets in South Asian region is Sri Lanka that still uses fuels with 500 ppm sulphur.

Also the requisite petrol octane that is commonly available in India is not an impediment to meeting the tighter targets.

We demand

- **The provision of two targets with and without Euro V fuel quality should be deleted from the proposal. Only one stringent standard should be set for 2020.**
- **Delink fuel quality from the fuel economy targets even though it is an imperative that the country must have Euro V compliant fuel quality by 2020 to meet the public health challenge.**

4. Section – Implementation (pp 15-17)

i. Enforcement and compliance strategy must be detailed out for corporate average fuel economy standards: To implement sales weighted corporate average standards every year the regulator will have to access and assess the actual number of cars sold by model, their kerb weight and calculate their average fuel economy levels to verify compliance. This requires very disciplined and credible reporting of data.

The implementation strategy currently defined in the proposal is weak. It only demands self reporting on annual sales of car models, kerb weight, and fuel economy levels by the car manufacturers without any independent checks.

A second provision must be made requiring state governments to report registration of sales by car model to the Ministry of Road transport and Highways. It is important to cross check the self reported data of the industry. Even in Europe member states have to report annual registration figures for new cars to the European commission. Manufacturers are invited to check the data.

As of now there is no official system in place to collate and verify the actual sales of car models in India and the entire system will depend on self reporting by the car industry. The BEE/Ministry of Power and the Ministry of Road transport and Highways must immediately put that system in place as well as detail out the compliance strategy.

The annual data base that will be used for monitoring and the compliance status should be in the public domain.

- **We demand**
 - **A specific section be introduced on monitoring and reporting of the data.**
 - **This should specify the format for the manufacturers to report the data.**
 - **Specify the executive system for independent recording of information on vehicle registration and the requisite parameters in all states**
 - **Central government should create a central registry on the requisite data. This should be publicly available. The central registry of data in Europe is in public domain.**
 - **Detailed rules for reporting and scrutiny should be specified.**

ii. Independent tests to verify fuel economy of models in the market:

The proposal states that fuel consumption of vehicles would be measured in accordance with the TAP document during the type approval tests and this data would be used for the computation of the CAFC. Fuel consumption would also be measured for each model during tests which are carried out to ensure conformity of production with the type approval on a regular basis. Even for labeling it states that the results from the type approval test will be used to establish the star rating of the model (pp 16-17). Thus, only conformity of production is expected to verify the compliance.

The proposal has deviated from the provision and practice of independent after market tests by BEE to verify compliance that is done for other appliances.

This omission is not acceptable. The entire onus of proving compliance and accountability has been placed on the car industry which is the target of the regulations. There is no provision for independent checks. This has very serious conflict of interest and can diminish the confidence level in the effectiveness of the regulations. The proposal must include provision of independent testing by the Bureau of Energy Efficiency for the purpose of proving compliance for both standards as well as labeling. The labeling fee can be used to create a fund to meet the cost of independent tests.

We demand

- **Include independent after market testing by BEE. The BEE is already empowered to carry out *suo moto* tests for all other labeling programme to verify compliance. Any deviation for the cars will compromise the integrity of this provision.**

iii. Define the penalty provision in the proposal

CAFC standards cannot work without stringent compliance and penalty system. The proposal mentions “compliance failure would lead to penalties under the Energy Conservation Act.” (p16) But this has not been defined. This is the most crucial element in compliance strategy. Review the penalty provision of the Energy Conservation Act for desired stringency. Specify the details in the proposal.

We demand

- **The penalty should be defined in the regulatory document. This should have adequate stringency to act as an effective deterrent.**

iv. The proposed standards will make India slide behind all major car producing countries by 2020 – even behind US and China. India, by an act of policy, is aiming to finish the worst in the world despite starting from one of the best baselines in 2010. With the proposed targets, India will finish behind all of them in 2020 (see the table Comparison of the CO₂/fuel economy improvement target of key vehicle producing regions). India will show up very poorly in the ongoing international climate negotiations if its fuel economy target worsens than that of the US and China despite starting at a level better than them. This will make a mockery of the National Climate Action Plan of the Prime Minister’s Council. Public policy must now allow slow improvement in fuel savings and CO emissions from the luxury consumption of cars. This is not acceptable either under the principles of climate justice or that of energy security.

Table: Comparison of the CO₂/fuel economy improvement target for passenger cars of key vehicle producing regions

Country	Fleet average CO ₂ emissions (g/km) In 2010 (approx)	Fleet average CO ₂ emissions (g/km) target proposed for 2020
European Union	145	95
United States	187	121
China	179	117
Japan	130	105
India	140	121-126

Source: Based on the estimates of the International Council of Clean Transportation that has compared the fuel economy/CO₂ regulatory targets for the countries US, European Union, Japan and China based on NEDC cycle.

We demand

- **2.5 to 3 per cent improvement a year to stay ahead in the race and build on our inherent advantage. With this improvement it will be possible to achieve a target 104 gmCO₂/km (4.4 litre/100 km) in 2020. This will help to achieve effective fuel savings that is urgently needed as India imports nearly 80 percent of its crude oil. This will also help to avoid increase in greenhouse gas emissions.**

5. Section – Official process of setting the fuel economy standards (p1)

The first page of the proposal states that in pursuance of the decision by PMO regarding the introduction of fuel economy labels and standards for passenger cars “extensive consultation has been carried out by the ministry of power, ministry of road transport and highways, department of heavy industry, Bureau of Energy Efficiency and Society of Indian Automobile Manufacturers.” We are extremely concerned that the standards have been decided based only on deliberations with the automobile industry which is the target of these standards. This is a serious conflict of interest. All emissions regulations for vehicles so far including Auto Fuel Policy Roadmap have been decided by well represented bodies and committees and a broad based consultation process with a range of stakeholders. We fail to understand why this process has been overlooked in this case.

We welcome the decision to open this up for public consultation. Rigorous and inclusive consultation should now be followed, and sincere and serious efforts must be made to respond and incorporate the suggestions to make the standards robust and stringent and to remove industry bias.