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IMPLEMENTING THE KYOTO PROTOCOL COMMITMENT AND FREE TRADE —FOCUSING ON JAPANESE AUTOMOBILE FUEL EFFICIENCY STANDARDS—

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Abstract: Once the Kyoto Protocol, multilateral environmental agreement to cope with climate change, will become effective in February 2005, many countries will accelerate to further introduce policies and measures in order to implement their commitments under the Protocol. One of the most plausible measures will be an introduction of tighter automobile fuel efficiency standards. However it will be also plausible to invite trade dispute when automobile exporting countries feel the standards to be unfairly discriminatory against their products. The compatibility of trade and environment has become increasingly hot issue. This paper discusses how climate policies under the Kyoto Protocol and free trade under WTO rules can become mutually supportive, focusing on Japanese automobile fuel efficiency standards.

Key words: Free Trade, Environmental Protection, Automobile Fuel Efficiency, Top Runner Approach, CAFE regulation, WTO.

1. JAPANESE IMPLEMENTATION PLAN AND ITS IMPACT ON TRADE

This paper begins with brief explanation of Japanese implementation plan under the Kyoto Protocol as a basis to the following discussion.

1.1. Implementation Plan

In order to comply with Japan's commitment to reduce GHGs (Greenhouse Gases) emissions by 6% on average during the years 2008 through 2012 in comparison to the base year emission of 1990, Japanese Government formally launched its first implementation plan in June 19, 1998. However, as it became clear that the plan was not sufficient, it was revised in March 19, 2002. Table 1 shows both original and revised implementation plans.

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Table 1. Japanese Government's Implementation Plans

	Original, June 1998	Revised, March 2002
CO_2 emissions from energy origin	± 0.0%	± 0.0%
CO_2 emissions from non-energy use, methane emissions, and nitrous oxide emissions	− 0.5%	− 0.5%
Reductions by innovative technologies (and change of life style)[a)]	− 2.0%	− 2.0%
Emissions of HFCs, PFCs and SF6	+2.0%	+2.0%
The use of Sinks	− 3.7%	− 3.9%
Kyoto Mechanisms (international emission trading etc.)	− 1.8%	− 1.6%
Total	− 6.0%	− 6.0%

a) Newly added in the revised plan

The most important among them is the plan to stabilize energy-origin CO_2 (Carbon Dioxide) emissions[1] in 2010 at the same level as in 1990. The original plan was introduced on the assumption that, without any particular measures being introduced, the energy-origin CO_2 emission in 2010 would exceed by 20% in comparison to that in 1990. Though several measures have been introduced since the original action plan, it was estimated, in 2001, that emissions in 2010 would still surpass that of base year by 7%. Consequently the implementation plan was revised in 2002. Table 2 shows major laws and revisions enacted since the adoption of the Kyoto Protocol. "Top-runner" approach on energy efficiency has been introduced by the revision of the Law Concerning the Rational Use of Energy in 1998 (took effect in 1999).

Table 2. New laws and revisions to cope with climate change (1998–2003)

	Effectuation year
Law concerning the Promotion of Measures to Cope with Global Warming	1998
Revision of Law Concerning the Rational Use of Energy (Top-Runner Approach)	1999
Revision of Law concerning the Promotion of Measure to Cope with Global Warming	2002
Revision of Law concerning the Rational Use of Energy	2002
Revision of Law concerning Promotion of the Use of New Energy	2002
The Basic law on Energy Policy Making	2002
Special Measures law concerning the use of new energy by electric utilities (RPS)	2003

1.2. Current situation and the implementation plan

According to the latest statistics, Japan's GHGs and CO_2 emissions in 2002 are as follows;

[1] Share of energy-origin CO2 emissions against total GHG emissions (CO2 equivalent) was about 88% in 2001.

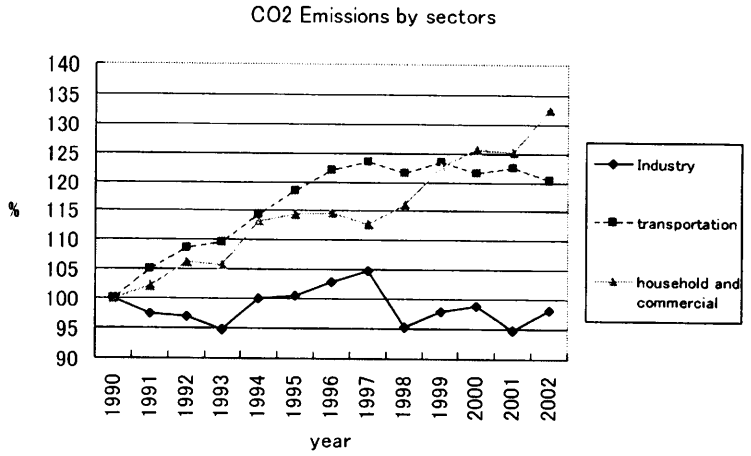


Figure 1.

GHGs (CO_2 equivalent) 1,331 Mt/CO_2 (+7.6% in comparison to 1990)

CO_2 1,248 Mt/CO_2 (+11.2% —do—)

Total Energy-origin CO_2 emission has increased by 8.6%, in spite of introduction of various measures as shown in Table 2. With this figure in front of us, it is highly expected that the revised implementation plan would be revisited again in order to attain stabilization goal. As a matter of fact review work has already started at several Government Committees. However, increase ratios differ greatly by sectors. Emission from industry decreased by 1.7% in contrast to that of transport (+20.4%) and household/commercial (+33.0%) (Figure 1). This means that additional measures, if any, should focus on transport as well as household/commercial sectors.

It is noteworthy that a report of subcommittee of the Central Environmental Council dated Dec. 13, 2000 even suggested, as one of the possibilities to cope with climate change in transport sector, an idea of further introducing "CAFE-like" fleet average standards for automobile manufacturers (to be discussed later) &/or compulsory introduction of electric vehicles or fuel cell cars. It should be also noted that in November 2004, Ministry of Environment proposed environment tax (¥2400/t-c). Though this proposal has not been adopted, the point at issue here is whether these existing and/or potential measures will be compatible with current WTO/GATT rules or not.

1.3. Climate Change and Trade

Relationship between climate change policies and free trade has been discussed by various authors (Brack, D et al. (2000), Brewer, T. L. (2002), Charnovitz, S. (2003) etc.). Theoretically there will be many aspects of conflicts between them. One of the interesting issues is that whether tradable permits under the Kyoto Protocol are subject to WTO/GATT rules. It is argued that tradable permits are neither goods nor services and that only goods and services are subject to GATT (Werksman, J., 1999, Charnovitz, S. 2003). Another point is whether countries that assume GHG emission caps under the Kyoto Protocol (Annex B countries) are allowed to take trade measures against goods

and services from non parties to the Protocol (European Parliament 2001). However, in view of the fact that many countries are members of both the WTO and the Kyoto Protocol (146 and 121 countries respectively for WTO and the Protocol as of April 2004), it is highly unlikely any country would bring up the case for WTO panel.

Rather, actual conflict, if any, may occur with respect to domestic measures, such as carbon tax, tradable permit allocation under domestic emission trading scheme, various standards etc. Take for example a case of carbon tax. Many European countries have already introduced carbon taxes to cope with climate change. However it is quite common that, in view of international competitiveness, tax exemptions or reductions are granted to strategic sectors. Whether this special treatment (subsidies) would not be subject to prohibited or actionable subsidies under SCM (Agreement on Subsidies and Countervailing Measures) remains unclear. These taxes with exemptions were first introduced in Nordic countries in early 1990s without any challenge from WTO/GATT parties up to now.

EU-wide emission trading scheme is scheduled to start from January 1, 2005. At this moment, however, situation is unclear how each member countries' National Allocation Plan will be finalized and also how fair the allocations will be for each installations throughout the EU. In this sense, it will be too early to discuss relationship between the scheme and WTO rules. In addition, should any dispute arises between member states, it will be solved within the EU and will not become a WTO issue.

In view of the fact that, in most developed countries, what matters are not emissions from industry but those from transport, household and commercial sectors, also in view of the above discussions that taxes and domestic emission trading schemes will less likely to be subject to conflict with WTO rules, foreseeable conflict will be between domestic measures in non industrial fields and WTO rules. Among those domestic measures, disputes on strengthening of energy efficiency standards, in particular automobile fuel efficiency, will be most plausible in many countries[2].

This paper first examines the "top-runner" approach in relation to the Agreement on Technical Barriers to Trade (TBT agreement), followed by the discussion under what

[2] In Europe, there already exists voluntary agreement (VA) between the European Commision and ACEA (European Automobile Manufactures Association) (refer to section 2.3.2). However, reportedly ACEA is asking the Commission to review the agreement, as the target seems very hard to achieve (Nihon Keizai Shinbun, March 18, 2004). If the VA proved to be not effective enough, what comes next will surely be the mandatory tightening of automobile fuel efficiency. In Canada, it is reported that Canadian Environment Minister considers introducing mandatory automobile fuel efficiency standards based on those in the United States if Canadian automakers continue to stall negotiations on tougher voluntary fuel efficiency standards (International Environment Reporter, March 24, 2004, Vol. 27, No. 6). Also, in the United States, the National Commission on Energy Policy recommended to significantly raising federal fuel economy standards for cars and light trucks (NCEP 2004). In addition, a new law "Vehicle Emissions: Greenhouse Gas" had been enacted in California, and to follow it up, an introductions of a new regulation "Greenhouse gas exchaust emission standards and test procedurers" is under way. Once this regulation become effective, fuel efficiency standard will be tightened.

situation "CAFE-like" standard could be introduced in Japan to tackle global warming[3].

2. JAPANESE "TOP-RUNNER" AUTOMOBILE FUEL EFFICIENCY STANDARDS AND TBT AGREEMENT

2.1. Introduction of "Top-Runner" approach (promulgation on June 5, 1998 and effectuation on April 1, 1999)

As explained earlier, the purpose of the "top-runner" approach is to contribute to the compliance of the obligation under the Kyoto Protocol by improving the energy efficiencies of various products including automobiles. Under the approach, the manufacturers and importers of passenger cars (gasoline and diesel) and light trucks with less than 2.5 t of weight (gasoline and diesel) have to comply with the new fuel efficiency standards[4], which is almost equivalent to the best fuel efficiency car among each category[5].

Concrete targets for passenger cars (gasoline) as well as fuel efficiency improvement ratios for both passenger cars and light trucks are shown in Table 3 and 4 respectively.

Estimated fuel efficiency improvement ratios in table 4-1 and 4-2 are calculated on the assumption that the annual car sales of each category in 2010 (or 2005 in case of diesel cars) are the same as in 1995. As there are very few (diesel) passenger cars and light trucks in Japan, this approach will contribute to reduce the weighted average of CO_2 emissions from passenger cars and light trucks by around 20%[6].

According to MITI (1998), the Government considered two points when setting fuel efficiency standard categories; In order that the standard to be more effective, it is desirable to have less standard categories. However, that will result in the discrimination against manufacturers that mainly produce heavy cars. On the other hand, if there are too many subdivisions in categories, manufactures and importers will lose incentives to

Table 3. Fuel efficiency targets (example: passenger cars, gasoline)

Inertia Weight (kg)	750	875	1000	1250	1500	1750	2000	2250	2500
Target km/l	21.2	18.8	17.9	16.0	13.0	10.5	8.9	7.8	6.4

[3] This paper discusses the issue of trade and environment on the assumption that environmental measures should be compatible with existing WTO rules. This means, in a sense, that the value of free trade is superior to other values, including environment. Esty, C.D. (2001) brings up this point. With regard to the traditional trade rule that when trade and environment principles clash, acceptable environmental policies are those least contradictory to GATT, he argues as "Such an approach lacks balance, — . A more neutral decision rule would focus on whether the environmental standards are arbitrary, unjustifiable, or a disguised restriction on trade" (p. 126). This is, in a sense, a crucial point on trade and environment controversy and worth further discussion. However it will take longer time to solve this issue, whereas various policies and measures will be introduced in short period. With this in mind, the paper discusses the compatibility of climate change policy with existing WTO rules.

[4] The target should be met by 2010 for passenger cars and gasoline light trucks, and by 2005 for diesel trucks.

[5] For details of top-runner approach, refer to discussions in chapter 2-2.

[6] The improvement ratio would become small in proportion to the increase of number of cars and/or kilometers driven by a car.

Table 4-1. Estimated improvement ratio (gasoline cars)

Fuel efficiency	1995 (actual)	2010 (estimate)	Improvement ratio
Passenger cars	12.3 km/l	15.1 km/l	22.8%
Light trucks	14.4 km/l	16.3 km/l	13.2%
Total (average)	12.6 km/l	15.3 km/l	21.4%

Source; MITI (1998)

Table 4-2. Estimated improvement ratio (diesel cars)

Fuel efficiency	1995 (actual)	2005 (estimate)	Improvement ratio
Passenger cars	10.1 km/l	11.6 km/l	14.9%
Light trucks	13.8 km/l	14.7 km/l	6.5%
Total (average)	10.7 km/l	12.1 km/l	13.1%

Source; MITI (1998)

switch to small and more fuel-efficient cars. Taking those factors into consideration, categories are set in line with existing categories for pollutants emission measurement methodology[7] (Table 3).

2.2. *Exchange of views with the United States and European Commission (Refer to Annex 1, 2 and 3 for GATT Articles III, XX and TBT Agreement Article 2)*

As explained earlier, the introduction of top-runner approach was promulgated in June 5, 1998 and took effect on April 1, 1999. Just about one month before its enactment, the Japanese Government received written comments from the United States and the European Commission expressing their concern that the revised standards might work discriminatory against their cars imported to Japan.

First of all, it may be useful to know the facts on the process toward revision of the law. In February 20, 1998, about 3 month before its promulgation, Japanese Government notified the WTO on its intention to revise the law, explaining that the new fuel efficiency standards would be based on the highest fuel efficiency among the same product in the same category. Upon receipt of the notification, WTO notified the member countries and asked them to submit comments, if any. No comment was submitted by March 20, the deadline date.

In Japan, Joint Subcommittee[8] meetings were held six times during August and December 1998. It should be pointed out that a representative from Japan Automobile Importers Association was included as a member of the Subcommittee. In addition, the Subcommittee held hearings from several US and European car manufacturers as well as AAMC (American Automobile Manufactures Association) and ACEA (European Automobile Manufactures Association). In October, the Government solicited public

[7] At the same time of the introduction of "top-runner" approach, category classification was revised (subdivided from 6 to 9) to integrate with the category classification of pollutants emission measurement methodologies in order to lighten automobile manufacturers/importers burden.

[8] The Joint Subcommittee organized by the Automobile Standard Subcommittee of the Energy Efficiency Standard Section of the Advisory Committee for Energy and the Fuel Efficiency Standard Subcommittee of the Automobiles Section of the Council for Transport Technology.

comments on the draft amendment law. Then in December 1998, Japanese Government notified the WTO on the new fuel efficiency standards which was then circulated to other contracting parties for comments. The deadline was set as March 8, 1999. Just on that day, Japanese Government received written comments from both the United States and the European Commission expressing their concern that the revision may affect adversely against imported cars.

In March, inter-governmental discussions were held in Washington, Brussels and Tokyo, according to the WTO/TBT procedures. Finally on April 1, 1999, the revision was enacted. The discussions between the Governments and the European Commission continued through 1999 to 2000. But no formal appeal was submitted under GATT/TBT.

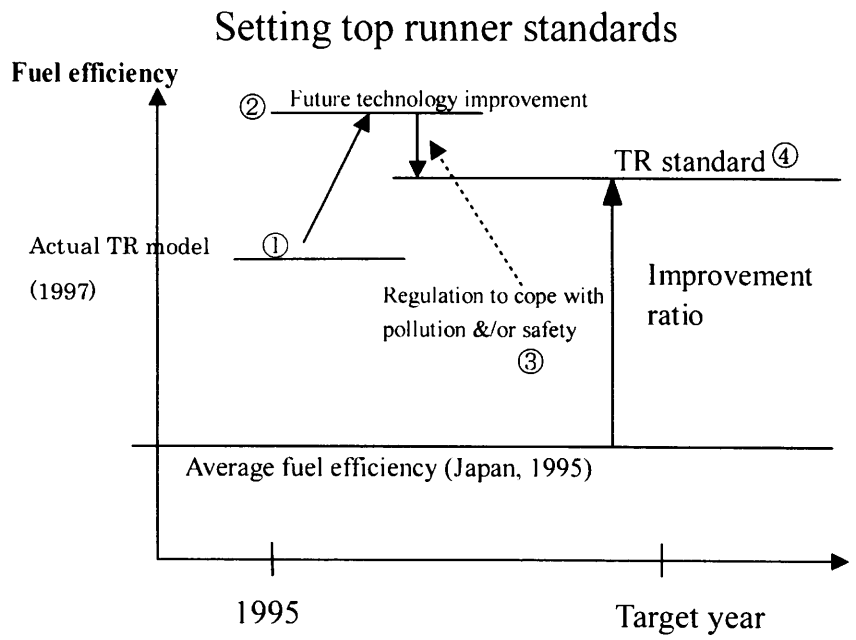
Now let us focus on what were the U.S. and the European Commission's assertions. The United States argues for three points: firstly, to discuss with Japanese Government whether the objectives could be attained in a different way without creating unnecessary barriers to trade (Article 2.5 of the TBT agreement); secondly, to request to have meetings (Article 2.9.4 of TBT agreement) and to provide full text of the documents (Article 2.9.3 and 5.6.3 of the TBT agreement); and thirdly, to express their concern about the potential discriminatory effect of the new standards on U.S. and other imported cars. The United States pointed out that under the new standards, 90% of all imported gasoline-fueled cars in Japan would fall under the three weight categories that required to have the largest fuel efficiency improvement. In addition, it also argued that the top-runners were Japanese cars in all categories.

The European Commission (hereinafter called as EC) argued in almost the same way as the United States did. In addition to requesting for discussion with Japanese Government (Article 2.9.4 of the TBT agreement), the EC argued that under the new standards, 88% of European cars in Japan would fall under the three weight categories with the largest fuel efficiency improvement while this proportion would be considerably less for cars domestically produced. Another point of their concern was that the revision of the standards would leave considerable uncertainty as to how it would be applied in practice.

To sum up, points raised seemed to ask if

1) this approach was in line with the national treatment under GATT Article III-4,
2) the standards were set to be more restrictive than necessary to fulfil objectives, in other words, the objectives could be attained in a different way (TBT Article 2.2),
3) the standards were set arbitrary and not based on science (TBT Article 2.2), and
4) the process of setting standards transparent (TBT Article 2.9).

Before examining in detail the above points in view of the GATT/TBT rules, it would be better to understand more precisely what "top-runner" really means. As shown in Figure 2, "top-runner (TR)" does not simply mean the best fuel-efficiency car in the same category.



Compiled by the author based on the chart by Mr. N. Tsuzuki, Ministry of Economy, Trade and Industry

Figure 2.

First, select the existing best fuel efficiency car in 1997 in each category (All of them happen to be Japanese cars, ①). Then take into consideration of future technology improvement (②). Technologies that are not feasible are excluded. Next, consider future strengthening of the pollution, noise and safety regulations. These factors adversely affect against improving the fuel efficiency (③). Then, exclude those cars that are exceptionally fuel-efficient, but sold for only a fraction, such as hybrid cars. Through this process, top-runner fuel efficiency standards were set (④). For comparison of actual top-runner efficiency and the standards, refer to column (B)–(A) in Table 5.

2.3. Top-runner approach and compatibility with GATT/TBT

As explained in the previous section, neither the United States nor the European Commission formally brought up the case to the GATT/TBT. In addition, very few information are available on the Japanese Government's justification with respect to the compatibility of the top-runner approach with GATT/TBT Articles. The author examined the issue by analyzing available data. The followings are the main findings.

2.3.1. Are the standards discriminatory to imported cars?

Both the United States and the EC expressed concern that the categories required to have the highest fuel efficiency improvement ratios were those with the highest concentration of imported cars, therefore new standards might unfairly discriminate US and

Table 5. Setting the top-runner standards and top-runners

Inertia Weight (kg)	TR car manufac-turers	TR Fuel efficiency (A) Km/l (2010)	TR actual fuel efficiency (B) Km/l (1997)	(B)–(A)	Factors setting TR fuel efficiency
750	FHI	21.2	21.2	0.0	Tech. F–Pollution F.
875	— do —	18.8	18.8	0.0	Tech. F.–Pollution F.
1000	Honda	17.9	17.9	0.0	Tech. F.–Pollution F.
1250	Toyota	16.0	16.2	0.2	Pollution F.
1500	Mitsubishi	13.0	13.6	0.6	Pollution F.
1750	— do —	10.5	10.7	0.2	Pollution F.
2000	— do —	8.9	9.0	0.1	Tech. F.–Pollution F.
2250	— do —	7.8	7.9	0.1	Tech. F.–Pollution F.
2500	Toyota	6.4	6.4	0.0	Tech. F.–Pollution F.

Tech. F. means that future technology improvement has been taken into account.

Pollution F. means that future strengthening of the pollution, noise and safety regulations have been considered.

Compiled by the author using data from METI (Ministry of Economy, Trade and Industry)

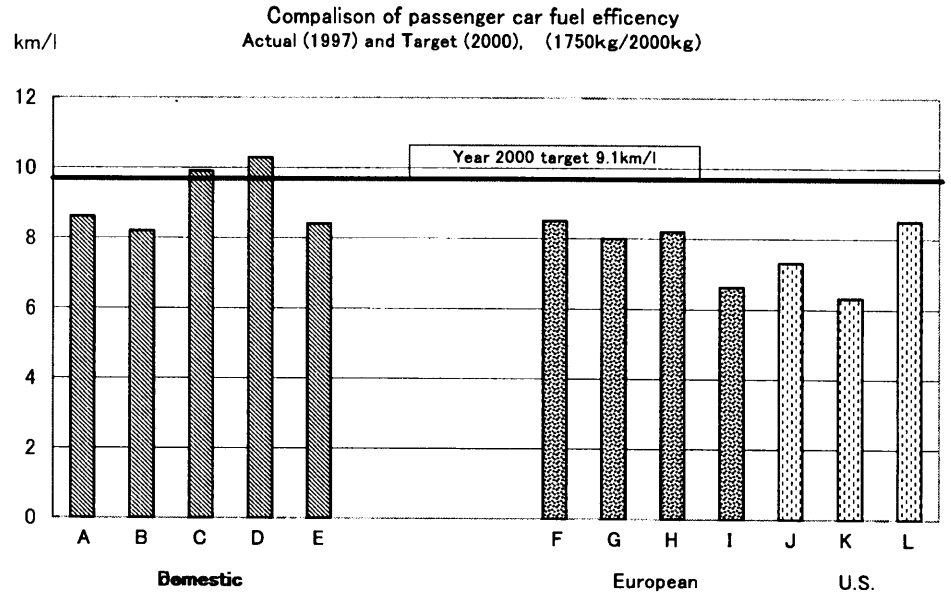
Table 6. Fuel-efficiency improvement ratio and the shares of car sales

Inertia Weight (kg)	Standards in 2000 (km/l)	TR Standards (Km/l)	Improvement Ratio (%)	Share of sales in Japan (%)		
				USA	EC	Japan
750	19.2	21.2	10.4	0	0	6
875	18.2	18.8	3.3	0	5	15
1000	16.3	17.9	9.8	0	2	15
1250	12.1	16.0	32.2	5	32	22
1500		13.0	7.4	16	37	25
1750	9.1	10.5	15.4	37	18	12
2000		8.9	−2.2	37	4	3
2250	5.8	7.8	34.5	5	2	1
2500		6.4	10.3	0	0	0

Compiled by the author using data from METI (Ministry of Economy, Trade and Industry)

European cars. If this being the case, then it may lead to the breach of GATT Article III-4 as well as TBT Agreement Article 2.2 (refer to the ANNEX 1 & 3).

As a start, let us examine the fact that in what categories imported cars are concentrated and that whether the improvement ratios of standards for those categories have been particularly severe or not. As far as improvement ratios are concerned, standards for cars with inertia weight of 1250 kg and 2250 kg are set most ambitious (Table 6). On the other hand, the sales of US cars are concentrated on the inertia weight of 1750 and 2000 kg cars and those of European cars on the inertia weight of 1250 and 1500 kg cars.



Compiled by the author using data from METI (Ministry of Economy, Trade and Industry)

Figure 3. Actual fuel efficiency in 1997 and efficiency target for 2000.

As far as the United States is concerned, it is not correct that most US cars fall under weight categories with the largest fuel efficiency improvement. It is cars with inertia weight of 1250 and 2250 kg which are required to have the largest improvement ratios, and US car sales under these categories are relatively low as shown in Table 6. How about the situation with respect to European car sales in Japan? Almost seventy percent of European car sales fall under the inertia weight category of 1250 and 1500 kg. Though it is true that the improvement ratio of the former category is among the highest, that of the latter category is quite modest. In view of the above, and also taking into consideration that top-runner standards for larger cars (inertia weight between 1250 to 2000 kg), where share of imported cars is relatively large, are set below actual fuel efficiency (refer to Table 5, column (B)–(A)), the author believes that the standards does not discriminate against imported cars.

The next point to be noted is that the above improvement ratios are "nominal" ones: i.e. calculations are based on the assumption that all cars both domestic and imported comply with existing fuel efficiency standards. However this assumption is not always relevant. Just take one example. Figure 3 shows the comparison between the target fuel efficiency (for year 2000 model cars with inertia weight of 1750/2000 kg) and actual fuel efficiencies (for year 1997 model cars in the same category). As shown in Figure 3, two Japanese manufacturers have already attained the efficiency target. Whereas no manufacturer of imported cars have reached the target, with some having too large a margin to overcome the gap before the year 2000. This means that it may be relatively easier for domestic manufacturers to comply with the top-runner standards by target

year of 2010 than foreign manufacturers. In other words, "net" improvement ratio is much harder for imported cars to attain. However this is because of the fact that imported cars are not likely to achieve even existing efficiency target for the year 2000. This is quite a different issue than discrimination under GATT/TBT rules. There is no reason to reward manufactures not complying with current standards.

The third point with regard to discrimination issues is the conflict between the United States and the European Community over CAFE (Corporate Average Fuel Economy) standard[9] at the GATT Panel. In defending the CAFE standard, United States argued that "Under average fuel economy requirements, manufacturers achieved compliance both by improving the fuel economy of their various classes of vehicles and by increasing the proportion of vehicles in the lighter weight classes.—Presumably, the EC would not object to setting different fuel economy requirements for different size classes of vehicles" (GATT (1994), 3.283 & 3.284). It is obvious that the top-runner approach is the one allowing different fuel economy requirements for different size of vehicles. This clearly shows that the United States does not deem "top-runner" approach as the breach of GATT/TBT.

In view of the above, the author concludes that the top-runner standards would not be discriminatory to imported cars.

2.3.2. Are there alternatives?

Next point is to explore the possibility of introducing alternative measures that is less trade restrictive.

In the field of measures in transport sector, there is a concrete example that may be alternative to the top-runner approach; i.e. the voluntary agreement (VA) between the EC and the ACEA concluded in 1998 to reduce CO_2 emissions from passenger cars. This agreement plays major role in European Union's (EU's) measures in transport sector to tackle climate change. First the agreement was concluded with ACEA, which was followed by Japanese Automobile Manufacturers Association (JAMA) and Korean Automobile Manufacturers Association (KAMA) in the next year.

The EU aims at reducing the average CO_2 emissions from new passenger cars to 120 g/km by 2005 or 2010 at the latest. The VA was concluded as one of the measures to meet the EU emission target for new passenger cars. In the VA, parties concerned agreed to control the average CO_2 emissions from new passenger cars at less than 140 g/km by 2008 for ACEA and by 2009 for JAMA and KAMA. The average specific CO_2 emissions from new passenger cars fell by 7.5% from 186 g/km in 1995 to 172 g/km in 2000. However, the increase in the driving distance has offset the efficiency improvement (EEA (2002) pp. 48–49)[10].

[9] For the detailed discussion on the conflict between the United States and the EC over CAFE, refer to the Chapter 3 of this paper.

[10] EC (2004) describes that, even though ACEA and JAMA would be able to comply with their commitment (140 g/km), additional efforts have to be made in order to meet the EC target (120 g/km) by 2010. With this respect it should be noted that the situation may not be improved because of the increase of the driving distance.

Now let us examine whether the same kind of VA would be feasible and effective to reduce CO_2 emissions from cars in Japan.

First of all, it should be pointed out that the EU style VA (single CO_2 emission criterion for all manufacturers) may be more trade restrictive than the top-runner approach with various weight categories. Then, how about introducing voluntary agreement under which manufacturers association (JAMA, AAMC and ACEA) accept exactly the same targets and categories as the top-runner fuel efficiency standards? This will be acceptable if it really works well. However, as shown in the Figure 3 above, there is a possibility that any of these associations would fail to achieve the target. In this case, who would assume responsibility? The agreement does not set any rules whether the association itself assumes responsibility or particular manufacturer(s) should be responsible.

One another point to be added is that the situation in Japan is quite different from the one in Europe with respect to coping with climate change. In the year 2002, GHG emissions in EU-15 member countries as a whole have already decreased by 2.9% in comparison to the base year of 1990. On the other hand, GHG emissions in Japan have increased by 7.6%. Japan must introduce more effective measures (i.e. standard, not VA) to reduce CO_2 emissions in the transport sector.

In addition to the above, automobile fuel efficiency standards have already existed for many years in Japan. The best way will be to just strengthen the standards rather than to newly introduce VA, effectiveness of which is uncertain.

From the above analysis, the author concludes that the European type VA may not be feasible nor become alternative measure.

Second alternative idea is the introduction of CAFE-style fuel efficiency standard. As fully discussed later in this paper, it surely is more trade restrictive than the top-runner approach, because the average weight of imported cars are heavier than domestic cars. In this sense, this will not be a less trade restrictive alternative.

2.3.3. Are the TR standards "more trade-restrictive than necessary to fulfil a legitimate objective, taking account of the risks non-fulfilment would create"? (TBT Article 2)

To start the discussion, it is necessary to know exactly what is legitimate objective as well as what are the risks. In the field of climate change, there will be two kinds of legitimate objectives: one is to reduce or limit GHG emissions in order to attain sustainable development, and the other is to comply with the Kyoto Protocol target. Then what are the risks non-fulfilment of the legitimate objectives would create? They are the climate change and its adverse impacts to the ecosystem, including human beings. At a glance, IPCC (2001a) may persuade people that, in a long run, it is absolutely necessary to reduce global GHG emissions substantially below the current level. Failing to do so would lead to unsustainable development. This is why almost all major countries, except the United States and Australia, have already ratified the Kyoto Protocol.

As explained in 1.2 above, it seems to be very hard for Japan to comply with the Kyoto Protocol commitment. Japan has to reduce its GHG emissions by 13.6% (7.6%

plus 6%) in less than 10 years to achieve the target. Under this situation, for Japan to implement its commitment, it will be imperative to reduce CO_2 emission in the transport sector, where the increase ratio of CO_2 emission is very high (+20.4%). In view of the fact that it would not be feasible to set an absolute limit of CO_2 emissions from automobiles by controlling the number of cars or kilometers driven, the top-runner approach would be the most effective and the least trade restrictive measure to mitigate climate change, taking account of the risks of the global warming.

2.3.4. Are the standards arbitrary and not based on science?

At the same time of the adoption of the top-runner approach, category classification was revised from 6 to 9 (refer to footnote 7). The only reason of this revision is to lessen the burden of automobile manufacturers/importers' burden by integrating with pollutants emission measurement methodology. In this sense, the increase of categories will not be deemed as arbitrary, but has not been based on science. However, any category classification will not be scientific.

Rather, the issue is the way the standards are set. As explained in 2.2 above and shown in Figure 2, there is no room left for any interested parties for arbitrary decision, at least with regard to standard setting methodology. However, it may be possible that subjective judgment will be made in applying it. For example, one can argue against technology improvement ratios and strictness of future pollution/safety regulations actually applied in setting the standards. Only one point that may show the standards are not arbitrary is the fact that the introduced top-runner standards are less stringent than actual top runner fuel efficiency for categories where the shares of imported cars are relatively large (Table 5).

2.3.5. Are processes transparent and do they conform to the TBT rules?

The next point is to examine whether the processes of revising standards are transparent or not. According to TBT agreement, Japan has obligation to explain, upon request, the justification of the standards (Article 2.5) and to provide information to other Members (Article 2.9.3). As explained in 2.2 above, Japan has notified to other Members, through WTO secretariat, its intention to introduce top-runner approach, while allowing reasonable time for them to respond. And upon request, several meetings were held with the United States Government and the EC in order to exchange views as well as to provide necessary information. In addition, opinions from ACEA and AAMA were reviewed together with other domestic stakeholders' comments that were solicited through public comment process. Japan explained that the new standards were justified in view of the facts described in 2.3.1 through 2.3.3 above. With these in mind, it would be reasonable to assume that the process of standard setting was transparent and in conformity with the TBT rules.

2.3.6. Other factors to be considered (the comparison of penalties with those of U.S. CAFE standard)

Penalties against the breach of the top-runner standards are as low as ¥1M. ($10,000) per manufacturer/importer. On the other hand, a penalty under CAFE standards is set

as $5 multiplied by the amount of shortfall, multiplied by the number of tenths of a mile per gallon by which the manufacturer's fleet is below the requirement. As a matter of fact, Mercedes-Benz alone have paid for model year 1991 sales as much as $19M. (GATT (1994), 3.264).

Based on the above analysis, it is the authors' view that the top-runner approach is GATT/TBT compatible. The fact that neither the United States nor the European Commission has brought the issue to the GATT/TBT Dispute Settlement Panel would support this conclusion.

3. CAFE STANDARDS AND THE GATT PANEL REPORT[11]

Even after the introduction of the top-runner approach, it is still unclear whether Japan will be able to meet its commitment under the Kyoto Protocol in view of the sharp increase of CO_2 emissions in transport and household/commercial sectors. So there may be a possibility where Japan may have to strengthen further the fuel efficiency standards. As stated in 1.2 of this paper, an idea of introducing CAFE-like fleet average standards and/or compulsory introduction of electric vehicles or fuel cell cars was submitted as one of the potential measures in the report of the Subcommittee of the Central Environment Council (ME 2000). In view of environmental protection, the idea would be desirable. However there may be a case that the measures based on such idea would become more trade restrictive than top-runner approach. Then, to what extent will countries be able to introduce stricter standards under GATT/TBT rules? Take up CAFE standard as a case study.

3.1. What is "CAFE"?

CAFE standard was introduced in the United States shortly after the first oil crisis for the purpose of natural resource conservation[12]. For that purpose, mandatory average fuel economy values (standard) are set for all manufacturers for each model year (for passenger cars 27.5 mpg[13] and light trucks 20.7 mpg). One of the most important characteristics in CAFE is to calculate average fuel economy value for each manufacturer's or importer's entire fleet of vehicles. Whoever brings vehicles into the United States is a manufacturer (this means importers are deemed as a manufacturer under CAFE). If an importer imports cars from more than one producer, the importer would be deemed as the "manufacturer" of all the makes of vehicles it imports. Also, in case a company manufactures as well as imports cars, its average fuel economy is to be calculated separately for imported cars and for those manufactured domestically. This rule is called as "separate foreign fleet accounting", under which foreign cars and domestic fleets should be treated as if manufactured by a separate manufacturer. However, an automobile is deemed to be manufactured domestically if at least 75% of the manufacturer's costs are

[11] GATT (1994)

[12] Corporate Average Fuel Economy Law (CAFE) in the Energy Policy and Conservation Act (EPCA 1975)

[13] For model years 1978–80 standard was set as 18, 19 and 20 mpg respectively and for 1995 and thereafter set as 27.5 mpg (11.6 km/l). For information, Japanese passenger cars fleet average in 1995 was 15.5 km/l.

Table 7. Comparison of penalties between "like products"

Manufacturer	Model Year '91 Sales	Fuel Economy	Penalty
Cadillac	208,534	22.1	0* ($56,304,180)
Lincoln	180,047	23.1	0* ($39,610,340)
Mercedes-Benz	73,729	22.3	$19,169,540
BMW	52,322	23.2	$11,249,230
Volvo	70,622	25.3	$ 7,768,420

* The amount in parentheses indicate the CAFE penalties these manufacturers would have paid had they not been able to average their fuel economy values with those of other GM and Ford divisions.
Source: GATT (1994)

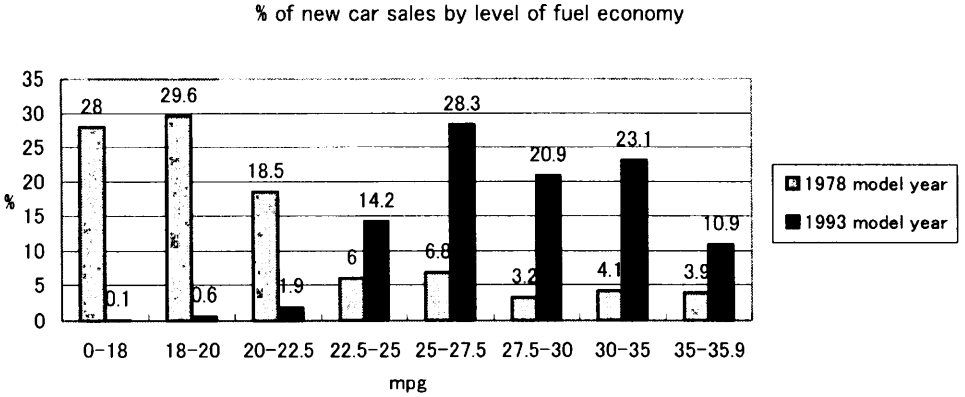
attributable to US materials or value added in the United States or Canada. The essence of CAFE is that it matters manufacturer's entire fleet average fuel efficiency and not the fuel efficiency of each cars. For example, even if a manufacture produces top-runner fuel efficiency cars in various weight categories, when its entire fleet cannot meet the standard for average fuel efficiency (27.5 mpg in case of passenger car), the manufacturer will be subject to penalty. On the other hand, the Japanese top-runner approach will consider such manufacturer to have met the requirement as it has already produced the top runner fuel efficiency cars corresponding to each category.

At the request of the European Community, a panel was established to examine whether the U.S. CAFE standard is compatible with GATT rules.

3.2. Arguments and counter arguments between the EC and the United States at GATT panel

The EC argued that the CAFE standard was in breach of GATT Article III (national treatment for "like product") and Article XX (general exception), whereas the United States denied the EC's assertion.

The main reasons of the EC's assertion that the CAFE discriminated against imported cars were as follows. Firstly, under CAFE, almost all penalties were paid by the European automobile manufacturers (Mercedes-Benz, BMW etc.), and US "like product" cars (such as Cadillac, Lincoln) were not subject to penalty (Table 7). Secondly, there should have been more trade-neutral and non-discriminatory alternatives (for example, taxing all vehicles according to fuel consumption), Thirdly, separate foreign fleet accounting rule was trade-oriented and motivated by protectionism, as there were no reasons to discriminate imported cars against domestic cars with same fuel efficiency. Fourthly, general exception (Article XX) could not be applied to CAFE as it constituted arbitrary and unjustifiable discrimination as well as it worked as a disguised trade restriction.



Compiled by the author from GATT (1994)

Figure 4. Impact of CAFE rule (Improvement of passenger car fuel economy)

The United States' main arguments that it was compatible with GATT rules were as follows. Firstly, CAFE was applied equally to domestic and foreign manufacturers. Secondly, alternatives such as introduction of tax or different standards for different weight categories would not be as effective as CAFE[14]. Thirdly, the objective of the CAFE measures was to conserve fuel, not to serve as a disguised restriction on trade. CAFE had resulted in real, substantial conservation of fuel (Figure 4). Therefore article XX (general exception) should be applied.

3.3. Panel conclusion

Based on the findings described below, the Panel concluded that the CAFE regulation was inconsistent with Article III-4 (national treatment) and, to the extent that it was based on separate foreign fleet accounting, could not be justified under Article XX (general exception). The followings are the extracts of Panel findings.

3.3.1. Article III-4, On separate foreign fleet accounting

1) The panel· · ·found that the requirement of separate foreign fleet accounting under CAFE regulation accorded to particular products of foreign origin· · ·less favourable than those accorded to like domestic products. (GATT (1994) 5.47)
2) In this case, less favourable treatment of large foreign cars· · ·would be balanced by less favourable treatment of large domestic cars· · ·. The Panel noted that· · ·a contracting party cannot justify less favourable treatment to an individual product by showing that other products receive more favourable treatment. (GATT (1994) 5.48)
3) The Panel· · ·concluded that the separate foreign fleet accounting· · ·was thus inconsistent with Article III-4. (GATT (1994) 5.49)

[14] "Presumably, the EU would not object to setting different fuel economy requirements for different size classes of vehicles. However, this approach would make it more difficult to ensure that the specific policy objective· · ·could be met.· · ·Manufacturers could decide to produce only those vehicles falling into the least fuel-efficient class, resulting in a fleet with significantly lower CAFE". GATT (1994) 3.284

3.3.2. Article III-4, On fleet averaging

1) The Panel concluded that the fleet averaging requirement based on the ownership or control relationship of the car manufacturer did not relate to cars as products.・・・・Therefore it could not be imposed consistently with Article III-4・・・・. (GATT (1994) 5.55)

3.3.3. Article XX (g), On general exception on conservation of natural resources

1) On separate foreign fleet accounting

The Panel concluded that less favourable treatment・・・・accorded to large imported cars due to separate foreign fleet accounting・・・・was not primarily aimed at the conservation of natural resources and therefore could not be justified by Article XX(g). (GATT (1994) 5.61)

2) On fleet averaging

The Panel observed that if there were no requirement placed on imported cars, the objectives of the CAFE programme would be prejudiced, as imported large cars would not be subject to any restriction on fuel consumption. Thus the application of fleet averaging to imported cars in a similar manner to its application to domestic cars clearly served the purpose of fuel conservation, and served to render effective the conservation measure. In these respects, fleet averaging met two of the key requirements of Article XX (g). (GATT (1994) 5.65)

This analysis suggested to the Panel that in the absence of separate foreign fleet accounting it would be possible to include in a revised CAFE regulation an averaging method that would render the CAFE regulation consistent with the General Agreement (underline by the author). (GATT (1994) 5.66)

3.4. Introduction of CAFE-like standard in Japan and its relationship with GATT/TBT rules

Though each case should be carefully examined for the conformity of its automobile fuel efficiency standard with GATT/TBT rules[15], the GATT Panel conclusion above strongly suggests that, even if it would be deemed to be a breach of Article III-4, CAFE-like fleet average standard would be GATT legal under Article XX (g), provided that it would be applied in the same way to both domestic and imported cars. This will be reinforced by the fact that the purpose of introducing CAFE-like standard is not only to conserve natural resources (in case of CAFE) but also to implement the commitment under the Multilateral Environmental Agreement; the Kyoto Protocol. Needless to say, such a standard should overcome several hurdles: i.e. it should not become a means of arbitrary and unjustifiable discrimination, it should not be more trade restrictive than necessary to fulfill environmental protection objectives, and its processes of setting standard are transparent etc.

More concretely, for Japan to introduce the CAFE-like standards, it should treat domestic and imported cars in exactly the same way (no separate foreign fleet accounting). Following this principle will not only persuade all parties concerned that the standards

[15] It should be also noted that the GATT panel report had not been formally adopted by some reason.

are set purely for the purpose of reducing CO_2emissions from cars, but also avoid any argument against the standards based on arbitrary and unjustifiable discrimination.

Next point Japan should prove in the introduction of the standards is that Japan have already tried all alternatives that are less trade restrictive. With this regards, the fact that Japan have already introduced top-runner approach (less trade restrictive alternative) for several years without succeeding to attain the transport sector target under the Kyoto Protocol implementation plan will provide a good reasoning for justification of the introduction of the CAFE-like standards.

There is another alternative that will be more environmentally friendly than CAFE-like standards. That is the California's Low Emission Vehicle and Clean Fuel (LEV/CF) Programme. If this alternative proved to be less trade restrictive, there is no excuse for Japan to introduce CAFE-like standards. Let us examine this point.

One of the main features of the LEV/CF Programme is the sales obligation of Zero Emission Vehicles (ZEVs). All automobile manufacturers whose annual sales in California exceed 35,000 cars are subject to this programme. Under the programme, unless an automobile manufacture meet the obligation, it is not allowed to sell conventional cars at all in California. The purpose of the programme is to cope with air pollution caused by cars. However, obligation to sell ZEVs can be applied for the purpose of reducing CO_2 emissions from automobiles. What will be the situation if the same kind of ZEV programme is to be introduced to tackle climate change? Although such programme seems to be effective in limiting CO_2 emissions from the transport sector, it can create serious non-tariff barrier on trade for countries where commercial introduction of such technology as ZEVs is uncommon (even in California, the timing of enforcing of ZEV sales obligation had been delayed twice). For the compatibility of trade and the environment, it is desirable to introduce CAFE-like standards, if Japan has to strengthen its policy towards reducing CO_2 emissions from cars.

Through the discussion here, the introduction of compulsory sales obligation of ZEVs can be more trade restrictive than the CAFE-like standards. In view of the above discussion, it is of the author's opinion that, in case Japan will introduce the CAFE-like standards that are necessary to implement the Kyoto Protocol, it will be deemed as WTO/GATT legal as long as there will be no discrimination between domestic and imported cars.

4. CONCLUDING REMARKS

Through discussions above, it became clear that Japanese top-runner approach on automobile fuel efficiency standards is GATT-consistent. Also there will be a high probability that CAFE-like standards will be deemed to be consistent to GATT rules, provided that certain conditions discussed in the previous chapter are fulfilled. When, as a last resort, it will become necessary for Japan to introduce the sales obligation of ZEVs or fuel-cell cars to comply with the Kyoto Protocol, situation is not so clear, however. In this case, priority between free trade and the environmental protection (mitigating climate change) will be the main subject. In the absence of concrete examples, it is

premature to determine whether such obligation will be compatible with WTO rules or not.

ANNEX 1

Article III National Treatment on Internal Taxation and Regulation (extract)

2. The products of the territory of any contracting party imported into the territory of any other contracting party shall not be subject, directly or indirectly, to internal taxes or other internal charges of any kind in excess of those applied, directly or indirectly, to like domestic products. Moreover, no contracting party shall otherwise apply internal taxes or other internal charges to imported or domestic products in a manner contrary to the principles set forth in paragraph 1.

4. The products of the territory of any contracting party imported into the territory of any other contracting party shall be accorded treatment no less favourable than that accorded to like products of national origin in respect of all laws, regulations and requirements affecting their internal sale, offering for sale, purchase, transportation, distribution or use. The provisions of this paragraph shall not prevent the application of differential internal transportation charges which are based exclusively on the economic operation of the means of transport and not on the nationality of the product.

5. No contracting party shall establish or maintain any internal quantitative regulation relating to the mixture, processing or use of products in specified amounts or proportions which requires, directly or indirectly, that any specified amount or proportion of any product which is the subject of the regulation must be supplied from domestic sources. Moreover, no contracting party shall otherwise apply internal quantitative regulations in a manner contrary to the principles set forth in paragraph 1.

ANNEX 2

Article XX General Exceptions (extract)

Subject to the requirement that such measures are not applied in a manner which would constitute a means of arbitrary or unjustifiable discrimination between countries where the same conditions prevail, or a disguised restriction on international trade, nothing in this Agreement shall be construed to prevent the adoption or enforcement by any contracting party of measures:

(g) relating to the conservation of exhaustible natural resources if such measures are made effective in conjunction with restrictions on domestic production or consumption;

ANNEX 3

TBT Agreement: Article 2: Preparation, Adoption and Application of Technical Regulations by Central Government Bodies (extract)

2.2 Members shall ensure that technical regulations are not prepared, adopted or applied with a view to or with the effect of creating unnecessary obstacles to international trade. For this purpose, technical regulations shall not be more trade-restrictive than necessary to fulfil a legitimate objective, taking account of the risks non-fulfilment would create. Such legitimate objectives are, inter alia: national security requirements;

the prevention of deceptive practices; protection of human health or safety, animal or plant life or health, or the environment. In assessing such risks, relevant elements of consideration are, inter alia: available scientific and technical information, related processing technology or intended end-uses of products.

2.5 A Member preparing, adopting or applying a technical regulation which may have a significant effect on trade of other Members shall, upon the request of another Member, explain the justification for that technical regulation in terms of the provisions of paragraphs 2 to 4. Whenever a technical regulation is prepared, adopted or applied for one of the legitimate objectives explicitly mentioned in paragraph 2, and is in accordance with relevant international standards, it shall be rebuttably presumed not to create an unnecessary obstacle to international trade.

2.9.2 notify other Members through the Secretariat of the products to be covered by the proposed technical regulation, together with a brief indication of its objective and rationale. Such notifications shall take place at an early appropriate stage, when amendments can still be introduced and comments taken into account;

2.9.3 upon request, provide to other Members particulars or copies of the proposed technical regulation and, whenever possible, identify the parts which in substance deviate from relevant international standards;

2.9.4 without discrimination, allow reasonable time for other Members to make comments in writing, discuss these comments upon request, and take these written comments and the results of these discussions into account.

5.6 Whenever a relevant guide or recommendation issued by an international standardizing body does not exist or the technical content of a proposed conformity assessment procedure is not in accordance with relevant guides and recommendations issued by international standardizing bodies, and if the conformity assessment procedure may have a significant effect on trade of other Members, Members shall:

5.6.3 upon request, provide to other Members particulars or copies of the proposed procedure and, whenever possible, identify the parts which in substance deviate from relevant guides or recommendations issued by international standardizing bodies;

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