

‘The Agency within the States: the Automobile Industries in Japan,
the Europe, and the U.S. over the Architecture of the Post-2012
Institutional Framework’.

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Abstract This paper explores how the automobile industries in Japan, Europe and the U.S. may exercise Agency in the earth system governance, and influence the Architecture of the post-2012 road transport institutional framework. In order to pursue these research questions, this paper hypothesize that automobile industries exercise Agency *within (or together with)* their home states, in order to reflect their preferences/interests over the post-2012 road transport institutional architecture. As a result of the examination drawn from the case studies, conclusions are twofold: first, Japanese automobile industry exercises Agency within its home states while European industry does not, thus there are varieties of types/patterns of Agency may exist according to countries; second, Japan and the Europe – the two nations with high levels of fuel economy standards – are pursuing to reflect their preferences over the post-2012 road transport framework in different ways, the one is the hybrid of Asian Pacific Partnership (APP) and UN oriented track pursued by Japan, and the other is UN-oriented track pursued by Europe. The future road transport climate policy over the post-2012 Architecture is heavily depends on which tracks the U.S. automobile industry would follow.

Keywords Automobile Industry as Agency, Architecture of post-2012, Road Transport Sector, Japan, Europe, the U.S.

1. Introduction

The automobile industry is expected to exercise one of the key Agencies in the Earth System Governance. This is because, firstly, road transport sector accounts for about 16% of the total CO₂ emissions at a global level¹ with expected growth from 4 gigatonnes in 2000 to more than 9 gigatonnes in 2050.² Secondly, the industry operates globally with its economic significance that could potentially give a rise to their political power over the international climate negotiations. Japan, the Europe, and U.S. in particular, are the main automobile manufacturing nations and therefore have the potential to affect changes towards more sustainable transportation sector on a global level.

Despite their global economic operations, however, climate policies regarding to the automobile industry (automobile climate policy) has been rather nationally engaged, as there exist less discussions on the road transport linking to the actual negotiations of the post-2012 processes. For instance, only 2 out of 1800 CDM projects are relating to the transport, and none relating to the road transport (UNEP RISOE). Furthermore, existing international business and industry networks in this sector merely act to coordinate their strategies over the post-2012 processes³.

Against these backgrounds, this paper explores how the automobile industries in Japan, Europe and the U.S. may exercise Agency in the earth system governance, and influence the Architecture of the post-2012 road transport institutional framework⁴. Two research questions are investigated in this paper. The first relates to the analytical problems of Agency: how the automobile industry may exercise Agency⁵ in the earth system governance? Are there any patterns/types of Agency amongst Japan, Europe and the U.S.? The second relates to the analytical problem of Architecture: how these Agencies may influence/determine the future international road transport climate policy under the post-2012 institutional architecture? To do so, it compares and analyses the relationships between the automobile industries and governments in the main automobile manufacturing nations of Japan, Europe and U.S., and how these interactions may be reflected within the post-2012 road transport institutional

¹ OICA

² WBCSD 2004

³ Interview from the Japanese Automobile Industry (Conducted on 14th and 15th of July 2009).

⁴ The post-2012 road transport framework refers to international institutional framework for the road transport after the Kyoto Protocol's first commitment period of 2012, which are potentially to be discussed under the UNFCCC or being discussed in other bodies such as APP.

⁵ According to the ESGSP (2009), Agency is defined as the actors who 'possess the ability to prescribe behaviour and to obtain the consent of the governed'.

framework.

In order to pursue these research questions, this paper hypothesizes that automobile industries exercise Agency *within (or together with)* their home states, in order to reflect their preferences/interests over the post-2012 road transport institutional architecture. As a result of the examination drawn from the case studies, Japanese case supported the hypothesis while European case did not. The case of U.S. did not provide enough evidences at the time of writing, due to its still unsettled international automobile climate policy.

The conclusions are thus twofold: the first relates to the analytical problem of Agency and the second relates to Architecture. First, Japanese automobile industry exercises Agency within its home states while European industry does not, thus there are varieties of types/patterns of Agency may exist according to countries. Second, Japan and the Europe – the two nations with high levels of fuel economy standards – are pursuing to reflect their preferences over the post-2012 road transport framework in different ways: the one is the hybrid of Asian Pacific Partnership (APP) and UN oriented track pursued by Japan; and the other is UN-oriented track pursued by Europe. Although their aims are different, both of these tracks emphasises the importance of technology transfer as well as the need for the new financial mechanisms in the post-2012 road transport institutional framework. The U.S. international road transport climate policy has not yet firmly established, however, considering the recent ‘shifts’ in the U.S. climate policy (i.e. the changing roles of the EPA and NHTSA) at the federal level and still continuing their huge contribution to the issue, it could be said that the future road transport climate policy over the post-2012 Architecture is heavily depends on which tracks the U.S. automobile industry would follow.

To support this conclusion, this paper is structured as follows: section 2 provides a background for automobile industry’s ‘regionally engaged’ characteristics, as well as an overview of actor networks in automobile climate policy over the post-2012 road transport institutional framework. Section 3, 4, 5 analyses the case studies of Japanese, European and U.S. automobile climate policies. Finally, section 6 summarises the analysis, and provides some concluding thoughts.

2. Automobile Industry and Climate Change Issue

2.1. The Literatures associating with auto industry and climate change

The role of the business actors in the global environmental governance has attracted

many scholarly attentions recently (for instance, Hurrell and Kingsbury 1992; Levy and Egan 1998; Levy 1997; Newell and Paterson 1998; Levy and Newell 2005; Newell 2008; Rowlands 2001; Clapp 1998, 2008; Falkner 2001, 2003, 2005, 2008; Pattberg 2007, 2008).

So too, is the role of the automobile industry in the issue of climate change. However, much of the existing studies on the automobile climate policy have been done at national level of analysis rather than at international level. These literatures focus on relationships between domestic institutional arrangements and environmental strategies of automobile industries, whether to argue from Neo-Gramscian point of view (for instance, Levy and Rothenberg 1999; Levy and Kolk 2005; Paterson 2008) or varieties of capitalism approach (for instance, Mikler 2007).

These studies help us to understand how the domestic institutions matter to shape the strategies of automobile industries, however, given significantly growing greenhouse gas emissions from developing countries than from OECD countries (WBCSD 2004; IEA), what should be much investigated is the internationally coordinated climate policies over the road transport sector,⁶ and what actors may be possibly influence/direct the future institutional architecture. ‘Agency beyond the State’ approach helps us in this regard, allowing us to broaden our analytical framework to examine how Agency may influence the structure of the global governance.

2.2. Regional engagement of the automobile climate policy⁷

The automobile climate policy has been in the hands of national governments. Following reasons, at least, can be identified. First and foremost, climate policies in road transport sector have to take its national varieties into account. This includes the geographic varieties (structures of cities and distances between rural areas, including availabilities of public transport, and regional differences of travelling coefficient⁸), the consumer preferences and differences between industries’ traditions/cultures or identities with more than 100 years of histories (e.g. consumer preferences for the domestic brands, bigger vehicles are more likely to be sold in the U.S. whereas Japanese manufactures produce relatively small vehicles), and the availability of oil resources and

⁶ For instance, toolkit that help to reduce growing emissions from developing countries, such as mechanisms for technology transfer and financial mechanism, including crediting system specified for transport sector

⁷ In this paper, ‘automobile climate policy’ refers to set of policies associating with automobile industry and road transport sector in wider context, that are aimed to combat the issue of the climate change.

⁸ On-road CO₂ emissions are usually higher than certified CO₂ emissions for any given vehicle model. The number of factors such as use of air conditioner, driver behaviour, road congestion, engine warm-up adds more emissions than certified CO₂ emission. See JAMA (2008) ‘Reducing CO₂ Emissions in the Global Road Transport Sector’, p.9.

a price of fuel (the U.S. is one of the major oil producing countries but Japan and Europe are not). All of these factors make the simple global policy coordination difficult to reach in this area.

Second, the main greenhouse gas emissions from this sector do not come from its manufacturing processes, but after the vehicles are being used on the road. On the one hand the industry could voluntarily reduce its impacts to climate change through their technological innovations by improving vehicle fuel economy. On the other hand, the rest of measures require governmental leaderships, such as introductions of renewable fuels, changes in driver behaviour (eco-driving), and infrastructure maintenances including modal shifts.

Finally, an improvement of fuel economy is one of the core measures to combat climate change, but at the same time, it is one of the core market competitive indexes for automobile industries. Therefore the global standardization/harmonization of fuel economy as the measure against climate change is not easy to reach, due to their different market strategies, preferences, and technological advantages. To date, different countries still use different measurements for their fuel economy: for instance, Japan uses 'kilometre per Litre of gasoline (km/L, the higher the better)'; Europe uses 'grams of CO₂ per kilometre (g/km, the lower the better)'; and the U.S. uses 'miles per gallon (mpg, high the better)'.

These three reasons, at least, have been delaying the evolvement of international road transport climate policy and hence constructed regionally-engaged character of the automobile climate policy. However recently, we have witnessed the series of the movements that are trying to influence the automobile climate policy over post-2012 institutional framework.

Following sections, 3, 4, and 5, focus on the case studies of Japanese, European and U.S. climate policies, and analyse how these different tracks emerged, and examine their implications to the post-2012 institutional architecture.

3. Japan's Automobile Climate Policy

This section focuses on Japanese automobile climate policy, both in the context of domestic and international level of analysis. It firstly provides the overview of history and decision-making process of Japanese automobile climate policy. Then it moves on to analyse the possibilities and limitations of Japanese proposal of Road Transport Sector Task Force in APP as well as the proposal of 'an advisory group for sectoral technology cooperation' under the UNFCCC.

3.1. The history of Japanese automobile climate policy

The Japanese automobile climate policy (fuel economy regulations) was triggered by both domestic and international events: the first was the growing concern on air-pollution and accompanying damage to health that eventually led to the Air Pollution Control Law in 1968, which in turn made the basis of the environmental technology improvements of Japanese automobile industry; the second was the oil crisis in 1970s, which had encouraged energy-savings in factories, transportation, buildings and manufactures, that eventually led to the creation of the Law Concerning the Rational Use of Energy (Energy Conservation Act) in 1976.⁹ The Amendment of Energy Conservation Act in 1979 included the use of vehicles, and therefore set the first Japanese automobile fuel economy. It follows, Japanese fuel economy regulation was originally driven by the rational of energy savings.

With the adoptions of the United Nations Framework Convention on Climate Change (UNFCCC) in 1992, Japanese fuel economy regulations have motivated not only by energy-savings but also by the concerns for the climate change issue since 1990 onwards. In the following year, the new fuel economy standard for the gasoline vehicle was introduced with the target year 2000, and the 2003 target for the gasoline freight vehicles was set in 1996. After the Kyoto Protocol was adopted in 1997, the Guideline of Measures to Prevent Global Warming was announced in 1998 by newly established Global Warming Prevention Headquarters under the Cabinet (therefore headed by the Prime Minister). The guideline largely revised the Energy Conservation Act in 1998. Most notably, it introduced the unique 'top runner method': it sets the standard based on the most efficient model according to the weight classes (the top runner) and the rest of the models follow the top runners in a given time. Accordingly, in 1999, fuel economy standards are largely revised in this manner, requiring 22.8% improvement for gasoline vehicles as compared to 1995 level by 2010 (15.1km/L), and 14.9% improvement for diesel vehicles by 2005. Notably, Japanese automobile manufactures achieved 2010 fuel economy target of gasoline vehicles by 2007. As a result, a stricter 2015 standard, which requires 16.8 km/L that is equal to 23.5% improvement against the previous standard, was introduced in 2007 for both gasoline and diesel vehicles.

What is also unique about Japanese fuel economy regulations is that vehicles are segmented by its weight, so that competition will become fair in each category.¹⁰ It sets for nine weight classes of vehicle weight as fuel economy evaluation basis, and the

⁹ Interview from MOE Official (Conducted on 17th May 2009).

¹⁰ MLIT presentation, http://www.iea.org/work/2007/ecodriving/Japan_s4.pdf accessed on 4th November 2009.

number of harmonic average is calculated by the volume of shipment of each manufactures unit in every vehicle weight division, and Japanese automobile manufacturers are required to fulfil the requirement not to be less than the standard value. This can be well contrasted with the Corporate Average Fuel Economy (CAFE) regulations in the United States, which takes the sales-weighted harmonic mean fuel economy average of a manufacturer's fleet of current model. This suggests while American automobile manufactures can increase the sales of light weight vehicles in order to clear the requirement, however, Japanese automobile manufacturers cannot take this strategy since fuel regulations are segmented by vehicle weight, so that it pushes for the higher standard year by year.

These backgrounds provided *why* the Japanese automobile climate policy had emerged. Based on these backgrounds, next section focuses on *how* and by *what* actors, Japanese automobile climate policy has been formulated.

3.2. Decision-making process of Japanese Automobile Climate Policy

According to Schreurs (2003), Japanese environmental policy-making generally takes the form of co-regulation between its government and the industry: government first show an ambiguous guideline to the industry, and after changes in industry can be observed, government pushes to the stricter regulation. The case of Japanese fuel economy regulation well fits in the above description.

The Japanese Ministry of the Land, Infrastructure, Transport and Tourism (MLIT) and the Japanese Ministry of Economy, Trade and Industry (METI) are responsible for the Japanese fuel economy regulations. It is very unique that the Ministry of the Environment (MOE) does not at all join here for the standard settings. The MLIT is the official governmental body that are responsible for the transport matter. The METI, which is originally responsible for the economic activities, are responsible for the fuel economy regulations due to its authority conferred by the Energy Conservation Act.

According to Iguchi (2009), in the case of 2015 fuel economy regulation, these two Ministries held a series of closed meetings from 2004 until 2006, and invited Japanese automobile industry to participate in these meetings. It is important to note here that the industry participated this decision making process via the 'Japan Automobile Manufacturers Alliance' (JAMA), which has been the central industry network amongst Japanese automobile industry. After a certain agreement has been made in these closed meetings, their agreements are passed to the Council for the examination. The member of the Council is generally chosen from the Japanese

academia. After examined by the Council, the agreements are published as the 'Intermediate Report'. The government releases this report to the public and ask for the public comments. If there is not much dissenting opinion, it becomes the new fuel economy standard under the Energy Conservation Act.

3.3. The Japanese proposal of the Road Transport Sector Task Force in APP

Japan is in a unique position in Asia-Pacific Partnership on Clean Development and Climate (APP). It is the only country that has committed to a greenhouse gas emission reduction commitment under the Kyoto Protocol amongst APP members, however, it has neither fully endorse the Kyoto Mechanisms (i.e. cap and trade) under the UNFCCC, nor reject it for the sake of the technology-oriented governance arrangements such as APP. Therefore, as a participant to the both agreements, it has a high stake in the direction of the future institutional frameworks in climate change (Van Asselt, Kanie and Iguchi 2009).

As for the road transport climate policy, APP is particularly important since it includes the major automobile manufacturing nations of Japan and the United States (and Korea), which of those with large emission from this sector. Also, participation of China and India - the potential major automobile manufacturing nations with significant expected growth of greenhouse gas emissions - has a lot of implications to the future transport climate policy. Furthermore, Australia and Canada is known as the high automobile dependent nations.

The Japanese proposal of the Road Transport Sector Task Force was proposed at Policy and Implementation Committee in Seattle on May 2008, by the METI.¹¹ Just like other Task Forces, the proposal begins with the data collection, followed by settings of the best practice and then formulated as projects. Interestingly, what should be noted here is that it places the 'Integrated Approach' – an approach that integrates fuel economy improvements, introduction of bio-fuels, eco-driving and mortal shifts in a balanced manner – as the central policy toolkit.¹² Moreover, this Integrated Approach is constituent to the climate strategy of Japanese automobile industry.¹³

However, the Road Transport Sector Task Force has not yet established up until

¹¹ METI <http://www.meti.go.jp/press/20080523008/20080523008.pdf> accessed on 17th August 2009. In fact, the Japanese proposal was not truly a new idea, as there existed some suggestions on the policy coordination on the road transport, both from the developing countries and the United States (Interview from the Japanese Automobile Industry, conducted on 14th July 2009).

¹² METI Proposal for the Establishment of a Road Transport Sector http://www.asiapacificpartnership.org/pdf/seattle/RoadTransport_METI.pdf accessed on 17th August 2009.

¹³ JAMA Proposal for the Establishment of a Road Transport Sector http://www.asiapacificpartnership.org/pdf/seattle/roadtransport_jama.pdf accessed on 17th August 2009.

now.¹⁴ This is due to the following two reasons: first, both the U.S. government and American automobile industry showed concerns for the establishment of the Task Force after the financial crisis in 2008; second, there is the problem of the data collection procedures in the developing countries, which may consume too much time to meet the time to incorporate road transport sector in the post-2012 processes.

In fact, Japanese government originally sought to input/reflect the outcomes and efforts of the APP Road Transport Sector Task Force into UNFCCC. However, taking the issue of timing, its lesser possibilities and limitations into account, government officials are now showing sceptics for its establishment. Furthermore, Japanese automobile industry is beginning to split their voices on the establishment of the Task Force under APP.

Following these, it could be said that the Japanese international road transport climate policy is now moving to the next phase. Namely, Japan is now moving to pursue the international automobile climate policy through the establishment of ‘an advisory group for sectoral technology cooperation’ under the UNFCCC framework.¹⁵ The function of this advisory group is to ‘identify and focus on key technologies by the drawing of technology roadmaps containing a shared vision by industry, academia and government and would report to the Convention’.¹⁶ Therefore, this proposed advisory group has a character of the hybrid form of public-private body with purely technology-oriented approach just like APP. At AWG-LCA5 at Bonn, this advisory group upgraded its character with the function to ‘identify necessary technologies which are currently available and will be available in the future, to analyse appropriate ways for promoting transfer of existing technologies, to analyse the emission reduction potentials...to assist technology transfer under the financial mechanism’.¹⁷ These series of efforts made by Japan suggests that it now aims to transfer all the efforts made by the APP into the proposed body under the UNFCCC, with a touch of financial mechanism advisory body.

4. Europe’s Automobile Climate Policy

Having sketched the Japanese automobile climate policy and its proposal to post-2012

¹⁴ METI <http://www.meti.go.jp/press/20090522008/20090522008-2.pdf> accessed on 17th August 2009.

¹⁵ Presentation done by METI official <http://ec.europa.eu/environment/climat/pdf/bonn09/japan4.pdf> accessed on 23rd October 2009.

¹⁶ UNFCCC/AWGLCA/2008/CRP.8 <http://unfccc.int/resource/docs/2008/awglca4/eng/crp08.pdf> accessed on 23rd October 2009.

¹⁷ UNFCCC ‘Submission of Japan for preparation of the Chair’s document for the AWG-LCA5’ https://unfccc.int/files/kyoto_protocol/application/pdf/japan060209.pdf accessed on 17th August 2009

institutional framework, this paper now move on to the European automobile climate policy and analyses how they try to influence post-2012 institutional framework. It first provides the history of European automobile climate policy and its decision making process. Then it turns to analyse European automobile climate policy towards post 2012.

4.1. The history of European Automobile Climate Policy

The European automobile environmental policy had been relatively weak until 1980s, but tightly progressed since 1990s onwards. This is because, from 1990 to 2004, despite the fact that the EU has reduced 5% of its total CO₂ emissions, the emission from the road transport sector increased for about 26% - which now accounts for 12% of the total CO₂ emissions of the EU.¹⁸

The first European automobile climate policy took the form of the industry self-regulation. With the establishment of the ACEA in 1991, it sets itself a voluntary emission reduction target of 10% between 1993 to 2005 (European Environment Bureau 2000, p.19). The UNFCCC regime in 1992 advanced the European automobile climate policy. In 1995, the European Commission set the target of 120g/km by 2005.¹⁹ This 120g/km target is almost equivalent to the Japanese 2015 target which was set in 2007.²⁰ Accordingly, ACEA heavily lobbied against this target (Greenpeace 2008). As a result, its influences are reflected in this 120g/km target. For instance, text released by the European Economic and Social Committee (EESC) adds ‘in no case beyond 2010’ to the 2005 target year.²¹ Furthermore, another *voluntary* target between ACEA and the European Committee (1999/125/EC) had reached in 1998 with the target of 140g/km by 2008, and also largely delayed the target year of ‘120g/km by 2005’ to ‘120g/km by 2012’.²²

From the year 2000 onwards, following three factors become important to the European automobile climate policy. First, the ‘integrated approach’ has become one of the key strategies for the European automobile industry. Second, the European Commission introduced the *legally-binding* 120g/km target under the EU law. Finally, diverging preferences within European automobile industry caused the splits between

¹⁸ ACEA 2004

¹⁹ COM(95)689 Final http://aei.pitt.edu/4992/01/001174_1.pdf accessed on 17th August 2009.

²⁰ ICCT ‘Fuel Economy Standards and GHG Standards Charts in PowerPoint format’
http://www.theicct.org/documents/ICCT_PVStd_May09.ppt accessed on 17th August 2009.

²¹ European Council,
<http://eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=CELEX:51998AC1437:EN:NOT> accessed on 17th August 2009.

²² Europa ‘Commission Recommendation of 5 February 1999’
<http://ec.europa.eu/environment/air/transport/co2/99125/en.pdf> accessed on 17th August 2009.

French (and Italian) and German (and British) industries.

The 'integrated approach' here, suggests the same approach adopted by the Japanese automobile industry. This approach has even appeared in the final report released by the CARS21 in December 2005 (CARS21 2006). This approach was particularly important for the European automobile industry, given that they could only achieve the average fuel economy of 160g/km in 2006, which is far from the voluntary target of 140g/km. It follows, the 'unprecedented' reduction efforts has required for the achievement of the 140g/km target.²³ In turn, the European Commission introduced new legally binding CO₂ target for passenger vehicles.²⁴ The European Parliament has also showed its support to the policy: for instance, it mentions the gradual yet tougher reduction targets of 125g/km by 2012, 95g/km by 2020, and 70g/km by 2025²⁵.

On 1st of December 2008, 120g/km target was agreed between national governments and the European Parliament, and issued as the EU law on 17th of December 2008²⁶, however on the conditional basis²⁷. The conditions include the use of the proportional increase of average fuel economy, of 65% in 2012, 75% in 2013, 80% in 2014, and 100% from 2015 onwards. Moreover, the 'integrated approach' are incorporated in this target. The European automobile manufacturers are to be achieved only 130g/km through vehicle technology improvements. The remaining 10g/km are to be achieved by complementary measures such as the further use of bio-fuels, traffic and road-safety management, fuel-efficient tyres and air conditioning, and changes in driver behaviour (eco-driving).

Partially, the reasons of this conditional target could be addressed as a result of the appearing 'split' amongst the European automobile industries, and the heavy lobbying efforts exerted by the German automobile industry together with its home state in turn. Two factors can be addressed as causes of this split. The one is the divide between French and Italian automobile industries which produce relatively light, small

²³ T&E '2006 Progress Report on the Vehicle Industry's Voluntary Commitment'
http://www.transportenvironment.org/Publications/prep_hand_out/lid:469 accessed on 17th August 2009.

²⁴ COM (2007) 19 Final
<http://eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=CELEX:52007DC0019:EN:NOT> accessed on 17th August 2009.

²⁵ European Parliament
<http://www.europarl.europa.eu/sides/getDoc.do?language=EN&type=IM-PRESS&reference=20071023IPR12110> accessed on 17th August 2009.

²⁶ European Parliament, 'Emission performance standards for new passenger vehicles'
<http://www.europarl.europa.eu/sides/getDoc.do?type=TA&reference=P6-TA-2008-0614&language=EN&ring=A6-2008-0419> accessed on 17th August 2009.

²⁷ Europa, 'Proposal for a Regulation of the European Parliament and of the Council setting emission performance standards for new passenger vehicles as part of the Community's integrated approach to reduce CO₂ emissions from light-duty Vehicles'
<http://register.consilium.europa.eu/pdf/en/08/st16/st16721.en08.pdf> accessed on 17th August 2009.

and compact, and good fuel efficient vehicles, whilst German (and perhaps British) automobile industries produce heavy, large and luxury vehicles with low fuel efficiency. Second, the EU has introduced the credit-trading system of 'Carbon Allowance Crediting System (CARS) for the achievement the 120g/km target. It gives the credit to manufacturers for their exceeded achievements over the target, and allows selling them to the others who are below the target. This suggests that those who are producing light and high efficient vehicles would benefit from this system, and the others do not. Consequently, it suggests that the German automobile manufactures with an average of 180g/km in 2006, must buy credits from French and Italian manufactures for the achievement of the legally-binding target. As a result, the German government strongly opposed to the European Commission's proposal of the 120g/km in 2007, pointing out that this proposal reflects the French and Italian preferences. In February 2008, ACEA announced that the achievement of 120g/km target is impossible, and German automobile industry together with its government strongly criticised the proposal of the European Commission in April 2008 (Greenpeace 2008).

In 2008, the EU has released its climate and renewable energy package.²⁸ This package has set the reduction target of 20% against 1990 level by 2020 (30%, if other developed countries will pay the same efforts) under the EU law. Also, this package has set reduction target of 21% reduction against 2005 level by 2020 from sectors that are covered by EU-ETS and 10% from non-covered sectors. It will also increase 20% share of the renewable energy in the total energy consumptions of the EU, as the same time reduce 20% of the energy consumptions by pursuing energy efficiency. However, it did not set or re-set the new target for the road transport sector according to its mid-term target. This suggests that the EU's mid-term target and target for the road transport sectors are not decided in the same stream.

4.2. Decision-making process of European Automobile Climate Policy

The main actors in the European automobile climate policy include the European Commission, the European Parliament (both Commissions for the Environment, and Enterprise and Industry) national governments, ACEA, and automobile manufacturers in each country. The decision-making process of the European automobile climate policy can be characterised by dynamic, diversified actors with different authority given at different levels. The authority to propose the new fuel economy standard at the EU level is conferred to the European Commission, and passes to the European Parliament

²⁸ Europa 'Climate Action' http://ec.europa.eu/environment/climat/climate_action.htm accessed on 17th August 2009.

for voting. On the other hand, national governments possess the authority on imposing taxes on automobiles, traffic and road safety management, and changing the driver behaviour.

4.3. European Climate Policy over the Post-2012

There are two important initiatives relating to the European Climate Policy over the post-2012. These are the 'Global Fuel Economy Initiative (50by50)' and the 'Bellagio Declaration'. This section focuses on these two initiatives, and analyses their implications to the future road transport climate policy at the global level.

The Global Fuel Economy initiative was proposed by the four international organizations, the former Council of the European Transport Ministers, which is now called the International Transport Forum (ITF), International Energy Agency (IEA), United Nations Environmental Programme (UNEP) and the FIA Foundation in March 2009. The central claim of this initiative is to 'facilitate large reductions of greenhouse gas emissions and oil use through improvements in automotive fuel economy in the face of rapidly growing vehicle use worldwide', and aims 'an improvement in average fuel economy (reduction in fuel consumption per kilometre) of 50% worldwide by 2050'.²⁹ According to this initiative, this could be possible through the improvement of new vehicle fuel economy 30% by 2020 and 50% in 2030 in the OECD countries, and improvement of the economy of new vehicles at this rate would make possible a 50% improvement of the average fuel economy worldwide by 2050; and 'even if vehicle kilometres driven double by 2050, economy improvements on this scale worldwide would effectively cap emissions of CO₂ from vehicles at current levels'.³⁰ Accordingly, this initiative aims to show the concrete methodology or the potential emission reduction in order to facilitate countries to positively set the emission reduction target, or to reflect its point of view within the post-2012 institutional architecture.

The Bellagio Declaration was launched on May 2009 by Deutsche Gesellschaft für Technische Zusammenarbeit (GTZ), Transport Research Laboratory (TRL), Union Internationale des Transport Publics (UITP), and Veolia Transport.³¹ Its biggest aim is to integrate the climate policy on the transport sector into the post-2012 institutional architecture. To be specific, it claims that the following three principles should be reflected in the new framework. First, 'effective climate action is incomplete without addressing the overall system performance of the Transport Sector'. Second, 'climate

²⁹ ITF, http://www.internationaltransportforum.org/docs/pdf/50BY50_report.pdf accessed on 17th August 2009.

³⁰ Ibid.,

³¹ SUTP, <http://www.sutp.org/bellagio-declaration/> accessed on 17th August 2009.

action in the transport sector should recognize co-benefits'. Third, more effective vehicle on finance mechanisms and associated procedures should catalyse sustainable transport policies, programmes and projects' ³². Within these three principles, the third principle has the most important implication to the future 2012 institutional architecture, since the current mechanisms cannot be applied to this sector. This is due to the difficulty in evaluating effects of certain climate policy in the transport sector. For instance, statistical measurements of the people accompanying with the modal shifts are highly difficult. Furthermore, infrastructure maintenance requires more financial aids than technology transfer. This is because, in spite of the large amounts of costs required at the beginning, the recovery is very hard to be collected – therefore, it makes the private sectors difficult to invest to this sector.

5. US Automobile Climate Policy

Amongst the three automobile manufacturing nations, the U.S. has been the first country that took the automobile environmental policies. The Clean Air Act was introduced in 1955 for the reduction of smog and air pollution, and Energy Policy Conservation Act of 1975 set the fuel economy regulations with the introduction of the CAFE standards in 1978 with 18.0 miles per gallon (mpg) target, which had improved up to 26.5mpg by the end of 1980s.

At the state level, California has passed its own climate legislation of the Global Warming Act Solutions Act of 2006 and set a greenhouse gas emission reduction target of 25 per cent against 1990 level by 2020. As for the automobile climate policy, it has successfully established the AB1493 in 2002 (entered into force in 1st of January, 2006). This means that California has set its target by its own, and moreover, since this fuel economy target is much stricter than the federal level target set by CAFE, it caused the overlapping authority of the automobile climate policy between California and the federal body of National Highway Traffic Safety Administration (NHTSA) which has conferred its authority on fuel economy regulation by Energy Policy Conservation Act of 1975. Accordingly, American Automobile Manufacturers Association (AAM) files a

³² Bellagio Declaration

http://www.sutp.org/bridgingthegap/downloads/cornie/Bellagio_Declaration_on_Transportation_and_Climate_Change-Final.pdf accessed on 17th August 2009; Bellagio Declaration, 'COMMON POLICY FRAMEWORK TO SUPPORT SUSTAINABLE, LOW VEHICLEBON TRANSPORT IN DEVELOPING COUNTRIES', pp.8-9
http://www.sutp.org/bridgingthegap/downloads/cornie/Common_Policy_Framework_on_Transport_and_Climate_Change-27May2008.pdf accessed on 17th August 2009.

suit for inappropriate authority to set fuel economy standards against Californian Air Resource Board to the District Court in December 2004. Against the expectation to the industry, the Court approved for California's authority for the authority. This implies that other States can choose whether to follow the federal or California standard (Inoue 2008).

Another case of *Massachusetts v. Environmental Protection Agency (EPA)* triggered the discussions on whether a greenhouse gas can be categorized as the 'Air pollutant'. Its judgement displayed that EPA can exercise its authority to regulate a greenhouse gas emission, as conferred by the Article 202 of the Air Pollution Act³³. This suggests that EPA can, with its political will, regulate greenhouse gas emissions from the automobiles by its authority to do so.

These cases shows the complexity of the U.S. automobile climate policy, whether to consider fuel economy standard as the energy economy or the policy measures against the climate change, a greenhouse gas as air pollutant or not, which body has the authority to set the standard. These diversities make the U.S. climate policy unique and complex as compared to Japan and Europe.

However, there is a 'shift' of the U.S. automobile climate policy at the federal level. In 2007, the former President Bush signed the Energy Independence and Security Act which requires the industry for the 40% fuel economy improvement (35mpg) by 2020³⁴. With the rise of the newly Obama administration, this policy has further advanced, with the target of 35.5mpg by the year 2016³⁵. These series of political leadership at the federal level now makes the U.S. automobile climate policy much diverse, where White House, NHTSA, EPA, California all have the authority to set fuel economy standard.

These complexities of U.S. automobile climate policy, along with the financial crisis of 2008 may at least partially makes no obvious activities over the post-2012 institutional framework. The new political leadership exercised by the White House, however, have the significant implications to the future international U.S. automobile climate policy.

³³ New York Time article of April 2, 2007
<http://www.nytimes.com/2007/04/03/washington/03scotus.html?ex=1333339200&en=e0d0a1497263d879&ei=5124&partner=permalink&exprod=permalink> accessed on 17th August 2009.

³⁴ White House <http://georgewbush-whitehouse.archives.gov/news/releases/2007/12/20071219-6.html> accessed on 17th August 2009.

³⁵ White House
http://www.whitehouse.gov/the_press_office/Fact-Sheet-and-Participants-at-Todays-Rose-Garden-Event/ accessed on 17th August 2009.

5. Concluding thoughts

This paper has focused on the automobile climate policies in Japan, Europe and U.S., and asked how automobile industries in each country may exercise Agency in the Earth System Governance, and how it may matter to the future institutional arrangement of the road transport climate policy.

First, Japanese automobile industry exercises Agency within its home states while European industry does not, thus there are varieties of types/patterns of Agency may exist according to countries (See Table 3 for the comparison). Second, Japan and the Europe – the two nations with high levels of fuel economy standards – are pursuing to reflect their preferences over the post-2012 road transport framework in different ways: the one is the hybrid of Asian Pacific Partnership (APP) and UN oriented track pursued by Japan; and the other is UN-oriented track pursued by Europe (See Table 4 for the comparison). Although their aims are different, both of these tracks emphasises the importance of technology transfer as well as the need for the new financial mechanisms in the post-2012 road transport institutional framework. The U.S. international road transport climate policy has not yet firmly established, due to the financial crisis in 2008. However, considering the ‘shifts’ in the U.S. climate policy at the federal level and still continuing their huge contribution to the issue, it could be said that the future road transport climate policy over the post-2012 Architecture is heavily depends on which tracks the U.S. automobile industry would follow.

TABLE 3. Analytical problem of Agency and automobile climate policies between Japan, Europe and the US.

	JAPAN	EUROPE	US
Who are the main Actors?	<ul style="list-style-type: none"> - METI - MLIT - Japanese academia - JAMA 	<ul style="list-style-type: none"> - European Commission - European Parliament - National governments - ACEA 	<ul style="list-style-type: none"> - White House - NHTSA - EPA - States - AAM
What are the characteristics?	Co-regulation between government and industry	European Commission possesses the authority to set the standard whereas national government responsible for other measures	<ul style="list-style-type: none"> - Overlapping authorities of standard setting at different levels - Differing rationales for fuel economy

TABLE 4. Analytical problem of Architecture and international automobile climate policies between Japan, Europe and the US.

	JAPAN	EUROPE	US
International automobile climate policy: post-2012 road transport institutional architecture	<ul style="list-style-type: none"> - proposal on Road Transport Sector Task Force (APP) - an advisory group for sectoral technology cooperation (UNFCCC) 	<ul style="list-style-type: none"> - ‘50 by 50’ - ‘Bellagio Declaration’ 	None at the time of writing
Policy toolkit	Sectoral approach, with a touch of financial mechanism	<ul style="list-style-type: none"> - improvement of fuel economy worldwide - new crediting mechanism 	?

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