Beyond taxation: Discourse around energy policy in Japan

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Abstract

Energy policy literature tends to emphasise the impact of taxation on energy preference. However, the present case concerning extremely low acceptance of diesel cars in Japan could not be explained by taxation. As a possible factor, the paper sheds light upon discourse around the energy policy. The policy aimed to characterise diesel technology as emitting particulate matter and nitrogen oxide

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(NOx). The paper contributes to extending the existing understanding of the role of public policy by embracing the linguistic interactions complemented by visualisation.

Key words: energy policy, taxation, discourse, diesel, interpretive policy analysis

1. Introduction

How does public policy condition people's selection of energy source? Public policy in relation to people's preference of energy source tends to be understood in terms of taxation. Depending on the target of the policy such as the reduction in carbon emission, weighted taxation is applied to different sources of fuel that condition people's reliance on different energy sources (Mayeres & Proost, 2013; Minjares et al., 2013; Nakata & Lamont, 2001; Plotkin, 2001; Sterner, 2007, 2012). In brief, higher taxation tends to result in avoidance of that energy source and vice versa. It is, however, often overlooked that the public policy in relation to energy source is not limited to the domain of taxation. In particular, this paper argues that it is necessary to seriously consider the implication of 'linguistic turn' in social science by unpicking linguistic elements of the public policy that accord meaning to energy sources.

This paper argues that extending the analytical focus beyond the issue of taxation is particularly important. This is because the taxation itself cannot explain the extremely low acceptance of diesel fuel for passenger cars in Japan, which has not gathered adequate academic attention in the existing literature (Sterner, 2007, 2012). That is, while lower taxation on diesel in major European countries has contributed to the wider acceptance of diesel cars (Schipper & Fulton, 2013), Japan has also held lower taxation on diesel fuel. However, the existing research has not addressed this issue and instead focused upon the impact of taxation on gas fuels in Japan, but not diesel fuels (Sterner, 2007, 2012). This paper, therefore, as a possible factor, explores the discursive process. For this purpose this study focuses on a discourse, defined as a structured set of linguistic practice that gives meaning to entities including the production and dissemination of documents (Phillips & Hardy, 2002). Importantly, discourse may be complemented by visualizing artefacts that simplify key messages (Coopmans et al., 2014; Jasanoff, 2004; Latour, 1986). In fact, discourses complemented by visualisation have provided insights into previously overlooked processes concerning linguistic interactions that shape energy policy (Ocelik & Osička, 2014; Scrase & Ockwell, 2010).

In the present case, a central figure is the former governor of the Tokyo Metropolitan Government (TMG) who held power between April 1999 and October

2012. During his incumbency, the governor put primary emphasis on the relatively high particulate matter emissions of diesel vehicles, which was enhanced by a PET bottle filled with particulate matter, and deflected attention away from their relatively low carbon emissions (see Figure 1). This discourse was directly reflected in the legislation that severely constrained the use of diesel vehicles (Hara et al., 2015). Importantly, the present case empirically extends Hara et al. (2015), which shed light upon network orchestration concerning diesel vehicles in Japan. That is, the present case embraces the role of visualizing artefacts (i.e. a PET bottle filled with particulate matter as seen in Figure 1) that contributed to complementally disseminating the key discourse. Furthermore, while Hara et al. (2015) dealt with the period between August, 1999 and April, 2001, the case of this paper extends the period by covering Ishihara's entire incumbency, which was between August, 1999 and October, 2012. Therefore, the present case provides a more comprehensive analysis.

The structure of this paper is as follows. The next section clarifies the angle of our research, which leverages the existing study mainly developed in sociological analysis since the discipline has developed useful analytical perspectives for discursive elements. Then, the section explains the significance of concentrating on the Japanese case that witnessed extremely low acceptance of diesel fuel. Moreover,

we describe the approach to data collection, including data sources, and analysis adopted for this paper. The following section presents the outcome of the data analysis. Finally, we briefly summarise the argument and discuss the contributions of this paper and provide our concluding remarks.

2. Angle: Stigmatisation, rhetoric and artefacts

The angle of the analysis is to regard the development of public policy as the discrediting process, which involves the rejection of a certain category such as a specific type of energy source or technology (e.g., diesel). We treat the discrediting process as stigmatisation, which refers to a process used to create new arrangements of legal, cultural and normative elements, whereby a particular discrediting characteristic of actors or objects is emphasised as its core trait (Lutgen-Sandvik, 2008; Paetzold et al, 2008). In other words, stigmatisation focuses upon a particular discrediting characteristic of a certain technology, suggesting that the characteristic adequately represents it.

As the term “stigma” was originally presented in association with physical, moral, and racial characteristics of individuals and groups (Goffman, 1963), the concept of stigmatisation has been applied mainly at the individual and group levels. Examples include HIV status (Fife & Wright, 2000; Parker & Aggleton, 2003),

mental illness (Angermeyer & Matschinger, 2003), race (Storrs, 1999), and occupation (Ashforth & Kreiner, 2014). Although the concept has been applied primarily at these levels, it is reasonable to extend it to the analysis of social and cultural objects (Lopes, 2006) as well as technology and its related objects (Slovic et al., 2013). In relation to the focus of this paper, diesel fuel has various characteristics, but stigmatisation makes a certain negative characteristic of it as its core trait.

Stigmatisation proceeds through the intentional production and dissemination of a certain type of discourse, known as rhetoric, complemented by artefacts. Rhetoric, or the language of persuasion, is a specific type of discourse used to exert influence on the status of acceptance of entities or objects (Erkama & Vaara, 2010). Therefore, by creating and disseminating rhetoric, actors can potentially manipulate a particular audience into accepting or rejecting certain activities or entities (Erkama & Vaara, 2010; Vaara & Tienari, 2011). Although these studies (i.e., Erkama & Vaara, 2010; Vaara & Tienari, 2011) have not explicitly utilised the concept of rhetoric in analysing persuasion with regard to stigmatised objects, it is reasonable to assume that rhetoric is employed in stigmatisation.

To examine the usage of rhetoric in relation to stigmatisation, we employ the classification of Vaara et al. (2006), which identifies various types of rhetoric,

including rationalisation, moralisation, normalisation, authorisation, and narrativisation. Rationalisation emphasises that stigmatizing a certain object reflects a rational judgment. Moralisation underlines the appropriateness of stigmatizing a certain object in terms of moral judgment. Normalisation emphasises that stigmatizing certain objects or behaviours is normal rather than deviant. Authorisation indicates that stigmatisation can stem from an authority figure. Finally, narrativisation dramatically frames stigmatised objects, for example, in terms of a hero–enemy relationship.

Although Vaara et al. (2006) do not fully explore the link between rhetoric and artefact, it is reasonable to point out that artefacts may complement rhetoric. Indeed, the importance of artefacts, in particular visualizing ones, has been illustrated in the context of legitimation of the scientific knowledge, which importantly includes technological ones. That is, visualisation through artefacts could simplify complex relationships involving the key object(s) such as the cause and effect relationships shown in mathematical formulae (Coopmans et al., 2014; Jasanoff, 2004; Latour, 1986). Visualizing artefacts includes various images, be they digital or analogue. Importantly, simplification through visualising artefacts contributes to the legitimation of a certain scientific claim by convincing the audience of the plausibility of the suggested relationship. Therefore, to better

understand stigmatisation, it may be useful to link this visualisation effect of artefacts with rhetoric. In other words, actors draw upon both rhetoric and visualizing artefacts when they stigmatise an object, including a certain technology.

In summary, this paper aims to examine the role of public policy in the discrediting process of a certain fuel as well as technology. By adopting key terms, the primary focus of this paper can be summarised as follows: through stigmatisation, public policy produces and disseminates rhetoric and utilises artefacts in its favour. Before using this analytical framework and explaining how diesel technology/fuel was stigmatised in the Japanese automotive industry, the data collection and analysis process will be shown in the next section.

3. Data collection and analysis

We have conducted a single case study with temporal variation (Type 1 case study) that examines variation of a single analytical unit over time and infer a causal relationship underlying the case (Gerring, 2004). Furthermore, the single case study that focused upon TMG's anti diesel car campaign represents a deviant case (Gerring, 2006) since the existing assumption concerning the role of taxation cannot explain the low acceptance of diesel cars in Japan.

In terms of 'the possible impact of taxation and TMG's campaign on extremely low acceptance of diesel passenger vehicles in Japan' (Table 1), we examined macro level statistics of passenger car registration in Japan as well as in EU 15 countries by examining statistics available from websites of Japan Automobile Manufacturers Association and European Automotive Manufacturers Association. Together with this, the impact of taxation was examined by taking such data into consideration (US DEPARTMENT OF ENERGY website). In brief, it was confirmed that the extremely low acceptance of diesel cars in Japan cannot be explained by taxation. As a possible factor contributing to the low acceptance, we examined the TMG's stigmatisation campaign. We relied on data concerning the circulation of newspapers (The Japan Newspaper Publishers & Editors Association, 2015) and public opinion survey concerning the perception of diesel cars (METI website), which implied the possible impact of the stigmatising campaign on low acceptance of diesel cars. Furthermore, we examined car manufacturers' websites (Mazda, Honda, Toyota, Suzuki, Nissan, Mitsubishi, Subaru, BMW, Mercedes, Ford) that operate in Japan and found that a couple of them mentioned TMG's stigmatising campaign as a major threat to their operation in the early 2000s; the majority of them tried to address the negative image of diesel cars by adopting the new term.

[Table 1 here]

With respect to “Rhetoric adopted by TMG which was complemented by a visualizing artefact” (Table 1), we focused on the key moment of the stigmatisation of diesel vehicles. Firstly, in order to examine rhetoric adopted by the TMG, we collected relevant materials that included three leaflets that had been distributed as well as the official A4 40-page report evaluating the consequences of “Operation No Diesel (Diesel-sha nō sakusen) (August 1999 – December 2000)” (available from TMG Environmental Problem Portal website). The three leaflets were published in August, October, and December 1999, and the official report was published in September 2003. By manually reading through these data, it was confirmed that the TMG governor’s stigmatisation campaign effectively employed all of the types of rhetoric classified by Vaara et al. (2006), including rationalisation, normalisation, moralisation, authorisation and narrativisation. Under this set of rhetoric, we developed sub-themes such as “Pollution level” “Particulate matter emissions”

"Inflation and diesel" under rationalisation rhetoric[2]. As Yin (2013) indicates, this process was iterative between the existing knowledge (i.e., Vaara et al's classification of rhetoric) and data. Then, we manually categorised each excerpt into these sub-themes, as seen in Table 2.

[Table 2 here]

Additionally, in order to examine the role of a visualising artefact, we performed a keyword search using the term "Operation No Diesel" in a database of Japanese leading newspapers (*Yomiuri shimbun*, *Asahi shimbun*, *Nikkei shimbun*). We limited our results to those published between April 1999 and October 2012, a period during which Ishihara was in office. This enabled us to obtain articles related to the TMG's dissemination of rhetoric related to "Operation No Diesel."

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[2] Full list of sub-themes are as follows: "Pollution level" "Particulate matter emissions," "Inflation and diesel" under rationalisation; "Nox and particulate matter emission" "Lower tax rate for low-sulfur diesel" under normalisation; "constructed diesel economy" under moralisation; "harmful diesel" under authorisation; "TMG as saviour" "Inadequate response by the central government" under narrativisation.

Consequently, we were left with a total of 30 articles from *Asahi shimbun*, 64 from *Yomiuri shimbun*, and 15 from *Nikkei shimbun*. As seen in Table 3, the majority of the coverage concentrated on 1999 and 2000, which was the substantive part of "Operation No Diesel".

[Table 3 here]

Through examining newspaper articles, we confirmed that Ishihara frequently carried a PET bottle containing diesel particulate matter, which acted as an artefact connecting diesel vehicles with particulate matter. Although the Japanese Trucking Association initially resisted the campaign, it later cooperated (*Yomiuri shimbun*, October, 26, 2012). The Japanese Trucking Association's rhetoric was disseminated via its own website (Tokyo Trucking Association website) and a newspaper and, thus, was kept on a relatively small scale. In terms of leading Japanese newspapers (*Yomiuri shimbun*, *Asahi shimbun*, *Nikkei shimbun*), only one article positively covered the Japanese Trucking Association's resistance— *Asahi shimbun* on October 30, 1999. In contrast, the TMG widely and continuously disseminated its rhetoric via various media, not all of which have been covered in this analysis (e.g., television). The following section presents our analysis.

4. The Stigmatisation of diesel technology in Japan

In 1999, the TMG launched "Operation No Diesel," a campaign aimed at implementing stricter measures regarding diesel vehicles. Consequently, the campaign led to the stigmatisation of diesel vehicles in Japan. The following sections provide an analysis of the impact of the campaign, the rhetoric adopted and disseminated through the campaign and the role of a visualising artefact.

4.1 The impact of TMG's campaign

A key contrast has been observed between Japan and Europe in terms of the acceptance of diesel technology. In contrast to EU 15 countries (i.e., Austria, Belgium, Denmark, Finland, France, Germany, Greece, Ireland, Italy, Luxembourg, Netherlands, Portugal, Spain, Sweden, and the United Kingdom), diesel passenger vehicles in Japan have not sold well. In Japan, the diesel share of new passenger car registrations has decreased since around 1990. In 2010, diesel vehicles accounted for less than 1 percent of new passenger car registrations in Japan compared to 40 percent in EU 15 countries (Figure 1, contrasting the diesel new passenger car registration between Japan and EU 15 countries).

[Figure 1 here]

As Schipper & Fulton (2013) indicate, lower taxation on diesel fuel, enhanced in particular after the ratification of the Kyoto Protocol in the late 1990s, has contributed to the acceptance of diesel cars in EU 15 countries. This can be also inferred from Figure 2, which compares taxation on diesel and gasoline between EU 15 countries and Japan, and importantly illustrates the overall trend of higher taxation on gasoline. However, importantly, Figure 2 also reports a similar trend in Japan. That is, similar to major European countries, Japan has witnessed higher taxation on gasoline (i.e., lower taxation on diesel). Therefore, on the one hand, it would be reasonable to argue that the issue of taxation may be useful to explain the popularity of diesel fuel or diesel cars in EU 15 countries. On the other hand, the taxation cannot be helpful in giving a reason to why diesel is avoided in Japan.

[Figure 2 here]

In summary, since the ratification of the Kyoto Protocol, the reduction of carbon emissions has become an important element in regulation arrangements

internationally. Importantly, major European countries recognised that diesel vehicles emit less carbon than gasoline vehicles (Ellerman et al., 2010) and held lower taxation on diesel. In clear contrast, as discussed in more detail later in the paper, Japanese public policy emphasised a negative aspect (i.e., the high particulate matter emissions and nitrogen oxide (NOx)) of diesel vehicles. Consequently, lower taxation on diesel could not result in the acceptance of diesel in the country.

During this stigmatising campaign, automotive makers remained silent. Although the Japanese Trucking Association expressed disagreement with the campaign for a period of time (Tokyo Trucking Association website), it did not do so widely and, thus, could not stop the TMG's campaign. In fact, the campaign diffused stigmatising images of diesel cars visualised by a PET bottle containing diesel PM. A typical image can be found in Figure 3, which was used in a newspaper advertisement in November, 2000.

[Figure 3 here]

These images were disseminated via various channels, including advertisements on television and newspapers across the country during several months in 2000. While the viewing rate of such images on television was not available, circulation of major

newspapers (*Yomiuri shimbun*, *Asahi shimbun*, *Nikkei shimbun*), which placed the TMG's stigmatising images, was. The total circulation of these was 21 million (*Yomiuri shimbun 10 million*, *Asahi shimbun 8 million*, *Nikkei shimbun 3 million*) in 2000 (The Japan Newspaper Publishers & Editors Association, 2015). The population of the country around that time was approximately 120 million. Therefore, it could be argued that around 17 percent of the population was possibly exposed to stigmatising images of diesel cars. The campaign's potential impact on the Japanese diesel car market could be inferred from the result of a public opinion survey concerning the perception of diesel cars conducted by METI (Ministry of Economy, Trade and Industry) in 2004. Since a similar sort of survey (i.e. examining the perception of diesel fuelled cars) was not conducted before the TMG's campaign, the result of this survey, conducted after the substantive part of the campaign (August 1999 – December 2000) cannot directly endorse the impact. Nonetheless, the result, at least, implies the potential impact of the campaign if we take the significantly broad diffusion rate of stigmatising images into account. More than 80 percent of the respondents (N=500) answered the perception of diesel cars, compared to gasoline ones, was worse in terms of cleanliness of exhaust gas (multiple choice of '*better', 'worse', 'same', 'no idea'*). More details of this survey can be found in the appendix (Table 5 and Table 6). Moreover, a couple of car manufacturers' websites illustrating

their involvement in diesel passenger cars (Isuzu website; Mazda website) indicate that the image of diesel vehicles was significantly influenced by Ishihara's display of a PET bottle filled with diesel particulate matter. Moreover, in Japan, from around 2010, car manufacturers started using the term "clean diesel" to promote diesel passenger vehicles (Mazda, Honda, Toyota, Nissan, Mitsubishi, BMW, Ford, Mercedes). The next section shows the analysis of the actual content of the campaign.

4.2. Rhetoric utilised in the campaign

This section illustrates the analyses of the rhetoric concerning the stigmatisation of diesel fuels, which was observed in the TMG's campaign in the form of the TMG's leaflet as well as their official report. We classified the rhetoric as rationalisation (emphasising rational judgement), moralisation (illustrating appropriateness), normalisation (stressing normality), authorisation (strengthening the argument by relying on the authority), and/or narrativisation (framing the story in a dramatic manner such as hero versus enemy) (Vaara et al., 2006). Table 2 provides a summary of this. In terms of rationalisation, both the leaflets and the report include excerpts related to pollution level and particulate matter emission.

With regard to pollution level, the TMG argued that the NOx and particulate matter levels in the air, predominantly emitted from diesel vehicles, had not changed for a decade:

> Air pollution in Tokyo has not been improved for the past decade. The level of NOx and particulate matter contained in the air has been stable (Leaflet adopted for the campaign).

They also argued that diesel vehicles were the main cause of particulate matter emissions. Moreover, the leaflets also touched upon inflation and diesel. The TMG introduced an estimate denying the allegation that replacing diesel vehicles with gasoline ones had led to inflation. TMG's rhetoric concerning rationalisation, in brief, emphasises the necessity to 'stigmatise' diesel fuel based on rational judgement.

Regarding normalisation, NOx and particulate matter regulation is a commonly seen theme. The TMG argued that the increasing popularity of diesel vehicles in European countries was due to Western countries adopting stricter regulations on NOx and particulate emissions:

> In 1994, Japan first introduced regulations with respect to the maximum emissions of particulate matter from diesel vehicles. However, the maximum amount was generous compared to that used in regulations of Western countries. In terms of maximum amount of emissions, Japan is 10 years behind Western countries (TMG's official report, p. 2).

Furthermore, the report included the theme of a lower tax rate for low sulfur diesel, indicating that EU countries were concerned with lower NOx and particulate emissions and, thus, promoted less toxic diesel by applying a lower tax rate for low sulfur diesel:

> EU countries impose a lower tax on low-sulfur diesel in order to encourage the diffusion of diesel vehicles. Japan does not have this measure (TMG's official report, p. 3).

In summary, by normalisation, the TMG's primary attention has been paid to the regulatory framework and examples in the EU have been used to emphasise the aspects of the Japanese status quo that are considered to be 'under-developed'.

In relation to moralisation, both the leaflets and the official report are

characterised by the theme of a constructed diesel economy. That is, the TMG argued that people commonly believe diesel vehicles were more energy efficient and, thus, more economical than gasoline vehicles. However, according to their argument, this was not the case. Instead, they argued that this belief stemmed from the lower tax rate for diesel in the country:

> Diesel cars are said to be more energy efficient than gasoline cars. However, this is constructed value because the increased efficiency is mainly derived from the different rates of tax imposed on gasoline and diesel (Leaflet adopted for the campaign).

By drawing upon moralisation, the TMG cast doubt upon the benefit of diesel fuel. Importantly, unlike other rhetoric, moralisation here did not necessarily stigmatise diesel fuel. Rather, moralisation adopted by TMG aimed to remove the positive characteristics of diesel fuel.

With respect to authorisation, the theme of harmful diesel was commonly observed. By drawing upon scientific research conducted at authoritative research institutions, the TMG aimed to illustrate a potential link between the exposure to diesel gas and diseases such as asthma, cancer, pollen allergies, fecundity, and mood

disorders.

> Scientific research implies that diesel has a harmful impact on the human body. This research is conducted by the Japanese Ministry of Environment, German Ministry of Environment, Harvard University in the United States, Japanese National Institute for Environmental Studies, Dutch researchers, and Prof. Ken Takeda at Tokyo University of Science (TMG's official report, p. 13).

With regard to narrativisation, we observed two themes: TMG as saviour and the inadequate response by the central government. Importantly, both themes commonly regarded diesel fuel as sources of negative consequences, but were different in terms of focus. The first theme, TMG as saviour, was observed in both the leaflets and the official report. The TMG emphasised that it took pioneering measures to save the citizens of Tokyo from air pollution caused by diesel vehicles. The theme of inadequate response by the central government is related to the first theme, but distinct in the sense that it directly criticises the measures taken by the central government:

> Although the central government did not take appropriate measures to address the problems associated with diesel cars, the TMG has been a pioneer in prohibiting the use of diesel cars that do not satisfy particulate matter emission levels since October 2003 (TMG's official report, p. 15).

In a nutshell, by narrativisation, the TMG argued that the "lazy" central government had not taken appropriate measures to improve Tokyo's air quality. Therefore, the TMG intended to take measures to combat the environmental issues caused by diesel vehicles.

4.3. Visualizing artefact: Say it with a PET bottle

Regarding rationalisation (rational decision behind the active campaign targeting reduced particulate matter emissions) and narrativisation (framing the campaign in terms of TMG as saviour and inadequate response by the central government), a PET bottle containing diesel particulate matter played a complementary role. Table 4 lists the newspaper coverage of the usage of a PET bottle by the then-governor.

[Table 4]

As Table 4 illustrates, the then governor, Ishihara carried a PET bottle containing dark particulate matter on various occasions. These included press conferences, meetings with relevant individuals/organisations, newspaper/television advertisements, election campaigns, and international conferences. Illustrating examples, identified in leading Japanese newspapers, are as follows:

- [PRESS CONFERENCE] Ishihara, the then-governor, asked, “Do you know how many 500 ml bottles of particulate matter are emitted per day?” while carrying a PET bottle in his hand (August 27, 1999).

- [MEETING WITH THEN PRIME MINISTER] Showing a PET bottle, the then-governor said to the then-prime minister, “12,000 of these [= 500 ml PET bottle] are emitted in Tokyo, in a single day,” illustrating the necessity to develop stronger regulations (November 8, 2002).

- [NEWSPAPER/TELEVISION ADVERTISEMENT] Showing a PET bottle, the then-governor illustrated the necessity to combat

environmental problems caused by diesel vehicles (several months in 2000).

- [ELECTION CAMPAIGN] Showing a PET bottle, the then-governor illustrated the necessity to further deal with environmental problems caused by diesel vehicles (several times in April 2003).

- [INTERNATIONAL CONFERENCE] Showing a PET bottle at the Asian Network of Major Cities 21 held in New Delhi, the then-governor illustrated the necessity to combat particulate matter problems caused by diesel vehicles (November 22, 2002).

As seen above, the rhetoric adopted here together with the visualising artefact can be classified as rationalisation and narrativisation because the governor illustrated the obvious environmental issues caused by diesel vehicles and his role (and the TMG) as “saviour” in combatting those environmental problems, which the TMG associated with the inadequate measures of the central government.

In summary, thorough the campaign, the TMG devised a comprehensive rhetoric that highlighted the negative effects of diesel vehicles, utilizing all of the

rhetoric types identified by Vaara et al. (2006). Furthermore, the then-governor visualised the discrediting feature of diesel vehicles, namely dark coloured particulate matter, as their core trait through the use of the PET bottle. This coverage would have contributed to the negative meaning attached to diesel vehicles, potentially explaining the low level of diesel vehicle consumption in Japan despite the lower taxation on diesel.

Conclusions and implications

While lower taxation rate on diesel fuel would have contributed to the positive perception of diesel fuel in major European countries (Schipper & Fulton, 2013), the taxation on fuel sources could not provide a solution for the avoidance of diesel fuel in Japan. Therefore, the article has suggested the necessity to extend the analytical focus beyond the issue of taxation. As a possible step, this paper explored the linguistic element of the energy policy. In the present case, the TMG and its then-governor highlighted the discrediting characteristics of diesel vehicles. The rhetoric was mainly disseminated by the then governor. Importantly, he visualised the negative effects of diesel fuel by carrying a PET bottle filled with dark particulate matter from diesel vehicles.

The findings of this study contribute to the existing knowledge in several ways. First, the paper has extended the implication of 'linguistic turn' to the issue of energy policy. It has been well established that taxation on fuel sources plays an important part in conditioning people's preference of energy source (Dahl, 2012; Mayeres & Proost, 2013; Minjares et al., 2013; Nakata & Lamont, 2001; Plotkin, 2001; Sterner, 2007, 2012). Although it is a single case study and discursive factor may not have played a decisive part, this article has demonstrated that the exclusive attention to taxation is not enough and embracing linguistic practice could be useful in reconsidering the role of energy policy.

In terms of practical implications, this article indicates the necessity to take the notion of *interpretive policy analysis* more seriously, which indicates the importance of actual meaning involving public policy that could be complementary to quantitative evaluation of cost and benefits of public policy (Yanow, 1999). This analysis suggests, for example, that using a new artefact to promote diesel energy in the Japanese car market may have helped to offset the stigma surrounding diesel. As a result of recent innovations, diesel engines now emit far less particulate matter than they used to, as represented by Mazda (Mazda website). In addition, Ishihara left his post as TMG governor in October 2012. Thus, automakers have increased opportunities to sell diesel vehicles in the Japanese market. However, as shown in

this paper, diesel vehicles are typically seen in a negative light in Japan, associated with a PET bottle containing particulate matter. In order to eliminate this stigma, it may be crucial to rely on a new artefact. First, this artefact should relate to the necessity to further reduce carbon emissions in keeping with the Kyoto Protocol. This would justify the choice of diesel vehicles, as seen in major European countries. Second, and more importantly, the artefact needs to distinguish new diesel vehicles from those of the past, which emitted a significant amount of particulate matter.

While the article has provided insights into the examination of linguistic elements of energy policy, this article has a clear limitation. It should be noted that the article cannot claim causality between TMG's rhetoric and poor sales of diesel passenger vehicles due to the lacking of direct evidence regarding TMG's campaign on consumer behaviour. Furthermore, the dissemination process seen in this paper includes only the discourse observable from newspapers. Other media, including television news programs, also reported the governor's usage of a PET bottle. In order to enhance the validity of this research, it would be helpful for future studies to address this issue.

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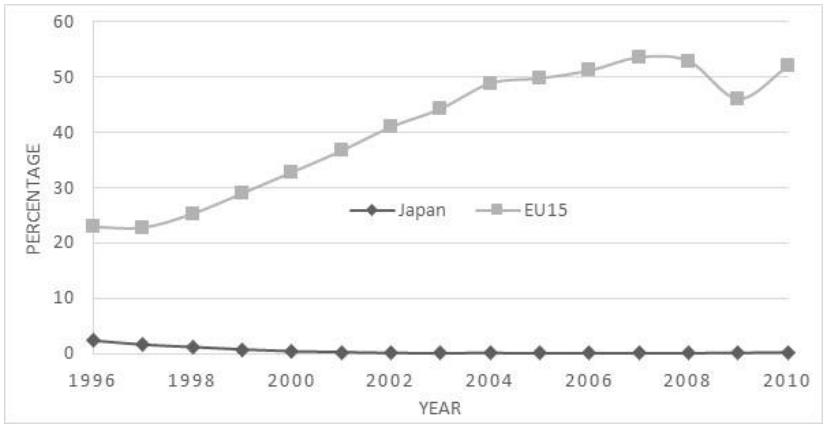

Figure 1 Diesel new passenger car registrations in EU 15 countries and Japan

Source: Japan Automobile Manufacturers Association, European Automobile Manufacturers Association

Figure 2 Taxation on Gasoline and Diesel in EU 15 countries and Japan in 2010 (dollar per gallon)

Source: US DEPARTMENT OF ENERGY

Figure 3 Image used for newspaper advertisement

Source: Tokyo Metropolitan Government (東京都提供)

Table 1 Data source and analytical focus

Primary Data Source	**Focus**
Macro statistics (Japan Automobile Manufacturers Association, European Automotive Manufacturers Association, US DEPARTMENT OF ENERGY, METI, The Japan Newspaper Publishers & Editors Association, 2015) Websites of passenger car manufacturers operating in Japan (Mazda, Honda, Toyota, Suzuki, Nissan, Mitsubishi, Subaru, BMW, Mercedes, Ford)	The possible impact of taxation and TMG's campaign on extremely low acceptance of diesel passenger vehicles in Japan
Major newspaper (*Yomiuri shimbun, Asahi shimbun, Nikkei shimbun*) articles TMG's website	Rhetoric adopted by TMG which was complemented by a visualizing artefact

Table 2 Key summary of rhetoric adopted in stigmatization of diesel vehicles

	Leaflet	**TMG official report**
Rationalisation	<Pollution level> Air pollution in Tokyo has not been improved for the past decade. The level of NOx and particulate matter contained in the air has been stable.	<Pollution level> In terms of particulate matter and NOx containment in the air, which is predominantly from diesel cars, no significant changes have been seen for ages (p. ii).
	<Particulate matter emissions> A diesel car emits three times more particulate matter than a gasoline car of the same size does.	<Particulate matter emissions> Diesel and gasoline cars are responsible for air pollution in Tokyo. Almost 100 percent of Tokyo's particulate matter and 70 percent of NOx comes from them (p. 9)
	<Inflation and diesel> They say replacing diesel cars with gasoline cars in the trucking industry causes	

	inflation, but our estimate shows that a 740 JPY parcel delivery price becomes 744 JPY.	
Normalisation	<NOx and particulate matter regulation> The increasing popularity of diesel cars in some European countries does not mean that diesel cars are good for human beings. The increase in diesel car usage is parallel to stricter regulations of particulate matter emissions.	<NOx and particulate matter regulation> In 1994, Japan first introduced regulations with respect to the maximum emissions of particulate matter from diesel vehicles. However, the maximum amount was generous compared to that used in regulations of Western countries. In terms of maximum amount of emissions, Japan is 10 years behind Western countries (p. 2).
		<Lower tax rate for low-sulfur diesel> EU countries impose a lower tax on low-sulfur diesel in order to encourage the diffusion of diesel vehicles. Japan does not have this measure (p. 3).
Moralisation	<Constructed diesel economy> Diesel cars are said	<Constructed diesel economy> People believe diesel cars are more

	to be more energy efficient than gasoline cars. However, this is constructed value because the increased efficiency is mainly derived from the different rates of tax imposed on gasoline and diesel.	economical, but this belief stems from taxation. The tax imposed on gasoline per litre is 53.8 JPY, whereas that on diesel is 32.1 JPY. This has led to the "constructed" diesel economy (p. 10).
Authorisation	<Harmful diesel> According to the Environmental Agency's report (issued in April 1997), air pollution (caused by NOx and particulate matter) may cause asthma.	<Harmful diesel> Scientific research implies that diesel has a harmful impact on the human body. This research is conducted by the Japanese Ministry of Environment, German Ministry of Environment, Harvard University in the United States, Japanese National Institute for Environmental Studies, Dutch researchers, and Prof. Ken Takeda at Tokyo University of Science (p. 13).
Narrativisation	<TMG as saviour> In order to improve air pollution in Tokyo and protect Tokyo citizen's health, the	<TMG as saviour> Per tradition, the TMG asked the central government to take certain measures. However, the TMG has

	TMG launched “Operation No Diesel” in August 1999.	changed its attitude and is now taking measures on its own, shifting its approach to the central government in Japan (p. i).
		<Inadequate response by the central government> Although the central government did not take appropriate measures to address the problems associated with diesel cars, the TMG has been a pioneer in prohibiting the use of diesel cars that do not satisfy particulate matter emission levels since October 2003 (p. 15).

Source: TMG leaflets and TMG official report (TMG Environmental Problem Portal website, 2015)

Table 3 Temporal variation of newspaper coverage (The number of articles followed by percentage in bracket)

Year\Name	Nikkei	Asahi	Yomiuri
1999	2 (13%)	8(27%)	16 (25%)
2000	8 (53%)	11(36%)	22 (34%)
2001	n/a	1(3%)	6 (9%)
2002	3 (20%)	5(16%)	11 (17%)
2003	2 (13%)	n/a	4 (6%)
2004	n/a	2(7%)	n/a
2005	n/a	n/a	1 (2%)
2006	n/a	1(3%)	n/a
2007	n/a	n/a	1 (2%)
2008	n/a	1(3%)	2 (3%)
2009	n/a	n/a	1 (2%)
2010	n/a	n/a	n/a
2011	n/a	n/a	n/a
2012	n/a	1(3%)	n/a
SUM	15	30	64

Table 4 The usage of a 500 ml PET bottle containing diesel particulate matter

Dissemination	**Illustrative examples (date)**
Press conference	Ishihara, the then-governor, questioned, “Do you know how many 500 ml bottles of particulate matter are emitted per day?” while carrying a PET bottle in his hand (August 27, 1999). While carrying a PET bottle, Ishihara explained, “This is particulate matter. 120,000 bottles of particulate matter are emitted in Tokyo in a single day” (February 4, 2000). Showing a PET bottle, the then-governor criticized countrywide regulatory policy regarding environmental problems (February 13, 2002). Showing a PET bottle, the then-governor criticized the inadequate governmental regulations as related to a judgment made that day regarding an environmental court case (November 28, 2006).
Meeting with relevant actors	The then-governor brought a PET bottle and begged executives of car manufacturers, “Please do not kill our Tokyo citizens” (November 30, 1999). Showing a PET bottle, the then-governor said to the then-prime

	minister, “12,000 of these [= 500 ml PET bottle] are emitted in Tokyo, in a single day,” illustrating the necessity to develop stronger regulations (November 8, 2002).
Television advertising	Showing a PET bottle, the then-governor illustrated the necessity to combat environmental problems caused by diesel vehicles (several months in 2000).
Election campaign	Showing a PET bottle, the then-governor illustrated the necessity to further deal with environmental problems caused by diesel vehicles (several times in April 2003).
International conference	Showing a PET bottle at the Asian Network of Major Cities 21 held in New Delhi, the then-governor illustrated the necessity to combat particulate matter problems caused by diesel vehicles (November 22, 2002). Responding to a question regarding the effective penetration of environmental policy at the Cities Climate Leadership Group Summit held in New York, the then-governor took a PET bottle and said, “Showing this is most effective” (April 16, 2007).

Source: *Yomiuri shimbun*, *Asahi shimbun*, *Nikkei shimbun* newspapers

APPENDIX

Table 5 Sample of opinion survey concerning the perception of diesel cars (compared to gasoline cars)

Gender	Males (275 people, 55%) and females (225 people, 45%)
Age	**Age**: 20-24 (15 people, 3%), 25-29 (48people, 9.6%), 30-34 (113people, 22.6%), 35-39 (113people, 22.6%), 40-44 (99people, 19.8%), 45-49 (62people, 12.4%), 50-54 (27people, 5.4%), 55-59 (9people, 1.8%), 60-64 (10people, 2%), 65-69 (10people, 2%), Over 70 (1person, 0.2%)

Source: METI website

Table 6 Summary results of opinion survey concerning the perception of diesel cars (compared to gasoline cars)

Question	Results
Energy efficiency (asked whether diesel cares are 'better', 'same', 'worse' or 'no idea' compared with gasoline cars)	● 'better' (259people, 51.8%) ● 'same' (65people, 13%) ● 'worse' (116people, 23.2%) ● 'no idea' (60people, 12%)
Cleanliness of exhaust gas (asked whether diesel cares are 'better', 'same', 'worse' or 'no idea' compared with gasoline cars)	● 'better' (12people, 2.4%) ● 'same' (38people, 7.6%) ● 'worse' (417people, 83.4%) ● 'no idea' (33people, 6.6%)
Impact on global warming (asked whether diesel cares are 'better', 'same', 'worse' or 'no idea' compared with gasoline cars)	● 'better' (34people, 6.8%) ● 'same' (44people, 8.8%) ● 'worse' (382people, 76.4%) ● 'no idea' (40people, 8%)
Noise (asked whether diesel cares are 'better', 'same', 'worse' or 'no idea' compared with gasoline cars)	● 'better' (13people, 2.6%) ● 'same' (42people, 8.4%) ● 'worse' (403people, 80.6%)

	● ‘no idea’ (42people, 8.4%)

Source: METI website