

Market Study Report
on the Electric Vehicle (EV)
Charging Service on Expressways

July, 2023



Table of Contents

1	Background and Purpose	1
2	Subject and Methods, etc.	1
2-1	Study Subject	1
2-2	Study Methods	1
2-3	Exchange of Opinions with Foreign Authorities	2
3	Category of EV Charging Service and Summary of Transactions Relevant to the Service	2
3-1	Category of EV Charging Service	2
(1)	Category according to Charging Situation	2
(2)	Category according to Charging Methods	3
3-2	Summary of EV Charging Service	3
3-3	How EV Chargers are Installed at Expressway SA/PAs	6
3-4	Common Method of Using EV Chargers at Expressway SA/PAs	8
4	Current Status of EV Charger Transactions and Viewpoints from Competition Policy and the Antimonopoly Act	10
4-1	Current Status of New Entry to Expressway SA/PAs	10
(1)	Current Status	10
(2)	Hearing Results	11
(a)	Hearing Results from Expressway Companies	11
(b)	Hearing Results from EV Charger Installers and EV Charging Service Providers	11
(c)	Hearing Results from the Expressway Agency	12
(3)	Viewpoints from the Antimonopoly Act and Competition Policy	12
4-2	Use of off-Expressway EV chargers	14
(1)	Current Status	14
(2)	Results of hearings with EV charger installers, EV charging service providers, and network providers	15
(3)	Viewpoint from the Competition Policy	16
5	Future Initiatives of the JFTC	17

1 Background and Purpose

Japan aims to achieve carbon neutrality by 2050, and the “Basic Policy for Economic and Fiscal Management and Reform 2023¹⁾” (approved by the Cabinet on June 16, 2023) states, “To achieve carbon neutrality by 2050, Japan will boldly accelerate GX investment while making the most of its technological strength, which is supposed to create new demand and markets in the areas of energy security and decarbonization, and to lead to the enhancement of industrial competitiveness and economic growth of the Japanese economy”. As part of this basic policy, the Government will “support the development of charging and hydrogen refueling infrastructure with the goal of 100% electric vehicles²⁾ in new vehicle sales by 2035”.

In addition, the “Green Growth Strategy Through Achieving Carbon Neutrality in 2050” (June 18, 2021) states that “we aim to install 150,000 units of charging infrastructure, including (abbreviated) 30,000 quick chargers for public use, to achieve the same level of convenience as gasoline vehicles by 2030 at the latest” lest the lack of charging infrastructure should hinder the spread of electric vehicles.

Accordingly, in order to promote fair and free competition in the development of charging infrastructure, and to promote the realization of a green society from the viewpoint of competition policy by stimulating new entrants and promoting innovation, the Japan Fair Trade Commission (hereinafter referred to as the “JFTC”) has conducted a market study on EV charging services on Expressways³⁾, where rapid charging is particularly needed to prevent EVs from running out of charge during long-distance travel.

2 Subject and Methods, etc.

2-1 Study Subject

This study examined the electric vehicle (EV) charging service on Expressways; specifically, transactions among Expressway Companies, EV charger installers, EV charging service providers, and network providers (see 3-2 Summary of EV Charging Service for descriptions of these).

2-2 Study Methods

The JFTC conducted hearings with the following 16 entities in total from April to May, 2023.

(a) Expressway Companies; 6 companies

¹ Excerpts from the Basic Policy are a provisional translation by the Japan Fair Trade Commission.

² Refers to electric vehicles, fuel cell vehicles, plug-in hybrid vehicles and hybrid vehicles.

³ Limited to roads managed by East Nippon Expressway Company Limited, Central Nippon Expressway Company Limited, West Nippon Expressway Company Limited, Metropolitan Expressway Company Limited, Hanshin Expressway Company Limited or Honshu-Shikoku Bridge Expressway Company Limited.

- (b) Japan Expressway Holding and Debt Repayment Agency⁴(hereinafter referred to as the “Expressway Agency”)
- (c) EV charger installers, EV charging service providers and network providers; 9 companies

2-3 Exchange of Opinions with Foreign Authorities

Regarding the EV charging service, foreign authorities have conducted market studies, etc., and the JFTC has referred to the discussion or consideration of such studies; to this end, the JFTC has exchanged opinions on the EV charging service with the UK Competition and Market Authority (hereinafter referred to as “CMA”), which has already conducted the market study⁵ and Office for Zero Emission Vehicles⁶ (hereinafter referred to as “OZEV”), which is in charge of the policy of transition to zero-emission vehicles (vehicles that emit no exhaust gas including CO₂) in the UK.

3 Category of EV Charging Service and Summary of Transactions Relevant to the Service

3-1 Category of EV Charging Service

(1) Category according to Charging Situation

It makes sense for EVs to be charged by EV chargers installed at the place where they regularly spend most of their time (house, etc.), which is referred to as basic charging.

Furthermore, EVs can be charged at the EV chargers installed at the place where the EV goes during its stay; this is referred to as destination charging.

In addition, it is important for EVs to be charged somewhere along the way when their destination is beyond the range they can travel on a single charge; this is referred to as en-route charging; all the vital because at present, the driving distance of EVs sold in Japan with a single charge is relatively short, that is, 180km~600km.

In each situation, the following specific cases were observed⁷; incidentally, EV charging at Expressway Service Area and Parking Area (hereinafter referred to as “SA/PA”) is categorized as en-route charging.

- (a) Basic charging: charging at houses, apartments, monthly parking lots, etc.
- (b) Destination charging: charging at shopping malls, hotels, etc.
- (c) En-route charging: charging at Expressway SA/PAs, rest stops off Expressways, convenience stores, etc.

⁴ This is an incorporated administrative agency; the agency’s purpose is to (i) assist Expressway Companies to smoothly conduct their business related to the Expressway and (ii) reduce the national burden related to the Expressway by owning road assets related to the Expressway and providing loans to Expressway Companies, etc.; it was established on October 1, 2005 in accordance with the Act on the Japan Expressway Holding and Debt Repayment Agency, Independent Administrative Agency (2004, No.100).

⁵ Electric Vehicle Charging Market Study (July 23, 2021) (<https://www.gov.uk/cma-cases/electric-vehicle-charging-market-study>) (latest view date: July 4, 2023))

⁶ OZEV is an office of the Department of Transport and Department for Energy Security and Net Zero.

⁷ This refers to the sorting method of the Ministry of Economy, Trade and Industry (hereinafter referred to as the “METI”).

(2) Category according to Charging Methods

In terms of charging methods, there are the following two:

- (a) Normal charging: charging with EV chargers that provide AC voltage received with EVs (normal chargers),
- (b) Rapid charging: charging with EV chargers that convert the received AC voltage into DC voltage and supply it to EVs (rapid chargers)

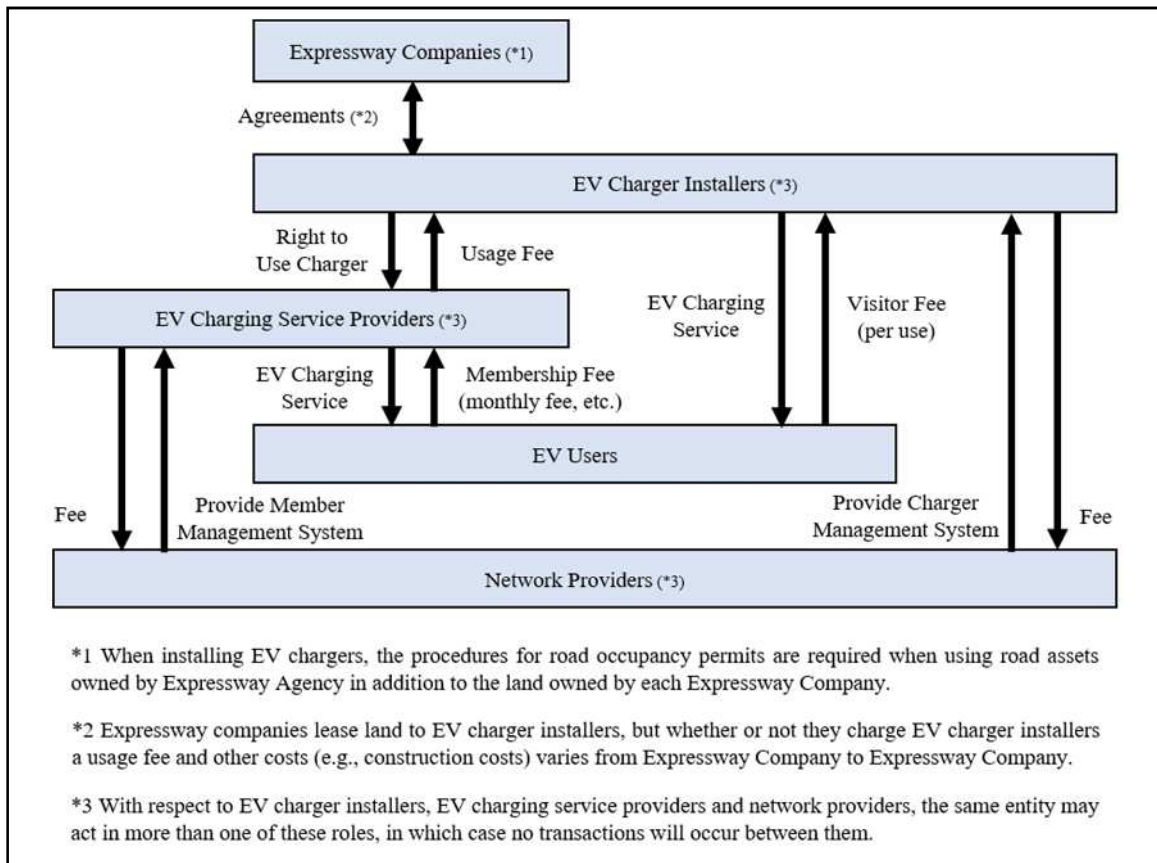
You can charge EVs faster with rapid chargers than with normal chargers; therefore, rapid chargers are commonly installed for en-route and destination charging. According to the hearing results from Expressway Companies, all chargers installed at Expressway SA/PAs are rapid chargers.

In terms of full power, the standard effective full power per single normal charger is less than 10kW (mostly 3kW~6kW), and that of rapid charger is 10kW and more; the higher the effective full power per single charger is, the faster you can charge your EVs.

3-2 Summary of EV Charging Service

The transactions of EV charging service at Expressway SA/PAs with some exceptions are shown in Figure 1.

Figure 1: Business relationships for EV charging services at Expressway SA/PA



Source: Compiled by the JFTC from the results of the hearings with each company

The description of each player in Figure 1 is as follows:

(a) Expressway Companies and the Expressway Agency

Expressway Companies are companies that construct, manage, etc. SA/PAs as well as the construction, reconstruction, maintenance, etc. of Expressways, while the Expressway Agency is an independent administrative agency that owns road assets related to Expressway, etc.

When EV chargers are installed at Expressway SA/PAs, depending on the location, it is necessary to obtain permission of occupancy rights of road asset owned by the Expressway Agency in accordance with Article 4 of the Act on the Japan Expressway Holding and Debt Repayment Agency, Independent Administrative Agency, as well as to use land owned by Expressway Companies. The procedure for granting the right of use itself is available on the website of the Expressway Agency, including the formats of application documents, review criteria, etc.⁸; the website also explains that each Expressway company works as a collaborator for the procedure⁹.

⁸ <https://www.jehdra.go.jp/torikumi/senyou.html> (latest view date: July 4, 2023)

⁹ Paragraph 5 of Article 8 of the Act on Special Measures for Road Construction and Improvement (1956, No. 7) stipulates that the documents including the application forms should be submitted to the Expressway Agency through the Expressway Companies.

(b) EV Charger Installers

EV charger installers are companies that install EV chargers with their own funds and bear their operating costs.

As shown in Figure 1 and described in 3-3 below, EV charger installers provide EV charging services using EV chargers they have installed in most cases, i.e. they are also EV charging service providers in most cases.

Furthermore, EV charger installers provide access to the EV chargers they have installed, to some companies that wish to provide EV charging service; in return, EV charger installers collect an access fee from these companies.

In addition, EV charger installers collect a charging fee directly from EV drivers who are not members of EV charging service providers (described in 3-2(c) below); this fee is referred to as a visitor fee.

Major EV charger installers that install rapid chargers (including those installed outside the Expressway SA/PAs) include the following companies: e-Mobility Power Corporation (hereinafter referred to as “eMP”), automobile manufacturers, ENEOS Corporation, PLUGO, Inc., shopping malls, hotels, etc. Generally speaking, the barriers to entry for the installation of rapid chargers are higher than those for normal chargers due to the price of the chargers themselves and the operating costs such as the electricity fee; however, it has recently been observed that some companies such as Ubiden, Inc. that had installed normal chargers have started to install rapid chargers as well.

(c) EV Charging Service Providers

EV charging service providers are companies that provide EV charging services based on access to EV chargers at Expressway SA/PAs to EV drivers through the membership system.

EV Charging Service Providers active at Expressway SA/PAs issue Charging Cards (described in 3-4 below. It should be noted that Charging Cards refer only to the cards issued by the companies described in 3-4 below). In terms of charging fee, a fixed monthly membership fee is set; in addition, a pay-per-use fee is also set, and there is a variety of fee structure among EV charging service providers.

As a major EV charging service provider using the access of rapid chargers (including those installed outside Expressway SA/PAs), there are the following enterprises: automobile manufacturers, ENEOS Corporation, PLUGO, Inc. etc., in addition to eMP.

(d) Network Providers

Network providers are companies that provide (i) EV charger management systems for power management and log management necessary for charging fee collection to EV

charger installers, and (ii) member management systems for managing their members to EV charging service providers; such systems are necessary for checking EV charger power information, etc., and for smooth member verification and billing.

Regarding the fee paid by EV charger installers and EV charging service providers to network providers, there is a variety of fee structure (e.g., basic monthly fee and pay-per-use fee) among network providers.

Major network providers include the following companies: Enegate Co., Ltd., TOYOTA Connected Corporation, NEC Corporation, BIPROGY Inc. etc.; incidentally, eMP, which is both an EV charger installer and an EV charging service provider, is also a network provider.

It should be noted that, in some cases, EV charger management systems and member management systems are developed with protocols specific to each network provider; in this regard, an unified standard, etc.^[10], has been established for the purpose of realizing smooth mutual use coordination among various EV charging service providers by enabling communication among systems developed by each network provider.

3-3 How EV Chargers are Installed at Expressway SA/PAs

Some of the EV chargers installed at Expressway SA/PAs have multiple connectors so that one unit of EV chargers can provide charging to multiple EVs at the same time; for example, the EV charger installed at Hamamatsu SA (Shin Tomei Expressway, down-bound) by eMP has 6 hanging type cables with connectors as shown in Figure 2; with this EV charger up to 6 EVs can be charged at the same time.

As of March 31, 2023, there is a variation of full power per unit of EV chargers installed at Expressway SA/PAs; the variation, 20kW~150kW^[11], is due to whether the EV charger is old or new; the maximum number of connectors is 6.

¹⁰ Unified standard for information communication method and connection method among different models; for example, (i) OCPP (Open Charge Point Protocol, established by Open Charge Alliance, headquartered in the Netherlands), which is used for communication between EV chargers and EV charger management systems, and (ii) OCPI (Open Charge Point Interface, established by EVRoaming Foundation, headquartered in the Netherlands), which is an international interface used for communication between EV charger management systems and member management systems.

¹¹ In Japan, Tesla Motors Japan Inc. is the only one to install high-power rapid chargers outside Expressway SA/PAs (full power of Tesla's SuperchargerV3 is 250kW); in foreign countries, for example, in the UK, Gridserve Sustainable Energy Limited installs 350kW full power rapid charger.

Figure 2: Example of a multi-port EV charger



Source: eMP submission materials

Figure 3 shows (i) the number of units of EV chargers installed at Expressway SA/PAs nationwide (the number of chargers themselves) and (ii) the number of connectors or sockets (plugs) (the number of EVs a unit of chargers can charge simultaneously).

Figure 3: Number of EV chargers installed at Expressway SA/PAs

(as of March 31, 2023)

Name of Expressway Company	Number of units installed	Number of plugs installed
East Nippon Expressway	155	183
Central Nippon Expressway	129	169
West Nippon Expressway	141	159
Metropolitan Expressway	9	14
Hanshin Expressway	6	6
Honshu-Shikoku Bridge Expressway	5	5
Total	445	536

Source: Compiled by the JFTC based on data submitted by each Expressway Company

Figure 4 also shows the breakdown of EV charger installers at Expressway SA/PAs.

Figure 4: Breakdown of EV charger installers at Expressway SA/PAs

(as of March 31, 2023)

EV charger installers	Number of units installed	Percentage
eMP	439	98.7%
Expressway Company	6	1.3%
Total	445	100.0%

Source: Compiled by the JFTC from the results of the hearings with each company

For the 439 EV chargers installed by eMP, there are two cases: in one case, eMP itself

provides EV charging services as an EV charging service provider; in the other case, EV charging service providers issuing Charging Cards purchase access to the EV chargers installed by eMP and provide EV charging services to their members.

In addition, for 6 EV chargers installed by Expressway Companies, eMP obtains access to these EV chargers by contract; accordingly, the members of EV charging service providers issuing Charging Cards can use these EV chargers as these EV charging service providers purchase the access from eMP.

3-4 Common Method of Using EV Chargers at Expressway SA/PAs

It is necessary for EV drivers to own Charging Cards, which are required for usage verification, if they wish to charge their EVs for the membership fee¹².

In addition, EV drivers who own Charging Cards make a payment for the charging fee with Charging Cards, as credit card information, etc. is registered with the Charging Cards.

As of June 1, 2023, EV charging service providers issuing Charging Cards are JTB Corp., Toyota Motor Corporation, Nissan Motor Co., Ltd., Honda Motor Co., Ltd., MITSUBISHI MOTORS CORPORATION, VOLKSWAGEN Group Japan K.K., Jaguar Land Rover Japan Limited, BMW Japan Corp. and Mercedes-Benz Japan Co., Ltd. on top of eMP.

The common method of using EV chargers at Expressway SA/PAs, although there are some exceptions due to the difference in each EV charger, is as shown in Figure 5 and 6. When EV drivers own Charging Cards, payment of the charging fee, which is added to the fixed monthly membership fee, is made with credit cards registered with the Charging Cards; when EV drivers do not own Charging Cards, payment of the charging fee is basically made with credit cards registered with verification sites.

¹² In most cases, the charging fee is higher if you do not own a Charging Card than if you do.

Figure 5: For EV users who have Charging Cards

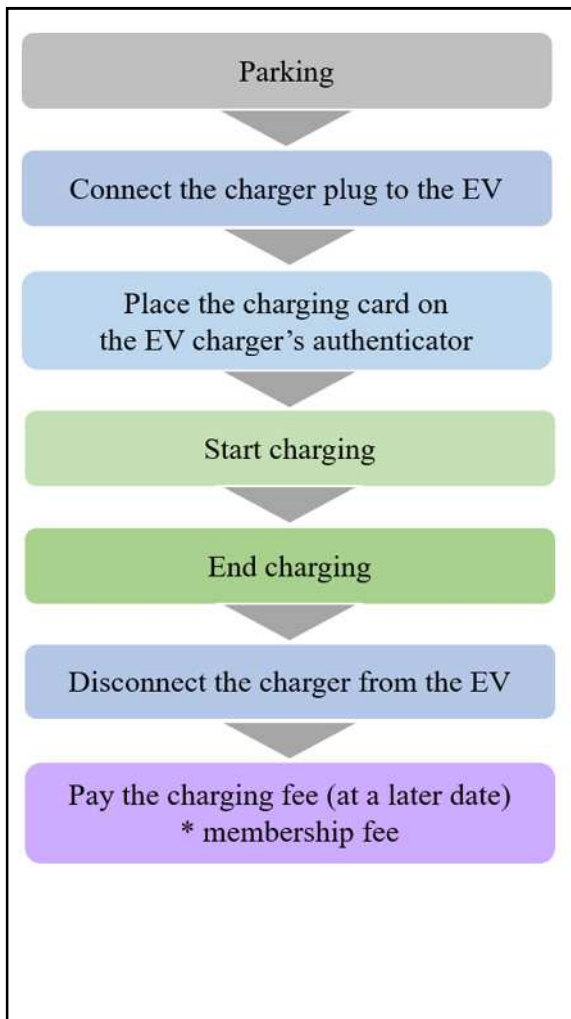
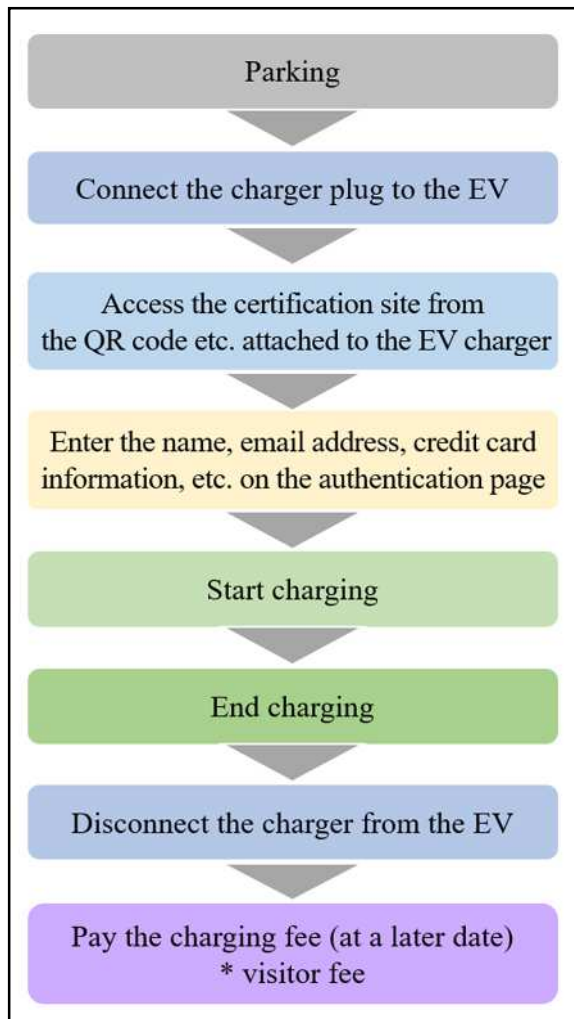


Figure 6: For EV users who do not have Charging Cards



Source: Compiled by the JFTC based on various published materials

4 Current Status of EV Charger Transactions and Viewpoints from Competition Policy and the Antimonopoly Act

4-1 Current Status of New Entry to Expressway SA/PAs

(1) Current Status

As described in the aforementioned Basic Policy for Economic and Fiscal Management and Reform 2023, etc., the government will “support the development of charging and hydrogen refueling infrastructure with the goal of 100% electric vehicles in new vehicle sales by 2035”; furthermore, METI and Ministry of Land, Infrastructure, Transport and Tourism (hereinafter referred to as “MLIT”) released “The Package for Speeding Up Development of Electric Mobility Infrastructure” (hereinafter simply referred to as the “Package”), in which the government aims to develop an environment in which EV drivers can charge their EVs smoothly whenever they want by promoting the massive installation of EV chargers, and the higher output and pluralization of sockets/connectors.

In addition, on the same day, East Nippon Expressway Company, Central Nippon Expressway Company, and West Nippon Expressway Company (hereinafter collectively referred to as the “NEXCO 3”), announced that they would install approximately 1,100 sockets/connectors by FY2025, in cooperation with eMP, which installs EV chargers in Expressway SA/PAs managed by NEXCO 3^[13]. These announcement materials described that NEXCO 3, with Nippon Charge Service, LLC^[14] (hereinafter referred to as “NCS”, predecessor of eMP) and Japan Charging Network^[15] (JCN) as a business partners, had been promoting the development and operation of EV chargers at Expressway SA/PAs.

About ten years ago, NEXCO 3 issued a public invitation for companies to install and operate EV chargers; however, the signed agreements^[16] for the joint project are still in effect, so there has been no public invitation since then.

In reality, as shown in Figure 4, about 98.7% of the EV chargers currently installed at Expressway SA/PAs have been installed by eMP; furthermore, not only new installation but also switching installation has been made by eMP as a part of the joint project with NEXCO 3, and eMP is expected to be in charge of new installation by 2025FY, as well. Accordingly, at present, it can be hardly said that it is expected for EV charger installers except eMP to install EV chargers at Expressway SA/PAs.

¹³ i.e.; <https://www.e-mobipower.co.jp/news/2521/> (latest view date: July 4, 2023)

¹⁴ NCS was established in May, 2014 and operated EV charging service business, etc.; eMP took over the business of NCS in April, 2021.

¹⁵ JCN was established in February, 2012 and operated EV charging service business, etc., network provider business, etc.; eMP took over JCN in April, 2023.

¹⁶ These agreements regulate the ownership of assets and the arrangement of tasks necessary for the installation of EV chargers, such as construction, etc. Concrete conditions differ among NEXCO 3; however, NEXCO 3 is mainly in charge of infrastructure development, such as foundation for EV chargers installation and parking lot development, while eMP (including NCS and JCN. The same applies below.) is in charge of installation, management and operation of EV chargers; for example, <https://corp.w-nexco.co.jp/corporate/release/hq/h26/0129a/> (latest view date: July 4, 2023).

(2) Hearing Results

(a) Hearing Results from Expressway Companies

In the hearings, the following statements were made by the Expressway Companies:

- In order to prevent EVs from running out of charge, we believe it is necessary for us to install EV chargers universally at SA/PAs on roads we are responsible for; therefore, we are not considering pinpoint installation and operation of EV chargers.
- Pinpoint installation in areas of high demand is not desirable in order to avoid charging shortages on Expressways. It is not good for us for companies to exit the market just because of low demand, as has happened in reality on local roads. We hope to establish a partnership with companies that are willing to continue their business even where demand is low.
- In order to prevent a shortage of chargers on Expressways, it is vital to install EV chargers in such a way that the service is universally available at any location, regardless of the business case. The current joint project partner was selected through a public invitation. At the time of the public invitation, ten years ago, eMP was in practice the only company that met the abovementioned criteria; therefore, we have been in the agreement of joint projects with eMP since then.

(b) Hearing Results from EV Charger Installers and EV Charging Service Providers

In the hearings, the following statements were made by eMP, which has installed almost all of the EV chargers in the Expressway SA/PAs:

- We have been developing and operating EV chargers on Expressways as a joint project, with some exceptions. Regarding the installation of EV chargers in Expressway SA/PAs, the maximum amount of subsidy for construction cost is relatively large compared to that for installation at other locations (en-route charging other than Expressways, destination charging, basic charging, etc.); however, the cost we bear is still high. Nevertheless, we have made a forward-looking effort to install EV chargers at Expressway SA/PAs throughout the country, believing that EV chargers are essential social infrastructure.

In the hearings, the following statements were made by EV chargers installers and EV charging service providers who have not installed EV chargers at Expressway SA/PAs:

- We have a desire to install EV chargers at Expressway SA/PAs which have higher demands. The range of EVs has been extended thanks to technological progress, and the main charging method for EV drivers is basic charging. In light of this, it would be sufficient to install EV chargers at SA/PAs of TOMEI and Shin-TOMEI, where there is a large amount of traffic; as for Expressway with a small amount of

traffic, it would be sufficient to install EV chargers at a traffic key location such as somewhere near intersections. It is inefficient to set universal installation (including installation in places with low demand) as an entry condition in anticipation of technological progress.

- As much as we would like to install EV chargers at Expressway SA/PAs, it would be quite difficult to enter the market if it is required to install them at places with low demand.

(c) Hearing Results from the Expressway Agency

In the hearings, the following statement was made by the Expressway Agency

- All review criteria for granting occupancy rights of road asset are prescribed by the Road Act,^[17] its Enforcement Order, etc.,^[18] and are in public; accordingly, the Expressway Agency does not create its own review criteria, nor does it make introductions to companies considering the installation of EV chargers. It should be noted that the summary of the systems for granting occupancy rights of road asset and how to apply is available on the website of the Expressway Agency^[19].

Nonetheless, the JFTC found that some notices for reviewing the procedure cannot be found on the websites. In this regard, according to the Expressway Agency,

- The Expressway Agency recognizes that relevant laws and notices are on the MLIT and e-Gov websites; however, we are not aware of what can be actually be checked on these websites.

(3) Viewpoints from the Antimonopoly Act and Competition Policy

As described in 1 “Background and Purpose” above, the government’s policy is to install 30,000 units of rapid chargers and actively promote their development so as to achieve the same availability as gasoline vehicles by 2030 at the latest.

As shown in Figure 3 and 4, as of March 31, 2023, 445 units of EV chargers have been installed; 98.7% of which have been installed by eMP.

Considering that at the time of the public tender, about 10 years ago, eMP was practically the only company that could be an EV charger installer at Expressway SA/PAs, it is assumed that the joint projects carried out by eMP and some of the Expressway Companies even before the “Carbon Neutrality in 2050” policy was adopted have contributed to some extent to promoting the installation of EV chargers at Expressway SA/PAs in this country.

¹⁷ 1952, No. 180

¹⁸ 1952, No. 479

¹⁹ <https://www.jchdra.go.jp/pdf/torikumipdf/shinsakijun.pdf> (latest view date: July 4, 2023)

Nonetheless, under today's circumstances where there are several companies that install EV chargers by themselves and provide EV charging service, if all chargers at Expressway SA/PAs are kept installed by a certain company that was selected through the first public invitation, various services by companies' ingenuity would be less inclined to flourish than if several companies compete with each other, which may lead to some concerns such as failure to timely respond to EV charger innovation; for example, the situation where timely charger switch in response to further increased power would not happen.

Therefore, in order to avoid the aforementioned problems, from the viewpoints of competition policy, it is desirable for Expressway Companies to make a choice among several EV charger installers, in the light of letting the market mechanism work, i.e., promoting the efficient use of resources through fair and free competition, which is expected to enhance the vitality of companies, increase consumer benefits and promote innovation; to this end, it is desirable to promote new entry of EV charger installers in the future, which may lead to enhanced competition in EV charging service.

Having said that, if new entry only occurs in the high-demand area²⁰, the incumbents that have installed EV chargers in places including low-demand areas might suffer from decreased profit, which might lead to the difficulty of maintaining EV chargers in the low-profit area.

As much as this aspect should be taken into consideration, it is essential to have a discussion from the perspective of ensuring competition in the EV charging service; therefore, competent ministries, namely, METI and MLIT, should deepen the discussion on what the policy of EV charging infrastructure in this country should be²¹. The JFTC will also participate in this discussion from the viewpoints of competition policy.

Furthermore, for the reference of new entrants in the future, it is desirable for the Expressway Agency to publish exhaustively the laws and orders that should be referred to for the installation of EV chargers at the Expressway SA/PAs.

With respect to the Antimonopoly Act, if EV charger installers and Expressway Companies engage in the following conduct, they will be problematic under the Antimonopoly Act.

- (i) (a) An EV charger installer enters into a transaction with the Expressway Companies only on the condition that the Express Companies will not enter into a transaction

²⁰ If pinpoint new entry happens and newly installed EV chargers are built with specific standard, etc. (see 3-2(d)) set by network providers, it is concerned that EV charger installation will not happen in such a way that universal service is provided; therefore, if it is necessary to ensure such a way of providing service, it is suggested to promote EV charger installation with such unified standards as OCPP and OCPI.

²¹ In the market study (see footnote 5), the CMA proposed to promote competition in this relevant market by using public funds to cover the costs that prevent new entrants from providing EV charging service on expressways; in response to this proposal, OZEV, in agreement with the CMA, announced that it would use public funds; this kind of initiatives in other countries can be referred to when considering policymaking in this country. (Government response to the CMA's Electric vehicle charging market study (March 25, 2022) (https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/1062838/governm-ent-response-to-the-cma-electric-vehicle-charging-market-study.pdf (latest view date: July 4, 2023))).

with any other EV charger installer; (b) an EV charger installer forcing Expressway Companies to refuse to transact with other EV charger installers; if such conduct leads to the concern that it will become difficult for such other EV charger installers to find alternative transaction partners, etc. and they will be forced out of the relevant market (or their opportunity for transactions will be reduced). (Monopolization, Dealing on restrictive terms)

- (ii) An Expressway Company engages in unreasonable discriminatory dealings with respect to transaction terms, etc., against a certain EV charger installer, so that the EV charger installer's competitive functions is directly and severely impaired and the fair competition order is harmed.

(Monopolization, Discriminatory treatment)

4-2 Use of off-Expressway EV chargers

(1) Current Status

The above-mentioned package (4-1-1) states that studies will be conducted in cooperation with related organizations on the introduction of a system that allows the use of off-Expressway EV chargers through rate adjustment and new charging and billing systems, so that they can be implemented sequentially starting from FY2024.

Originally, when a driver exits and re-enters the Expressway, a terminal fee²² is re-imposed and the mileage is reset. However, when using EV chargers installed off-Expressway, only if prescribed requirements are met, the terminal fee will be waived upon re-entry through a fee adjustment and the long-distance reduction²³ will continue (this initiative is hereinafter referred to as “temporary exit”). This system is designed to promote the use of EV chargers around Expressways.

However, the proposal to allow such temporary exits is to use “ETC cards, etc.” as a means of billing and charging for EV chargers that can be used after temporary exits in order to “link usage information such as date, time, and location of use of off-Expressway EV charging facilities with Expressway usage information in order to limit the purpose of use of off-Expressway EV charging facilities.”

As for other prescribed requirements for allowing temporary exits, the Expressway

²² A fee charged each time an Expressway is used, regardless of the distance traveled. Specifically, the fee is 150 yen for Expressways managed by East Nippon Expressway Company, Central Nippon Expressway Company, West Nippon Expressway Company, or Metropolitan Expressway Company, 250 yen for Expressways managed by Hanshin Expressway Company, and 150 yen for Expressways managed by JB Honshi Expressway Company (standard vehicles and vehicles equipped with ETC).

²³ Specifically, on Expressways managed by East Nippon Expressway Company, Central Nippon Expressway Company, or West Nippon Expressway Company, a 25% discount will be applied to the portion of the distance traveled exceeding 100 km and up to 200 km, and a 30% discount will be applied to the portion exceeding 200 km. According to a document published by the MLIT on January 20, 2023 (https://www.mlit.go.jp/report/press/road01_hh_001622.html (latest view date: July 4, 2023)), the reduction of the long-distance period for which the overnight discount applies will be reviewed by the end of fiscal 2024.

Companies have stated in hearings that they are still considering them at this time, and no specifics have been clarified. As a leading example of temporary exits, the NEXCO 3 have been conducting a social experiment on temporary exits to rest stops off Expressway since May 2017^[24]. The social experiment targets vehicles equipped with ETC2.0, which has been in use since 2016. ETC2.0 provides multiple services such as ITS (Intelligent Transport Systems) spot services, which provide driving support information such as route guidance to avoid traffic jams, etc., on a single platform^[25]. As of March 2023, the total number of vehicles using ETC on Expressways was approximately 8.33 million per day (94.3% of all vehicle types), of which only 2.64 million used ETC2.0 (30.0%)^[26].

Examples of temporary exits include the off-Expressway parking service provided by Hanshin Expressway since February 2009^[27] and the off-Expressway refueling service (limited to ETC vehicles)^[28] provided by East Nippon Expressway Company since April 2016 as part of a social experiment. However, both of these services include conventional ETC-equipped vehicles and are not limited to ETC2.0-equipped vehicles.

(2) Results of hearings with EV charger installers, EV charging service providers, and network providers

In hearings with EV charger installers, EV charging service providers, and network operators, some expressed support for efforts to temporarily exit the Expressways to charge EV. But some expressed concern that the EV chargers that could be used for temporarily exit from the Expressway would be limited to EV chargers installed by certain companies or EV charging services provided by certain companies.

With regard to the specific operation of billing and settlement for EV charger use with ETC cards, all EV charging service providers, including eMP, currently use “charging cards” or credit cards registered by EV users through an authentication website for settlement as described in 3-4 above. There is no actual situation in which payment by ETC card^[29] is possible. Under these circumstances, EV charger installers, EV charging service providers and network providers have expressed the following opinions.

- ETC card authentication systems are expensive and cannot be supported by general purpose payment terminals, resulting in high capital costs. If the Expressway Company only wants to confirm whether a driver has temporarily exited the Expressway to recharge EV, it is sufficient to send the charge history from the charger management system via an

²⁴ https://www.mlit.go.jp/report/press/road01_hh_000803.html (latest view date: July 4, 2023)

²⁵ For example, with ETC2.0, drivers can receive driving assistance services through high-speed, high-capacity (four times faster than ETC), two-way communication with ITS Spots installed in expressways nationwide. Specifically, the driver can receive up to 1,000 km of traffic information, camera images (still images) of the situation ahead, and audio information.

²⁶ <https://www.mlit.go.jp/road/yuryo/etc/riyou/index.html> (latest view date: July 4, 2023)

²⁷ <https://www.hanshin-exp.co.jp/drivers/ryoukin/services/parkingmonitor/> (latest view date: July 4, 2023)

²⁸ https://www.e-nexco.co.jp/news/important_info/2023/0331/00012412.html (latest view date: July 4, 2023)

²⁹ This is a mechanism to pay highway tolls

API connection (API (Application Programming Interface) is a data link that uses a connection method to securely use the functions and data of other systems.).

- The ETC has a function to identify the powertrain (power source) of a vehicle, etc. Therefore, it is possible to check whether a vehicle entering or exiting an Expressway is an EV or not, or the vehicle registration number, etc. with existing functions. Therefore, there is no need to limit the means of billing and settlement for EV charger use to ETC cards as a means of confirming whether the vehicle has temporarily exited for EV charging. In fact, it would only discourage the installation of EV chargers and the use of existing chargers for temporary exits, since it would be an investment cost to also install an ETC antenna at a location where there is only one EV charger.
- The decision to limit payment to ETC cards should be made after considering various methods and based on cost.

(3) Viewpoint from the Competition Policy

In addition to providing EV users using Expressways with more EV charging options, it is expected that EV chargers installed off-Expressways will exert competitive pressure on EV chargers installed at Expressway SA/PAs, thereby promoting competition in EV charging services and fees.

Therefore, when considering the requirements for allowing temporary exit, it is desirable from a competition policy perspective that the EV chargers that can be used after temporary exit are not limited to those installed by a specific operator or to EV charging services provided by a specific operator.

According to hearings with EV charger installers and EV charging service providers, none of the EV chargers currently installed in Japan is compatible with ETC card billing and payment. In light of the explanation that other methods are possible if the purpose is to link usage information such as the date, time, and location of EV charger use with highway usage information, it is recommended that a flexible system be designed to meet actual conditions in terms of the requirements for allowing temporary exit in order to promote the entry of companies providing off-Expressway EV charging services, increase the effectiveness of temporary exit efforts, and increase competitive pressure on EV chargers installed at Expressway SA/PAs.

Therefore, with regard to the specific operation of temporary exit initiatives for EV charging, it is desirable from a competition policy perspective to consider measures that do not require large capital investments and that allow, as far as possible, payment methods other than ETC cards.

Furthermore, from the point of view of making EV chargers installed off-Expressways function effectively as a competitive pressure against EV chargers installed at Expressway SA/PAs, it is desirable from the point of view of competition policy not to limit the target of

temporary exit for EV charging to vehicles equipped with systems compatible with specific technologies such as ETC 2.0, etc., but to include as many EV users as possible.

5 Future Initiatives of the JFTC

In this report, the JFTC conducted hearings with Expressway Companies, Expressway Agency, EV charger installers, EV charging service providers, and network providers regarding Expressway EV charging services, and clarified views on the Antimonopoly Act and competition policy.

The JFTC will make proposals presented in this report to the METI and the MLIT. It is expected that this will encourage the aforementioned organizations, Expressway Companies, EV charger installers, and EV charging service providers to consider specific measures and take voluntary actions to promote fair and free competition in EV charging services on Expressways.

In addition, as new companies with the ability and technology to provide highway EV charging and related services are expected to enter the market in the future, the JFTC will closely monitor the market and take strict and appropriate action if we encounter specific cases that raise issues under the Antimonopoly Act.

[End of Text]