

ARTICLES

HIROSHI KOBAYASHI*

Carbon Pricing for GX and Renewable Energy: The Case of Japan and Comparisons to the United States

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* Professor of Law at Shinshu University in Japan, LL.B., Keio University (1998), LL.M. in Energy & Environment, Tulane University Law School (2005), Ph.D. in Law, Waseda University (2016). In connection with this Article, the author delivered a lecture entitled “Realization of a Decarbonized Society (CN) and Legal Issues Concerning GX: Renewable Energy-Related Litigation” (in Japanese), on October 27, 2023, at the Bar Association Hall in Tokyo, Japan. I would like to thank the attorneys belonging to the Hōyūkai of the Tokyo Bar Association for providing me with this opportunity, and Mr. Takeya Yamamoto, an attorney at law, for his meaningful critical comments. I would also like to thank all the editors, especially Ms. Melody Britton, Ms. Claire Malone, and Ms. Elizabeth Osgood, for their invaluable assistance in editing this Article. This work was partially supported by JSPS KAKENHI Grant Number JP22K01279. This Article was accepted on June 10th, 2024. Information after that date is not included in this Article.

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ABSTRACT

Growth-oriented carbon pricing, a key economic method for green transformation (GX), facilitates the shift from fossil fuel dependency toward renewable energy as the primary power source in Japan. However, the widespread use of renewable energy sources poses new environmental challenges, including disturbances to human life from solar panel reflection to wind turbine noise, and ecosystem impacts, including those on endangered species (e.g., bird strike to windmill). In the United States and Japan, several lawsuits have been filed against renewable energy projects, seeking injunctions and damages on the basis of environmental impediments. To expedite the full-scale implementation of growth-oriented carbon pricing, it is essential to mitigate the risk of litigation by fostering renewable energy projects in symbiosis with local communities. This Article analyzes the system established by the Act Concerning the Promotion of Smooth Transition to a Decarbonized Growth-Oriented Economic Structure enacted in Japan on May 12, 2023 (effective June 30, 2023). It also discusses the carbon pricing significance and challenges (particularly its implementation timing) and lawsuits in relation to renewable energy projects. Through a comparative study with the clean energy transition implemented under the Biden Administration and renewable energy-related lawsuits in the United States, this Article demonstrates the necessity of the early full-scale implementation of a fossil fuel levy and emissions trading scheme, which form the core of the abovementioned carbon pricing approach, to realize a decarbonized society by 2050.

INTRODUCTION

In Japan, green transformation (GX) is defined as “the transformation of the fossil energy-centered industrial and social structure since the industrial revolution to a clean energy-centered one,” according to the Basic Policy for the Realization of GX approved by the Japanese

Cabinet in February 2023.¹ In other words, it is understood to mean a reform of the economic and social structure to realize a decarbonized society (i.e., carbon neutrality (CN)) by considering the control of greenhouse gas (GHG) emissions such as carbon dioxide as an opportunity for growth rather than as a constraint on business activities.² A decarbonized society is defined as “a society in which a balance is maintained between the emissions of GHG generated by human activities and the absorption of GHG through the conservation and enhancement of absorptive activity.”³ Regarding the relationship between GX and CN, GX is a concept for transforming economic and social structures to encompass CN that should be realized by 2050.⁴ Unlike digital transformation (DX), “the target of GX is not only companies but also the whole of Japan, including administrative agencies and consumers.”⁵ To transform the economic and social structures of Japan as a whole and follow a decarbonized growth model, it is necessary to introduce not only regulatory, voluntary, and informational methods but also new economic methods, the core of which is “growth-oriented carbon pricing.” For realizing CN by 2050, implementing this approach in earnest, as quickly as possible, is crucial. In addition, it has been pointed out that over the next ten years, the public and private sectors will need to realize a combined GX investment of over 150 trillion JPY (approximately 1 trillion USD).⁶

Growth-oriented carbon pricing is among some of the most important economic methods for transitioning away from dependence

¹ CABINET SECRETARIAT, BASIC POLICY FOR THE REALIZATION OF GX: A ROADMAP FOR THE NEXT 10 YEARS 1 (2023), https://www.cas.go.jp/jp/seisaku/gx_jikkou_kaigi/pdf/kihon.pdf [<https://perma.cc/3ZFH-4BV3>] (Japan).

² See Yukio Honda, *Glossary No. 146 Theme: GX (Green Transformation)*, 143 J. ELEC. POWER & ENERGY 5, 11 (2023) (Japan).

³ Ontaihō [Act on Promotion of Global Warming Countermeasures], Law No. 107 of 1998, art. 2-2 (Japan).

⁴ See Honda, *supra* note 2, at 11.

⁵ Yoshihito Sato, *Green Transformation (GX) to Achieve Carbon Neutrality (CN)*, 31 INTELL. ASSET CREATION 4, 4 (2023) (Japan).

⁶ OFF. OF ENV'T ECON., MINISTRY OF ECON., TRADE & INDUS., TOWARD PROMOTING GREEN TRANSFORMATION - FOCUSING ON GROWTH-ORIENTED CARBON PRICING, 5 (May 29, 2023), https://www.meti.go.jp/shingikai/sankoshin/sangyo_gijutsu/chikyu_kankyo/ondanka_follow_up/pdf/2023_001_05_00.pdf [<https://perma.cc/KD2J-VR73>] (Japan) [hereinafter TOWARD PROMOTING GREEN TRANSFORMATION]; 1 USD = 150.114 JPY as of Mar. 2, 2024.

on fossil fuels and making renewable energy the main source of power.⁷ However, the widespread use of renewable energy sources, especially large-scale solar and wind power facilities, pose new environmental problems, such as disturbances to people's daily lives caused by reflected light from solar panels and noise from wind turbines, as well as the impact on ecosystems, including on endangered species, depending on the location. In the United States and Japan, several lawsuits have been filed against renewable energy projects, seeking injunctions and damages on the basis of environmental impediments. Even if these injunction and damage claims are dismissed in court, renewable energy projects could be delayed by the filing of such lawsuits.⁸ For early, full-scale implementation of growth-oriented carbon pricing, it may be necessary to mitigate the risk of litigation by developing renewable energy projects in symbiosis with local communities.

The purpose of this Article is to examine the system based on the Act Concerning the Promotion of Smooth Transition to a Decarbonized Growth-Oriented Economic Structure [hereinafter "the GX Promotion Act"],⁹ which was enacted on May 12, 2023, in Japan (with one exception, effective June 30, 2023), and to discuss the significance and issues of carbon pricing (especially the timing of its implementation) and lawsuits related to renewable energy projects mentioned above.¹⁰ The Act for Partial Revision of the Electricity Business Act and Other Acts for Establishing an Electricity Supply System for Realizing a Decarbonized Society [hereinafter "GX Decarbonized Power Supply Act"],¹¹ which was enacted on May 31, 2023 (with some exceptions, effective April 1, 2024), consists of two major components: (A) "promotion of maximum introduction of renewable energy in

⁷ See Press Release, United Nations Climate Change, COP28 Agreement Signals "Beginning of the End" of the Fossil Fuel Era (Dec. 13, 2023), <https://unfccc.int/news/cop28-agreement-signals-beginning-of-the-end-of-the-fossil-fuel-era> [<https://perma.cc/SR7L-RUXX>].

⁸ See TROY A. RULE, RENEWABLE ENERGY LAW, POLICY AND PRACTICE 598 (2d ed. 2021).

⁹ GX *suishinhō* [Act Concerning the Promotion of Smooth Transition to a Decarbonized Growth-Oriented Economic Structure], Law No. 32 of 2023 (Japan) [hereinafter GX Promotion Act].

¹⁰ As stated above, this Article is based on a lecture delivered by the author on October 27, 2023, at the Bar Association Hall in Tokyo, Japan, which has been developed into a research paper.

¹¹ GX *datsutansō dengenhō* [Act for Partial Revision of the Electricity Business Act and Other Acts for Establishing an Electricity Supply System for Realizing a Decarbonized Society], Law No. 44 of 2023 (Japan) [hereinafter GX Decarbonized Power Supply Act].

symbiosis with local communities,” and (B) “promotion of nuclear power utilization and decommissioning on the premise of ensuring its safety.”¹² The former (A) comprises the following elements: (1) “development of an environment for grid infrastructure conducive to the introduction of renewable energy,” (2) “promotion of additional investment to maximize the use of existing renewable energy,” and (3) “strengthening of business discipline for the introduction of renewable energy in symbiosis with local communities.”¹³ Of the above two components (A and B), the utilization and decommissioning of nuclear power—although it has more in common with renewable energy in that it is a nonfossil energy source—is a different issue from the timing of implementation of growth-oriented carbon pricing and the promotion of renewable energy, which are the main issues of this Article. Therefore, the author will leave the discussion for a separate paper, while the aspect of “strengthening of business discipline for the introduction of renewable energy in symbiosis with local communities” is discussed below.

First, this Article examines the main background leading up to the October 2020 CN declaration and the enactment of the GX Promotion Act and the GX Decarbonized Power Supply Act and presents an evaluation of the rapid response by the Japanese government with regard to GX (Section I). This is followed by observations from an analysis of the growth-oriented carbon pricing system under the GX Promotion Act and its constituents, shedding light on the issues involved in the system (Section II). Next, based on a comparative study with the clean energy transition implemented under the Biden administration and renewable energy-related lawsuits in the United States (Section III), this Article demonstrates the necessity of the early full-scale implementation of a fossil fuel levy and emissions trading scheme. These schemes form the core of the abovementioned carbon pricing approach, to realize a decarbonized society by 2050. Furthermore, this Article states that, for the early implementation of the approach, it should be required to mitigate the risk of litigation by

¹² MINISTRY OF ECON., TRADE & INDUS., CABINET DECISION ON A BILL TO AMEND THE ELECTRICITY BUSINESS ACT AND OTHER ACTS ESTABLISHING AN ELECTRICITY SUPPLY SYSTEM FOR REALIZING A DECARBONIZED SOCIETY (2023), <https://www.meti.go.jp/press/2022/02/20230228005/20230228005.html> [<https://perma.cc/Y4XA-3J3R>] (Japan) [hereinafter CABINET DECISION ON A BILL 2023].

¹³ *Id.*

developing renewable energy projects in symbiosis with local communities.

I

MAIN BACKGROUND

In October 2020, Prime Minister Yoshihide Suga declared that Japan would achieve CN by 2050. Following this declaration, in April 2021, it was announced that in FY2030, Japan would aim for a 46% reduction in GHG emissions (compared to FY2013), and continue to challenge itself to achieve a 50% reduction (note that in Japan, a fiscal year begins in April and ends in March).¹⁴ In June 2021, the “Green Growth Strategy Accompanying CN by 2050,” originally formulated in December 2020, was refined for precision.¹⁵ This strategy has been defined as “the industrial policies that create a virtuous cycle between the economy and the environment.”¹⁶ It also stated that “changing conventional thinking and taking proactive measures will lead to a transformation of the industrial structure and the social economy, leading to the next major growth.”¹⁷

Subsequently, in January 2022, Prime Minister Fumio Kishida delivered a speech at the 208th Congress Session, stating, “To achieve our goals, we will not only reform the energy supply structure, but also work for a major transformation of the entire economy and society, including the industrial structure, people’s lives, and the overall state of the region.”¹⁸ In February 2022, the “GX League Basic Concept” was formulated (the GX League activities commenced in FY2023).¹⁹ The GX League is defined as “a place where ‘groups of companies’ actively engaged in GX, together with players in government, academia, and finance who are taking on the challenge of GX, work as

¹⁴ MINISTRY OF THE ENV'T, GLOBAL WARMING COUNTERMEASURES PLAN 11 (2021), <https://www.env.go.jp/content/900440195.pdf> [<https://perma.cc/5VYW-TY27>] (Japan).

¹⁵ CABINET SECRETARIAT ET AL., GREEN GROWTH STRATEGY ACCOMPANYING CARBON NEUTRALITY BY 2050 (2021), https://www.meti.go.jp/policy/energy_environment/global_warming/ggs/pdf/green_honbun.pdf [<https://perma.cc/D4WC-BG9B>] (Japan).

¹⁶ *Id.* at 1.

¹⁷ *Id.*

¹⁸ Kishida Fumio, Prime Minister, Prime Minister’s Office of Japan, Policy Speech by Prime Minister KISHIDA Fumio to the 208th Session of the Diet (Jan. 17, 2022), https://japan.kantei.go.jp/101_kishida/statement/202201/_00009.html [<https://perma.cc/BS7P-JK5R>] (Japan).

¹⁹ OFF. OF ENV'T ECON., INDUS. TECH. & ENV'T BUREAU, MINISTRY OF ECON., TRADE & INDUS., GX LEAGUE BASIC CONCEPT (2022), https://www.meti.go.jp/policy/energy_environment/global_warming/GX-league/gxleague_concept.pdf [<https://perma.cc/X7BV-MU9K>] (Japan).

a whole to discuss reform of the entire economic and social system and to implement practices for the creation of new markets.”²⁰ In June 2022, the Cabinet approved the “Grand Design and Implementation Plan for the New Capitalism,” which included the creation of GX Economic Transition Bonds (“Investment in GX” [III. 4.1]) subsequently revised in June 2023 (“Investment in GX, DX, etc.” [IV.]).²¹

In addition, the GX Executive Conference has been launched to discuss necessary measures to implement the GX.²² A total of ten meetings were held from July 2022 to December 2023 (as of April 6, 2024).²³ Active discussions were held at the said meetings, with each member submitting relevant materials.²⁴ Furthermore, on May 13, 2024, the 11th GX Executive Conference was held, where discussions took place to require companies with large greenhouse gas emissions to participate in the emissions trading system in order to fully implement the system from FY2026.²⁵ Prime Minister Kishida ordered that a new national strategy to promote GX, the GX2040 Vision, be formulated by the end of 2024.²⁶

²⁰ *Id.* at 1.

²¹ GRAND DESIGN AND IMPLEMENTATION ACTION PLAN FOR A NEW FORM OF CAPITALISM: INVESTING IN PEOPLE, TECHNOLOGY, AND STARTUPS (2022), https://www.cas.go.jp/jp/seisaku/atarashii_sihonsyugi/pdf/ap2022en.pdf [<https://perma.cc/S992-DJBS>] (Japan); GRAND DESIGN AND ACTION PLAN FOR A NEW FORM OF CAPITALISM 2023 REVISED VERSION (2023), https://www.cas.go.jp/jp/seisaku/atarashii_sihonsyugi/pdf/ap2023en.pdf [<https://perma.cc/V9NW-UPZZ>] (Japan).

²² CABINET SECRETARIAT, REGARDING HOLDING A GX EXECUTIVE CONFERENCE (2022), https://www.cas.go.jp/jp/seisaku/gx_jikkou_kaigi/pdf/gx_jikkou_kaigi.pdf [<https://perma.cc/8D3J-SP9Y>] (Japan).

²³ CABINET SECRETARIAT, GX EXECUTIVE CONFERENCE, https://www.cas.go.jp/jp/seisaku/gx_jikkou_kaigi/index.html [<https://perma.cc/RWT4-M55Y>] (last visited May 18, 2025) (Japan).

²⁴ *See id.*

²⁵ CABINET SECRETARIAT, 11TH GX EXECUTIVE CONFERENCE, https://www.cas.go.jp/jp/seisaku/gx_jikkou_kaigi/dai11/index.html [<https://perma.cc/2QVY-3XSL>] (last visited May 18, 2025) (Japan). In addition, the Research Group on Legal Issues Contributing to the Study of Emissions Trading Scheme for GX Realization was established in May 2024, and since May 17, it has been studying legal issues and approaches to emissions trading schemes from the perspectives of constitutional law, administrative law, civil law, and others. MINISTRY OF ECON., TRADE & INDUS., THE RESEARCH GROUP ON LEGAL ISSUES CONTRIBUTING TO THE STUDY OF EMISSIONS TRADING SCHEME FOR GX REALIZATION, https://www.meti.go.jp/shingikai/energy_environment/gx_implementation/index.html [<https://perma.cc/ZV5T-2TYN>] (last visited May 18, 2025) (Japan).

²⁶ *Decarbonization Strategy to Be Formulated by the End of the Year*, NIKKEI (May 14, 2024) (Japan).

The Cabinet approved the “Basic Policy for Realization of GX: A Roadmap for the Next 10 Years” on February 10, 2023, and the GX Decarbonization Power Supply Bill on February 28, 2023.²⁷ Furthermore, the GX Promotion Act and the GX Decarbonization Power Supply Act were enacted on May 12 and May 31 of the same year, respectively. The “perspective of fair transition” was discussed in the deliberation process of the GX Promotion Act.²⁸ This phrase was reflected in the basic principles under Article 3 of the GX Promotion Act, which is understood to have been extremely important for the transition to a clean energy-centered industrial and social structure, as well as for the “smooth realization of labor mobility without unemployment.”²⁹ The basic principles under Article 3 of the GX Promotion Act are as follows:

The smooth transition to a decarbonized growth-oriented economic structure shall be made in a manner that contributes to the growth of Japan’s economy, in close mutual coordination between the government and business operators, while taking into account the consistency with the Basic Energy Plan prescribed in Article 12, Paragraph 1 of the Energy Policy Basic Act (Law No. 71 of 2002), the Global Warming Countermeasures Plan prescribed in Article 8, Paragraph 1 of the Act Concerning the Promotion of Global Warming Countermeasures (Law No. 117 of 1998), and other measures related to energy demand and supply, etc., as well as the perspectives of reducing the burden on energy over the medium- and long-term and of making a fair transition.

In addition to fair transition, it has been pointed out that a “wise (smart) transition is important” and that a “wise transition means efficient and effective transition.”³⁰ The author believes that a decarbonized society will require both a fair transition and a wise transition, since, for example, in addition to the phase-out of inefficient coal-fired power

²⁷ MINISTRY OF ECON., TRADE & INDUS., CABINET DECISION ON THE BASIC POLICY FOR THE REALIZATION OF GX (2023), https://www.meti.go.jp/english/press/2023/0210_003.html [<https://perma.cc/TQA3-4LNS>] (Japan); CABINET DECISION ON A BILL 2023, *supra* note 12.

²⁸ See 211 CONG. REC. 6, 7–8 (daily ed. Apr. 25, 2023) (statement of H. of Councilors Morimoto) (Japan); THE HOUSE OF COUNCILORS COMM. ON ECON., TRADE & INDUS., SUPPLEMENTARY RESOLUTION TO THE BILL CONCERNING PROMOTION OF SMOOTH TRANSITION TO A DECARBONIZED GROWTH-ORIENTED ECONOMIC STRUCTURE para. 5 (2023) (Japan). For “fair transition,” *see also* TOWARD PROMOTING GREEN TRANSFORMATION, *supra* note 6, at 14.

²⁹ THE HOUSE OF COUNCILORS COMM. ON ECON., TRADE & INDUS., *supra* note 28, para. 5.

³⁰ Tadashi Otsuka, *The GX Promotion Act and the GX Decarbonized Electricity Supply Act*, 1590 JURISUTO 91, 94 (2023) (Japan).

generation and the significant introduction of effective renewable energy, labor mobility without unemployment will also be essential.

The GX Promotion Act came into effect on June 30, 2023. In principle, the GX Decarbonization Power Act came into effect on April 1, 2024. However, the clarification of principles regarding the use of nuclear power under the Atomic Energy Basic Act³¹ has come into effect since the promulgation of the GX Decarbonization Power Act. The clause on the maintenance of discipline regarding the operating period of nuclear power under the Electricity Business Act³² came into effect on June 6, 2025.³³

Based on Article 6 of the GX Promotion Act, the “Strategy for Promoting the Transition to a Decarbonized Growth-Oriented Economic Structure” [hereinafter “the GX Promotion Strategy”] was approved by the Cabinet on July 28, 2023.³⁴ The contents of the GX Promotion Strategy are almost identical to the Basic Policy for Realization of GX mentioned above.

Thus, the Japanese government’s responses to GX have been fairly rapid after the October 2020 CN declaration, but these were essential to achieve the abovementioned 2030 target and 2050 CN. The author believes that these rapid responses themselves are appropriate, given the interconnected nature of the 2030 target and 2050 CN. The ability to achieve the 2030 target will influence the success of the 2050 CN. Given the limited time to reach these goals, prompt action is essential.

³¹ Genshiryoku seisaku kihonhō [Atomic Energy Basic Act], Law No. 186 of 1955 (Japan).

³² Denki jigyōhō [Electricity Business Act], Law No. 170 of 1964 (Japan).

³³ MINISTRY OF ECON., TRADE & INDUS., CABINET DECISION ON THE “CABINET ORDER FOR STIPULATING THE ENFORCEMENT DATE OF PART OF THE ACT AND OTHER ACTS FOR ESTABLISHING ELECTRICITY SUPPLY SYSTEMS FOR REALIZING A DECARBONIZED SOCIETY (2023), https://www.meti.go.jp/english/press/2023/0912_001.html#:~:text=On%20September%2012%2C%202023%2C%20a,Order%20is%20to%20stipulate%20the [https://perma.cc/SK66-LRHL] (Japan).

³⁴ MINISTRY OF ECON., TRADE & INDUS., THE CABINET DECISION ON THE STRATEGY FOR PROMOTING THE TRANSITION TO A DECARBONIZED GROWTH-ORIENTED ECONOMIC STRUCTURE APPROVED BY CABINET (2023), <https://www.meti.go.jp/press/2023/07/20230728002/20230728002.html> [https://perma.cc/7GXA-6MM2] (Japan).

Some critics have pointed out that “the GX Promotion Act is unacceptable because it embodies the Basic Policy for the Realization of GX, which aims to return to and promote nuclear power generation and extend the life of coal-fired power generation under the guise of decarbonization.”³⁵ While there are multiple issues to be addressed, such as the timing of the implementation of growth-oriented carbon pricing, as discussed below, the author believes that the GX Promotion Act should be positively viewed in that it provides a framework for further shifting the economic structure toward the realization of a decarbonized society by 2050.

II

ANALYSIS OF GROWTH-ORIENTED CARBON PRICING UNDER THE GX PROMOTION ACT

A. Overview of the GX Promotion Act

The “decarbonized growth-oriented economic structure” under the GX Promotion Act is defined as “an economic structure that enables economic growth by strengthening industrial competitiveness without emitting carbon dioxide related to energy and raw materials used in industrial activities into the atmosphere, in principle.”³⁶ “No emissions of carbon dioxide related to energy and raw materials, in principle” means to shift to decarbonized power sources such as renewable energy and nuclear power without relying on fossil fuels as much as possible. It also means allowing emissions of carbon dioxide in exceptional cases where the use of fossil fuels is unavoidable in relation to electricity supply and demand. Even if fossil fuels are used, it should be required to take emission reduction measures such as carbon dioxide capture storage, which is the technology for separating and capturing carbon dioxide and storing it underground.³⁷

The GX Promotion Act consists of five major components: “(1) formulation and implementation of the GX Promotion Strategy,

³⁵ Ryo Abe, *GX Promotion Act to Promote Nuclear Power and Extend the Life of Coal-Fired Power*, 306 CONG. & LOC. GOV'T 83 (2023) (Japan). The author essentially agrees with the position of transitioning away from fossil fuels as agreed at COP28 in 2023 (more hopefully, phasing them out) and does not support undue dependence on fossil fuels. The political pros and cons of promoting nuclear power in Japan are not discussed in this Article.

³⁶ GX Promotion Act, *supra* note 9, art. 2, para. 1.

³⁷ See MINISTRY OF ECON., TRADE & INDUS., STRATEGY FOR PROMOTING THE TRANSITION TO A DECARBONIZED GROWTH-ORIENTED ECONOMIC STRUCTURE 3 (2023), <https://www.meti.go.jp/press/2023/07/20230728002/20230728002-1.pdf> [<https://perma.cc/M85P-WYPW>] (Japan) [hereinafter GX PROMOTION STRATEGY].

(2) issuance of GX Economic Transition Bonds, (3) introduction of growth-oriented carbon pricing, (4) establishment of the GX Promotion Agency, and (5) progress evaluation and necessary review.”³⁸ Each of these components is described further below.

Regarding the first component, the GX Promotion Strategy, formulated on July 28, 2023, sets forth (1) goals, basic directions, measures, and policies related to promoting a smooth transition to a decarbonized growth-oriented economic structure; (2) matters related to the issuance of GX Economic Transition Bonds; (3) matters related to the imposition of the fossil fuel levy and specified business operator contributions; (4) matters related to the support provided by the GX Promotion Agency; and (5) matters related to the evaluation of the achievement status of the GX Promotion Strategy, among others.³⁹ In relation to the second component, GX Economic Transition Bonds⁴⁰ will be issued in the amount of 20 trillion JPY over the ten-year period from FY2023 to FY2032 to support upfront investments related to GX, and will be redeemed through FY2050 with the revenues from the fossil fuel levy and specified business operator contributions, as described below.⁴¹ Concerning the third component, at the heart of growth-oriented carbon pricing is the fossil fuel levy and specified business operator contributions, which are discussed further below. With regard to the fourth component, the GX Promotion Agency, established in FY2024, aims to promote a smooth transition to a decarbonized growth-oriented economy structure by providing administrative services related to the collection of the fossil fuel levy and specified business operator contributions, services related to the allocation of specified business emission allowances, and the implementation of tenders, debt guarantees, and other support for those who conduct business activities that contribute to a smooth transition to a

³⁸ MINISTRY OF THE ENV'T, OUTLINE OF THE PROPOSED ACT ON PROMOTION OF SMOOTH TRANSITION TO A DECARBONIZED GROWTH-ORIENTED ECONOMIC STRUCTURE, <https://www.env.go.jp/content/000110823.pdf> [<https://perma.cc/H6JP-UVBK>] (last visited May 18, 2025) (Japan).

³⁹ GX Promotion Act, *supra* note 9, art. 6, para. 2.

⁴⁰ GX Promotion Act, *supra* note 9, art. 7, para. 1 (provides as follows: “Notwithstanding the provisions of Art. 4, Para. 1 of the Public Finance Act (Law No. 34 of 1947), for each fiscal year from FY2023 to FY2032, the Government may, within the amount approved by the Congress, issue public bonds at the expense of the Special Account for Energy Measures as for financial resources of the costs of measures for promoting a smooth transition to a decarbonized growth-oriented economic structure.”).

⁴¹ GX Promotion Act, *supra* note 9, art. 8, para. 1.

decarbonized growth-oriented economic structure.⁴² As for the support services, in addition to debt guarantees, the GX Promotion Agency will provide the necessary financing for business activities that contribute to a smooth transition to a decarbonized growth-oriented economic structure (target business activities), underwrite bonds issued by business operators engaged in target business activities, dispatch experts on target business activities, and provide necessary advice on target business activities.⁴³ As for the fifth component, the Japanese government shall, if it deems necessary, take requisite measures based on the results of the review of the policies for promoting a smooth transition to a decarbonized growth-oriented economic structure. They shall also consider how to implement the system for specified business operator emission allowances, fossil fuel levies, and specified business operator contributions, including specific measures for the full-scale implementation of the market for trading of specified business operator emission allowances. Based on the results of the review, necessary legislative measures shall be taken within two years after the enforcement of the GX Promotion Act.⁴⁴ Therefore, components one through five described above are not standalone but are organically interrelated and complementary to each other.⁴⁵ However, the core of the above components is understood to be the third component, growth-oriented carbon pricing. Carbon pricing is the process of pricing carbon and burdening or subsidizing certain economic and social activities to promote “behavioral change” among businesses and individuals toward a decarbonized society.⁴⁶ Globally, as of the writing of this Article, carbon pricing is noted to be “already in place in seventy-three countries and regions.”⁴⁷ Growth-oriented carbon pricing under the GX

⁴² GX Promotion Act, *supra* note 9, art. 20. The Establishment of the GX Promotion Agency was approved on April 19, 2024. MINISTRY OF ECON., TRADE & INDUS., THE ESTABLISHMENT OF THE GX PROMOTION ORGANIZATION APPROVED AND ITS PRESIDENT INFORMALLY APPOINTED (2024), <https://www.meti.go.jp/press/2024/04/20240419005/20240419005.html> [<https://perma.cc/WU3F-9BFG>] (Japan).

⁴³ GX Promotion Act, *supra* note 9, art. 54, para. 1, item 4.

⁴⁴ GX Promotion Act, *supra* note 9, art. 11 of the Supplementary Provisions.

⁴⁵ See Tohru Morotomi, *The Concept of Emissions Trading Scheme in the GX League (GX-ETS) and Its Future Prospects*, 20 RSCH. & DEV. LEADER 1, 34 (2023) (Japan).

⁴⁶ Yoshihito Sato et al., *Carbon Credit and Emissions Trading to Support GX Realization*, 31 INTELL. ASSET CREATION 7, 9 (2023) (Japan).

⁴⁷ Kazunari Hanawa, *Carbon Pricing, Three Issues for Japan, Discussed at COP, NIKKEI GX* (Nov. 10, 2023), <https://www.nikkei.com/prime/gx/article/DGXZQOUA26D0C0W3A021C2000000> [<https://perma.cc/T6S8-8XQM>] (Japan).

Promotion Act consists of the fossil fuel levy and the emissions trading scheme.⁴⁸

B. Emissions Trading Scheme Under the GX Promotion Act

1. Organizing the Carbon Credit Market

With the introduction of the emissions trading scheme under the GX League (GX-ETS), the carbon credit market in Japan, in the broad sense, has been organized into (1) excess emission reduction allowances under the GX-ETS (Excess Emission Reduction Allowances) by companies participating in the GX League (566 companies as of August 2023), (2) J-Credits, and (3) Joint Crediting Mechanism (JCM).⁴⁹ In addition to J-Credit and JCM as major carbon credits in Japan, J Blue Credit, a voluntary carbon credit, is introduced.⁵⁰ In this Article, the author refers only to J-Credit and JCM, which are public carbon credits operated by governmental agencies. J-Credit is a system under which the government certifies the amount of carbon dioxide and other GHG emission reductions from renewable energy sources and the absorption of GHG by forests as credits.⁵¹ In addition, JCM, a bilateral credit mechanism, is defined as “a system to quantitatively evaluate Japan’s contribution to realized GHG emission reductions and absorption through the diffusion of excellent decarbonization technologies and implementation of measures in developing countries, etc., and to utilize the results to achieve nationally determined contributions (NDCs)⁵² of Japan.”⁵³ Although

⁴⁸ See GX PROMOTION STRATEGY, *supra* note 37, at 17.

⁴⁹ MINISTER IN CHARGE OF PROMOTING GX IMPLEMENTATION, TOWARD REALIZATION OF GREEN TRANSFORMATION IN JAPAN 1, 31–32 (2023), https://www.cas.go.jp/jp/seisaku/gx_jikkou_kaigi/dai7/siryou1.pdf [<https://perma.cc/E3KP-PES4>] (Japan). For recent trends of J-Credits and JCM, see Sato et al., *supra* note 46, at 11.

⁵⁰ YOSHIHITO SATO ET AL., ALL ABOUT EMISSIONS TRADING AND CARBON CREDITS 164–75 (2023) (Japan).

⁵¹ *About the J-Credit System*, THE JAPANESE GOVERNMENT, <https://japancredit.go.jp/about/outline/> [<https://perma.cc/TRM8-HJ8F>] (last visited May 18, 2025) (Japan).

⁵² Paris Agreement to the United Nations Framework Convention on Climate Change, art. 4, para. 2, Apr. 22, 2016, U.N. Doc. FCCC/CP/2015/L.9/Rev/1. Article 4, paragraph 2 of the Paris Agreement stipulates that each party shall prepare, communicate, and maintain successive nationally determined contributions that it intends to achieve. Parties shall pursue domestic mitigation measures, with the aim of achieving the objectives of such contributions.

⁵³ MINISTRY OF ECON., TRADE & INDUS., JCM (JOINT CREDITING MECHANISM), https://www.meti.go.jp/policy/energy_environment/global_warming/jcm/index.html [<https://perma.cc/TY2C-UG3R>] (last visited May 18, 2025) (Japan).

The GX-ETS consists of three phases.⁵⁹ In the first phase (FY2023–FY2025), which began on a trial basis in April 2023, companies participating in the GX League voluntarily set emission reduction targets, etc. The first phase consists of four stages: (1) pledge, (2) performance reporting, (3) transaction implementation, and (4) review.⁶⁰ In the first stage, pledge, participating companies set and submit their emission reduction targets for FY2030 and FY2025 and total emission reduction targets for the first phase by September 29, 2023,⁶¹ for direct emissions (i.e., Scope 1) and indirect emissions (i.e., Scope 2) in Japan, respectively.⁶² As for the third stage, transaction implementation, transactions of Excess Emission Reduction Allowances⁶³ (i.e., emission reductions of companies participating in the GX League as defined below) are scheduled to start in November 2024.⁶⁴

The second phase, in which the GX-ETS will be fully operational, is supposed to start in FY2026.⁶⁵ The third phase is supposed to introduce a “phased paid auction for the power generation sector” starting around FY2033.⁶⁶ This is because the power generation sector contributes most to carbon dioxide emissions before electricity and heat allocation (40.4% in FY2020);⁶⁷ it is understood to mean that the Japanese government will allocate emission allowances to this sector for a fee or free of charge,⁶⁸ and then gradually shift to paid allocation through

⁵⁹ Miyagawa et al., *supra* note 54, at 2–3.

⁶⁰ GX LEAGUE SECRETARIAT, *supra* note 55, at 6.

⁶¹ *See infra* note 83.

⁶² GX LEAGUE SECRETARIAT, *supra* note 55, at 10; MINISTER IN CHARGE OF PROMOTING GX IMPLEMENTATION, *supra* note 49, at 33.

⁶³ *See* Regulations of GX League, art. 3, <https://gx-league.go.jp/aboutgxleague/document/【GXL】GXリーグ規程R6.pdf> [<https://perma.cc/MAY8-HQ6W>] (Japan).

⁶⁴ MINISTER IN CHARGE OF PROMOTING GX IMPLEMENTATION, *supra* note 49, at 33.

⁶⁵ *Id.* at 34.

⁶⁶ *Id.*

⁶⁷ MINISTRY OF THE ENV'T & NAT'L INST. FOR ENV'T STUD., FY2020 GREENHOUSE GAS EMISSIONS (FIXED REPORT VALUE) SUMMARY 1, 4, <https://www.env.go.jp/content/900445424.pdf> [<https://perma.cc/T3NK-7U8S>] (last visited May 18, 2025) (Japan).

⁶⁸ GX Promotion Act, *supra* note 9, art. 15, para. 1 (provides as follows: “The Minister of Economy, Trade and Industry shall, beginning in FY2033, allocate to a specified business operator a quota equal to the amount of carbon dioxide emissions from the power generation business conducted by the specified business operator (specified business operator emission allowances) for a fee or free of charge.” In addition, its para. 2 provides as follows: “The Minister of Economy, Trade and Industry shall, in determining the amount of specified business operator emission allowances to be allocated to a specific business operator for a fee pursuant to the preceding section, take into consideration the total amount of payments

auctions, including a gradual increase in the ratio of paid allowances. This system will have a certain effect as it allocates allowances to the power generation sector to reduce its carbon dioxide emissions. However, there are concerns that the start date of 2033 may be too late from the perspective of early transformation of the economic and social structure toward the realization of a decarbonized society,⁶⁹ aside from considering the method of setting a ratio of paid allowances and the measures to be taken when emission allowances are exceeded. Here, it is important to note the explanation that the Sixth Synthesis Report of the Intergovernmental Panel on Climate Change (IPCC), “while not clearly defined, emphasizes that actions to reduce emissions over the next decade up to around 2030 will have a ‘decisive impact’ on the future of humanity.”⁷⁰ Some observers also point to the GX Promotion Act’s “time frame issue.”⁷¹ Furthermore, it has been pointed out that “taking into consideration the starting dates of the carbon levy in FY2028 and the specified business operator contributions in the emissions trading scheme in FY2033, the additional contribution to achieving the FY2030 reduction target is considered to be negligible.”⁷² In addition, there is a view that “even if the conversion of the system to the mandatory one is postponed until 2033 if the carbon levy burden is reduced or exempted for companies participating in the GX-ETS, the incentive to participate in the GX-ETS can be increased.”⁷³ By organically linking the GX-ETS with the fossil fuel levy system discussed below, the author believes that the transition to a substantive mandatory GX-ETS can be achieved early. In light of the views above and the suggestions in the IPCC Sixth Synthesis Report, the author

expected to be made in the relevant fiscal year, the level of the unit cost of contributions to be made by the specified business operator in the relevant fiscal year, the state of transition to a decarbonized growth-oriented economy structure, and the consistency with policies related to energy supply and demand, and other circumstances.”).

⁶⁹ Otsuka, *supra* note 30, at 94; *Points for Improvement of GX-Related Legislation - Toward a Genuine Balance Between Realizing a Decarbonized Society and Strengthening Industrial Competitiveness*, WWF JAPAN 1 (Mar. 2023), https://www.wwf.or.jp/activities/data/20230330_climate01.pdf?230419 [<https://perma.cc/TG4P-WSYM>] (Japan).

⁷⁰ *IPCC 6th Report, How Will It Affect Businesses?* University of Tokyo, Takamura Explains, NIKKEI GX (Mar. 23, 2023), <https://www.nikkei.com/prime/gx/article/DGXZQOUC2061C0Q3A320C2000000> [<https://perma.cc/P6Y7-V34K>] (comments of Professor Kaori Takamura) (Japan).

⁷¹ Takatsugu Kitajima, *Expectations and Issues of the GX Promotion Act: A New Framework to Promote Awareness and Behavior Change*, 59 ENV'T MGMT. 8, 41 (2023) (Japan).

⁷² Maho Takimi, *GX Promotion Act and Growth-Oriented Carbon Pricing*, 20 RSCH. & DEV. LEADER 5, 72 (2023) (Japan).

⁷³ Morotomi, *supra* note 45, at 38.

believes that growth-oriented carbon pricing in Japan needs to be implemented substantially earlier, referring to the consideration clauses in Article 11 of the Supplementary Provisions of the GX Promotion Act,⁷⁴ so that the emission reduction targets can be achieved appropriately.

3. Consideration of Other Matters for the GX-ETS

Chapter 6, GX-ETS, of the GX League Regulations consists of Section 1, Emissions Reporting; Section 2, Review of Voluntary Targets; and Section 3, Excess Emission Reduction Allowances. The Excess Emission Reduction Allowances are defined as

the amount of emission reductions of companies participating in the GX League that is the amount of GHG issued by the GX League Secretariat (if the GHG is not carbon dioxide, it shall be converted into the amount of carbon dioxide based on the degree of global warming it causes).⁷⁵

The Excess Emission Reduction Allowances are classified as “ordinary creation”⁷⁶ and “special creation.”⁷⁷ The difference between the two is that the former is the Excess Emission Reduction Allowances to be created from FY2026, when the GX-ETS is fully operational, while the latter is the Excess Emission Reduction Allowances to be created in FY2023 and FY2024, during the trial implementation phase. In other words, special creation may create Excess Emission Reduction Allowances for a single fiscal year after the end of a given fiscal year

⁷⁴ Paragraph 1 of the same article stipulates that “the government shall, if it deems necessary while considering the state of measures to promote a smooth transition to a decarbonized growth-oriented economic structure, take necessary measures based on the results of the review of the implementation status of investment and other business activities that contribute to a smooth transition to a decarbonized growth-oriented economic structure through close mutual cooperation between the government and business operators, domestic and international economic trends related to carbon dioxide emissions, and other circumstances.” Supplementary Provisions of GX Promotion Act, *supra* note 9, art. 11, para. 1. Paragraph 2 of the same article also stipulates that, “from the perspective of promoting a smooth transition to a decarbonized growth-oriented economic structure, the government shall, in addition to the study as stipulated in the preceding paragraph, consider how to implement a system for specified business operator emission allowances, fossil fuel levy, and specified business operator contributions, including specific measures for the full-scale implementation of the market for trading of specified business operator emission allowances, and that, based on the results of the review, necessary legislative measures shall be taken within two years after the enforcement of this Act.” Supplementary Provisions of GX Promotion Act, *supra* note 9, art. 11, para. 2.

⁷⁵ Regulations of GX League, *supra* note 63, art. 3.

⁷⁶ *Id.* art. 27–28.

⁷⁷ *Id.* art. 29–32.

if the direct emission requirements and total emission requirements are met.⁷⁸

Companies participating in the GX League are divided into Group G and Group X. Group G companies are those with direct emissions of 100,000 t-CO₂e or more in FY2021, and Group X companies are those with direct emissions of less than 100,000 t-CO₂e.⁷⁹ There are several differences between the two, but the major one is that Group X companies are not allowed to create Excess Emission Reduction Allowances. In addition, Group X companies are not required to have the results of their GHG emissions calculations verified by a third party.⁸⁰

Excess Emission Reduction Allowances created by the actions taken by companies participating in the GX League to reduce GHG emissions are subject to trading; Group X companies may also trade Excess Emission Reduction Allowances.⁸¹

Companies participating in the GX League shall set total emission reduction targets for FY2030 and FY2025 and for the first phase (FY2023–FY2025) in relation to both domestic direct and indirect emissions, respectively.⁸² In principle, base year emissions shall be set

⁷⁸ GX LEAGUE SECRETARIAT, *supra* note 55, at 56.

⁷⁹ Regulations of GX League, *supra* note 63, art. 3.

⁸⁰ Regulations of GX League, *supra* note 63, art. 23; GX LEAGUE SECRETARIAT, *supra* note 55, at 7. Article 22, Paragraph 1 of the Regulations stipulates that “the base year emissions specified in Article 13, Paragraph 1, Item 6 or Article 13, Paragraph 2, Item 6, and the actual emissions for FY2013 and FY2021 specified in Article 13, Paragraph 1, Item 7 or Article 13, Paragraph 2, Item 7 shall be calculated and reported in accordance with the GX League Guidelines for Calculating and Reporting the Base Year Emissions, etc.” In addition, Article 22, Paragraph 2 of the Regulations stipulates that “the reporting of emissions specified in Article 13, Paragraph 3, Items 1 and 2 shall be calculated and reported in accordance with the GX League Calculation, Monitoring, and Reporting Guidelines.” Furthermore, Article 23 of the Regulations stipulates that “the report made for Article 22, Paragraph 2 shall be verified to a limited or reasonable assurance level in accordance with the GX League Third Party Verification Guidelines, provided, however, that this does not apply to Group X companies.”

⁸¹ Regulations of GX League, *supra* note 63, art. 33 (stipulating that “companies participating in the GX League shall manage and transfer their Excess Emission Reduction Allowances on the excess emission reduction corporate account of the Excess Emission Reduction Allowances registry in accordance with the Excess Emission Reduction Allowances Registry Regulations.”).

⁸² Regulations of GX League, *supra* note 63, art. 13; GX LEAGUE SECRETARIAT, *supra* note 55, at 10. Regulations of GX League, *supra* note 63, art. 13, para. 1 is as follows: “GX League Participating Companies that have participated in the GX League since FY2023 shall report the following items to the GX League Secretariat by September 29, 2023, in accordance with the method set forth in the Guidance on the Efforts Required of GX League Participating Companies. (i) emission reduction targets for direct emissions in FY2025 and

for FY2013 to be consistent with the base year of Japan’s emission reduction target. In exceptional cases, when FY2014–FY2021 is used as the base year, emissions shall be the average of the emissions for three consecutive years, including the base year.⁸³ This is because if the base year is not set in principle in a uniform manner, it will be impossible to fairly evaluate responses to reduce GHG emissions.

Since information on whether emission reduction targets have been achieved will be disclosed through the GX Dashboard, companies participating in the GX League will be subject to a certain level of monitoring and evaluation by investors and other stakeholders, and will therefore be required to set appropriate targets consistent with NDCs and to take actions to achieve those targets.⁸⁴ On January 16, 2024, the GX Dashboard was launched, and the emission reduction targets of each of the companies participating in the GX League were disclosed to the public.⁸⁵

The GX-ETS has been evaluated as “a very significant initiative.”⁸⁶ Indeed, the GX-ETS is expected to serve as a voluntary participation scheme that broadens the horizons of participating companies while improving the credibility and effectiveness of the scheme toward full-scale operation. The number of participating companies will increase significantly in FY2026 and, consequently, provide stronger incentives for emission reductions. As mentioned above, recent clarification, thankfully, will require companies with large GHG emissions, such as those in the electric power, steel, and chemical industries, to participate in the GX-ETS starting in FY2026.⁸⁷ As of this writing, for participation in the second phase, it is merely stated that “measures to

FY2030, (ii) emission reduction targets for indirect emissions in FY2025 and FY2030, (iii) total target emissions for direct emissions for FY2023 through FY2025, (iv) total target emissions for indirect emissions for FY2023 through FY2025, (v) base year, (vi) base year emissions, (vii) actual emissions for FY2013 and FY2021, and (viii) other items specified in the guidance on the initiatives required of GX League Participating Companies.”

⁸³ GX LEAGUE SECRETARIAT, *supra* note 55, at 12.

⁸⁴ See Sato et al., *supra* note 46, at 14.

⁸⁵ MINISTRY OF ECON., TRADE & INDUS., GX DASHBOARD ON THE GX LEAGUE OFFICIAL WEBSITE OPENS AND EMISSION REDUCTION TARGET AND OTHER INFORMATION BY PARTICIPATING COMPANIES PUBLISHED (2024), <https://gx-league.go.jp/news/20240116/> [https://perma.cc/Z2CZ-FR3Q] (Japan). According to the GX Dashboard, emission reduction targets for FY2025 and FY2030 (compared to FY2013) include, for example, Toyota Motor Corp.’s targets of 30% reduction (FY2025) and 46% reduction (FY2030), and Nippon Steel Corp.’s targets of 20% reduction (FY2025) and 29% reduction (FY2030), among others.

⁸⁶ Sato et al., *supra* note 46, at 14.

⁸⁷ See SATO ET AL., *supra* note 50.

further increase the participation rate will be considered,” and for the achievement of emission reduction targets, “strengthening of discipline (guidance and supervision, compliance obligations, etc.) will be considered.”⁸⁸ Indeed, mandatory participation in the GX-ETS and compliance obligations for meeting targets are anticipated to be introduced in FY2026. In this regard, as of this writing, since the GX-ETS is a system in which companies can participate on a voluntary basis, a Japanese scholar has pointed out that “there is not without threat that companies participating in the GX-ETS will be at a competitive disadvantage compared to non-participating companies. Mandatory participation is desirable because only in a mandatory system can companies that work diligently be rewarded.”⁸⁹ The author concurs with this view. The GX Promotion Act will be amended in 2025 to make the GX-ETS a mandatory system, but the author will have to keep a close eye on which business categories and sizes of companies will be required to participate in the GX-ETS. To ensure emission reduction targets are met, many companies in a wide range of business categories should be obligated to participate in the GX-ETS. In other words, as stated above, the scope of participation obligations should cover a wide range of business categories, and the criteria for large emissions should be fully scrutinized in the future to ensure that no loopholes are created.

C. Fossil Fuel Levy System Under the GX Promotion Act

The fossil fuel levy system, which is a levy on carbon, will begin in FY2028. Notably, the fossil fuel levy has been considered a levy rather than an environmental tax because “the tax rate could not be determined in advance and could not be a tax.”⁹⁰ In other words, the Minister of Economy, Trade and Industry shall, beginning in FY2028, collect from fossil fuel extractors, etc., an amount to be borne for each ton of carbon dioxide emitted from crude oil, etc. transferred from their extraction sites or taken from bonded areas (Fossil Fuel Levy Unit Price), multiplied by the amount of carbon dioxide emissions concerned, for each specified period.⁹¹ Fossil fuel extractors, etc. must pay the fossil fuel levy.⁹² Fossil fuel extractors, etc. refer to those who extract crude oil, etc. or take it from bonded areas (Article 29 of the

⁸⁸ MINISTER IN CHARGE OF PROMOTING GX IMPLEMENTATION, *supra* note 49, at 34.

⁸⁹ Morotomi, *supra* note 45, at 39.

⁹⁰ Otsuka, *supra* note 30, at 93.

⁹¹ GX Promotion Act, *supra* note 9, art. 11, para. 1.

⁹² *Id.* art. 11, para. 2.

Customs Act).⁹³ In other words, this means an importer of fossil fuels, etc.⁹⁴

The maximum amount is provided for the Fossil Fuel Levy Unit Price.⁹⁵ The maximum amount is the sum of the decrease in revenue from the petroleum and coal tax compared to FY2022 (if it is negative, it shall be set to 0) and the decrease in the renewable energy levy (i.e., the payment stipulated in Article 40, Paragraph 1, of the Act on Special Measures Concerning the Promotion of Renewable Energy Electricity Use⁹⁶ [hereinafter “the Renewable Energy Special Measures Act”])⁹⁷ compared to FY2032 (if it is negative, it shall be set to 0), less the total amount of the specified business operator contributions for the relevant fiscal year, divided by the total amount of carbon dioxide emissions related to crude oil, etc. for the relevant fiscal year.⁹⁸ The Fossil Fuel Levy Unit Price shall be determined by a Cabinet Order, taking into account the need to reduce the burden on energy in the medium to long term.⁹⁹ In addition, matters related to the collection of the fossil fuel levy and other necessary matters are set forth in a separate law.¹⁰⁰ The GX Promotion Act establishes the framework for the fossil fuel levy system, and it is necessary to consider the content of the Cabinet Order that will be established in the future, particularly with regard to the Fossil Fuel Levy Unit Price. It is noted that the intent of Article 12,

⁹³ Article 29 of the Customs Act (explaining there are five types of bonded areas: designated bonded areas, bonded warehouses, bonded factories, bonded exhibition halls, and general bonded areas); GX Promotion Act, *supra* note 9, art. 2, para. 4.

⁹⁴ MINISTRY OF THE ENV'T, *supra* note 38.

⁹⁵ GX Promotion Act, *supra* note 9, art. 12, para. 1.

⁹⁶ Special Measures Concerning Procurement of Electricity from Renewable Energy Sources by Electricity Utilities, 2011 (Act No. 108/2011) (Japan) [hereinafter Renewable Energy Special Measures Act].

⁹⁷ The payment under Article 40, Paragraph 1 of the said Act means the payment under Article 31, Paragraph 1 and Article 38, Paragraph 1, and is collected by the Wide-Area Operation Promotion Organization (Article 28-4 of the Electricity Business Act) from retail electricity utilities, etc. (meaning retail electricity utilities, general transmission and distribution companies and registered specified transmission and distribution companies) to cover the expenses required for the provision of the respective grants. *Id.* Article 36, Paragraph 1 of the Renewable Energy Special Measures Act provides that retail electricity utilities, etc. may demand that electricity users who receive electricity supply from the retail electricity utilities, etc. pay a surcharge as part of the consideration for the electricity supply to cover the payment. *Id.* Therefore, it is understood that the payment here refers to the renewable energy levy. *See* Otsuka, *supra* note 30, at 93.

⁹⁸ GX Promotion Act, *supra* note 9, art. 12, para. 1, item 1. *See* Takimi, *supra* note 72, at 71; Otsuka, *supra* note 30, at 93.

⁹⁹ GX Promotion Act, *supra* note 9, art. 12, para. 1.

¹⁰⁰ *Id.* art. 14.

Paragraph 1, Item 2, and the pillar of the same Article of the GX Promotion Act is to “ensure that the amount of GX Economic Transition Bonds issued shall be reimbursed by the fossil fuel levy and specified business operator contributions.”¹⁰¹

Even if the decrease in petroleum and coal tax revenues relative to FY2022 and the decrease in the renewable energy levy relative to FY2032 are added together, the unit price of the fossil fuel levy beginning in FY2028 is expected to be low until FY2032 because the renewable energy levy for the same year has not yet been incurred. Therefore, it is assumed that the burden on fossil fuel importers, etc. will gradually increase in conjunction with the start of the specified business operator contributions under the GX-ETS in FY2033. This is one of the elements of the GX investment incentive based on the growth-oriented carbon pricing concept, which “indicates in advance a policy to introduce GX with a low burden at the beginning and gradually increase the burden after a period of working on GX.”¹⁰²

Although this system has a certain significance and effect in the sense that it creates a disincentive to use fossil fuels through the payment of a fossil fuel levy, there are concerns that the levy will start in FY2028, which may be too late.¹⁰³ In addition, the gradual increase in the Fossil Fuel Levy Unit Price is similar to the introduction of the global warming countermeasures tax in October 2012, when the tax rate was increased in three stages. As for the global warming countermeasures tax, it has been pointed out that “its tax amount is 289 yen per ton of emissions and this is a far cry from the European emissions trading system, which is over 10,000 yen per ton of emissions.”¹⁰⁴ In terms of the scale of the tax, it is not without question whether the tax will be effective enough to help realize a decarbonized society by 2050. While it is considered appropriate in the sense that the burden of the fossil fuel levy is gradually increased, it is questionable whether it will be effective quickly enough to realize a decarbonized society. In this regard, the author believes that an important aspect to bear in mind relates to what has been pointed out in the Sixth Synthesis Report of the IPCC: achieving the 1.5°C target will require a 60% reduction in GHG emissions in 2035 compared to the 2019 levels.¹⁰⁵ In

¹⁰¹ Otsuka, *supra* note 30, at 93.

¹⁰² TOWARD PROMOTING GREEN TRANSFORMATION, *supra* note 6, at 5.

¹⁰³ See Otsuka, *supra* note 30; WWF JAPAN, *supra* note 69.

¹⁰⁴ Hanawa, *supra* note 47.

¹⁰⁵ *Climate Change 2023 Synthesis Report Summary for Policymakers*, IPCC 21, https://www.ipcc.ch/report/ar6/syr/downloads/report/IPCC_AR6_SYR_SPM.pdf [https://

this connection, it has been pointed out that “the introduction of carbon pricing in 2026, 2033, and 2028 will be too late as a global warming countermeasure, and it is expected that this will not be sufficient to achieve the target of a 46% reduction by FY2030 (compared to FY2013).”¹⁰⁶ The author agrees with this statement. In relation to the positioning of GX, particularly the “leaning toward centralized power sources as a means of energy transition,” the following criticism has been made:

The Ministry of Economy, Trade and Industry is trying to introduce long-term decarbonization power auctions and provide financial subsidies to these auctions, but their effects are uncertain. The Ministry of Economy, Trade and Industry has positioned them as part of the power system reform, but it goes against the original idea, and it is doubtful whether it will contribute to decarbonization.¹⁰⁷

A typical example of a centralized power source is nuclear power generation. In Japan, especially following the Fukushima Daiichi nuclear power plant incident, it is still difficult to say that sufficient social acceptance has been ensured for nuclear power generation. The author believes that there is no choice but to utilize nuclear power to some extent,¹⁰⁸ but its dependence should be reduced. To achieve Japan’s goals with a focus on renewable energy, further studies are required to accelerate the start of growth-oriented carbon pricing, which is a powerful economic tool, and to make the fossil fuel levy fully effective.

III

COMPARISONS TO THE UNITED STATES

A. Emissions Trading Scheme and Investment Promotion Measures

As mentioned above, in Japan, the transformation to a decarbonized growth-oriented economic structure is referred to as GX, while in the United States, it is more commonly referred to as the clean energy

perma.cc/779W-M9MA] (last visited May 18, 2025); *Greenhouse Gas Emissions to Be Reduced by 60% in 2035 Compared to 2019 (IPCC Report)*, NIKKEI (2023), <https://www.nikkei.com/article/DGXZQOUA2005A0Q3A320C2000000/> [<https://perma.cc/8LX8-C9GH>] (Japan).

¹⁰⁶ Otsuka, *supra* note 30, at 94.

¹⁰⁷ Hiroshi Takahashi, *Electricity System Reforms to Facilitate Energy Transition*, 521 HÖGAKU KYÖSHITSU 53, 57 (2024) (Japan).

¹⁰⁸ See GX PROMOTION STRATEGY, *supra* note 37, at 7.

transition.¹⁰⁹ Aside from this difference in terminology, as of the writing of this Article, no federal emissions trading scheme has been introduced in the United States, except for regional schemes such as the Regional Greenhouse Gas Initiative (RGGI) and the emissions trading scheme in California.¹¹⁰

However, the Inflation Reduction Act of 2022¹¹¹, enacted in August 2022 and taking effect in January 2023, provides for an estimated \$369 billion (over 55 trillion JPY) investment in energy security and climate change countermeasures. The following comments were made regarding the Inflation Reduction Act: “[T]he recent enactment of the Inflation Reduction Act of 2022 provides significant resources to encourage the transition from polluting to clean sources of energy[,]” and “the largest climate investment in the nation’s history.”¹¹² According to a published paper, the Inflation Reduction Act is estimated to reduce U.S. GHG emissions by “33 to 40% below 2005 levels in 2030.”¹¹³ Central to the Inflation Reduction Act are the Investment Tax Credit (ITC) and the Production Tax Credit (PTC), which will be applied (“but not both”) to reduce costs associated with renewable energy technologies (e.g., solar and wind).¹¹⁴ “[O]n or after

¹⁰⁹ See EXECUTIVE OFFICE OF THE PRESIDENT COUNCIL OF ECONOMIC ADVISERS, ECONOMIC REPORT OF THE PRESIDENT 221–66 (2022), <https://www.whitehouse.gov/wp-content/uploads/2022/04/Chapter-7-new.pdf> [<https://perma.cc/8JUR-EHFK>].

¹¹⁰ TOHRU SHIMIZU, EMISSIONS TRADING SCHEME BY EASTERN U.S. STATES (RGGI) 1 (2024), <https://eneken.ieej.or.jp/data/11310.pdf> [<https://perma.cc/B2LR-63B6>] (Japan). The EU ETS (European Union Emissions Trading System) has been in effect since 2005 and has recently been revised, but this is not the subject of this study. For more on the RGGI, see Kate Konschnik, *State and Multistate Climate Action*, GLOB. CLIMATE CHANGE & U.S. L. 321, 344–46 (Michael B. Gerrard et al. eds., 3d ed. 2023).

¹¹¹ Inflation Reduction Act, Pub. L. No. 117-169, 136 Stat. 1818 (2022).

¹¹² Stephen C. Tosini, *Trade Remedies and Climate Change: How the United States Can Use Its Buying Power and Trade Laws to Encourage Clean Energy*, 56 VAND. J. TRANSNAT’L L. 1005, 1008 (2023). Even after *West Virginia v. Environmental Protection Agency*, 142 S. Ct. 2587 (2022), it is clear that GHGs such as carbon dioxide are air pollutants under the Inflation Reduction Act § 60105, etc.; Tosini, *supra*, at 1011 nn.41–42.; Patrick Parenteau, *Now Comes the Hard Part: Environmental Advocacy in the Age of Climate Disruption*, 53 ENV’T L. 77, 95 (2023).

¹¹³ John Bistline et al., *Emissions and Energy Impacts of the Inflation Reduction Act*, 380 SCIENCE 1324 (2023), <https://www.science.org/doi/full/10.1126/science.adg3781> [<https://perma.cc/LA7N-UR5S>]; JONATHAN L. RAMSEUR, INFLATION REDUCTION ACT OF 2022 (IRA): PROVISIONS RELATED TO CLIMATE CHANGE 2 (2023), <https://crsreports.congress.gov/product/pdf/R/R47262> [<https://perma.cc/UFU4-Y9BY>].

¹¹⁴ *Summary of Inflation Reduction Act Provisions Related to Renewable Energy*, EPA, <https://www.epa.gov/green-power-markets/summary-inflation-reduction-act-provisions-related-renewable-energy> [<https://perma.cc/8U9G-FV2B>] (last updated Jan. 28, 2025).

January 1, 2025, the Clean Electricity Production Tax Credit¹¹⁵ and Clean Electricity Investment Tax Credit¹¹⁶ will replace the traditional PTC/ITC.¹¹⁷ They are “similar to” the traditional PTC and ITC, but differ in that the Clean Electricity PTC and ITC do not focus on specific technology.¹¹⁸ They would apply to “all generation facilities” projected to emit no GHG emissions but would be “phased out” as the emission reduction goals of the United States are met.¹¹⁹

The Clean Electricity PTC and ITC under the Inflation Reduction Act are methods of providing economic incentives to reduce GHG emissions, but they are very different in scale and content from the growth-oriented carbon pricing (fossil fuel levy and emissions trading scheme) in Japan. As mentioned above, Japan’s GX Economic Transition Bonds will be issued in the amount of 20 trillion JPY over the ten-year period from FY2023 to FY2032 (on February 14, 2024, the Ministry of Finance conducted the first auction of ten-year GX Economic Transition Bonds),¹²⁰ whereas the Inflation Reduction Act in the United States provides for an estimated \$369 billion (over 55 trillion JPY) investment in energy security and climate change countermeasures. In addition, in terms of the content, the U.S. tax credit reduces the burden, while Japan’s system gradually increases the burden through the fossil fuel levy, etc. In terms of both scale and content, the U.S. system is considered to be more effective. The tax credit system is also a good reference for Japan, which, as of the writing of this Article, is already considering the introduction of such a system.¹²¹

The RGGI is described as “a regional, auction-based emissions trading scheme that covers only power plants in the northeastern states

¹¹⁵ Inflation Reduction Act § 13701.

¹¹⁶ *Id.* § 13702.

¹¹⁷ *Summary of Inflation Reduction Act Provisions Related to Renewable Energy*, *supra* note 114.

¹¹⁸ *Id.*

¹¹⁹ *Id.*

¹²⁰ *10-Year Bonds of 800 Billion JPY Highest Yield 0.74%*, NIKKEI (Feb. 15, 2024) (Japan).

¹²¹ MINISTER IN CHARGE OF PROMOTING GX IMPLEMENTATION, TOWARD ACHIEVING JAPAN’S GREEN TRANSFORMATION 15–16 (2023), https://www.cas.go.jp/jp/seisaku/gx_jikkou_kaigi/dai10/siryou1.pdf [<https://perma.cc/8F69-7HR4>] (Japan); *Japanese IRA Government Proposal: SAF, EV, Support for 10 Years with Tax Credits*, NIKKEI GX (Dec. 22, 2023), <https://www.nikkei.com/prime/gx/article/DGXZQOUC1911Z0Z11C23A2000000> [<https://perma.cc/SYD5-E7JH>] (Japan).

of the United States”;¹²² the author believes that in Japan, it is appropriate from the standpoint of stability that an emissions trading scheme covering the nation as a whole has been introduced compared to a scheme like the RGGI, in which the participating states may change.¹²³ At the same time, it has been pointed out that “the institutional design of the RGGI will be very helpful” for the GX-ETS.¹²⁴ Indeed, given that the third phase of the GX-ETS, which is expected to start in FY2033, is supposed to introduce a “phased paid auction for the power generation sector,”¹²⁵ the issues and findings from the RGGI could be of some help to Japan. However, these findings are difficult to reflect in the third phase of the GX-ETS, which will begin approximately ten years from now, because it is too far in the future. To reflect the institutional design of the RGGI in a beneficial manner, the author believes that the timing of the implementation of the third phase of the GX-ETS needs to be brought forward. The author presents the following example to support this argument: “Since 2013, nine local provinces and cities in China, including Beijing, Tianjin, Shanghai, and Guangdong, have established ‘carbon emissions pilot exchanges’ as a pilot initiative to implement emissions allowance trading. Based on this experience, the National Carbon Emissions Trading Scheme (National ETS) officially began operation in July 2021.”¹²⁶ In light of these trends in neighboring Asian countries, the author believes that it is significant and valuable to bring forward the implementation timing of the third phase of the GX-ETS.

¹²² SHIMIZU, *supra* note 110, at 5.

¹²³ It is pointed out that “at the start of the system in 2009, nine states participated, but some states withdrew and rejoined due to policy changes caused by the change of state governors.” SHIMIZU, *supra* note 110, at 1. “12 eastern U.S. states participate[d]” in the RGGI as of Sept. 4, 2023, *id.*, but as of the writing of this Article, there are 11 participating states. *Elementss of RGGI*, THE REG’L GREENHOUSE GAS INITIATIVE, <https://www.rggi.org/program-overview-and-design/elements> [https://perma.cc/V6F7-7J8N] (last visited May 18, 2025).

¹²⁴ SHIMIZU, *supra* note 110, at 5.

¹²⁵ MINISTER IN CHARGE OF PROMOTING GX IMPLEMENTATION, *supra* note 49, at 34.

¹²⁶ Kohki Ono, *China’s Emissions Allowance Trading Expands Rapidly, Quadruples in 2023, Overtaking Germany*, NIKKEI GX (Feb. 6, 2024), <https://www.nikkei.com/prime/gx/article/DGXZQOUC283UQ0Y4A120C2000000> [https://perma.cc/S63N-BF23] (Japan).

B. Role of Renewable Energy and Risk of Litigation

1. Need to Reduce the Risk of Litigation Related to Renewable Energy Projects

There is no doubt that the promotion of renewable energy sources, such as solar and wind power, is essential to the decarbonized society that the United States and Japanese governments are trying to achieve by 2050. To achieve a decarbonized society by 2050, the United States aims to reduce GHG emissions by 50%–52% below 2005 levels by 2030,¹²⁷ while Japan aims to reduce GHG emissions by 46% below 2013 levels by 2030 and to continue its challenge for a 50% reduction.¹²⁸ To achieve the 2030 target, Japan’s energy supply and demand outlook for FY2030 (the so-called energy mix) calls for 36%–38% of total electricity generation to come from renewable energy sources.¹²⁹ The breakdown of the 36%–38% power source mix for renewable energy is 14%–16% solar, 5% wind, 1% geothermal, 11% hydro, and 5% biomass.¹³⁰ According to the GX Promotion Strategy mentioned above,

In order to expand the introduction of renewable energy, which is important as a decarbonized power source, we will work to maximize the introduction and expansion of renewable energy as the main power source based on the principle of S+3E (safety, energy security, economic efficiency, and environment) while reducing the burden on the public and coexisting in symbiosis with local communities, and will work closely with relevant ministries and agencies to achieve a steady ratio of 36%–38% of renewable energy in the power source composition in FY2030.¹³¹

However, the promotion of renewable energy has been accompanied by new environmental problems. These include an infringement on scenic interests and disturbances to people’s daily lives due to reflected light from solar panels and noise from wind turbines, as well as the impact on ecosystems, including on endangered species (known as

¹²⁷ THE WHITE HOUSE, PRESIDENT BIDEN’S ACTIONS TO TACKLE THE CLIMATE CRISIS, <https://www.whitehouse.gov/climate/#:~:text=On%20the%20international%20stage%2C%20President,from%2020%20levels%20by%202030> [https://perma.cc/PZ83-QCSN] (last visited Jan. 19, 2025).

¹²⁸ MINISTRY OF THE ENV’T, *supra* note 14, at 11.

¹²⁹ AGENCY FOR NAT. RES. & ENERGY, ENERGY SUPPLY AND DEMAND OUTLOOK FOR FY2030 (RELATED MATERIAL) 73 (2021), <https://www.meti.go.jp/press/2021/10/20211022005/20211022005-3.pdf> [https://perma.cc/96WW-VVZN] (Japan).

¹³⁰ *Id.*

¹³¹ The GX PROMOTION STRATEGY, *supra* note 37, at 5.

Green on Green or Green vs. Green in Japan). There have also been several lawsuits filed in the United States and Japan seeking injunctions and damages against renewable energy projects. As mentioned above, even if the injunction and damage claims are dismissed by the court, it is easy to assume the progress of renewable energy projects could be delayed or stalled by the filing of such lawsuits.¹³² To implement the growth-oriented carbon pricing in earnest at an early stage, it is considered necessary to mitigate the risk of litigation by developing renewable energy projects in symbiosis with the local community. In this regard, according to the GX Promotion Strategy,

On the premise of ensuring appropriate business discipline, for expanding the introduction of renewable energy in symbiosis with local communities, the acquisition of permits and approvals for land development that could directly affect the risk of disasters, such as impacts associated with deforestation, will be required to apply for certification under the Renewable Energy Special Measures Act.¹³³

Additionally, it is stated that “[i]nstitutional measures such as creating new measures to temporarily withhold public support under the FIT/FIP system from businesses that violate related laws and regulations, etc. will be taken.”¹³⁴ As such, specifically the Renewable Energy Special Measures Act,¹³⁵ which was amended together with the Electric Utility Act and others by the GX Decarbonized Power Supply Act,¹³⁶ provides that where the renewable energy power generation facilities to be used for the renewable energy power generation project meet the requirements specified by a regulation of the Ministry of Economy, Trade and Industry with regard to output and other matters, the renewable energy power generation project plan shall include the status of implementation of measures specified by a regulation of the Ministry of Economy, Trade and Industry. This status of implementation includes holding explanatory meetings with residents in the vicinity of the project site and other measures to publicize the details of matters related to the implementation of the project (Certification of Renewable Energy Power Generation Project Plan).¹³⁷ As a result, holding explanatory meetings with residents is required. In

¹³² See RULE, *supra* note 8.

¹³³ The GX PROMOTION STRATEGY, *supra* note 37, at 7.

¹³⁴ *Id.*

¹³⁵ See Renewable Energy Special Measures Act, *supra* note 96.

¹³⁶ See GX Decarbonized Power Supply Act, *supra* note 11.

¹³⁷ Renewable Energy Special Measures Act, *supra* note 96, art. 9, para. 2, item 7, as amended.

addition, certified businesses must implement their renewable energy power generation projects in accordance with the certified renewable energy power generation project plan (the “certified plan”).¹³⁸ Furthermore, when a certified business operator outsources all or part of its business related to a renewable energy power generation project, the certified business operator shall exercise necessary and appropriate supervision over the outsourced party (i.e., the trustee) to ensure that the renewable energy power generation project is implemented in accordance with the certified plan (Obligations of Certified Business Operators).¹³⁹ Moreover, the Minister of Economy, Trade and Industry may, upon finding that a certified business operator is violating the amended Article 10-3 of the Renewable Energy Special Measures Act, order the certified business operator to accumulate a certain amount of money as a reserve fund equivalent to the grant (Reserve Fund Order).¹⁴⁰ If the certified business operator receives confirmation from the Minister of Economy, Trade and Industry, pursuant to the provision of a regulation of the Ministry of Economy, Trade and Industry, that there is no need to accumulate a reserve fund equivalent to the grant, the certified business operator may reclaim all or part of the said reserve fund equivalent to the grant (Reclaim of the Reserve Fund Equivalent to the Grant).¹⁴¹ Further, if the Minister of Economy, Trade and Industry revokes certification, pursuant to the amended Article 15 of the Renewable Energy Special Measures Act, he/she may order the certified business operator to return all or part of the grant for the promotion of the supply of electricity generated from renewable energy using certified power generation facilities to the broad-based management promotion organization (Restitution Order, etc.).¹⁴²

These amendments, which are not limited to the above,¹⁴³ have strengthened the business rules for certified business operators so that renewable energy projects are promoted in symbiosis with local communities.¹⁴⁴ These amendments can be viewed positively since, as a result of the symbiosis of the renewable energy projects with the local

¹³⁸ *Id.* art. 10-3, para. 1, as amended.

¹³⁹ *Id.* art. 10-3, para. 2, as amended.

¹⁴⁰ *Id.* art. 15-6, para. 1, as amended.

¹⁴¹ *Id.* art. 15-9, as amended.

¹⁴² *Id.* art. 15-11, para. 1, as amended.

¹⁴³ The effective date of the Renewable Energy Special Measures Act, as amended, is Apr. 1, 2024.

¹⁴⁴ See CABINET DECISION ON A BILL 2023, *supra* note 12.

communities, the risk of litigation is expected to be significantly reduced. A key issue in this context is how to promote renewable energy projects in symbiosis with the local communities. In this respect, referring to the Cape offshore wind project and Block Island offshore wind project in the United States, the author believes that “it is considered appropriate for local governments to take the lead in related procedures, while developers should be involved early to build trust with stakeholders and facilitate consensus building.”¹⁴⁵ The Cape would have been the first offshore wind project in the United States,¹⁴⁶ but “opponents argued that the project posed a threat to offshore navigation, marine life, birds, and the local economy.”¹⁴⁷ The project faced difficulties, including numerous lawsuits and consequently, Cape Wind Associates, LLC, the developer, announced its withdrawal from the project in December 2017.¹⁴⁸ The developer “has been involved in over thirty lawsuits in both state and federal court.”¹⁴⁹ Of these lawsuits, the author believes that one case in 2016, in which violations of environmental laws were at issue,¹⁵⁰ had a significant impact on the project’s failure. The court of appeals reversed the district court’s holding that the Bureau of Ocean Energy Management’s environmental impact statement complied with the National Environmental Policy Act and the Fish and Wildlife Service’s (FWS) incidental take statement complied with the Endangered Species Act of 1973 (the ESA),¹⁵¹ and vacated both documents while upholding the district court’s decision to dismiss the plaintiffs’ remaining claims.¹⁵² In contrast to the Cape offshore wind project, the Block Island offshore wind farm, located off the coast of Rhode Island, was reportedly completed and operational in

¹⁴⁵ Hiroshi Kobayashi, *The Failure of the Cape Offshore Wind Power Project and the Success of the Block Island Offshore Wind Power Project in the United States*, 59 ENV'T MGMT. 5, 41 n.74 (2023) (Japan).

¹⁴⁶ *Id.* at 36.

¹⁴⁷ Michelle Froese, *Lessons Learned from Cape Wind*, WINDPOWER ENG'G DEV. (July 30, 2019), <https://www.windpowerengineering.com/lessons-learned-from-cape-wind/> [<https://perma.cc/F5Y2-8SSM>].

¹⁴⁸ *Id.*

¹⁴⁹ Mitchell Hokanson, *Avoiding the Doldrums: Evaluating the Need for Change in the Offshore Wind Permitting Process*, 44 COLUM. J. ENV'T L. 181, 209 (2019).

¹⁵⁰ *Pub. Emps. for Env't. Responsibility v. Hopper*, 827 F.3d 1077 (D.C. Cir. 2016).

¹⁵¹ *Defenders of Wildlife v. Zinke*, 856 F.3d 1248 (9th Cir. 2017); see RULE, *supra* note 8, at 590–97; KOBAYASHI, *infra* note 155, at 235–39 (Because this is an important case as one of the renewable energy lawsuits related to the ecological impact of solar power generation projects, I mention it again here with certain modifications and additions.).

¹⁵² *Pub. Emps. for Env't. Responsibility v. Hopper*, 827 F.3d at 1090.

2016, making it the first offshore wind farm in the United States.¹⁵³ As exemplified by the development of Rhode Island’s Marine Spatial Plan, the author believes that it is important for the smooth implementation of this project to ensure the inclusive participation of diverse stakeholders while allowing neutral and impartial government agencies and research institutions to take the lead in procedures related to offshore wind energy projects.¹⁵⁴

2. *United States-Japan Comparison of Renewable Energy-Related Litigations*

Opposition to renewable energy projects is not limited to cases based on human-centered impediments to the living environment; objections may also arise on the basis of adverse effects on ecosystems.¹⁵⁵ For example, in the United States:

[t]he protected animal species that has seemingly generated the most obstacles for utility-scale solar projects in recent years is the desert tortoise. The growing presence of human activities in desert regions of the Southwest has caused wild populations of the desert tortoise to decline precipitously over the past half century.¹⁵⁶

Referring not only to the ecological impacts of solar photovoltaic projects but also to the ecological impacts of concentrating solar-thermal projects, it has been noted that conflicts between wildlife and solar energy projects also occur at concentrating solar plants in the United States.¹⁵⁷ In this regard, there is a case in which a biological opinion (the “BiOp”) issued by a federal agency analyzing the effects of a solar power project on an endangered species was challenged based on whether it violated the ESA. In this case, an environmental group

¹⁵³ Melanie B. Rother et al., *ESA Litigation-Cape Wind Challenge*, 16 BUS. & COM. LITIG. FED. CTS. § 176:41 (5th ed. 2021).

¹⁵⁴ KOBAYASHI, *infra* note 155, at 40.

¹⁵⁵ HIROSHI KOBAYASHI, *THE STRUCTURE OF AMERICAN RENEWABLE ENERGY LEGISLATION: IMPLICATIONS FOR JAPAN* 235–59 (2021) (Japan) (most of the cases in this section, except for a few, were referred to in the appendix of my book and are discussed again, along with certain modifications and additions, as they are vital to Japan-United States comparisons).

¹⁵⁶ RULE, *supra* note 8, at 589.

¹⁵⁷ *Id.* at 585–86 (an example is the Ivanpah solar-thermal power system in California, which began operations in Feb. 2014 on state-owned land in the Mojave Desert as the world’s largest solar-thermal power plant, where many wild birds were reportedly found dead.) For more on this issue, see Morgan Walton, *A Lesson from Icarus: How the Mandate for Rapid Solar Development Has Signed a Few Feathers*, 40 VT. L. REV. 131 (2015); RULE, *supra* note 8, at 586–89.

argued that the BiOp analyzing the impacts of a solar power project on the endangered desert tortoise was arbitrary and capricious, and that the Department of the Interior, FWS, and Bureau of Land Management, which issued the opinion, violated the ESA and the Administrative Procedure Act,¹⁵⁸ and sought to enjoin the construction of the project.¹⁵⁹ The issues raised by the plaintiff were largely divided into (1) jeopardy analysis, (2) adverse modification analysis, and (3) inconsistent positions in the BiOp.¹⁶⁰ The court rejected the plaintiff's claims. With respect to the first issue, the court held that

[t]hroughout the BiOp, the FWS expressly stated that it was uncertain if the reduced width of the corridor between Silver State South and the Lucy Gray Mountains would cause genetic or demographic instability. This uncertainty reflected the lack of a scientific consensus regarding the requisite corridor width necessary to support connectivity for the desert tortoise. In the face of such uncertainty, the FWS permissibly concluded that the reduced width of the corridor would not result in jeopardy. Although the ESA requires the FWS to make its determinations with the "best scientific data . . . available," 16 U.S.C. § 1533(b)(2), "the ESA accepts agency decisions in the face of uncertainty."¹⁶¹

The court also held that

although the BiOp repeatedly emphasized that monitoring would allow the FWS to detect any future genetic or demographic degradation and implement responsive mitigation measures, the BiOp ultimately found these potential harms to be uncertain. As such, even the sentence of the BiOp upon which [Plaintiff Defenders of Wildlife] relies acknowledges that the need for future mitigation measures is similarly uncertain, by explaining that the implementation of remedial actions will only be done "if necessary." Because the BiOp did not rely upon these potential remedial measures to target a certain or existing harm that would be caused by Silver State South, the BiOp was not obligated to identify or guarantee these future remedial measures. Accordingly, the BiOp's "no jeopardy" determination was neither arbitrary nor capricious.¹⁶²

Regarding the second issue, the court stated,

[W]e conclude that reduced connectivity resulting from the narrowing of the corridor between Silver State South and the Lucy Gray Mountains cannot constitute adverse modification because the construction of Silver State South would not have resulted in any

¹⁵⁸ *Defenders of Wildlife v. Zinke*, 856 F.3d 1248 (9th Cir. 2017).

¹⁵⁹ *Id.* at 1256.

¹⁶⁰ *See id.* at 1257–64.

¹⁶¹ *Id.* at 1257.

¹⁶² *Id.* at 1258.

alteration to the critical habitat of the desert tortoise. It is undisputed that the corridor itself is not critical habitat and the construction of Silver State South would not have taken place on any critical habitat within the Ivanpah Valley. Nor can reduced connectivity itself serve as the alteration; reduced connectivity can lead to a change in the desert tortoise's genetic health, which is an alteration to the species, not its critical habitat. Accordingly, the BiOp's determination that Silver State South was "not likely to adversely affect the critical habitat of the desert tortoise," which permitted the FWS to forego an adverse modification analysis, was neither arbitrary nor capricious.¹⁶³

In relation to the third issue, the court held that

[t]he record included evidence that desert tortoises were burrowing near Silver State North and other existing solar projects in the Ivanpah Valley, which corroborates the BiOp's explanation that solar plants result in minimal edge effects. The mitigation measures incorporated by the BiOp also included measures to minimize edge effects, such as the use of "[a]uthorized biologists or desert tortoise monitors [to] flag all desert tortoise burrows for avoidance in areas adjacent to work areas." Because we can discern the BiOp's reasoning in concluding that Silver State South would not have significant edge effects and the record supports the BiOp's conclusion, the BiOp's consideration of Silver State South's edge effects was not arbitrary or capricious.¹⁶⁴

In Japan, there have been cases in which plaintiffs have sought the removal of the solar panels and compensation for damages caused by reflected light from the solar panels,¹⁶⁵ and in which plaintiffs have demanded an injunction against development activities such as the installation of large-scale solar facilities, on the basis of infringements on personal rights, scenic interests, and business rights,¹⁶⁶ among others.¹⁶⁷ An example of the aforementioned personal rights includes

¹⁶³ *Id.* at 1262.

¹⁶⁴ *Id.* at 1264.

¹⁶⁵ Tōkyō Kōtō Saibansho [Tōkyō High Ct.] Mar. 13, 2013, Hei 24 (ne) no. 3796, 2199 HANREI JIHŌ [HANJI] 23 (Japan); see RENEWABLE ENERGY LEGAL AFFAIRS 298–99 (Committee for Environmental Conservation, Daiichi Tōkyō Bar Association eds., 2nd ed. 2022) (Japan); KOBAYASHI, *supra* note 155, at 242.

¹⁶⁶ Ōita Chihō Saibansho [Ōita Dist. Ct.] Nov. 11, 2016, Hei 27 (wa) no. 29, 130, LEX/DB Reference No. 25544858 (Japan); see RENEWABLE ENERGY LEGAL AFFAIRS, *supra* note 165, at 305–06.

¹⁶⁷ Hiroshi Kobayashi, *Jurisprudential Consideration of Ecosystem Impact of Renewable Energy Projects: Focusing on Renewable Energy Litigation (Solar and Wind) in the United States*, 96 HŌRITSU JIHŌ 2, 63–64 (2024) (Japan). See Saga Chihō Saibansho [Saga Dist. Ct.] Oct. 9, 2015, Hei 25 (gyō u) no. 4, 6, 11, LEX/DB Reference No. 25541670 (Japan).

the right to enjoy the natural environment, including the landscape of the area.

In the former case of reflected light damage, defendant Y1 constructed a new building on the south side of the building owned by the plaintiffs under contract with defendant Y2 and installed solar panels on the roof. The solar panels installed on the north roof of the new building reflected sunlight and the reflected light shone into the plaintiffs' building. The plaintiffs sued defendants Y to seek the removal of the solar panels for exclusion of interference based on their ownership rights of the building and damages based on tort claims.¹⁶⁸ The court of first instance affirmed the plaintiffs' claim for removal of the panels and partially affirmed their claim for compensation for damages on the grounds that the damage caused by the defendants exceeded the plaintiffs' tolerable limit.¹⁶⁹ However, the appellate court found that the damage caused by the reflected light from the solar panels was not considered to be beyond the plaintiffs' tolerable limit, stating that "it is not clear how strong the glare is compared to commonly used roofing materials, and the time that the reflected light shines into the appellants' building is relatively short, making it readily to adopt measures to avoid the glare."¹⁷⁰ In this case, the court of first instance and the appellate court were divided in their judgment on whether the damage caused by the reflected light from solar panels exceeded the plaintiffs' tolerable limit. The appellate court found that there was no evidence to clarify the intensity of the reflected light from the solar panels compared to the roofing material, although the reflected light from the solar panels may be quite glaring depending on the angle of incidence of the sunlight.¹⁷¹ The author believes that the evaluation of the evidence was divided between the court of first instance and the appellate court.¹⁷² The solar panels were removed after the original judgment rendered by the court of first instance.¹⁷³

In the latter case of personal rights infringement, the plaintiffs, who reside or operate hotels, etc., in the Tsukahara area of Yufuin-cho, Yufu City, Oita Prefecture, claimed that the installation of large-scale solar facilities on the land in question would infringe on their personal rights,

¹⁶⁸ 2199 HANJI at 24.

¹⁶⁹ Yokohama Chihō Saibansho [Yokohama Dist. Ct.] Apr. 18, 2012, Hei 22 (wa) no. 5215, LEX/DB Reference No. 25481236 (Japan).

¹⁷⁰ 2199 HANJI at 26.

¹⁷¹ *Id.* at 25.

¹⁷² KOBAYASHI, *supra* note 155, at 242.

¹⁷³ 2199 HANJI at 26.

such as the right to enjoy the natural environment, including the landscape of the Tsukahara area, scenic interests in the Tsukahara area, and business rights. Therefore, the plaintiffs sought an injunction against the defendants' development activities, including the installation of solar facilities. The court held as follows:

With regard to environmental rights and scenic interests in the natural environment, there is no clear basis in positive law for concluding that such rights or interests are recognized, or at least the content of such rights or interests and the requirements for their recognition are not clear, that, in light of the nature of the natural environment, it is inconceivable that an individual has exclusive and monopolistic possession and control over it, and that, if that is the case, the plaintiffs do not at this moment have any rights or interests that could serve as grounds for seeking an injunction against the development activities.¹⁷⁴

The court also held that

the project plan has given a certain degree of consideration to the natural environment, including the landscape of the Tsukahara area; the plan has been carried out with the approval of a large number of landowners and the Yufu City Council; the plan is to supply electricity to the Yufuin area, and its annual power generation capacity will be sufficient to meet the power consumption of half of the households in the Yufuin area; the plan includes an emergency shelter inside the power plant, which will be able to charge mobile phones and store emergency food in case of an emergency; and local employment will be created by the construction work associated with the plan.¹⁷⁵

The court found that, in light of these facts, the development activities in question were not unlawful, at least to the extent that it should grant an injunction against their implementation.¹⁷⁶ In addition to the above, violations of the town development ordinance, basic environmental ordinance, and related guidelines were not found. Although both urban and natural landscapes should be considered as interests worthy of legal protection in certain cases, as it is difficult to make a clear distinction between them, a lack of reasonableness, such as the violation of administrative regulations or public policy, should be required for injunctive relief and damages.¹⁷⁷ The author believes that in this case,

¹⁷⁴ Ōita Chihō Saibansho, *supra* note 166.

¹⁷⁵ *Id.*

¹⁷⁶ *Id.*

¹⁷⁷ See Saikō Saibansho [Sup. Ct.] Mar. 30, 2006, Hei 17 (ju) no. 364, 60 SAKIŌ SAIBANSHO MINJI HANREISHŪ [MINSHŪ] 3, 948 (Japan).

where no violation of ordinances or guidelines, was found, the decision to dismiss the claim was appropriate. From his investigation, the author could not find any other precedents in which the impact of solar power generation projects on ecosystems, including endangered species, was a major issue in Japan. However, there was a case in which plaintiffs alleged, among other things, that the environmental impact assessment failed to evaluate the effects of dam construction on the ecosystem, including valuable birds of prey.¹⁷⁸

In addition, referring to a case involving a contested violation of the ESA with respect to wind power projects in the United States,¹⁷⁹ a defendant planned to “construct and operate 122 wind turbines along 23 miles of Appalachian mountains ridgelines, in Greenbrier County, West Virginia”¹⁸⁰ (partially completed construction).¹⁸¹ The plaintiffs, nonprofit organizations, filed a citizen suit against the developers to enjoin the wind farm project on the grounds that its construction and future operation would “take” endangered Indiana bats in violation of the ESA.¹⁸² The court held that the citizen suit provision of the ESA “allow[ed] actions alleging wholly-future violations of the statute, where no past violation ha[d] occurred.”¹⁸³ It also held that the “plaintiff must establish, by a preponderance of the evidence, that the challenged activity is reasonably certain to imminently harm, kill, or wound the listed species.”¹⁸⁴ In addition,

Based on the evidence in the record, the [c]ourt therefore concludes, by a preponderance of the evidence, that, like death and taxes, there is a virtual certainty that Indiana bats will be harmed, wounded, or

¹⁷⁸ Akita Chihō Saibansho [Akita Dist. Ct.] Mar. 27, 2015, Hei 21 (gyō u) no. 3, 4 D1-Law.com, Case ID 28251414 (Japan). See Kobayashi, *supra* note 167, at 66 n.40. The plaintiffs’ allegation was denied at the court of first instance. Although a new allegation for breach of the duty to preserve the natural environment was added at the appellate court, it was dismissed. Sendai Kōtō Saibansho Akita Shibu [Sendai High Ct. Akita Branch] Apr. 26, 2017, Hei 27 (gyō ko) no. 4, D1-Law.com Case ID 28251413 (Japan).

¹⁷⁹ *Animal Welfare Inst. v. Beech Ridge Energy LLC*, 675 F. Supp. 2d 540 (D. Md. 2009). See Jeremy Firestone & Jeffrey P. Kehne, *Wind*, in *THE LAW OF CLEAN ENERGY EFFICIENCY AND RENEWABLES* 361, 379–80 (Michael B. Gerrard ed., 2011); *RULE*, *supra* note 8, at 329–37; *KOBAYASHI*, *supra* note 155, at 246–49 (although this case has been referred to in the appendix of my book, because it is an important case in which the plaintiffs’ claim was partially affirmed, I mention it again here with certain modifications and additions).

¹⁸⁰ *Animal Welfare Inst.*, 675 F. Supp. 2d at 548.

¹⁸¹ Firestone & Kehne, *supra* note 179, at 379.

¹⁸² *Animal Welfare Inst.*, 675 F. Supp. 2d at 540.

¹⁸³ *Id.* at 561.

¹⁸⁴ *Id.* at 563.

killed imminently by the Beech Ridge Project, in violation of § 9 of the ESA, during the spring, summer, and fall.¹⁸⁵

The court also stated that “[b]ecause entirely discretionary [post-construction] adaptive management will not eliminate the risk to Indiana bats, the [c]ourt ha[d] no choice but to award injunctive relief[.]”¹⁸⁶ and that “[b]ecause [. . .] the Beech Ridge Project w[ould] take Indiana bats, injunctive relief [wa]s appropriate under § 11 of the ESA.”¹⁸⁷ It issued injunctive relief limiting operations of the wind power project under construction to the period when the bats are hibernating (November 16–March 31) and prohibiting its operation except during the winter period.¹⁸⁸ This case is described as follows:

On January 26, 2010, the parties entered into a stipulation that requires Beech Ridge to abandon (neither construct nor operate) some thirty-one wind turbines, to prepare a habitat conservation plan and seek an incidental take permit, and curtail operations at forty other wind turbines to protect the Indiana bat pending receipt of the incidental take permit. The stipulation does allow Beech Ridge to install twenty-seven additional wind turbines and operate them under the agreed curtailed schedule.¹⁸⁹

As the court noted in this case, an application for an incidental take permit under the ESA should have been filed.¹⁹⁰ This indicates that renewable energy projects in areas blessed with a rich natural environment must be promoted in accordance with the legal procedures related to the conservation of ecosystems,¹⁹¹ including endangered species. As for Japan, following a thorough search, the author could not find any precedents in which the court granted an injunction against a wind power generation project on the grounds that the project violated the Act Concerning Conservation of Endangered Species of Wild Fauna and Flora.¹⁹² Cases of this type are understood to be extremely rare in Japan compared to the United States, and the reason for this difference is largely due to the citizen suit provision in the United

¹⁸⁵ *Id.* at 579.

¹⁸⁶ *Id.* at 580.

¹⁸⁷ *Id.*

¹⁸⁸ *Id.* at 581.

¹⁸⁹ Firestone & Khene, *supra* note 179, at 379–80; *see* Animal Welfare Inst. v. Beech Ridge Energy LLC, No. 09-1519 (RWT), 2010 WL 11484179 (D. Md. Jan. 26, 2010).

¹⁹⁰ KOBAYASHI, *supra* note 155, at 249.

¹⁹¹ *Id.*

¹⁹² Kisyōshu hozonhō [Act Concerning Conservation of Endangered Species of Wild Fauna and Flora], Law No. 75 of 1992 (Japan).

States.¹⁹³ The author believes that if a lawsuit similar to the one in the United States were to be filed in Japan, the court would deny the plaintiffs standing under Japan's current legal system.¹⁹⁴ From the standpoint of biodiversity conservation, it is necessary to establish a system of environmental public interest litigation in Japan.¹⁹⁵ While the establishment of such a system may not contribute to reducing the risk of litigation, the author believes that it can be expected to have a deterrent effect on renewable energy projects that may adversely affect the local natural environment by providing *ex post facto* legal measures to preserve the natural environment. As discussed above, there have been cases in Japan in which plaintiffs sought the removal of solar panels and compensation for damages caused by reflected light from the panels, as well as injunctive relief against the installation of large-scale solar facilities on the basis of violation of personal rights and scenic interests, among others. With regard to wind power generation, there has been a case in which the plaintiff, who lives in the vicinity of a wind power generation facility installed and operated by the defendant, sought an injunction against the operation of the facility and compensation for damages in the amount of 5 million JPY on the basis of violation of personal rights, claiming that the plaintiff had suffered mental distress and interferences to life beyond a tolerable limit due to the noise from the facility.¹⁹⁶ In these cases, the issue of standing to sue does not arise because the violation of personal rights guaranteed to human beings is the basis for the claim for injunction or damages. However, courts tend to deny standing for lawsuits for the purpose of biodiversity conservation in Japan; the author believes that the system of environmental public interest litigation is required to balance power generation projects and biodiversity conservation.

Furthermore, with respect to offshore wind power generation in Japan, there has been a case in which the plaintiffs—who are regular members of the Yamaguchi Prefectural Fisheries Cooperative Association and are engaged in fishing off the coast of Yasuoka, Shimonoseki City, Yamaguchi Prefecture—filed a lawsuit against the defendant, a joint stock company that plans to construct and operate an offshore wind power generation facility off the coast of Yasuoka, Shimonoseki City (the “Construction Work”), based on the rights to

¹⁹³ KOBAYASHI, *supra* note 155, at 249.

¹⁹⁴ *Id.*

¹⁹⁵ Kobayashi, *supra* note 167, at 66.

¹⁹⁶ Nagoya Chihō Saibansho [Nagoya Dist. Ct.] Apr. 22, 2015, Hei 26 (wa) no. 61, 2272 HANREI JIHŌ [HANJI] 96 (Japan); *see* KOBAYASHI, *supra* note 155, at 249–50.

engage in fishery (the “fishery rights”) under Article 8, Paragraph 1 of the Fishery Act,¹⁹⁷ claiming that if they carried out the Construction Work, the plaintiffs’ fishery will be irreversibly adversely affected.¹⁹⁸ The issues in this case were as follows: (1) whether the plaintiffs’ fishery rights were infringed, (2) whether the defendant’s plan to construct and operate an offshore wind power generation facility off the coast of Yasuoka (the “Plan”) posed a risk of infringing those rights, and (3) whether the “Basic Agreement on Promotion of Offshore Wind Power Generation Project” and the “Agreement on Fishery Compensation for Offshore Wind Power Generation Project” in relation to the Plan were valid.¹⁹⁹ In this case, issue two was the main issue.²⁰⁰ The court denied the plaintiffs’ arguments regarding the following matters, and thus the risk of infringement of the fishery rights was not recognized: (1) “the inability to fish in the area where vessels will come and go due to the Construction Work,” (2) “the turbidity of seawater caused by sediment produced by seabed excavation,” (3) “the loss of fishing grounds at the wind turbines construction site,” (4) “the destruction of fishing grounds by the laying of power transmission cables,” and (5) “the destruction of fishing grounds due to vibration and noise caused by wind turbines.”²⁰¹ The court of first instance, therefore, dismissed the plaintiffs’ claims. In addition, both the Court of Appeals²⁰² and the Supreme Court²⁰³ dismissed them.

In Japan, it seems that many renewable energy-related litigations are filed on the basis of human-centered impediments to the living environment, such as infringement of scenic interests²⁰⁴ and noise damage. From his investigation, the author could not find any precedents, either for solar or wind power, in which the impact of these

¹⁹⁷ Gyogyō hō [Fishery Act], Law No. 267 of 1949 (Japan).

¹⁹⁸ Yamaguchi Chihō Saibansho Shimonoseki Shibu [Yamaguchi Dist. Ct. Shimonoseki Branch] Oct. 2, 2018, Hei 28 (wa) no. 96, D1-Law.com Case ID 28283521 (Japan). For more on this case, see Hiroshi Kobayashi, *A Recent Precedent Regarding Offshore Wind Facility*, 13 SHINSHU ECON. L. REV. 75 (2022) (Japan).

¹⁹⁹ The summary of the case and the issues are based on the text of the judgment.

²⁰⁰ Kobayashi, *supra* note 198, at 78.

²⁰¹ *Id.* at 76–77.

²⁰² Hiroshima Kōtō Saibansho [Hiroshima High Ct.] June 26, 2019, Hei 30 (ne) no. 341, D1-Law.com Case ID 28282845 (Japan).

²⁰³ Saikō Saibansho [Sup. Ct.] July 3, 2020, Rei 1 (o) no. 1303, Rei 1 (ju) no. 1602, D1-Law.com Case ID 28282844 (Japan).

²⁰⁴ See Hirokazu Ikeuchi, *Possibility of Injunction of Renewable Energy Facilities Based on Landscape-A Consideration of Court Cases About Mega Solar Power Plant-*, 27 OTEMON BUS. MGMT. REV. 2, 1 (2021) (Japan); Kobayashi, *supra* note 167, at 66.

projects on ecosystems, including endangered species, was the main issue, provided, however, that in some cases, concerns about the destruction of ecosystems seem to be raised in opposition movements.²⁰⁵ In contrast, there are several cases in the United States where renewable energy is being litigated on the basis of adverse effects on the natural environment, such as ecological impacts.²⁰⁶ This is due, in part, to the existence of the citizen suit provision in U.S. Environmental Law.²⁰⁷ In Japan, it is understood that even if an injunction is sought for the purpose of protecting endangered species, it is difficult to proceed to a substantive hearing due to the restrictions on standing as a plaintiff.²⁰⁸ In light of the above, although not limited to renewable energy projects, the establishment of environmental public interest litigation is expected from the perspective of biodiversity conservation.²⁰⁹ The above comparisons of renewable energy-related litigation in Japan and the United States are insightful, considering the significance of and issues with growth-oriented carbon pricing. For growth-oriented carbon pricing to be fully implemented at an early stage, it should be required to mitigate the risk of litigation by developing renewable energy projects in symbiosis with local communities and provide legal measures to preserve the natural environment of the area in question, especially if the said projects become contentious.

CONCLUSION

This Article presented an overview of the system under the GX Promotion Act and shed light on the significance and issues of growth-oriented carbon pricing. The author concludes this Article with the following points.

First, the GX Promotion Act has been described as “a law that aims at a paradigm shift toward a decarbonized growth-oriented economic structure, and the fact that it lays out the long-term framework for such

²⁰⁵ See Ryo Kohsaka & Satomi Kohyama, *Contested Renewable Energy Sites Due to Landscape and Socio-Ecological Barriers: Comparison of Wind and Solar Power Installation Cases in Japan*, 34 ENERGY & ENV'T. 1, 10–12 (2022); Kobayashi, *supra* note 167, at 66 n.40.

²⁰⁶ Kobayashi, *supra* note 167, at 66.

²⁰⁷ However, the aforementioned case of *Defenders of Wildlife*, 856 F.3d 1248 is not a citizen suit. Kobayashi, *supra* note 167, at 66 n.41.

²⁰⁸ Kobayashi, *supra* note 167, at 66.

²⁰⁹ *Id.*

a shift is highly commendable.”²¹⁰ The author concurs with this statement because, after the deletion of the economic harmonization clause in the Basic Act for Environmental Pollution Control²¹¹ amended in 1970 (the first paradigm shift)²¹² and the introduction of the concept of sustainable development in the Environmental Basic Act²¹³ enacted in 1993 (the second paradigm shift), the GX Promotion Act stipulates a framework for a further shift to the economic structure toward the realization of a decarbonized society by 2050. However, it has been pointed out that while “it is a legislation for policy integration of industrial policy and environmental policy (it can be called one of the environmental laws),” it is “somewhat different from the position of the Environmental Basic Act in that its objective is economic growth.”²¹⁴ The author has some doubts on whether it can be evaluated as a paradigm shift in environmental law. However, it is clear that it is an important framework law for policy integration of the two above.

Second, although growth-oriented carbon pricing under the GX Promotion Act targets businesses to change the economic and social structure, it is important to encourage not only businesses but also individuals to change their behavior; to this end, more cooperation from individuals, including the author, will be required in the future²¹⁵ (e.g., by purchasing environmentally friendly products and thoroughly engaging in energy-saving activities). It is not inconceivable that methods of regulating individual behavior may be introduced in the future, but the author believes that economic, informational, and voluntary measures must first be strengthened. While it may not be feasible to regulate each household by setting daily, monthly, or annual limits on permissible electricity usage, the promotion of GX could involve efforts to increase individual understanding. This could lead to a gradual expansion of carbon pricing scope and an enhancement of the load degree.

Third, it has been pointed out that “the introduction of carbon pricing in 2026, 2033, and 2028 will be too late as a global warming

²¹⁰ Kitajima, *supra* note 71, at 41.

²¹¹ Kōgai taisaku kihonhō [Basic Act for Environmental Pollution Control], Law No. 132 of 1967, art. 1, para. 2 (Japan).

²¹² See TADASHI OTSUKA, *ESSENTIALS OF ENVIRONMENTAL LAW* 8 (4th ed. 2023) (Japan).

²¹³ Kankyō kihonhō [Environmental Basic Act], Law No. 91 of 1993 (Japan).

²¹⁴ Otsuka, *supra* note 30, at 92–93.

²¹⁵ See Kitajima, *supra* note 71, at 41.

countermeasure, and it is expected that this will not be sufficient to achieve the target of a 46% reduction by FY2030 (compared to FY2013).”²¹⁶ In light of this statement, the author believes that to achieve CN by 2050, the emissions trading scheme and the fossil fuel levy system, which form the core of carbon pricing, should be brought forward and fully implemented as early as possible.²¹⁷ Furthermore, the GX-ETS, which is currently voluntary, should be transitioned to mandatory participation early²¹⁸ (i.e., in FY2026) to ensure that there is no competitive imbalance between participating and non-participating companies and to achieve greater effectiveness in reducing GHG emissions. The scope of the participation obligation in question must continue to be closely monitored in the future to ensure that no loopholes are created. In addition, for growth-oriented carbon pricing to be fully implemented at an early stage, it is crucial to mitigate the risk of litigation by developing renewable energy projects in symbiosis with local communities. Currently, the number of renewable energy-related lawsuits in Japan and the United States, such as the *Green vs. Green* noted above, does not seem to be very large. However, the concept of “symbiosis with local communities”²¹⁹ will be crucial in preventing project delays caused by litigation.

²¹⁶ Otsuka, *supra* note 30, at 94.

²¹⁷ See WWF JAPAN, *supra* note 69, at 1; Hanawa, *supra* note 47 (“Japan is from now in the process of fully introducing the system, and the reality is that the timing and scale are inferior to other countries and regions.”). I believe that there is room for further study in terms of both timing and scale.

²¹⁸ See *Tokyo Stock Exchange Credit Market Envisions Japan’s Response to the Act Concerning the Promotion of Global Warming Countermeasures*, NIKKEI GX (Sept. 28, 2023), <https://www.nikkei.com/prime/gx/article/DGXZQOUC113ZG0R10C23A9000000> [<https://perma.cc/HG94-H5U3>] (comments of Prof. Toshihide Arimura) (Japan).

²¹⁹ See CABINET DECISION ON A BILL 2023, *supra* note 12.