Natural Environmental Impact Report of Large Onshore Wind Power Project in Japan 2024

for Balancing the Promotion of Renewable Energy and Biodiversity Conservation

September 4, 2024

The Nature Conservation Society of Japan

Index

1. Introduction

In 2024, the global average temperature reached its highest level on record, and in Japan, severe coral bleaching was observed in the Ryukyu Islands, highlighting the escalating impacts of climate change. Climate change is a global challenge that affects all ecosystems on land and sea, as well as human society, necessitating urgent countermeasures worldwide. In Japan, the government has pledged to achieve carbon neutrality by 2050, striving to transition from fossil fuels, which emit CO2, to renewable energy sources. Consequently, the construction of renewable energy power facilities is rapidly progressing nationwide. However, concerns are also growing regarding the potential environmental impact of these development projects.

The Nature Conservation Society of Japan (NACS-J) highlighted in a special feature of its 2006 newsletter, "Nature Conservation (No.492)," that the wind power development projects, which were gradually increasing at the time, could lead to environmental degradation. At the same time, recognizing the necessity of promoting renewable energy for global environmental conservation, NACS-J has advocated for optimizing the siting of wind power projects. However, progress in policy development towards optimal sitting has stalled to date.

In April 2023, NACS-J published the "Environmental Impact Report on Large-Scale Onshore Wind Power Projects," where the environmental impact of large-scale onshore wind power projects, subject to the Environmental Impact Assessment Law (EIA Law), was analyzed. This report not only shed light on the overall environmental impact of onshore wind power projects in Japan but also revealed significant differences in environmental considerations among developers.

Biodiversity loss is highlighted as one of the top risks expected to worsen over the next decade in the "Global Risks Report 2024" published by the World Economic Forum (WEF). At the 15th meeting of the Conference of the Parties to the Convention on Biological Diversity (CBD/COP15) held in December 2022, the world adopted a target to halt and reverse nature loss by 2030, known as "Nature Positive." Furthermore, in September 2023, the Taskforce on Nature-related Financial Disclosures (TNFD v1.0) was released. TNFD aims to redirect global financial and capital flows towards Nature Positive through information disclosure, accelerating the movement that requires companies to disclose information on their dependencies and impacts on nature, as well as related risks and opportunities. As businesses face the urgent need to transition their energy sources, they are also required to simultaneously address the impacts on the natural environment.

In this report, NACS-J, to promote renewable energy development that considers environmental conservation, has updated its previous findings by adding the latest data, analyzing the changes over time in the number of different types of development projects, the siting of large-scale onshore wind power projects, and comparing the levels of environmental consideration among developers, based on the analysis of EIA documents.

2. Key Findings and Points

- Among development projects subject to the EIA Law, onshore wind power plants have recently had the most significant impact on the natural environment, with their increasing trend comparable to the golf course and resort developments of the 1990s.
- The analysis of 373 EIA documents planned up to June 2024 shows that, while overall consideration for the natural environment in onshore wind power projects has gradually improved, two-thirds of the projects are still planned in habitats of endangered raptors, indicating that these considerations remain insufficient.
- Onshore wind power plants pose significant risks to the natural environment not only through construction but also through operations, such as bird strikes (collision deaths). There are growing concerns about the cumulative impacts of both existing and newly constructed wind power plants.
- The latest analysis of EIA documents revealed significant differences in environmental considerations among developers.
- The continuous public disclosure of EIA documents remains at only about 14%, highlighting ongoing challenges in achieving stakeholder consensus, which is a fundamental purpose of EIA.
- Behind these issues lies the rapid increase in renewable energy projects that prioritize cost over environmental considerations.

3. Changes in Projects Subject to Environmental Impact Assessment

3-1. History and Overview of Environmental Impact Assessment in Japan

Environmental Impact Assessment (here in after referred to as "EIA") is a procedure designed to predict and evaluate the potentially significant impacts of human activities, such as development projects, on the environment in order to ensure environmental considerations are made in advance. EIA was first institutionalized in the United States in 1969, and since then, it has been introduced in various countries worldwide.

In Japan, EIA was introduced for public works in 1972, and by the mid-1970s, systems had been established for port plans, land reclamation, power plants, and the Shinkansen (bullet trains). Subsequently, in 1981, the "Environmental Impact Assessment Bill" was submitted to the National Diet, but it was shelved in 1983. Following the shelving of the bill, instead of enacting a law, a unified rule was established within the government through an internal agreement, leading to the Cabinet Decision on the "Implementation of Environmental Impact Assessment" in 1984 (this system based on the Cabinet Decision is referred to as "Cabinet EIA"). Additionally, local governments also advanced the establishment of ordinances and guidelines.

Later, with the promotion of EIA being positioned in the "Basic Environment Law" enacted in 1993, discussions began to review the system, resulting in the enactment of the "Environmental Impact Assessment Law" in June 1997. Further amendments were made in April 2011, with the enactment of the "Act for Partial Revision of the Environmental Impact Assessment Law," which included procedures such as the process of Document on Primary Environmental Impact Consideration and the Reporting and Public Disclosure Procedures of Environmental Conservation Measures (Reporting Procedures). However, unlike the U.S. EIA system, which was the first to be institutionalized globally, Japan's legal and ordinance framework classifies EIA as a procedural law rather than a permitting law, meaning it is not a regulation of the projects themselves but rather a communication process intended to improve the quality of the projects.

Development projects, depending on their scale, are required to conduct either a "Legal EIA" based on the Environmental Impact Assessment Law (EIA Law) under national jurisdiction or an "Ordinance EIA" based on regulations independently established by local governments. Some development projects, depending on their scale, are not required to conduct a Legal EIA or Ordinance EIA.

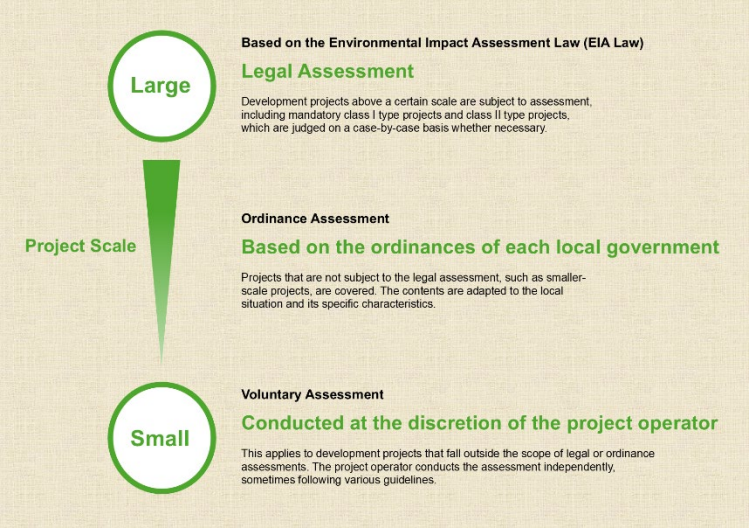

Figure 1a. An Overview of Types of the Environmental Impact Assessments (EIA) in Japan.

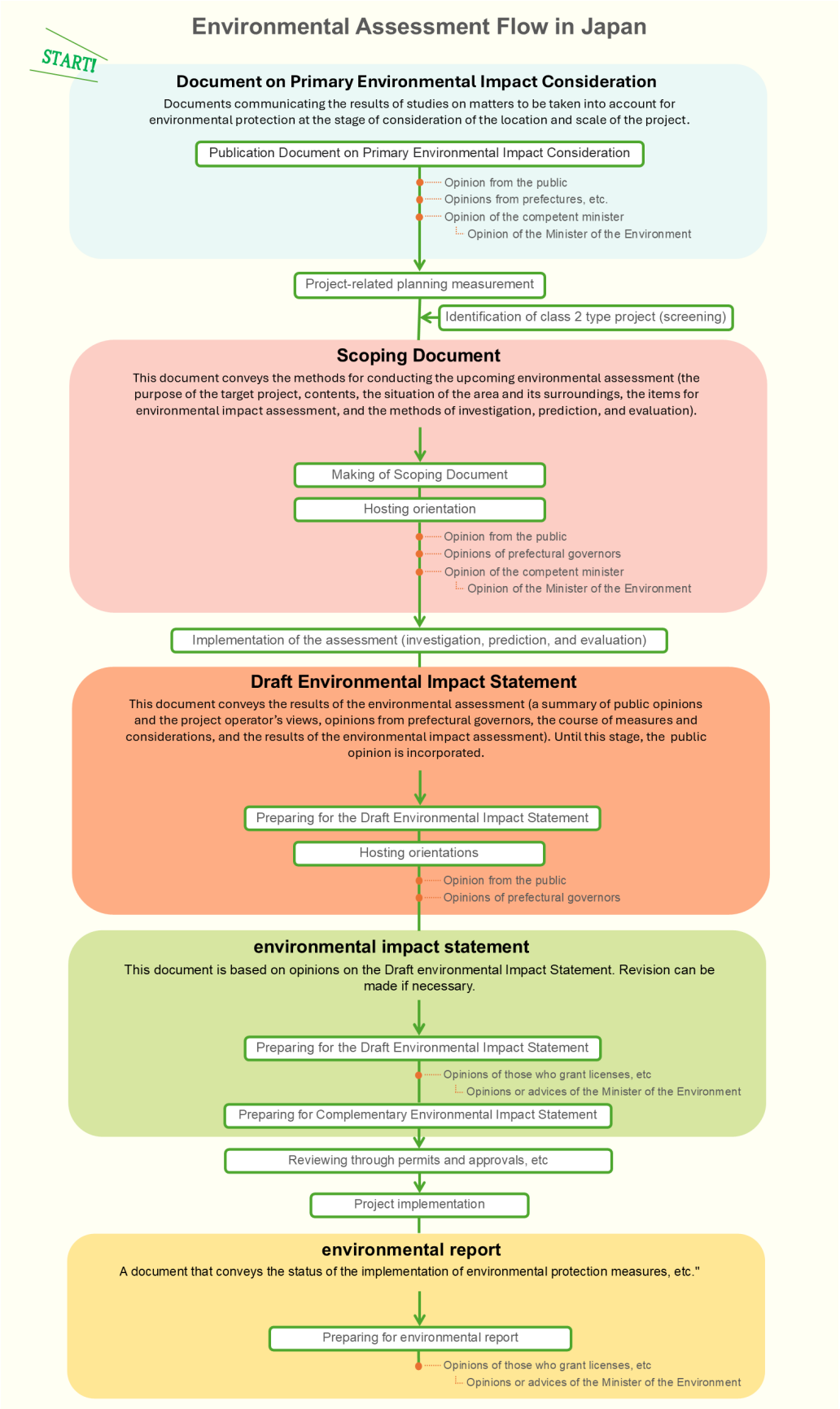

Figure 1b. A Series of Procedures for the Environmental Impact Assessment (EIA) in Japan.

3-2. Changes in Projects Subject to Environmental Impact Assessment Over Time

In this section, we have summarized the year-by-year changes in the types of projects subject to Environmental Impact Assessment (EIA) over the past 40 years (since 1984) based on EIA documents. The data was compiled using information from the Environmental Impact Assessment Information Support Network published by the Ministry of the Environment (http://assess.env.go.jp/) and various environmental Impact assessment-related websites of prefectures. As mentioned earlier, the "Environmental Impact Assessment Law" was enacted during this 40-year period (in 1997), and before and after its enactment, the system transitioned from "Cabinet EIA" to "Legal EIA," with the establishment of ordinance-based EIAs by local governments progressing simultaneously.

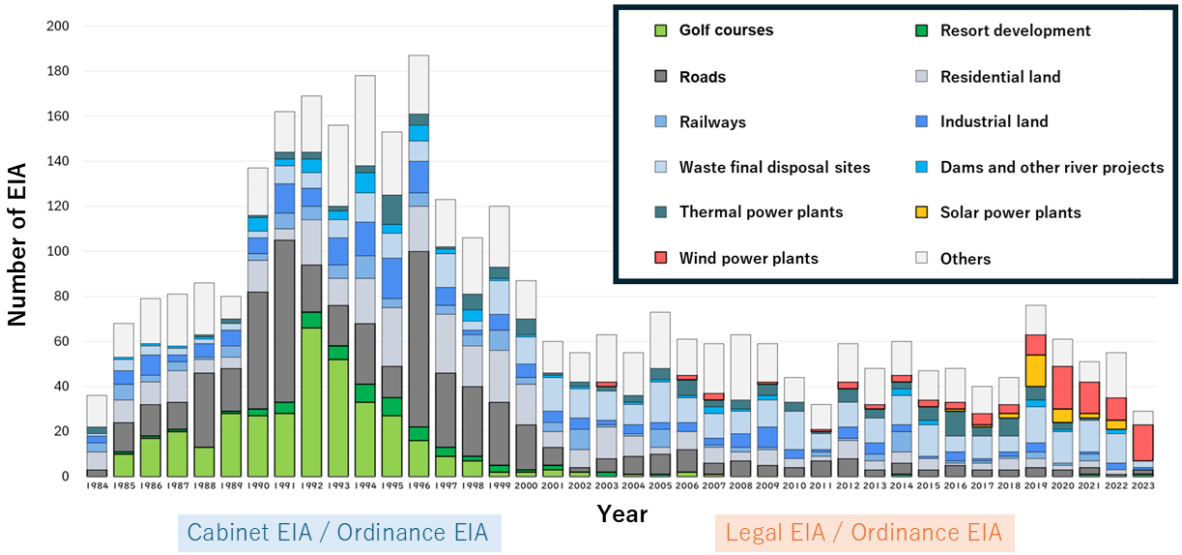

Figure 2. Illustrates the Number of Projects by Type that Underwent EIA Procedures, based on the Issuance Dates of the "Assessment Report" (the Final Stage of the Assessment Process), for all “Legal EIA”, “Cabinet EIA”, and “Ordinance EIA” since 1984.

The trend in the total number of cases shows that the 1990s saw a high volume of EIA procedures, with over 100 cases each year, but this number decreased to around 50 cases annually in the 2000s, with little change in total numbers since then. Regarding the breakdown of EIA projects, before 2000, golf courses, roads, and housing developments accounted for the majority of the EIA procedures. On the other hand, the year-by-year change in industrial waste disposal sites and thermal power plants has remained relatively constant. Notably, the number of solar power and wind power plants has increased significantly since 2020.

Figure 3 shows the change in the types of projects subject to Legal EIA procedures for development plans since 2000, following the enactment of the Environmental Impact Assessment Law.

This figure is based on the publication dates of Preliminary Reports for Type 1 projects or Method Statements for Type 2 projects. It should be noted that six prefectures—Tochigi, Okayama, Kagawa, Saga, Miyazaki, and Kagoshima—have not sufficiently disclosed past EIA procedure information on their websites, making it difficult to confirm past ordinance-based EIA procedures. Therefore, the analysis was limited to Legal EIA projects only.

The trend in the total number of cases shows a sharp increase in the number of procedures initiated since 2012, exceeding 100 cases in 2020. The majority of these are wind power plants, particularly onshore wind power plants. It is expected that the final evaluation reports for these wind power projects will be issued within two to five years after the publication of the document on primary environmental impact consideration or Method Statements. As a result, it is almost certain that onshore wind power plants will significantly increase the total number of evaluation reports shown in figure 2 in the near future. This increase is comparable to the boom in golf course construction projects in the 1990s.

In conclusion, it can be said that the most significant concern for Japan's natural environment, both now and in the near future, is the construction of onshore wind power plants.

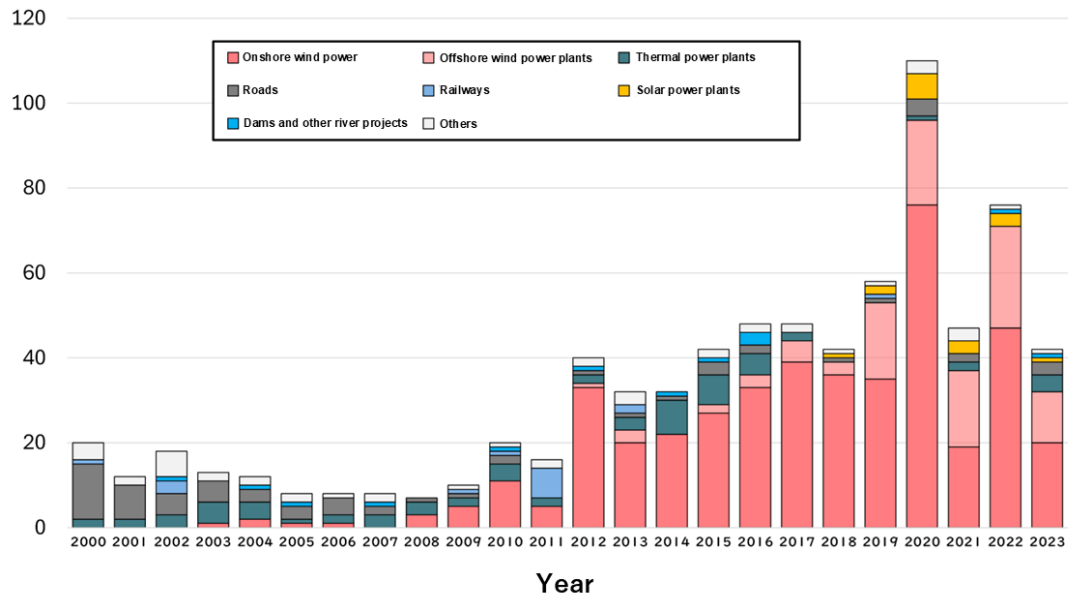

Figure 3. Yearly Changes in the Start Year of Legal Assessment Projects by Project Type.

4. Methodology for Analyzing Environmental Concerns of Wind Power Projects

To ensure optimal siting of wind power projects, the Ministry of the Environment updated and made public the nationwide GIS data on natural and residential environments, " Environmental Impact Assessment Database System (EADAS)," in July 2017. This analysis focused on wind power

projects planned by June 2024, where the project implementation areas or target project implementation areas (hereinafter referred to as "project areas") could be identified through EADAS or other sources.

The analysis covered a total of 373 wind power projects, including those that continue to impact the natural environment due to their operation as of June 2024 (77 projects, here in after, they are referred to as “in operation”), those that have a determined construction site and are likely to have an impact soon (44 projects under construction that have completed EIA procedures but are not yet operational, here in after “under construction”), and those where the construction site is still subject to change but may impact the environment in the future (252 projects currently undergoing EIA procedures, here in after “under assessment”). Among the 252 projects currently undergoing EIA, 202 are active projects with EIA documents published since 2018. For cases where a limited liability company was established to plan the wind power project, the analysis was conducted using the company with the largest investment share as the main developer (refer to Appendix Table 1).

*Note: In the analysis of the natural environment based on EIA documents, due to the lack of public disclosure of GIS data for project areas, visual comparisons were made using diagrams that could be interpreted from EIA documents and EADAS.

5. Research Findings

5-1. Impact of Domestic Wind Power Projects on the Natural Environment

- Projects under assessment are more considerate of the natural environment compared to the ones in operation.
- 67% of projects under assessment include habitats of raptors within their project areas.
- There is an increasing trend in planning projects within natural parks.

The analysis of the current onshore wind power projects' locations has revealed that many planned projects significantly impact the natural environment. Below is a breakdown of the overall trends regarding the environmental impact of large onshore wind power projects in Japan.

5-1-1. Impact on Rare Birds, Including Raptors

A major issue with wind power projects is their ongoing impact on birds, especially raptors, not just during construction but also throughout their approximately 20 years of operation. These projects can indirectly affect the natural breeding conditions of these birds by making it difficult for them to reproduce and can also directly threaten their survival through bird strikes (collisions leading to death).

raptors like the Golden Eagle and White-tailed Eagle are at the top of Japan's ecological hierarchy. Even the loss of a single bird due to collision with wind turbines or habitat abandonment can have profound and far-reaching effects on the surrounding ecosystem.

In Hokkaido, 43 bird strikes involving sea eagles (White-tailed Eagles and Steller's Sea Eagles)

were reported over the 12-year period from 2003 to 2014, with incidents being concentrated in specific regions and at specific wind turbines (Ministry of the Environment, Wildlife Division, 2016). Furthermore, 30 additional bird strikes involving sea eagles occurred between 2015 and 2021 (Ministry of the Environment, Wildlife Division, 2022). In just the past year, at Hamazato Wind Farm (operated by Eurus Energy Holdings Corporation), three sea eagles (White-tailed and Steller's Sea Eagles) were killed by collisions in the first year of operation in 2023. Additionally, at Eurus Tokoro Notoro Wind Farm (also operated by Eurus Energy Holdings Corporation), two White-tailed Eagles were killed by collisions within the first two months of operation since April 2024. Similarly, on Honshu, an Imperial Eagle was killed at the Kamaishi Wind Farm in Iwate Prefecture (operated by Eurus Energy Holdings Corporation) in September 2008, and a Mountain Hawk-eagle was killed in July 2023 at the JRE Tsuruoka Hachimoriyama Wind Farm in Yamagata Prefecture (operated by ENEOS Renewable Energy Corporation).

Currently, about 82% (63 projects) of wind power plants in operation are located near the habitats of rare raptors (Figure 4). There has been an increase in cases where consideration for raptors is being made, resulting in a slightly lower proportion of those under assessment, about 67% (169 projects), including habitats of these birds. However, this proportion remains high. Although there is a decreasing trend in projects that include habitats of raptors such as White-tailed Eagles and Eastern Marsh Harriers, which are mainly found in Hokkaido, there is an increasing trend in projects that include habitats of Golden Eagles and Mountain Hawk-Eagles. This shift is thought to be influenced by the recent increase in wind power project sites from Hokkaido to regions further south, such as Honshu and Tohoku.

Overall, while the proportion of construction plans that include habitats of raptors is decreasing, the actual number of projects is expected to surge dramatically. This includes not only the 63 wind power plants in operation but also the 202 projects under construction or under assessment (about 3.2 times the number of those in operation), raising strong concerns about the cumulative impact on the natural environment.

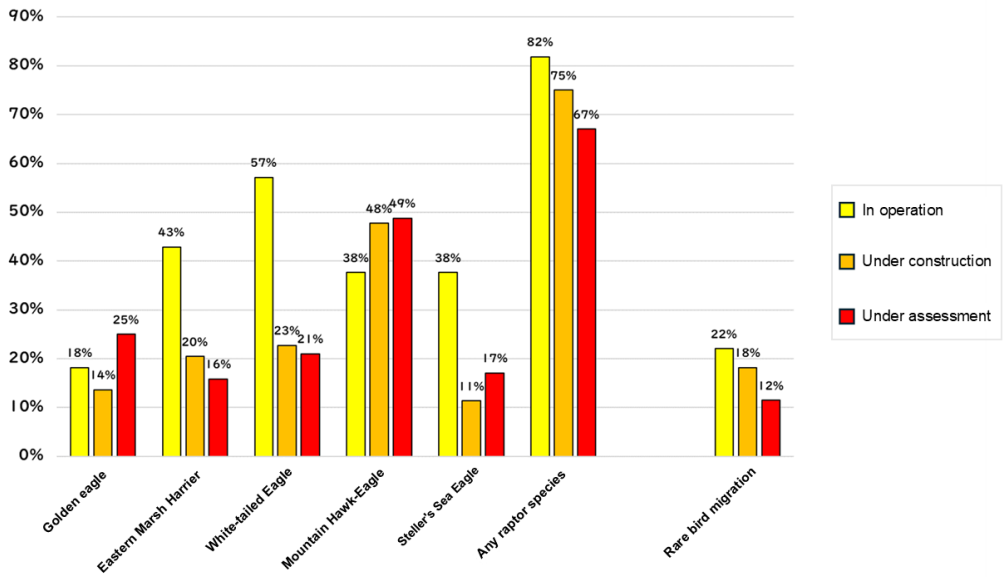

Figure 4. Percentage of Plans that Include Rare Bird Habitats in the Project Area.

5-1-2. Impact on Forests Close to Virgin Forests and Specific Plant Communities

"Vegetation Naturalness" is a classification system that categorizes all vegetation in Japan into 10 levels, from urban areas to natural grasslands, based on indicators such as the degree of human modification and the remaining naturalness of plant communities. Among these, "Vegetation Naturalness 9" represents forests close to virgin forests, while "Vegetation Naturalness 10" indicates natural grasslands. As of 1998, vegetation with Naturalness levels 9 and 10 combined accounted for only about 20% of Japan's total land area, and this percentage has been decreasing year by year.

"Specific Plant Communities" are plant communities that form Japan's flora and are designated based on eight selection criteria. These include communities that are representative or typical in terms of scale, structure, and distribution; those that cannot be replaced by others; and those that are extremely vulnerable and whose continued existence would be threatened if left unattended. These are designated by the Ministry of Environment as requiring preservation and are considered extremely important plant communities for natural environmental conservation.

Analysis results show that about 50% of onshore wind power plants in operation have been constructed by modifying natural vegetation. Additionally, about 47% of projects under assessment are based on plans that will modify natural vegetation. Furthermore, about 9% of operating onshore wind power plants have modified specific plant communities, and this percentage increases to 15% for projects under assessment (Figure 5).

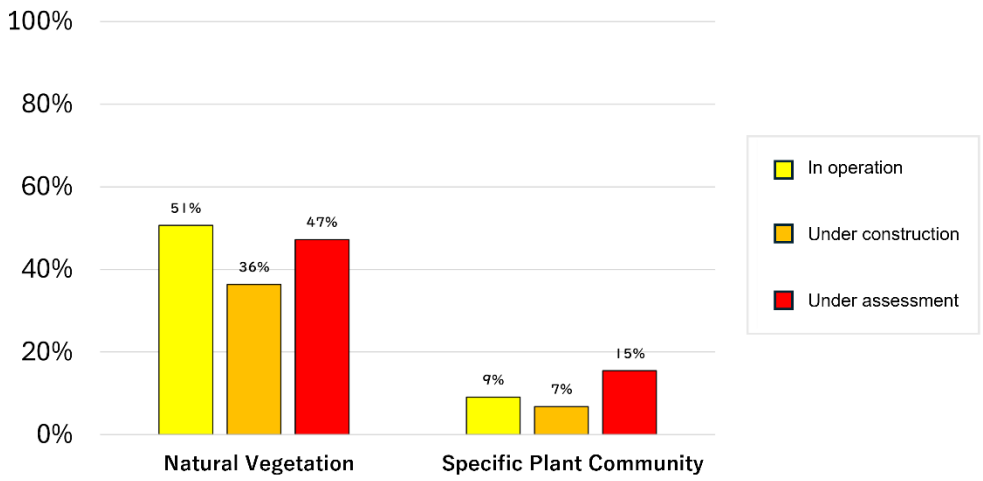

Figure 5. Percentage of Projects including Natural Vegetation (Vegetation Naturalness levels 9 and 10) and Specific Plant Communities in their project areas.

5-1-3. Construction of Wind Power Generators in Natural Parks

National parks, quasi-national parks, and prefectural natural parks are designated areas representing Japan's and prefectures' outstanding natural landscapes based on the Natural Parks Law and prefectural ordinances. By imposing public restrictions to maintain scenic beauty, these parks aim to ensure appropriate protection for the future while promoting proper utilization.

These natural parks play an extremely important role as the core of Japan's natural landscape and are also expected to function as the backbone of biodiversity conservation. Currently, there is only

one wind power plant in operation located within a national park: the "Aso Oguni Wind Farm (Electric Power Development Co., Ltd.)" (4 turbines) built in Aso-Kuju National Park (Oguni Town and Minamioguni Town, Aso District, Kumamoto Prefecture). There are three projects under construction environmental impact assessment, but although national parks are included in the project areas, no wind turbines are planned to be installed. However, among the plans under assessment, there is a plan proceeding with the premise of installing wind turbines within a national park. Furthermore, many wind power generation projects are being planned within prefectural natural parks, with about 10% of wind power projects under assessment, double the percentage of projects in operation, and plans for wind power projects in natural parks, including national and quasi-national parks, reaching about 14% (Figure 6).

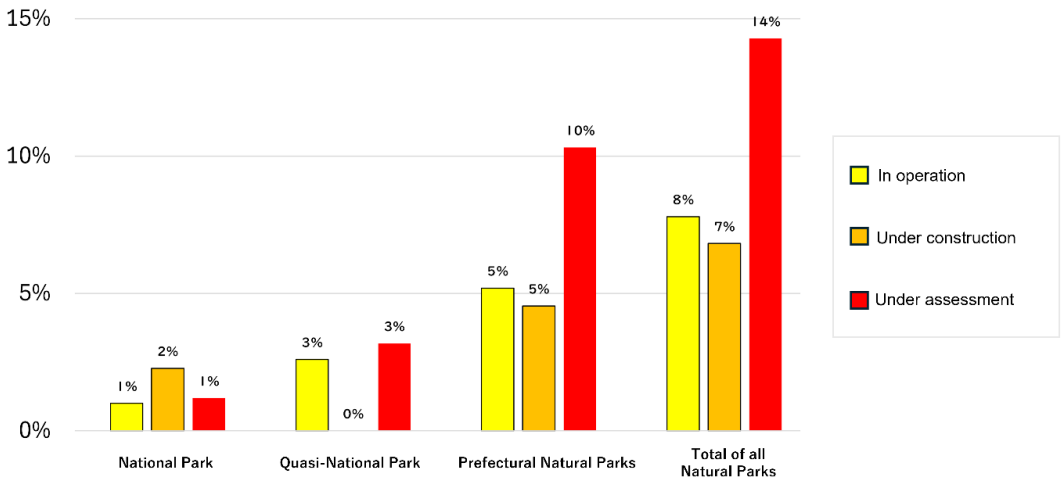

Figure 6. Proportion of Plans Including Natural Parks in Project Areas.

5-2. Plans Particularly Problematic for the Natural Environment

Next, we independently quantified the consideration for the natural environment for each individual project. The following items were quantified:
We established 29 evaluation indicators, including the presence of rare bird species such as golden eagles, Key Biodiversity Areas (KBAs), the presence and percentage of protected forests, the proportion of natural forests, the presence of protected forests, the presence of national, quasi-national, and prefectural natural parks, and others (Table 1). For each item, points were assigned if it was included in the project area, and the "Natural Environment Consideration Index" is the sum of points for all items.

The index was calculated for 202 planned projects that have issued EIA documents since 2018. We showed the frequency distribution of the natural environment consideration index for all these projects (Figure 7). The average value is 224, with many falling between 100 and 300, and 39 projects scoring less than 100. On the other hand, 38 projects, about 19% of the total, scored over 400, indicating that some projects raise strong concerns about their impact on the natural environment.

Table 1. List of Evaluation Indicators and Evaluation Criteria for Each Indicator.

Category	Evaluation Index	Evaluation Criteria	Coefficient
Important birds (A)	Rare birds	Avalability of golden eagle habitat	100
		Avalability of habitats for the Marsh Harrier, the Orange-eared Night Heron, and the Blakiston's Fish Owl	50
		Avalability of habitats for White-tailed Eagles, Mountain Hawk-Eagle, Steller's Sea Eagles, Oriental Storks, and Great Reed Bitterns	30
		Avalability of habitats for red-crowned cranes	20
	Bird Sensitivity Map	Presence of Alert Level A1	200
		Presence of Alert Level A2	150
		Presence of Alert Level A3	100
		Presence of Alert Level B	50
		Presence of Alert Level C	25
	Bird migration routes	Major migration routes for birds of prey (grey-faced buzzards, sea eagles,etc)(within 2 km)	50
		Major migration routes for non-raptors (swans, geese,etc)(within 2km)	25
Important areas for biodiversity (B)	Important areas for biodiversity	Prescense or absence of Important Bird Areas (IBAS)	50
		The prescence or absence of key Biodiversity Areas (KBA)	50
		Prescence or absence of temperate areas (important wetlands) that are important from the perspective of biodiversity	50
		Prescence or absence of Satoyama areas that are important for biodiversity conservation (important Satoyama areas)	50
Important Forest (C)	Protected forest related	Percentage of area of water source conservation forest (%)	1
		Percentage of area of water source conservation forest (e.g., soil runoff prevention forests)(%)	2
	Protected forest	Protected forest, adjacent	200
	Green corridor	Prescence or absence of green corridor	100
Important vegetation (D)	Specific plant communities	Presence or absence of specific plant communities	50
	Natural vegetation (Vegetation naturalness 9,10)	Prescence of natural vegetation	20
		Prescence of natural vegetation (vegetation naturalness 9-10) (Proportion of area with natural vegetation levels of 9 and 10/ Proportion of area with natural vegetation levels 9-10 within the region)	20
Natural Park (E)	Natural park	Is there a national park?	200
		Is there a national park?	100
		Prescence or absence of prefectural natural parks	50
Others	Bat related	Presence or absence of habitats for high-risk bat species	50
		Presence or absence of habitats for bat species other than those at high risk	20

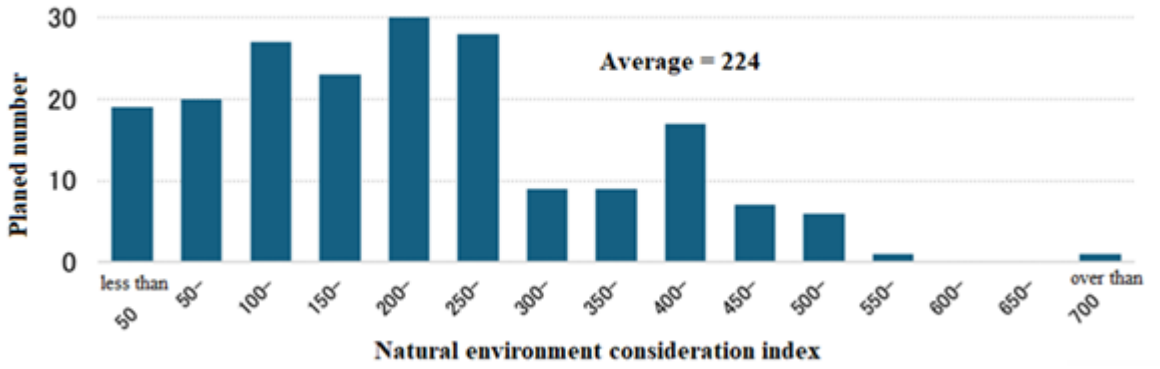

Figure 7. Frequency Distribution of Natural Environment Consideration Index (n=202).

Table 2 shows the top 10 plans lacking consideration for the natural environment. Of these 10, 6 are in the Tohoku region and 3 in Hokkaido. The project ranked first, "Mie Matsusaka Lotus Wind Farm (Renewable Japan Co., Ltd.)" planned in Matsusaka City, Mie Prefecture, includes in its project area habitats of golden eagles, mountain hawk-eagles, potential habitats for golden eagles and mountain hawk-eagles, migratory routes for raptors, Key Biodiversity Areas (KBAs), and specific plant communities. The entire area is planned within a natural park, making it a project that lacks consideration for the natural environment by far in the country. Looking at the top 10 projects by developer, Green Power Investment Corporation has 3 plans in the Tohoku region, Eurus Energy Holdings Corporation has 2 plans in northern Hokkaido, and other developers have one project each.

Table 3 shows the TOP 3-5 projects lacking consideration for the natural environment in each region. For projects ranked 5th and below in Kinki, Chugoku, and Shikoku regions, and 4th and below in the Kyushu region, the natural environment consideration index is below 300 and the standard deviation score is below 60, so they cannot be considered as significantly lacking in consideration for the natural environment. Therefore, we show only up to 4th and 3rd place for these regions respectively.

Table 2. Top 10 of Onshore Wind Power Project Plans
of Particular Concern Regarding Environmental Impact Nationwide.

National (202 items)

Rank	Natural environment consideration index	Deviation value	Latest business name (tentative)	Total output (10,000 kW)	Planning cardinal number	Prefectures	Assessment stage	Main business operator	Target project implementation area	A (bird)	B (biodiversity)	C (forest)	D (vegetation)	E (Nature Park)
1	742	85.9	Mie Matsusaka Ren Wind Farm Power Plant	25.1	60	Mie	Consideration Book	Renewable Japan Co., Ltd.	Matsusaka City, Odai Town, Mie Prefecture	70.3	83.6	53	71.7	74
2	583	74.9	Nishikuji Wind Power Project	43.9	72	Iwate	Consideration Sheet	Invenergy Japan	Iwate Prefecture: Kuji City, Kunohe Village, Kuzumaki Town, and Karumai Town	63.6	64.2	62.8	73.1	60.1
3	542	72	Miyagi and Yamagata Northern Wind Power Generation Project	30	90	Yamagata/Miyagi	Method Manual	Green Power Investment Co., Ltd.	Kami Town and Osaki City, Miyagi Prefecture, Mogami Town and Obanazawa City, Yamagata Prefecture	60.7	44.8	74.3	71.7	60.1
4	532	71.4	Soya District Wind Power Generation Project	100	160	Hokkaido	Method book	Eurus Energy Holdings Corporation	Wakkanai City, Sarufutsu Village, Toyotomi Town, and Horonobe Town in Hokkaido	68.4	64.2	65.4	53.4	46.2
5	525	70.9	Yabukawa District Wind Power Generation Project	23	55	Iwate	Method book	Green Power Investment Co., Ltd.	Morioka City and Iwaizumi Town, Iwate Prefecture	68.4	64.2	58.3	41.8	46.2
6	520	70.5	Morioka Yabukawa Wind Power Project	14	34	Iwate	Consideration letter	Renova Co., Ltd.	Morioka City, Iwate Prefecture	68.4	64.2	57.4	41.8	46.2
7	517	70.3	Fukaura No. 2 Wind Power Project	19	45	Aomori	Method book	Green Power Investment Co., Ltd.	Fukaura Town, Aomori Prefecture	60.7	83.6	57.4	51.3	46.2
8	503	69.4	Wakkanai Tatsunarashiyama Wind Farm	6.5	15	Hokkaido	Method Manual	Oji Green Resources Co., Ltd.	Wakkanai City, Hokkaido	75.1	44.8	53.9	56.8	46.2
9	502	69.3	Soya Hills Wind Power Project	15.6	38	Hokkaido	Preparatory Document	Eurus Energy Holdings Corporation	Wakkanai City, Hokkaido, Sarufutsu Village	68.4	44.8	65.4	57.6	46.2
10	488	68.3	Wind power generation business	1.8	5	Aomori	Methodology	Japan Wind Development Co., Ltd.	Tsugaru City, Aomori Prefecture	63.6	64.2	41.5	51.6	74
National average	224													

Table 3. Onshore Wind Power Project Plans
of Particular Concern Regarding Environmental Impact by Region.

Hokkaido region (42 cases)

Hokkaido (42 cases)

Rank (National Rank)	Natural Environment Index	Deviation Value	Project Name	Total Output (10,000 kW)	Planning Units	Prefecture	Assessment Stage	Main Business Operator	Target Project Implementation Area	A (Island)	B (Biodiversity)	C (Forest)	D (Vegetation)	E (Natural Park)
1 (4)	532	71.4	Soya District Wind Power Generation Project	100	160	Hokkaido	Method Book	Eurus Energy Holdings Corporation	Wakkanai City, Sarufutsu Village, Toyotomi Town, Horonobe Town	68.4	64.2	65.4	53.4	46.2
2 (8)	503	69.4	Wakkanai Tatsunarashiyama Wind Farm	6.5	15	Hokkaido	Method Book	Oji Green Resources Co., Ltd.	Wakkanai City	75.1	44.8	53.9	56.8	46.2
3 (9)	502	69.3	Soya Hills Wind Power Project	15.6	38	Hokkaido	Preparatory Document	Eurus Energy Holdings Corporation	Wakkanai City, Sarufutsu Village	68.4	44.8	65.4	57.6	46.2
4 (14)	461	66.5	Matsumae Town Sappei Wind Farm Project	9.5	22	Hokkaido	Consideration Statement	Eco Power Co., Ltd	Matsumae Town	58.7	44.8	75.2	58.4	46.2
5 (15)	450	65.7	Nukai and Toyota Wind Power Project	12	30	Hokkaido	Consideration Statement	Statement Eurus Energy Holdings Corporation	Wakkanai City, Toyotomi Town	73.2	44.8	43.3	72.5	46.2
Local Average	247													

Tohoku region (65 cases)

Tohoku (65 cases)

Rank (National Rank)	Natural Environment Index	Deviation Value	Project Name	Total Output (10,000 kW)	Planning Units	Prefecture	Assessment Stage	Main Business Operator	Target Project Implementation Area	A (Island)	B (Biodiversity)	C (Forest)	D (Vegetation)	E (Natural Park)
1 (2)	583	74.9	Nishikuji Wind Power Project	43.9	72	Iwate	Consideration Letter	Invenergy Japan	Kuji City, Kunohe Village, Iwate Prefecture	63.6	64.2	62.8	73.1	60.1
2 (3)	542	72	Miyagi and Yamagata Northern Wind Power Generation Project	30	90	Yamagata/Miyagi	Method Manual	Green Power Investment Co., Ltd.	Kuzumaki Town, Karumai Town, Kami Town, Osaki City, Miyagi Prefecture, Mogami Town, Obanazawa City, Yamagata Prefecture	60.7	44.8	74.3	71.7	60.1
3 (5)	525	70.9	Kazukawa District Wind Power Generation Project	23	55	Iwate	Method Book	Green Power Investment Co., Ltd.	Morioka City and Iwaizumi Town, Iwate Prefecture	68.4	64.2	58.3	41.8	46.2
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5 (7)	517	70.3	Fukaura No. 2 Wind Power Project	19	45	Aomori	Method Book	Green Power Investment Co., Ltd.	Fukaura Town, Aomori Prefecture	60.7	83.6	57.4	51.3	46.2
Local Average	256													

Kanto and Chubu region (33 cases)

Kanto/Chubu(33 cases)

Rank (National Rank)	Natural Environment Index	Deviation Value	Project Name	Total Output (10,000 kW)	Planning Units	Prefecture	Assessment Stage	Main Business Operator	Target Project Implementation Area	A (Island)	B (Biodiversity)	C (Forest)	D (Vegetation)	E (Natural Park)
1 (1)	742	85.9	Mie Matsusaka Ren Wind Farm Power Plant	25.1	60	Mie	Consideration Letter	Renewable Japan Co., Ltd.	Matsusaka City, Odai Town, Mie Prefecture	70.3	83.6	53	71.7	74
2 (13)	470	67.1	Yogo Minami Echizen No. 1 and No. 2 Wind Farm Power Generation Project	16.4	39	Fukui and Shiga	Preparations	Green Power Investment Co., Ltd.	Minami Echizen Town, Fukui Prefecture / Nagahama City, Shiga Prefecture	65.5	83.6	48.6	62.2	46.2
3 (16)	450	65.7	Fukui Ono-Ikeda Wind Farm Project	4.7	11	Fukui	Method Book	Electric Power Development Co., Ltd.	Ono City and Ikeda Town, Fukui Prefecture	60.7	83.6	43.3	78.5	46.2
4 (18)	440	65	Niigata Akegawa Wind Power Project	4.7	11	Niigata	Method Book	Tokyu Land Corporation	Sekikawa Village, Niigata Prefecture	60.7	44.8	43.3	41.8	101.8
5 (23)	427	64.1	Wind Farm Power Generation Project	10.5	25	Fukui	Method Book	Green Power Investment Co., Ltd.	Mihama Town, Fukui Prefecture	71.2	44.8	41.5	63.6	46.2
Local Average	221													

Kinki, Shikoku, and Chugoku region (32 cases)

Kinki, Chugoku (32 cases)

Rank (National Rank)	Natural Environment Index	Deviation Value	Project Name	Total Output (10,000 kW)	Planning Units	Prefecture	Assessment Stage	Main Business Operator	Target Project Implementation Area	A (Island)	B (Biodiversity)	C (Forest)	D (Vegetation)	E (Natural Park)
1 (13)	470	67.1	Yogo Minami Echizen No. 1 and No. 2 Wind Farm Power Generation Project	16.4	39	Fukui and Shiga	Preparations	Green Power Investment Co., Ltd.	Minami Echizen Town, Fukui Prefecture / Nagahama City, Shiga Prefecture	65.5	83.6	48.6	62.2	46.2
2 (20)	435	64.3	Sanjusangendo Mountain Wind Power Project	10.4	17	Shiga	Method Book	Japan Wind Engineering Co., Ltd.	Takashima City, Shiga Prefecture	71.2	44.8	58.3	41.8	46.2
3 (22)	428	63.9	JRE Kagamino Wind Power Project	9.2	25	Okayama	Method Book	Renewable Energy Corporation	Kagamino Town, Okayama Prefecture	60.7	44.8	58.3	62.7	46.2
4 (32)	410	62.6	Western Tottori Wind Power Generation Project	14.4	32	Tottori	Method Book	Vena Energy Japan Co., Ltd.	Tottori Prefecture: Hoki Town, Kofu Town, Hino Town, and Nanbu Town	60.7	64.2	46.8	62.2	60.1
Local Average	181													

Table 3. Onshore Wind Power Project Plans
of Particular Concern Regarding Environmental Impact by Region (continued).

Kyushu region (30 cases)

Kyushu (30 cases)														
Rank (National Rank)	Natural Environment Index	Deviation Value	Project Name	Total Output (10,000 kW)	Planning Units	Prefecture	Assessment Stage	Main Business Operator	Target Project Implementation Area	A (Island)	B (Biodiversity)	C (Forest)	D (Vegetation)	E (Natural Park)
1 (12)	480	67.8	Rokuro Tatedake Wind Power Project	5.2	12	Kagoshima	Methodology	ENEOS Renewable Energy Corporation	Kimotsuki Town and Kinko Town, Kagoshima Prefecture	48.6	44.8	94.6	61.2	46.2
2 (24)	421	64.1	Tarumi Wind Power Project	19.2	39	Kagoshima	Method Book	Eurus Energy Holdings Corporation	Tarumizu City, Kanoya City, Kagoshima Prefecture Kirishima City	48.6	44.8	43.3	83.8	46.2
3 (31)	411	63	generation project in Imari City	3.4	10	Saga	Consideration Letter	Cosmo Eco Power Co., Ltd.	Imari City, Saga Prefecture	51	64.2	59.2	72.6	60.1
Local Average	117													

5-3. Differences in Environmental Consideration by Businesses

- Significant differences in the level of environmental consideration among businesses.
- While some businesses show progress in environmental consideration, others exhibit a declining trend.
- Each business displayed unique characteristics in the neglected aspects of environmental consideration.

Next, we focused on differences in environmental considerations among the major businesses within the industry. We analyzed the situation regarding environmental considerations among the top 10 businesses with the most wind power projects planned. These top 10 businesses account for about 60% of all plans, with a total of 221 out of 373 projects.

5-3-1. Environmental Consideration by Businesses

To visually compare the level of environmental consideration among businesses, especially the top 10 businesses with the most plans, we calculated the deviation values for each business regarding the inclusion of Habitats for Important Bird Species(A), Areas Important for Biodiversity (B), Important Forests (C), Important Vegetation (D), and Natural Parks (E). We then averaged these values for each business and displayed them using radar charts (Figures 8 to 10). A higher deviation value indicates less consideration, so the chart scales inward for higher values and outward for lower values, representing better environmental consideration.

From these charts, we can see the overall environmental impact and consideration throughout all plans (Figure 8), the current environmental impact of those in operation and under construction (Figure 9), and the improvement in consideration of those under assessment (Figure 10).

Figure 8 shows the environmental impact and consideration for all wind power projects, from operational to under assessment, for each business.

The largest radar chart was for HSE Ltd., which shows above-average consideration in all aspects among the top 10, making it the business with the most environmental consideration. Following that, ENEOS Renewable Energy Corporation, Japan Wind Development Co., Ltd, and Vena Energy Holdings Ltd. had slightly higher deviation values in one or two areas, but the differences were minimal, indicating a well-balanced approach to environmental consideration.

In contrast, Cosmo Eco Power Co., Ltd. and Green Power Investment Corp. had higher deviation values in all five or four aspects, indicating less environmental consideration compared to other businesses. Notably, Cosmo Eco Power Co., Ltd. had many plans in Areas Important for Biodiversity (B) like KBA and Important Forests (C), including protected forests, while Green Power Investment Corp. had many plans in Habitats for Important Bird Species (A) such as habitats of Golden eagle, and Important Forests (C) including Green corridor.

Other businesses with distinct characteristics include Eurus Energy Holdings Corporation, which had many plans in Habitats for Important Bird Species (A), Tokyu Fudosan Holdings Corporation, which had many plans in Natural Parks (E), and JR-EAST Energy Development Co., Ltd., which had many plans in Important Forests (C) including soil run-off prevention forests. In fact, bird strikes by white-tailed and Steller's sea eagles have been frequent at the wind farms of Eurus Energy Holdings Corporation in the northern Hokkaido region, which operate in many “Important Bird Species (A)” habitats, and the situation is very alarming.

Figure 8. Environmental Consideration Status by Company
for All Operational and Under-Assessment Wind Power Projects.

In this chart, higher deviation values indicate a lack of environmental consideration, so the chart scales inward as the values increase. The smaller the chart, the more projects lacking environmental consideration in each category. Conversely, the larger the chart, the more projects demonstrate a higher level of environmental consideration across the various categories.

Figure 9 illustrates the environmental considerations of projects in operation and under construction projects by company. Of the top ten companies, two were excluded from the analysis as they had three or fewer projects either in operation or under construction. This figure allows us to observe the environmental impacts of projects that are currently in operation or have completed environmental impact assessment procedures and are planned for future construction.

None of the companies demonstrated above-average environmental considerations across all five categories. However, ENEOS Renewable Energy Corporation, Cosmo Eco Power Co., Ltd., and HSE Ltd. were identified as companies that generally maintain average levels of environmental consideration. On the other hand, Eurus Energy Holdings Corporation and JR-EAST Energy Development Co., Ltd. performed better than average in four categories, though Eurus Energy Holdings Corporation showed significantly poor consideration in the " Habitats for Important Bird Species (A)" category, while JR-EAST Energy Development Co., Ltd. exhibited slightly poor performance in the " Important Forests (C)" category.

In contrast, Green Power Investment Corporation demonstrated below-average consideration in four categories other than " Important Vegetation (D)" related to natural forests. It notably lacks consideration for "Habitats for Important Bird Species (A)," such as golden eagles and mountain hawk-eagles. Additionally, Japan Wind Development Co., Ltd.'s projects are located in "Areas Important for Biodiversity (B)," while Electric Power Development Co., Ltd. operates projects in national parks, resulting in poor environmental consideration in the " Natural Parks (E)" category compared to other companies.

In this chart, higher deviation values indicate a lack of environmental consideration. Therefore, the chart scales inward as the values increase. The smaller the chart, the more projects lack environmental consideration in each category. Conversely, the larger the chart, the more projects demonstrate a higher level of environmental consideration across the various categories.

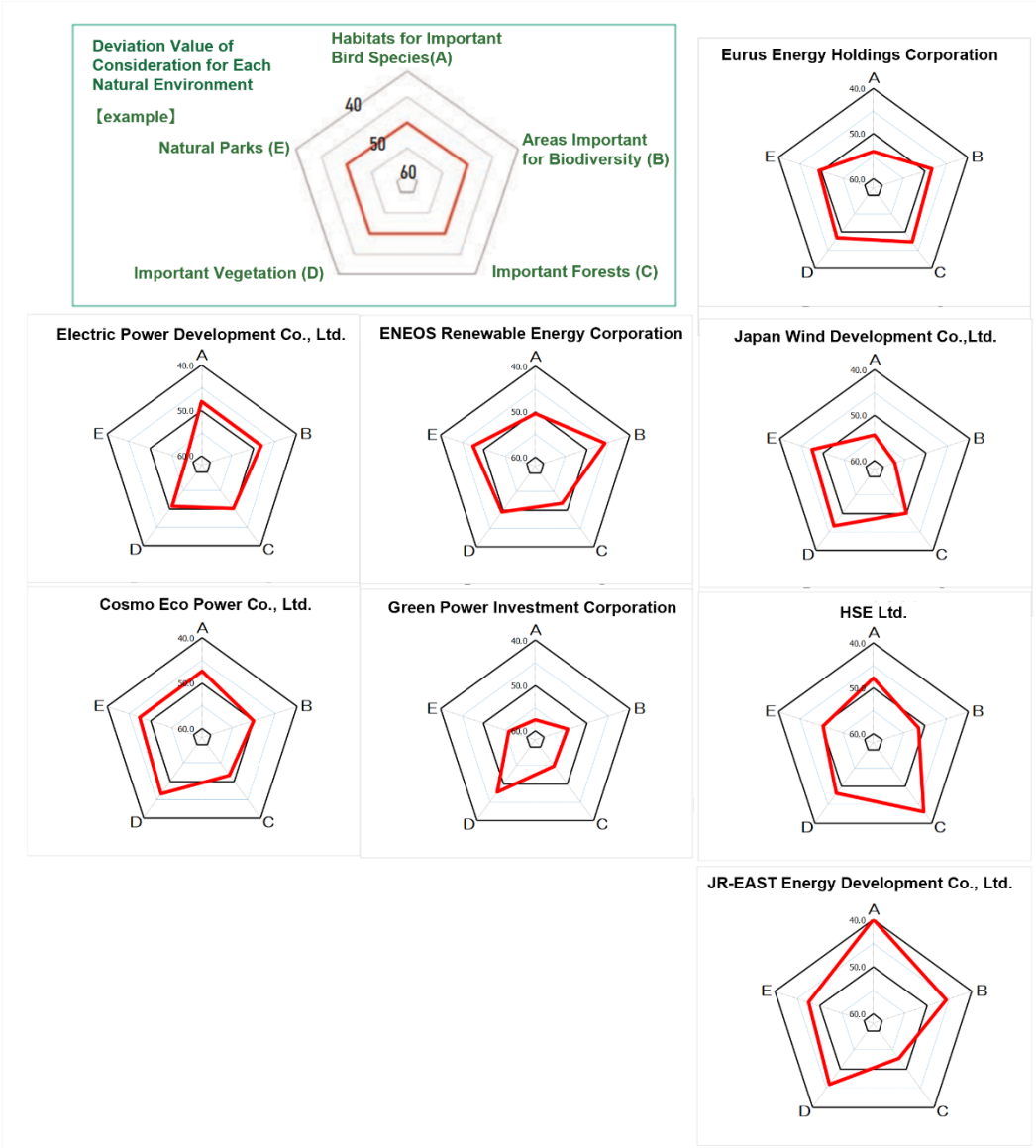

Figure 9. Environmental Consideration Status by Company for Operating and Under-Construction Projects.

Next, Figure 10 illustrates the status of environmental considerations for projects that are currently undergoing assessment procedures. Some of these projects have not advanced to the next stage of the process for over 10 years. Furthermore, before 2017, the information provided by the Ministry of the Environment's EADAS system was not comprehensive, meaning that developers may not have had a full understanding of the natural environment at the project site. Therefore, this analysis focuses on projects that began the assessment procedure after the formal launch of EADAS in 2018.

Among the top ten companies, HSE Ltd. is the only one that consistently demonstrated balanced environmental consideration across all five categories, with deviation scores generally below 50. Following HSE Ltd., Electric Power Development Co., Ltd., ENEOS Renewable Energy Corporation, Japan Wind Development Co., Ltd., and Vena Energy Holdings Ltd. showed mostly average environmental consideration, although some categories exceeded a deviation score of 50.

Figure 10. Environmental Consideration Status by Company
for Projects Under Assessment (Ongoing Since 2018).

In this chart, higher deviation values indicate a lack of environmental consideration. Therefore, the chart scales inward as the values increase. The smaller the chart, the more projects lack environmental consideration in each category, while the larger the chart, the more projects demonstrate a higher level of environmental consideration.

On the other hand, two companies—Green Power Investment Corporation and Eurus Energy Holdings Corporation—stand out for their significant lack of environmental consideration. Green Power Investment Corporation falls below average in four categories other than "Natural Parks (E)," particularly in " Important Forests (C)," where it has more projects compared to other companies, resulting in an overall smaller chart size. Eurus Energy Holdings Corporation, meanwhile, has many

projects that strongly impact " Important Vegetation (D)," such as natural forests, and lacks consideration for " Habitats for Important Bird Species (A)" and " Important Forests (C)," putting it alongside Green Power Investment Corporation as a company with many projects lacking environmental consideration.

Similarly, Cosmo Eco Power Co., Ltd. mirrors Green Power Investment Corporation in falling below average in four categories other than " Natural Parks (E)," making it another company with many projects that lack environmental consideration. Additionally, while Tokyu Fudosan Holdings Corporation generally shows environmental consideration, it falls significantly below average in the " Natural Parks (E)" category. JR-EAST Energy Development Co., Ltd. also has many projects lacking consideration in the " Important Forests (C)" and " Important Vegetation (D)" categories.

Finally, comparing the environmental consideration status of projects in operation and under construction (Figure 9) with that of projects under assessment (Figure 10) allows us to observe whether companies have shown improvement in their environmental considerations in recent years. HSE Ltd. stands out as a company that has clearly improved its environmental consideration, with smaller deviation scores in four categories. HSE Ltd. has already shown greater environmental consideration in operation and under-construction projects than other companies, and this has further improved. Electric Power Development Co., Ltd. and Japan Wind Development Co., Ltd. also show more improvements than declines across the categories, indicating overall progress in environmental consideration.

On the other hand, Eurus Energy Holdings Corporation, Cosmo Eco Power Co., Ltd., and JR-EAST Energy Development Co., Ltd. have shown a noticeable increase in projects lacking environmental consideration, especially in " Important Forests (C)" and " Important Vegetation (D)," such as green corridors and protected forests.

Green Power Investment Corporation, which already lacked environmental consideration in its projects in operation and under-construction, has shown slight improvement in its projects under assessment. However, it still has more projects that lack environmental consideration than other companies.

5-4. Transparency of the Assessment Procedure

- Only 14% of assessment documents are continuously made available to the public.
- After the increase in size requirements for wind power plants subject to the Environmental Impact Assessment Law, there has been a sharp rise in plans that do not submit documents on primary environmental impact consideration.

Under the EIA Law in Japan, businesses are required to make environmental impact assessment documents available for public inspection and announcement for a designated period, typically ranging from one to one and a half months. However, in many cases, these documents become inaccessible after the mandatory public inspection or announcement period has passed. This often results in situations where stakeholders miss the inspection period and are unable to view the environmental impact assessment documents.

The EIA system aims to publish the findings of investigations, predictions, and evaluations to gather opinions from various stakeholders. These opinions are then used to create better project plans from an environmental protection perspective. To achieve this goal, it is essential to share predictions and evaluations of the project's impact with a wide range of interested parties, allowing for consensus-building. Thus, EIA documents should be accessible not only during the mandatory publication period but also continuously, ensuring that anyone can access the information at any time.

5-4-1. Continuous Availability of Environmental Impact Assessment Documents

Figure 11 illustrates the continuous availability of EIA documents issued since 2018. The percentage of documents available continuously is extremely low, ranging from 12% to 14% for most years. While 2023 saw an increase, with 27% of documents being continuously available, this percentage dropped to 14% again by 2024 (as of June publications).

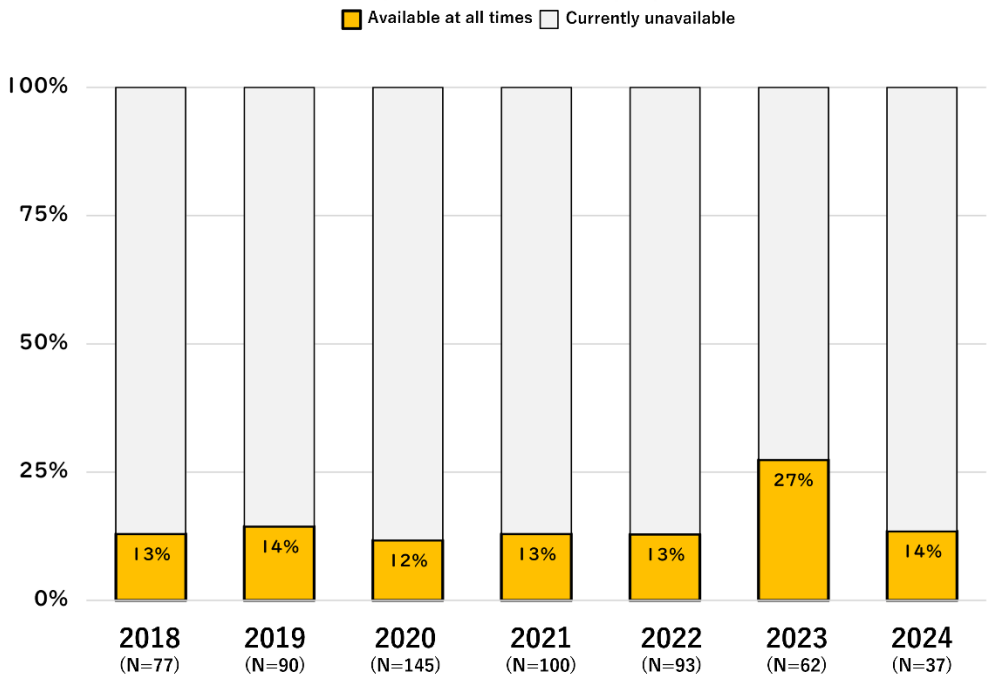

Figure 11. Decrease of the Availability of Environmental Impact Assessment Reports over Time.

Figure 12 shows the availability of the latest EIA documents of the top ten corporations with the most projects in operation. Of these, Vena Energy Japan Ltd.. had EIA documents for all 12 working projects available at all times. Cosmo Eco Power Ltd. follows with EIA documents available at all times for approximately 54% of its projects. The EIA documents that were not disclosed are relatively old projects for which the assessment procedure has not been carried out since 2018. For recent projects, the documents are always available to the public. Eurus Energy Holdings Ltd. has made EIA documents published since April of last year publicly available, but these only account for 11% of the total number of projects. The other seven companies surveyed did not have any EIA documents available to the public after the end of the public inspection period.

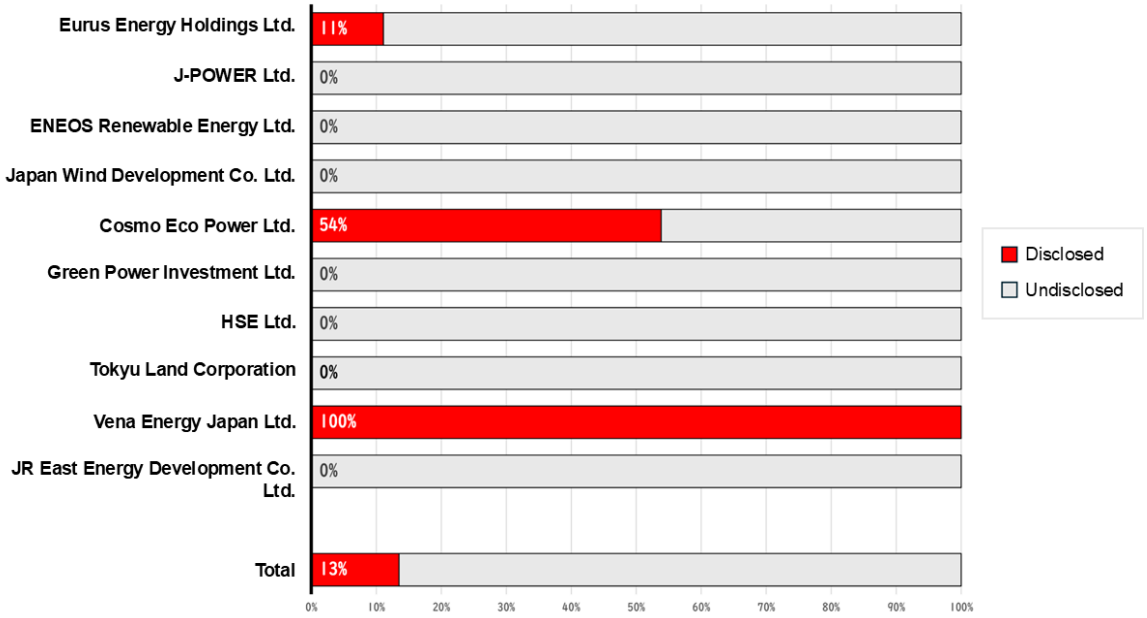

Figure 12. Status of the Availability of Environmental Impact Assessment Reports per Corporation (as of June, 2024).

5-4-2. Increase of "Document on Primary Environmental Impact Consideration Evasion"

In 2011, the requirement for a "Document on primary environmental impact consideration" was newly established in the legal assessment process. It calls for the presentation of multiple proposals even before the first step in the existing EIA procedure, the Method Statement, in order to ensure environmental considerations at an early stage of projects. Although the Document on primary environmental impact consideration was originally intended to ensure that the environmental impacts of a project are taken into account, recent changes in the projects subject to assessment have shown that there have been many cases of "Document on Primary Environmental Impact Consideration Evasion," in which the Document on Primary Environmental Impact Consideration procedure is omitted and the EIA procedure is completed as fast as possible.

The legal assessment process is divided into two categories according to the scale of the project: Type 1 projects, which must always go through the EIA procedure, including the Document on Primary Environmental Impact Consideration, and Type 2 projects, where it is decided on a case-by-case basis (screening) whether to carry out the EIA procedure. The second type of project involves individual screening to determine whether or not the EIA will actually be carried out. The minimum project scale for Type 2 projects is set at three-quarters of the scale of Type 1 projects. Some prefectures require a bylaw assessment even for projects smaller than Type 2 projects. While some prefectures have mandated a Document on Primary Environmental Impact Consideration in their bylaw assessment, half of the prefectures still do not have this requirement. In addition, when a project becomes a Type 2 project, the submission of the Document on Primary Environmental Impact Consideration that is required for Type 1 projects becomes optional (Fig. 13).

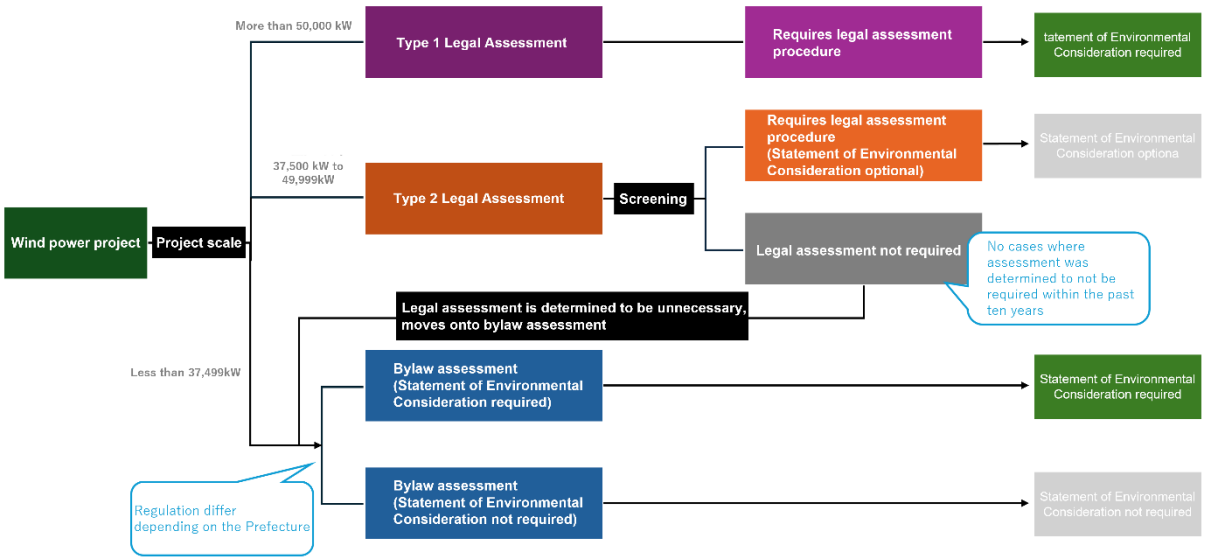

Figure 13. Flowchart of Wind Power Generation Projects with and without Document on Primary Environmental Impact Consideration.

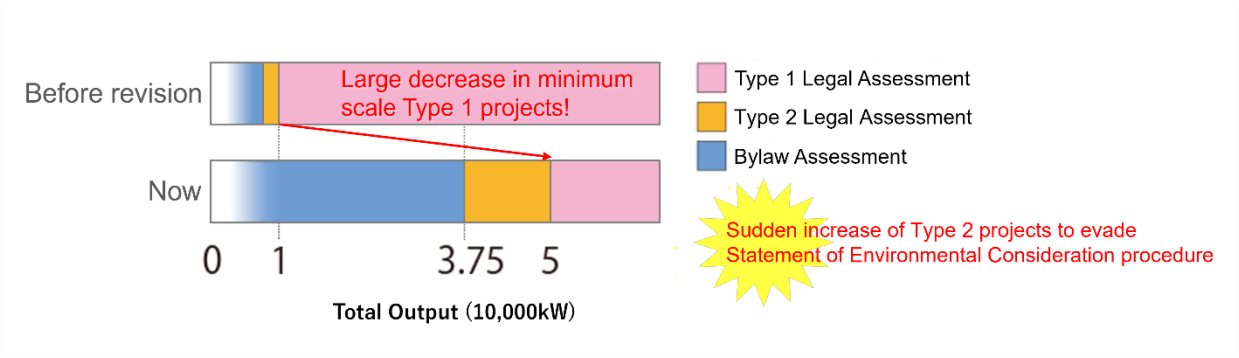

Figure 14. Increased Size Requirements for Wind Power Projects in Legal EIA.

From October 2021, the scale of wind power projects subject to legal assessment will be increased from 10,000 kW or more to 50,000 kW or more for Type 1 projects and from 7,500 kW or more to 37,500 kW or more for Type 2 projects (Fig. 14).

Around this time, the number of Type 2 projects subject to legal assessment increased rapidly (Fig. 15). In Type 2 projects, if the screening results show that the project is not subject to the legal assessment procedure, a bylaw assessment imposed by the local government is to be carried out. However, in the past decade, there has not been a single case of screening in wind power projects where the legal assessment procedure was not carried out. Based on these facts, in prefectures that impose a Document on Primary Environmental Impact Consideration in the bylaw assessment (Hokkaido, Aichi, and other prefectures, see Table 4), a Document on Primary Environmental Impact Consideration is required for Type 1 legal assessment projects with a project size of 50,000 kW or more and for Type 2 subject to bylaw assessment with a project size of less than 37,400 kW. Hence, the number of projects (with a project size of between 37,500 and 49,900 million kW) where the submission of a Document on Primary Environmental Impact Consideration is optional may have increased.

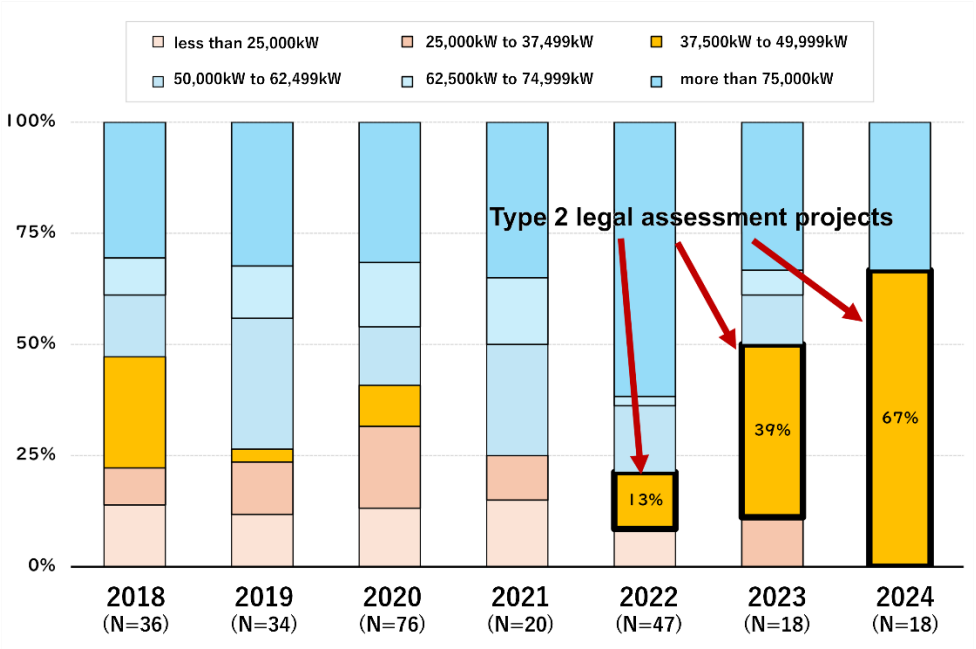

Figure 15. Yearly Change in the Size of Wind Power Projects.

In fact, 18 wind power projects had started EIA procedures by the end of July 2024. Of these, two-thirds, or 12 projects, were Type 2 projects under legal assessment, and in all of them, the Document on Primary Environmental Impact Consideration has not been completed (Table 5). These 12 wind power projects include projects that almost entirely encompass Prefectural nature parks and are important migration routes for raptors. Furthermore, there are also projects that are next to protected forests of the Forestry Agency, as well as other projects of natural environmental concern. It is to be noted that of 6 of the 12 projects, the main operator is Japan Wind Development Co. Ltd., and the Japan Weather Association prepared the EIA documents for 11 of the projects.

The Minister of the Environment can give their opinions on the Document on Primary Environmental Impact Consideration, but there is no opinion from the Minister of the Environment on the Method Statement. This means that there is no opinion from the Minister of the Environment until the preparation document after the survey has been carried out, which entails the possibility that appropriate advice may not be given on the natural environment before the survey.

The absence of a Document on the Primary Environmental Impact Consideration procedure saves money and effort for the operators and shortens the time of the assessment procedure, but the original purpose of the EIA - an opportunity for communication to improve the project - is lost. These procedural loopholes should be improved.

Table 4. Bylaw Assessment Situation based on Prefecture Minimum Scale.
Values within parentheses are cases that include important areas such as National Parks.
Status of disclosure: ◎Assessment report summary available, ○Past projects reports also available, △Only project assessments currently being processed available.

	Submission of Statement of Environmental Consideration	Wind power project minimum scale for by law assessment (Type 1 project)	Status of availability of past project assessment reports
Hokkaido	○	10,000kW	○
Aomori	×	10,000kW	○
Iwate	×	7,500kW	○
Miyagi	×	7,500kW	○
Akita	×	10,000kW (7,500kW)	○
Yamagata	○	37,500kW (25,000kW)	○
Fukushima	×	7,000kW	○
Ibaraki	×	7,500kW	○
Tochigi	×	not subject to the Assessment procedure	×
Gunma	×	not subject to the Assessment procedure	○
Saitama	○	not subject to the Assessment procedure (20ha)	○
Chiba	○	7,500kW	○
Tokyo	○	not subject to the Assessment procedure	○
Kanagawa	○	5,000kW (500kW)	○
Niigata	×	not subject to the Assessment procedure	○
Toyama	×	not subject to the Assessment procedure	○
Ishikawa	○	10,000kW	○
Fukui	○	7,500kW	○
Yamanashi	×	7,500kW	○
Nagano	○	5,000kW (500kW)	◎
Gifu	×	1,500kW	○
Shizuoka	×	7,500kW	○
Aichi	○	7,500kW	○
Mie	×	7,500kW	○
Shiga	○	1,500kW	○
Kyoto	○	1,500kW	○
Osaka	×	not subject to the Assessment procedure	○
Hyogo	○	1,500kW (500kW)	○
Nara	○	not subject to the Assessment procedure	○
Wakayama	×	7,500kW	○
Tottori	○	1,500kW	○
Shimane	○	5,000kW	○
Okayama	×	1,500kW (750kW)	×
Hiroshima	×	5,000kW	○
Yamaguchi	○	10,000kW	○
Tokushima	○	7,500kW	○
Kagawa	○	5,000kW	△
Ehime	×	5,000kW	○
Kochi	×	10,000kW	○
Fukuoka	○	5,000kW	○
Saga	○	3,500kW	×
Nagasaki	○	7,500kW or 10 wind turbines	○
Kumamoto	○	not subject to the Assessment procedure (5,000kW)	○
Oita	○	7,500kW	○
Miyazaki	×	5,000kW	△
Kagoshima	×	7,500kW	△
Okinawa	○	1,500kW (750kW)	○

Table 5. Wind Power Projects that were Determined to be Type 2 Projects Subject to Legal Assessment in January-July 2024.

Assessment procedure start date	Current project name (tentative)	Total output (10,000 kW)	Planned no. of turbines	Prefecture	Assessment stage	Main operator	Project target area	Report authorship	Availability of assessment report	Comments
2024/2/20	Higashi-dōri Shiranuka wind power project	4.62	11	Aomori	Scoping Doc.	Okayama Co. Ltd.	青森県東通村	Japan Weather Association	×	White-tailed eagle, Steller's sea eagle habitat
2024/2/29	Shiriuchi wind power project	4.8	12	Hokkaido	Scoping Doc.	Japan Wind Development Co. Ltd.	北海道知内町	Japan Weather Association	×	Next to protected forest, Hodgson's hawk eagle habitat
2024/2/29	Assabu wind power project	4.8	12	Hokkaido	Scoping Doc.	Japan Wind Development Co. Ltd.	北海道厚沢部町	Japan Weather Association	×	
2024/3/14	Morimachi wind power project	4.8	12	Hokkaido	Scoping Doc.	Japan Wind Development Co. Ltd.	北海道森町	Japan Weather Association	×	Specific plant community
2024/3/19	Tokushima Naruto wind power project	3.87	9	Tokushimai	Scoping Doc.	Tokyu Land Co. Ltd.	徳島県鳴門市	Japan Weather Association	×	Grey-faced buzzard, common buzzard and crested honey buzzard migration route, almost entirety is a prefectural nature park, specific plant community
2024/3/26	Kikonai wind power project	4.8	12	Hokkaido	Scoping Doc.	Japan Wind Development Co. Ltd.	北海道木古内町、上ノ国町	Japan Weather Association	×	
2024/3/28	Oshamanbe wind power project	4.8	12	Hokkaido	Scoping Doc.	Japan Wind Development Co. Ltd.	北海道長万部町	Japan Weather Association		
2024/4/2	Shimokita Seibu wind power project	4.2	10	Aomori	Scoping Doc.	Mori Building Co. Ltd.	青森県佐井村、むつ市	Japan Weather Association	×	Common buzzard, Bewick's swan, sea eagle species migration route
2024/4/23	Niyama Plateau wind power project	3.87	9	Hokkaido	Scoping Doc.	JR East Energy Development Co. Ltd.	北海道七飯町、北斗市	Japan Weather Association		White-tailed eagle, hawk eagle habitat, specific plant community, part of a National Park
2024/5/17	Engaru wind farm project	4.8	12	Hokkaido	Scoping Doc.	NCD Co. Ltd.	北海道遠軽町	Japan Weather Association	×	White-tailed eagle, hawk eagle, Steller's sea eagle habitat
2024/7/5	Oga Iriai wind power project	4.62	11	Akita	Scoping Doc.	Japan Wind Development Co. Ltd.	秋田県男鹿市	Japan Weather Association		
2024/7/31	Esa no. 1 wind power project	3.78	9	Hokkaido	Scoping Doc.	Sym Energy Co. Ltd.	北海道江差町	Environmental Control Center	Currently under public inspection	

6. Future challenges and Recommendations

6-1. Operators must formulate business plans with a focus on biodiversity conservation

The current analysis indicates that the wind power projects presently under assessment tend to exhibit greater consideration for the habitats of rare raptors compared to those that are either in operation or under construction. However, despite these environmental considerations, two-thirds of the proposed projects are still located within the habitats of rare raptors, suggesting that these efforts remain insufficient. Moreover, there are over 200 projects under assessment, which is 3 to 4 times the number of wind power plants in operation. Consequently, there is growing concern about the cumulative environmental impact of the significant increase in wind power installations in addition to those already in operation. Furthermore, wind turbine sizes have approximately doubled over the past decade, heightening the risk of bird strikes.

Some developers have publicly stated, through media outlets, that it has become increasingly difficult to secure appropriate sites, making it more challenging to account for the natural environment. Nevertheless, the analysis reveals that certain developers are attempting to plan projects in locations with greater environmental consideration than in the past. As a result, there is now a noticeable divergence among developers regarding the degree of environmental consideration in their planning processes.

At the international level, there is a pressing demand to realize a "Nature Positive," which seeks to halt biodiversity loss and promote ecosystem restoration. The large-scale deployment of onshore wind power, which can result in irreversible and substantial damage to natural ecosystems, reverses these global objectives. To advance genuinely sustainable renewable energy, it is imperative to prioritize the conservation of natural ecosystems and develop project plans that place greater emphasis on biodiversity conservation in the future.

6-2. Operators must provide transparent and detailed disclosures regarding their environmental impact assessment information

Environmental impact assessments are procedures conducted to investigate, predict, and evaluate the potential impacts of human activities, such as projects that could significantly affect the environment, to ensure environmental consideration. In the process of these procedures, it is essential to share information broadly among stakeholders and establish consensus through deliberation. However, despite these requirements, more than 80% of EIA documents are not publicly available at all times, and plans have been a sharp increase that bypasses the process of the Document on Primary Environmental Impact Considerations. This suggests that efforts to improve projects through the environmental impact assessment system are being neglected.

Developers should enhance the transparency of their projects, ensure that information is accessible to everyone, and demonstrate commitment to improving their projects for the benefit of the environment.

6-3. The government should establish a framework for optimizing land use

To appropriately guide private sector projects, the government should establish a framework that promotes optimal site selection for wind power projects.

In response to the 2020 Cabinet Office's "Task Force on Comprehensive Review of Regulations Related to Renewable Energy," the threshold for projects subject to EIA under the Environmental Impact Assessment Act was raised from 10 MW to 50 MW for onshore wind power projects. As a result, some onshore wind power projects with environmental concerns have been bypassing the Document on Primary Environmental Impact Consideration stage during the planning process. Given that the environmental impacts of onshore wind power projects are more significantly influenced by location than by the scale of the generating equipment, there is a pressing need to revise the Environmental Impact Assessment Act to better account for the characteristics of the natural environment.

6-4. Stakeholders and consumers in various industries should be more attentive to the impact of renewable energy on the natural environment

Internationally, the critical role of corporations in mitigating climate change has been underscored, with frameworks such as the Task Force on Climate-related Financial Disclosures (TCFD) emphasizing the necessity for transparency and disclosure regarding decarbonization efforts. As a result, it is increasingly essential for companies to advance their procurement of electricity from renewable energy sources.

Moreover, with the release of version 1.0 of the Task Force on Nature-related Financial Disclosures (TNFD) in 2023, there is a growing expectation for companies to disclose and ensure transparency about risks and opportunities related to the natural environment. Even for companies across various industries, sourcing electricity from renewable energy facilities that inadequately address environmental concerns can significantly undermine biodiversity efforts, leading to an assessment of unsustainability despite claims of decarbonization.

It is crucial that not only entities involved in power generation but also society as a whole critically evaluate, from multiple perspectives, whether their decarbonization efforts are causing detrimental impacts on ecosystems and biodiversity. Such an examination is necessary to ensure the advancement of genuinely sustainable decarbonization practices.

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Appendix 1. Major Stakeholder Responses

	Limited Liability Company	Main business operators
1	Dohoku Energy Co., Ltd.	Eurus Energy Holdings Corporation
2	Eurus Energy Holdings Corporation	Eurus Energy Holdings Corporation
3	Dohoku Wind Power LLC	Eurus Energy Holdings Corporation
4	Electric Power Development Co., Ltd.	Electric Power Development Co., Ltd.
5	J-Wind Kaminokuni Co., Ltd.	Electric Power Development Co., Ltd.
6	J-Wind Co., Ltd.	Electric Power Development Co., Ltd.
7	Esashi Wind Power Co., Ltd.	Electric Power Development Co., Ltd.
8	ENEOS Renewable Energy Corporation	ENEOS Renewable Energy Corporation
9	Japan Renewable Energy Corporation	ENEOS Renewable Energy Corporation
10	JRE Yahadake LLC	ENEOS Renewable Energy Corporation
11	Azuma Highland Wind Farm LLC	ENEOS Renewable Energy Corporation
12	JRE Shin-Sakata Wind Power LLC	ENEOS Renewable Energy Corporation
13	JRE Tsuruoka Hachimoriyama LLC	ENEOS Renewable Energy Corporation
14	JRE Miyagi Kami LLC	ENEOS Renewable Energy Corporation
15	JRE Second Central Kyushu Wind Power LLC	ENEOS Renewable Energy Corporation
16	Japan Wind Development Co., Ltd.	Japan Wind Development Co., Ltd.
17	Noheji Wind Power Development Co., Ltd.	Japan Wind Development Co., Ltd.
18	Mitsumori Wind Power Development Co., Ltd.	Japan Wind Development Co., Ltd.
19	Towada Wind Power Development Co., Ltd.	Japan Wind Development Co., Ltd.
20	Hibaridaira Wind Power Development Co., Ltd.	Japan Wind Development Co., Ltd.
21	Atsumi Wind Power Development Co., Ltd.	Japan Wind Development Co., Ltd.
22	Hirono Wind Power Development Co., Ltd.	Japan Wind Development Co., Ltd.
23	Suzu Wind Power Development Co., Ltd.	Japan Wind Development Co., Ltd.
24	Shiriuchi Wind Power Development Co., Ltd.	Japan Wind Development Co., Ltd.
25	Mori Wind Power Development Co., Ltd.	Japan Wind Development Co., Ltd.
26	Kikonai Wind Power Development Co., Ltd.	Japan Wind Development Co., Ltd.
27	Oshamanbe Wind Power Development Co., Ltd.	Japan Wind Development Co., Ltd.
28	Cosmo Eco Power Co., Ltd.	Cosmo Eco Power Co., Ltd.
29	Eco Power Co., Ltd.	Cosmo Eco Power Co., Ltd.
30	Abukuma South Wind Power Generation LLC	Cosmo Eco Power Co., Ltd.
31	Green Power Investment Corporation	Green Power Investment Corporation
32	Green Power Fukaura LLC	Green Power Investment Corporation
33	Green Power Sumita Tono LLC	Green Power Investment Corporation
34	HSE Ltd.	HSE Ltd.
35	Hitachi Sustainable Energy Co., Ltd.	HSE Ltd.
36	Nomaoi Sustainergy Co., Ltd.	HSE Ltd.
37	Nanatsugashuku Shiraishi Wind Power Generation Co., Ltd.	HSE Ltd.
38	Tokyu Land Corporation	Tokyu Land Corporation
39	Japan Wind Energy Co., Ltd.	Veena Energy Japan
40	Nimaida Wind Power LLC	Veena Energy Japan
41	NWE-09 Investment LLC	Veena Energy Japan
42	Karatsu Wind Power LLC	Veena Energy Japan
43	JR East Energy Development Co., Ltd.	JR East Energy Development Co., Ltd.
44	Sendai Reconstruction Energy LLC	JR East Energy Development Co., Ltd.
45	Iwaki Kagurayama Reconstruction Energy LLC	JR East Energy Development Co., Ltd.

Appendix 2. Corporate Information of Major Business Entities (As of July 2024)

Number	Corporate name	Principal shareholder	Group company, Subsidiary, Associated company	Remarks
44	Eurus Energy Holdings Corporation	• Toyota Tsusho 100%	Eurus Technical Services Co., Ltd., Hokkaido North Power Transmission Co., Ltd. (Head Office), Eurus Green Energy Co., Ltd., U-Court LLC (Tokyo, Sapporo)	
31	Electric Power Development Co., Ltd.	• The Master Trust Bank of Japan, Ltd. 13.2% • Custody Bank of Japan, Ltd. 5.19% • Nippon Life Insurance Company. 5.00%	Electric Power Transmission Network Co., Ltd., J-POWER Business Services Co., Ltd., J-POWER High Tech Co., Ltd., J-POWER Generation Services Co., Ltd., J-POWER Telecommunications Services Co., Ltd., J-POWER Design Consultants Co., Ltd., J-Power Entec Co., Ltd., Fertilizer Co., Ltd.	
30	ENEOS Renewable Energy Corporation	• ENEOS Holdings, Inc. • Sumitomo Mitsui Banking Corporation	ENEOS Renewable Energy Management Co., Ltd., ENEOS Renewable Energy Solutions Co., Ltd., EcoGreen Holdings Co., Ltd.	On April 1, 2023, Japan Renewable Energy Co., Ltd. (JRE) underwent an absorption-type split.
23	Japan Wind Development Co., Ltd.	• Infronia Holdings, Inc.	EOS Engineering & Services Co., Ltd., EOS Energy Management Co., Ltd.	Infronia Holdings, Inc. not only has Japan Wind Development Co., Ltd. as a subsidiary but also owns Maeda Corporation, Maeda Road Construction Co., Ltd., and Maeda Manufacturing Co., Ltd. as subsidiaries.
21	HSE Ltd.	• Mitsubishi HC Capital, Inc. 85.1% • Hitachi Power Solutions, Ltd. 14.9%	Kuroshio Wind Power Co., Ltd., Fuso Wind Power Co., Ltd., Wind Power Co., Ltd., Yoneshiro River Power Generation Co., Ltd., Ugo Wind Power Co., Ltd., Akita Kunimi Mountain Wind Power Co., Ltd., Yokohama Wind Power Co., Ltd., Wind Power Co., Ltd., Minamisoma Sustainability Co., Ltd., Tsugaru Wind Power Co., Ltd.	
18	Green Power Investment Corporation	• NTT Anode Energy Corporation. 80% • JERA Co., Inc. 20%		NTT Anode Energy Corporation is 100% owned by Nippon Telegraph and Telephone Corporation (NTT), while JERA Co., Inc. is equally owned by Tokyo Electric Power Fuel & Power Inc. (50%) and Chubu Electric Power Co., Inc. (50%).
18	Cosmo Eco Power Co., Ltd.	• Cosmo Energy Holdings Co., Ltd.	Ikata EcoPark Co., Ltd., Akita Wind Power Research Institute Co., Ltd.	On July 1, 2019, the company changed its name from EcoPower Co., Ltd..
12	JR East Energy Development Co., Ltd.	• East Japan Railway Company (JR East)		
12	Veena Energy Japan Co., Ltd.	• Global Infrastructure Partners (*Major shareholder in the home company, Veena Energy*)	Japan Renewable Energy Co., Ltd., Japan Wind Energy Co., Ltd., Veena Energy Offshore Wind Power Co., Ltd., NRE Operations Co., Ltd., Veena Energy Japan Co., Ltd., Veena Energy Engineering Co., Ltd.	Veena Energy Japan is the Japanese subsidiary of Veena Energy.
12	Tokyu Land Corporation	• The Master Trust Bank of Japan, Ltd. (Trust account) 16.01% • Tokyu Land Corporation 15.90% • Custody Bank of Japan, Ltd. (Trust Account) 7.69%	Riene Co., Ltd., Renewable Energy Long-Term Stable Power Promotion Association (a general incorporated association), and Renewable Energy Regional Revitalization Association (a general incorporated association)	The Renewable Energy Long-Term Stable Power Promotion Association and the Renewable Energy Regional Revitalization Association are both managed by Tokyu Land Corporation, which serves as the representative director for these organizations.

About the Nature Conservation Society of Japan

The Nature Conservation Society of Japan (NACS-J) is one of the first established nature conservation organizations in Japan. It was founded in 1951 with the aim of nature protection and biodiversity conservation. Initially focused on safeguarding the natural environment of Oze, where a dam project was underway, the organization has expanded its efforts to other significant areas such as Yakushima, the Ogasawara Islands, and the Shirakami-Sanchi. These activities have contributed to the registration of these sites as World Natural Heritage. NACS-J continues to engage in a range of activities across Japan to protect vulnerable natural environments. Its mission, encapsulated by the slogan "Opening Tomorrow with the Power of Nature" reflects its commitment to fostering a society where people and nature coexist harmoniously. The organization is dedicated to ensuring that individuals, from infants to the elderly, can live in environments characterized by natural beauty and richness. As an NGO, it conducts activities ranging from research to conservation and utilization of nature, from mountains to the sea, throughout Japan.

http://www.nacsj.or.jp/