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Ministry of the Environment

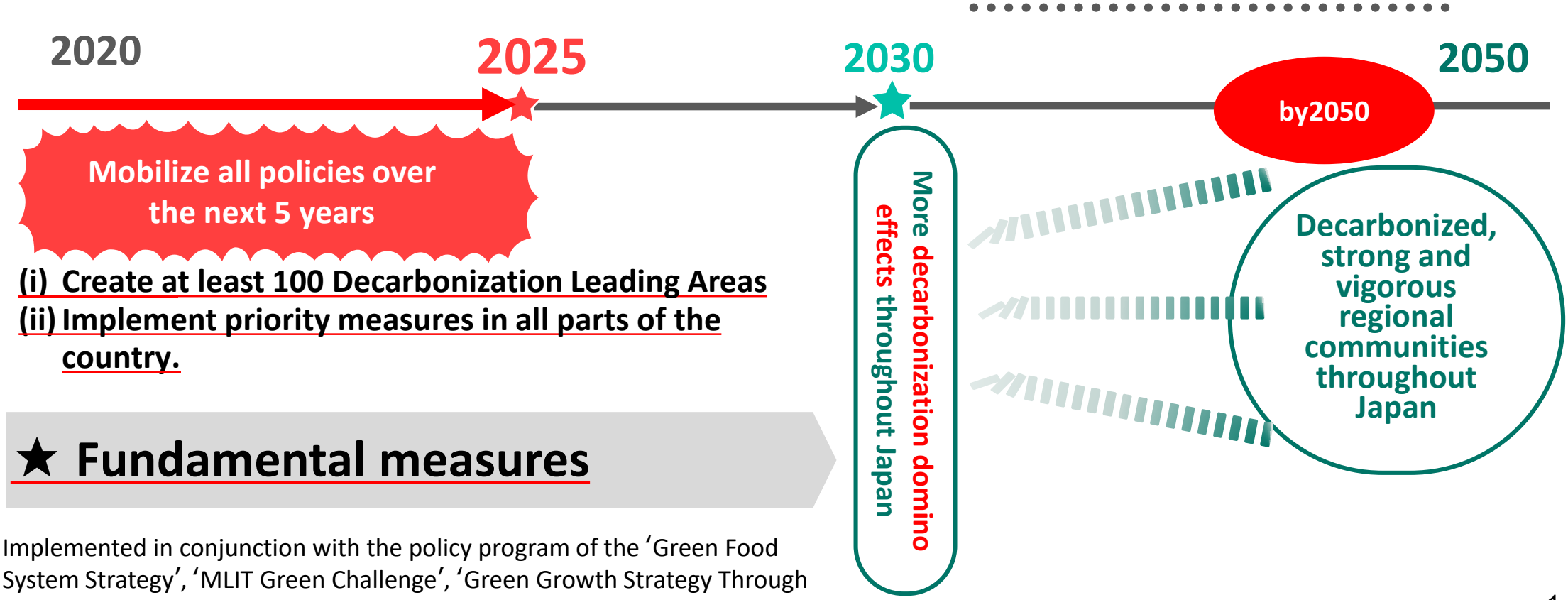
Decarbonization Leading Areas

2024. 5

Ministry of the Environment, Japan

Regional Decarbonization Roadmap (2021): Overall picture of measures and policies

- Actively support human, technical, information and financial resources by mobilizing all policies **over the next 5 years** including:
  (i) Create at least **100 'Decarbonization Leading Areas'** by 2030.
  (ii) Implement priority measures all over the country (e.g. self-consumption solar power, energy-efficient housing, electric vehicles, etc.).
- Expand the model across the country and achieve decarbonization before 2050 (**decarbonization domino effects**)



★ Fundamental measures

Implemented in conjunction with the policy program of the 'Green Food System Strategy', 'MLIT Green Challenge', 'Green Growth Strategy Through Achieving Carbon Neutrality in 2050', etc.

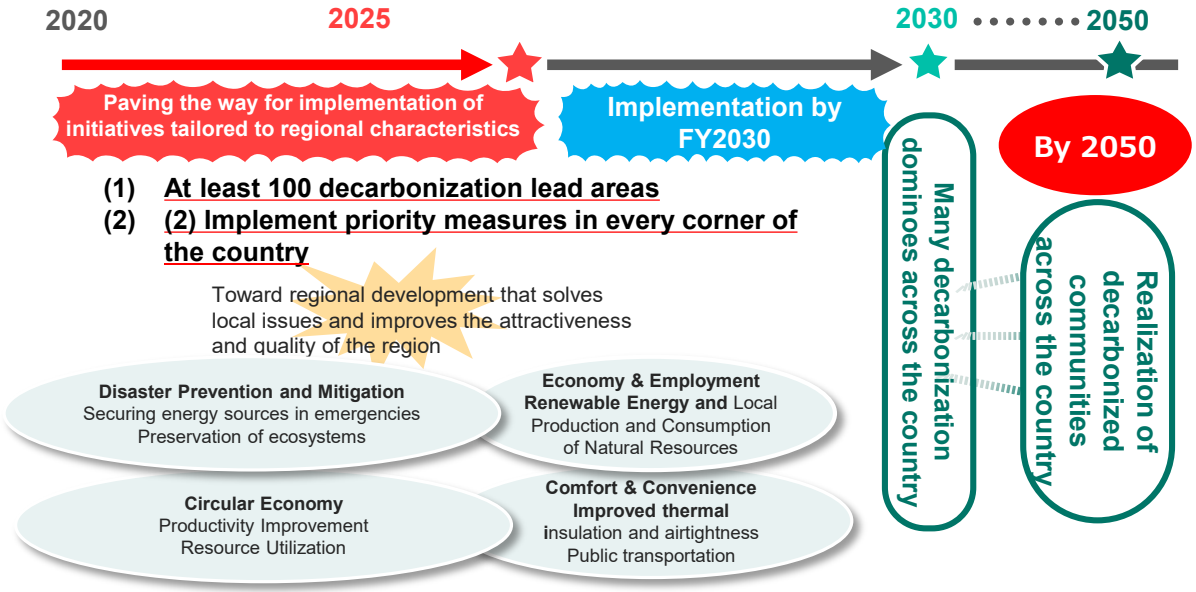
What is an Decarbonization Leading Area?

- Based on the regional decarbonization roadmap, **select at least 100 areas for decarbonization by FY2025, establish a roadmap for implementation of advanced initiatives** based on regional characteristics toward decarbonization, and **implement the roadmap by FY2030**.
- Set out the direction of initiatives for decarbonization in various regions, including rural, fishing, and mountain villages, remote islands, and urban areas, while **solving regional issues and improving the quality of life of residents**.

What is a Decarbonization Leading Area?

An area that achieves virtually zero CO2 emissions from electricity consumption in the residential sector (households and businesses and other sectors) and also reduces other greenhouse gas emissions, including transportation and heat use, according to regional characteristics.

民生部門の電力需要量 = 再エネ等の電力供給量 + 省エネによる電力削減量



Schedule

	First Selection	Second Selection	Third Selection	Fourth Selection	Fifth Selection
Application period	<2022> Jan. 25～Feb. 21	<2022> Jul. 26～Aug. 26	<2023> Feb. 7～17	<2023> Aug. 18～28	<2024> Mid-End of June
Announcement of Result	Apl. 26	Nov. 1	Apl. 28	Nov. 7	TBD
Approval	26（out of 79）	20（out of 50）	16（out of 58）	12（out of 54）	-

※ Depending on the status of future selections, the application period may be closed before FY2025.

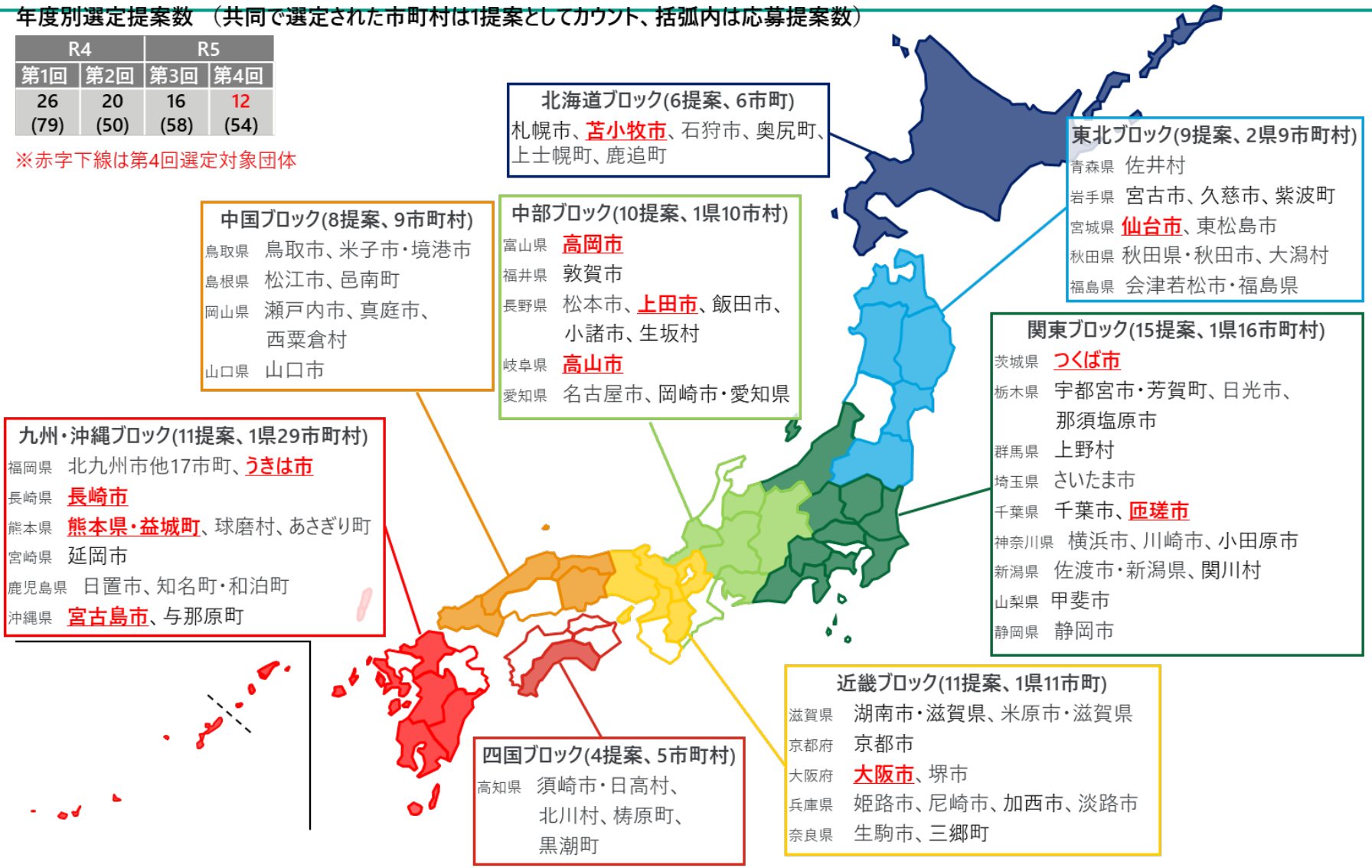
Status of selection of Decarbonization Leading Areas (1st-4th)

- In the 4th round, **12 proposals (12 municipalities in 1 prefecture)** were selected.
- From the first to the fourth round, **74 proposals** from 95 municipalities in 36 prefectures were selected.
- There are now 11 prefectures that have not had a single planning proposal selected so far (blank areas in the map).

年度別選定提案数 （共同で選定された市町村は1提案としてカウント、括弧内は応募提案数）

R4		R5	
第1回	第2回	第3回	第4回
26 (79)	20 (50)	16 (58)	12 (54)

※赤字下線は第4回選定対象団体



北海道ブロック(6提案、6市町)
札幌市、苫小牧市、石狩市、奥尻町、上士幌町、鹿追町

東北ブロック(9提案、2県9市町村)
青森県 佐井村
岩手県 宮古市、久慈市、紫波町
宮城県 仙台市、東松島市
秋田県 秋田県・秋田市、大潟村
福島県 会津若松市・福島県

関東ブロック(15提案、1県16市町村)
茨城県 つくば市
栃木県 宇都宮市・芳賀町、日光市、那須塩原市
群馬県 上野村
埼玉県 さいたま市
千葉県 千葉市、匝瑳市
神奈川県 横浜市、川崎市、小田原市
新潟県 佐渡市・新潟県、関川村
山梨県 甲斐市
静岡県 静岡市

中部ブロック(10提案、1県10市村)
富山県 高岡市
福井県 敦賀市
長野県 松本市、上田市、飯田市、小諸市、生坂村
岐阜県 高山市
愛知県 名古屋市、岡崎市・愛知県

中国ブロック(8提案、9市町村)
鳥取県 鳥取市、米子市・境港市
島根県 松江市、邑南町
岡山県 瀬戸内市、真庭市、西粟倉村
山口県 山口市

近畿ブロック(11提案、1県11市町)
滋賀県 湖南市・滋賀県、米原市・滋賀県
京都府 京都市
大阪府 大阪市、堺市
兵庫県 姫路市、尼崎市、加西市、淡路市
奈良県 生駒市、三郷町

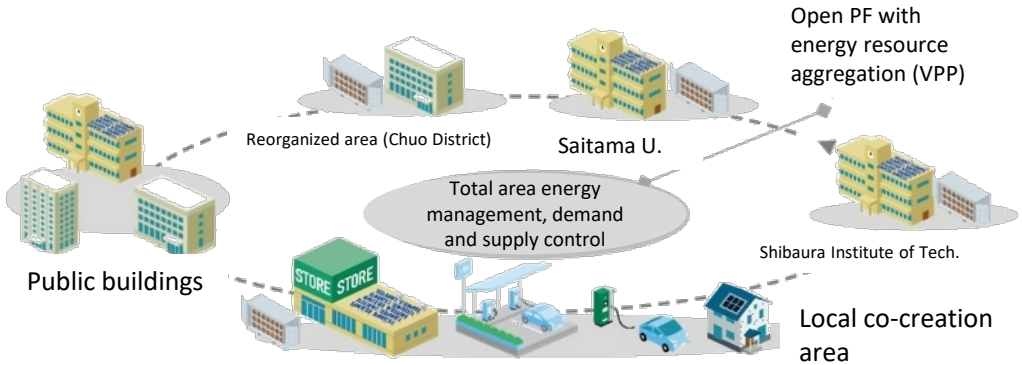
四国ブロック(4提案、5市町村)
高知県 須崎市・日高村、北川村、椪原町、黒潮町

九州・沖縄ブロック(11提案、1県29市町村)
福岡県 北九州市他17市町、うきは市
長崎県 長崎市
熊本県 熊本県・益城町、球磨村、あさぎり町
宮崎県 延岡市
鹿児島県 日置市、知名町・和泊町
沖縄県 宮古島市、与那原町

Selected cases of Decarbonization Leading Areas
- Economic circulation/industrial development x Decarbonization -

Urban energy management
<Saitama City, Saitama Prefecture>
Saitama University, Shibaura Institute of Technology, Saitama Branch, TEPCO Power Grid, Incorporated

- Energy management using **digital technology in** 'public', 'private' and 'academic' areas.
- **Strengthening of the regional economic cycle** and **resilience** and **improvement of the quality of life** through the demonstration of an **urban EMS** (CEMS: Community Energy Management System) using solar power from reservoirs outside the city and waste power generation in the city, and **VPP** (Virtual Power Plant).



Creation of RE100 industrial park led by the county
<Kumamoto Prefecture>
Mashiki Town, Kumamoto Prefecture, NNR Shizen Energy G.K. The Higo Bank, Ltd., The Kumamoto Bank, Ltd.

- In conjunction with **the entry of TSMC**, a world-class semiconductor manufacturer that advocates RE100, the city will decarbonize by introducing on-site PPA solar power and storage batteries, water solar power generation at the dam lake, and wood biomass power generation, etc., centered on the industrial concentration center adjacent to Aso Kumamoto Airport.
- In addition **to accelerating the attraction of companies** that promote decarbonization **through the supply of renewable energy**, a new regional energy company will be established to supply renewable energy electricity to the private and industrial sectors through an intermediary contract**, with the aim of expanding the company's business throughout the prefecture**.

Above: Area around Aso Kumamoto Airport
Right: The new passenger terminal building of Aso Kumamoto Airport, which started its service in March 2023.

Selected cases of Decarbonization Leading Areas
- Resource recycling x Decarbonization -

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Decarbonization through the use of livestock manure
<Kamishiboro-cho, Hokkaido, Japan>

- Decarbonization by **supplying biogas-powered electricity generated from livestock manure to households and business buildings across the town** through the local capital electric company.
- Securing **electricity** in the town hall building and other facilities, which will become **disaster prevention centres** in the event of a major power failure or other emergencies.

Biogas plant

Circulation through forests and lifestyles
<Maniwa City, Okayama Prefecture>

- Aim for **100% local energy self-sufficiency through expansion of woody biomass power plants** using fast-growing trees in broadleaved forests and abandoned fields.
- **Biogas power is generated by** methane fermentation of food waste, manure, septic tank sludge, etc. at a **recycling facility.** Bio-liquid fertilizer, a by-product, is also used on farmland in the city.

Image of food waste recycling facility (expected to be operational in 2024).

Selected cases of Decarbonization Leading Areas
- Transportation x Decarbonization -

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Zero-carbon Transportation including LRTs <Utsunomiya City, Tochigi Prefecture>

- **Zero-carbon Transportation**, especially LRTs and electric buses to be operated on renewable energy (RE) at 100% by installing PV power and large-scale storage batteries.
- **Advanced EMS** using consumer-side control storage batteries and electric buses as a regulated power source for decarbonizing the city centre.

All new lines installed LRT
(Commenced on 26 August 2023)

Inheritance of cultural heritage and Local community revitalization <Kyoto City, Kyoto Prefecture>

- **Taxis in the City (738 vehicles) are replaced with E-taxis** as mobilities for visiting cultural heritage sites, and the Station near Fushimi-Inari shrine will be **converted to a Zero-carbon station**.
- **Zero-carbon school study trips** will be planed by mobilizing E-taxis for visiting sites

Selected Cases of Decarbonization Leading Areas
- Tourism x Decarbonization -

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Enhancement of brand power of historic tourist destinations
<Himeji City, Hyogo Prefecture>

- Decarbonization of areas **designated as special historic sites**, such as **Himeji Castle designated as both a World Heritage Site and National Treasure,** where it is difficult to install conventional PV panels and facilities.
- Creation of a '**zero-carbon castle**' through installation of **PV panels and storage batteries** on suburban city-owned vacant land, which will contribute to enhance the attractiveness and brand power of the city as a tourist destination.

Himeji Castle

Local update through diverse tourism resources and decarbonization
<Nikko City, Tochigi Prefecture>

- Decarbonizing **the Oku-Nikko area,** where there are problems such as traffic congestion during the tourist season and infrastructure blockages in the event of disasters. This can be achieved through installation of PV panels and storage batteries, and heat recovery from **hot springs.**
- Promotion of the city as a safe, secure, attractive, and sustainable resort destination through the planned **Zero-carbon Realisation Ordinance** (tentative title), and reduction of traffic congestion through **a modal shift to a public transport** promoted by NIKKO MaaS.

Overall evaluation of the follow-up of the DLAs in FY2022 (August 30, 2023)

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Overall Evaluation

- The Decarbonization Leading Area is an **extremely ambitious initiative** aiming for carbon neutrality 20 years ahead of the target year of 2050 and for **regional development by utilizing local resources and resolving local issues**. The DLAs are expected to provide models for other areas by finding a breakthrough toward the goal through repeated trial and error.
- The 46 regions' first-year efforts are generally progressing well in some areas, while in others, they are not. Some regions whose progress did not go well flexibly changed the course of their plans. The Committee generally evaluates that **overall progress is being made as expected**.

Noteworthy cases

Although each region has various large and small issues, the Committee greatly appreciates the steady progress being made in the DLAs. In particular, some noteworthy initiatives were identified even in the first year.

Emerging Issues and Responses

- Various issues, large and small, emerged during the project's implementation. The Committee identified that some DLAs were taking flexible measures against those issues, including modifying the plan's course.
- The issues identified through the follow-up of the DLAs could happen in subsequent regions. The future selection process and accompanying support should reflect those.

Expectations for the future

- Efforts in the DLAs are just beginning towards the goal in FY2030.
- Subsequent DLAs may face challenges similar to those encountered by existing DLAs. The DLAs must challenge the issues they face, which is their mission.
- It is expected that the areas facing challenges will **address those challenges, with the support of the regional environmental offices of the Ministry of the Environment.** We would like to encourage the DLAs even with good progress so far to **actively try to explore ways to further improve their models.** In the first year of the project, the emphasis tends to be on the installation of equipment, but we would like to see the project continue to move forward, **keeping in mind the objectives of the DLA initiative, including the involvement of local residents, building momentum for decarbonization at local level, and achieving both local development and decarbonization at the same time.**
- Not only the DLAs but also other cities/regions acting for local decarbonization are encouraged to consider the results of the overall evaluation, **learn from the experience of the leading regions, and proceed with their actions/efforts with a vision for the future, taking into account the benefits to the region and securing of local stakeholders who are acting for decarbonization and local development**.
- Finally, this follow-up made us keenly aware once again of the need for detailed support from the regional environmental offices of the Ministry of the Environment and the effectiveness of such support when it is successful. We also realized that collaboration of line ministries/agencies beyond their administrative boundaries can lead to solutions to local issues. The Ministry of the Environment will **conduct necessary institutional arrangements and strength collaboration with prefectures (regional governments), other ministries and agencies** based on the issues identified in this follow-up.

Results of Follow-up on DLAs in FY2022 (Outstanding Cases)

■ Even in the first year, some excellent initiatives were identified that can serve as models for other areas.

Establishment of project implementation system [Kamishihoro Town, Hokkaido; Sekikawa Village, Niigata Prefecture; Kuma Village, Kumamoto Prefecture]

■ Each region is taking steps to promote smooth initiatives. For example, the establishment of an interest-free loan system linked to a project in order to support the introduction of renewable energy, the establishment of new renewable energy-related businesses through a unique business start-up support project, the strengthening of the town hall institutional capacity by utilizing external experts, the early establishment of a new regional electric power company, and the appropriate division of roles with the new regional electric power company.

Expansion of target customers [Akita City, Akita Prefecture; Yokohama City, Kanagawa Prefecture]

■ Akita Prefecture steadily took necessary actions to decarbonize its sewage and other facilities. The prefecture extended the private distribution lines and added two facilities (the prefectural martial arts center and the prefectural ice-skating rink) to its list of consumers.

■ Yokohama City plans to decarbonize all 64 facilities in the Minato Mirai 21 district by FY2030. At the time of selection in April 2022, 32 facilities had agreed to participate in the plan. In FY2022, three additional facilities in the same district agreed to join. Steady progress is being made toward achieving the target.

Inter-regional Cooperation [Kitakyushu City, Fukuoka Prefecture and 17 cities and towns in the Kitakyushu metropolitan area

■ Kitakyushu City assists the efforts of the joint proponents of the 17 partner cities and towns by providing detailed follow-up, such as supporting planned actions and developing action plans for global warming countermeasures.

■ Kitakyushu City developed a simplified manual for judging whether or not to install photovoltaic power generation in public facilities in the city based on the perspective of seismic performance and waterproof layers.

Establishment of a supply chain for woody biomass [Ishikari City, Hokkaido; Maniwa City, Okayama Prefecture].

■ In June 2019, Ishikari City established a council consisting of forestry cooperatives, wood distributors, and heavy machinery manufacturers in both Ishikari and Sorachi, to establish a supply chain to effectively use forest residues. The city accumulated the knowledge for building a supply chain for woody biomass, which has been a common issue in various regions in Japan. As a DLA, Ishikari City is also securing a system for utilizing forest residues and coordinating with consumers who will ultimately receive renewable energy supplies derived from woody biomass power plants.

■ In cooperation with a local forestry cooperative and financial institutions, Maniwa City has started a demonstration project to cultivate very short-season, fast-growing trees on abandoned and unutilized land, etc., on the premise of energy use. The project includes cutting down seedlings and planting them on abandoned or unplanted main-cut land and conducting a fuel potential study of willow species. This is an ambitious effort to make use of abandoned land, etc., which is a nationwide issue.

Results of the 2022 Follow-up on DLAs (Issues Identified)

■ Though this is the first year of follow-up , which targeted the DLAs selected in the first and second rounds of selection, confirmed that the local efforts have only just begun, each region has identified challenges, both large and small.

Issues Related to Grid Interconnection

■ Some areas where formal consultations with relevant stakeholders were conducted after selection were confronted with issues like a significant reduction of the connection capacity from the initial assumption, and higher cost and longer duration of construction than expected.

⇨ In these areas, reviewing renewable energy introduction plans, including the change from high-voltage to low-voltage, and reconsidering the cost of supplying electricity to customers are underway.

Issues related to the location of renewable energy generation facilities, etc.

■ There were some areas where the number of facilities capable of introducing renewable energy was significantly reduced after the selection due to the determination of compliance with snow coverage standards, and some areas where the site inspection after the selection revealed landforms that could not be confirmed by satellite images, and some areas where the degree of devastation of abandoned farmland was so high that it was difficult to implement the project.

⇨ In these areas, alternative methods are currently being considered.

Issues related to the unique business environment of remote islands

■ From the viewpoint of consumer protection, transmission system operators are obligated to supply electricity to remote islands at rates comparable to those on the mainland, based on the terms and conditions of the supply agreement for remote islands. There have been no cases of independent implementation of retail electricity businesses on remote islands under these conditions, and various issues, such as the business implementation mechanism and ensuring business profitability, must be recognized.

⇨ In the remote island regions selected in the first year, efforts are underway to revise the plan, including using technologies to introduce renewable energy while maintaining inertia, considering the unique business environment of these remote islands.

Issues related to the project implementation system

■ In some regions, we observed the following cases: 1) Initiatives were left up to the project operator and ownership of the selected local government was not sufficient; 2) The number of local government staff in charge of local government in small municipalities is not sufficient; 3) It took longer than expected for a local energy business operator to receive a loan decision from a financial institution; 4) Collaboration mechanism with the project operator has changed after selection; and 5) cases where the project implementation schedule was significantly delayed due to a lack of coordination within the agency. (4) The collaboration system with related businesses after selection, and (5) The project was significantly delayed than scheduled due to a lack of coordination within the local government.

⇨ While some areas have reviewed their systems with a sense of urgency, it is necessary to reaffirm the need for more coordination within the local government in each region. This is an essential perspective for promoting regional decarbonization, not limited to public facility initiatives.

Categorization of the DLAs selected

- DLAs are expected to show how they can simultaneously realize decarbonization and resolve local issues while maximizing the use of local resources, focusing on initiatives in the consumer electric power sector in specific areas. They are also expected to show how to roll out the initiative to other regions.
- Based on the above objectives, we have categorized the existing DLA plans as advanced and model-like from the following four perspectives.

[From the perspective of regional/local policy (as a foundation to solve local issues and achieve decarbonization)

- **Solutions of regional issues**
  The setting of local issues that a DLA addresses and the solutions are excellent, and their approach can be generally applied to other regions.

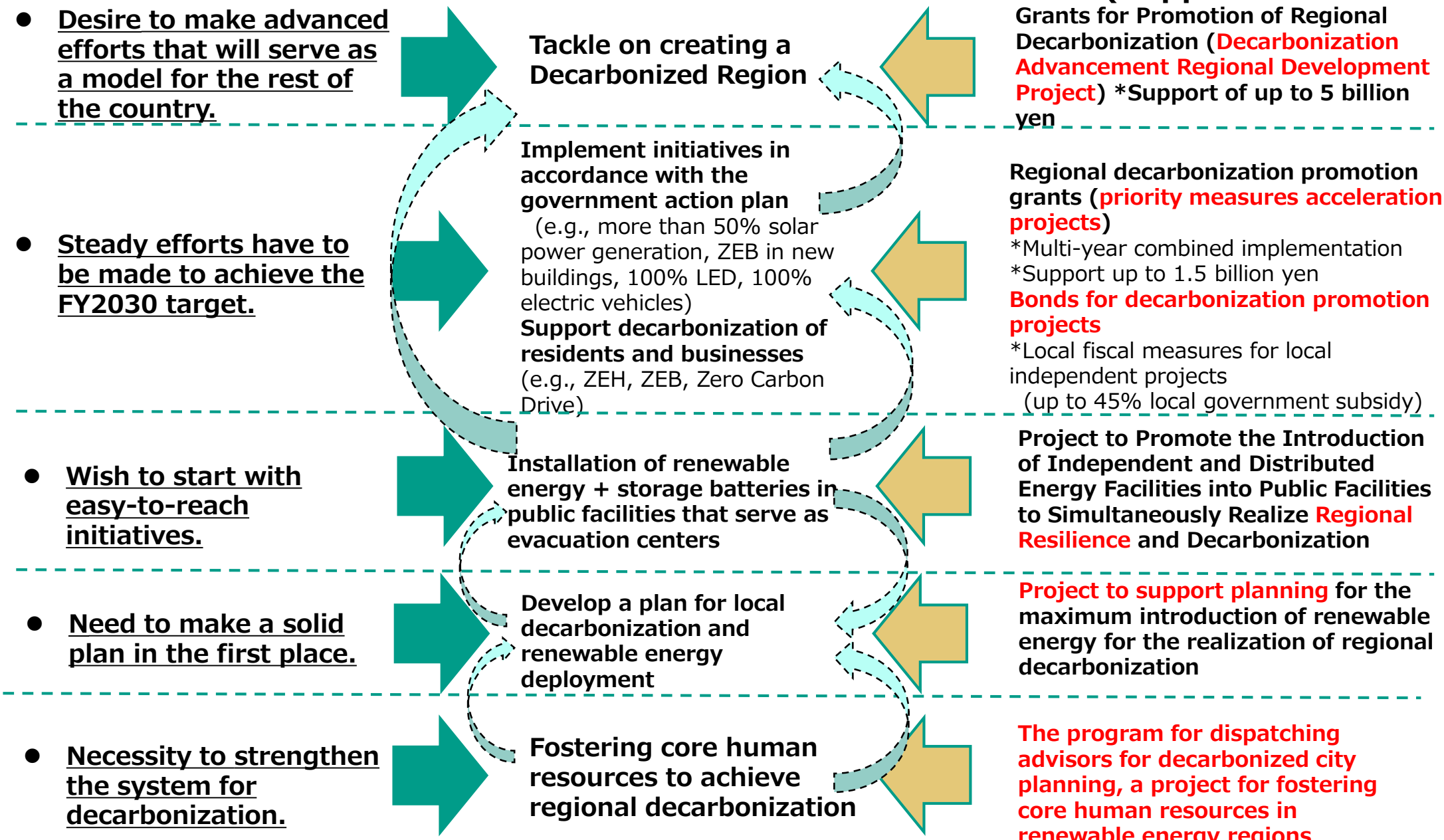
- Creation of a foundation for local decarbonization (a mechanism to spread the efforts of DLAs)
  A foundation to promote regional decarbonization is established, by involving local financial institutions, local companies, educational institutions, regional governments, beyond the DLAs.

[From the viewpoint of utilization of local resources (both in demand and supply sides)]

- Demand and area setting
  Target customers and areas are identified based on local characteristics, such as the region's GHG emission status and vision for the future.

- Type of renewable energy and technologies, etc.
  The type of renewable energy, technologies, and energy supply and demand management methods are decided based on regional characteristics such as natural and social conditions, and that can be used universally in other regions.
  *Regarding technology, we evaluate not only its novelty but also efforts to maximize its impact when it is introduced.

Image of actions according to the situation of local governments and support measures by the Ministry of the Environment



Major support tools and frameworks of relevant ministries and agencies for local decarbonization efforts

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- In February 2009, we published "**Major Support Tools and Framework for Regional Decarbonization Initiatives by Relevant Ministries and Agencies**" (**updated in July 2023**) as a reference material for the Guidebook on Decarbonizing Regions Ahead of the Next Generation, to help local governments and stakeholders consider how to realize decarbonizing regions ahead of the curve. The "Regional Decarbonization Leading Areas" are positioned as one of the "Regional Visions" in the "Comprehensive Strategy for the Digital Rural City National Vision" (approved by the Cabinet on December 23, 2022), which is a model for local regions to pursue. The strategy also states that this support tool/framework will be further expanded to promote cooperation among measures.
- The table of contents organizes the types of support and the targets of support, allowing you to find the support you are looking for according to your purpose.
- A total of **156 projects by 7 Ministries including Ministry of the Environment** are listed (FY2022 supplemental budget and initial budget for FY2023, including local fiscal measures that may be utilized for local decarbonization projects).
- **32 projects** are eligible to receive **preferential treatment** if selected as a **leading decarbonization region**.

Support tools and framework by each government agency

Ministry of the Environment (42 projects)

- **Grants to Promote Regional Decarbonization**
- Project to Promote the Introduction of Self-Sustaining and Distributed Energy Facilities to Public Facilities to Simultaneously Achieve Regional Resilience and Decarbonization
- Project to promote electrification of commercial vehicles

39 others

Cabinet Office (9 projects)

- Digital Rural City National Concept Grant (Local Development Promotion Type)
- Digital Rural City National Concept Grant (Digital Implementation Type TYPE 1/2/3, etc.)
- Digital Rural City National Concept Grant (Digital Implementation Type, Local Creation Teleworking Type)

6 others

Ministry of Internal Affairs and Communications (7 projects)

- Local 10,000 Projects
- Distributed Energy Infrastructure Projects
- Hometown Loan Programs
- Local decarbonization support in terms of human resources

3 others

Ministry of Education, Culture, Sports, Science and Technology (5 projects)

- Eco School Plus
- Maintenance of facilities for national universities, technical colleges, etc.
- Development of public school facilities
- Basic research and development to accelerate regional decarbonization by mobilizing the power of universities
- University coalition that contribute to achieving carbon neutrality

Ministry of Agriculture, Forestry and Fisheries (25 projects)

- Biomass for Local Production and Local Consumption among the Grants for Strategic Promotion of Green Food System
- Establishment of green horticulture for SDGs among the grants for promoting the Green Food System Strategy
- Establishment of regional recycling-oriented energy system

22 others

METI (17 projects)

- Project to accelerate the introduction of renewable energy through the introduction of grid storage batteries, etc. and rationalization of power distribution networks, etc.
- Project to accelerate the introduction of hydroelectric power generation
- Subsidy for Promotion of Introduction of Photovoltaic Power Generation Led by Customers
- Subsidy for projects to support the introduction of consumer-led and renewable energy power source co-located storage batteries

13 others

Ministry of Land, Infrastructure, Transport and Tourism (47 projects)

・Project for Leading the Way in Sustainable Buildings (Leading the Way in CO2 Saving)
・Existing Building Energy Saving Promotion Project
・Urban Revitalization and Development Planning Project
・Urban and Regional Transportation Strategy Promotion Project
・Leading Green Infrastructure Model Formation Support

42 others

Local fiscal measures (4 projects)

・ Decarbonization Promotion Project Bonds
・ Public Enterprise Bonds (Decarbonization Promotion Project)

・ Depopulation Countermeasures Bonds

・ Emergency measures bonds for disaster prevention, disaster mitigation and national land resilience

※下線は優遇措置（脱炭素先行地域に選定された場合に適用される措置）がある事業


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