



**Fukushima Institute for Research, Education and Innovation**



**F-REI**

**Fukushima Institute for Research, Education and Innovation (F-REI)**

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**Year in Review**

**April 2023–March 2024**



# F-REI

**Fukushima Institute for Research,  
Education and Innovation**

## Core center for creative reconstruction

F-REI was established embodying the dreams and hopes in the reconstruction of Fukushima and other parts of the Tohoku region. To confront the challenges in Fukushima and pave the way for reconstruction and the future ahead of us, we need innovation that can transform the structure of industry and society. Future-oriented research and development is essential for innovation like this.

F-REI creates a world-class environment in which researchers can engage in cutting-edge research and development, making use of the results for reconstruction in Fukushima and Tohoku, creating a ripple effect over a larger area and driving scientific capabilities, technological capabilities, and industrial competitiveness throughout Japan to the world's top level and toward economic revitalization and the growth of Japan as a whole.

## Four Functions

F-REI combines the four functions below in a complex manner to create a ripple effect both within and outside Japan.

### 1 Research & Development

Fukushima experienced a complex disaster, on a level unprecedented worldwide. We promote the world's most advanced research focusing on five research areas in which Fukushima has a clear competitive advantage.

### 2 Industrialization

Utilizing an extensive field centered on Hamadori in Fukushima, our research and development results are demonstrated and implemented for innovation and to create new industries.

### 3 Human resource development

Looking toward the future beyond reconstruction, we work to encourage next-generation leaders through collaboration with graduate schools, universities, and technical colleges and provide science classes and seminars for elementary, junior high, and high school students.

### 4 Control Tower

Valuing the reconstruction activities that have been conducted so far in Fukushima and Tohoku, F-REI plays a role among related organizations as a major driving force in promoting collaboration.

## Five Research Areas

Determine research that should be or can be done specifically in Fukushima and promote world-leading research in five research areas.

### 1 Robotics

Conduct research and development on robots and drones that can function in harsh environments, such as in the course of reactor decommissioning and at disaster sites in Fukushima, which experienced a complex disaster.

### 2 Agriculture, Forestry and Fisheries

Taking regional characteristics into consideration, such as large areas of fallow land and mountain forests affected by the earthquake, take on the challenge of adopting unprecedented next-generation agriculture, forestry, and fisheries, making use of seeds featuring new technology, etc.

### 3 Energy

Utilize existing hydrogen-related facilities and other facilities to achieve carbon neutrality in the region, while at the same time contributing to pioneering smart communities.

### 4 Radiation Science, Medicine and Drug Development, & Industrial Applications for Radiation

As a research base for radiation science (nuclear physics, radiochemistry, nuclear medicine, etc.) aimed at creative reconstruction after the complex disaster in Fukushima, study the utilization of radiation and RI.

### 5 Collection and Dissemination of Data and Knowledge on Nuclear Disasters

Accumulate a variety of data and utilize knowledge obtained through the complex disaster in Fukushima, contributing to the formulation of countermeasures against disasters to come as well as to community development.

## Looking to the future, Facing forward, Continuing for a year.

### President Dr. Koetsu Yamazaki



F-REI is a special corporation established by the Japanese government under the Act on Special Measures for the Reconstruction and Revitalization of Fukushima. It was a big decision for me to assume my post as the first president of F-REI. I visited Hamadori, Fukushima, to help make up my mind and discovered that there was a gap between news about the reconstruction I had heard through the media and the actual situation in the affected area. I realized that "There is something I can do here and I must do it." and made my mind to devote the rest of my life to this. When I visited the Prime Minister's Office and received a letter of appointment from Prime Minister Kishida, I was reminded once again that "taking on responsibility" is the right expression in such situations.

On April 1, 2023, we held an opening ceremony in Namie-machi, on the Hamadori Coast of Fukushima Prefecture, and one year has passed since that day when F-REI started from scratch. We have been moving forward and finding our way.

I would like to once again express my heartfelt gratitude to all those who have supported F-REI over the past year. Taking this opportunity on the first anniversary of our establishment, we have compiled a booklet titled "Year in Review," which introduces some of our activities.

F-REI's four functions are at the core of our daily activities. In the area of "Research & Development," our researchers are advancing their research, and by fiscal 2024, a number of researchers are added, steadily creating an environment for engagement in world-class R&D activities one step at a time. In "Industrialization," we have visited municipalities in Fukushima to hold roundtable discussions many times to talk directly with people engaged in different industries to understand the current situations and needs in the region and to determine the direction of the road ahead. Regarding the third area, "Human Resource Development," we

concluded a partnership agreement with Tohoku University in March 2024 to establish a new research base in Fukushima and Tohoku centering on young human resources through a variety of means including collaboration with their Graduate School of Medicine. Moreover, we have visited institutions of higher education in Fukushima and held seminars featuring F-REI executives to convey our message and encourage interest in science and technology for the next generation. Finally, as for the "Control Tower" function, we will collaborate with related institutions and promote the integration of research facilities for environmental dynamics, thereby serving as a great driving force that brings together the power of the entire Fukushima region.

F-REI's mission is not something that can be accomplished overnight, but we are wholeheartedly committed to accumulating our efforts one by one and contributing to the Fukushima and Tohoku regions, Japan, and the whole world.

I ask once again for your continued understanding and support.

**Fukushima Institute for Research, Education and Innovation (F-REI)  
President**

### Dr. Koetsu Yamazaki

Born in Toyama Prefecture. Completed master's program at Kanazawa University Graduate School of Engineering (1976) and doctoral program in engineering at Osaka University (1982). Professor of Engineering, Kanazawa University as a researcher in mechanics of materials and design engineering (1994). After serving as Director and Vice President, assumed post of President of Kanazawa University (2014). Special Advisor to Kanazawa University and Special Advisor to the Reconstruction Agency (2022). Current President of F-REI (since 2023).

April 1, 2023

### F-REI Opening Ceremony

F-REI is a special corporation established in accordance with the Act on Special Measures for the Reconstruction and Revitalization of Fukushima. The opening ceremony included Prime Minister Kishida, Minister for Reconstruction Watanabe, State Minister for Reconstruction Kojima, State Minister for Reconstruction Takeya, State Minister of Economy, Trade and Industry Ota, Governor Uchibori of Fukushima Prefecture, and mayors from 15 municipalities including the Hamadori area.

At the ceremony, President Yamazaki, on behalf of the organizers, made a brief speech expressing his resolve to contribute to the reconstruction of Fukushima and Tohoku as a core center for creative reconstruction.

F-REI embodies dreams and hopes in the reconstruction of Fukushima and Tohoku, and through its activities becomes a driving force for bolstering Japan's scientific and technological capabilities and promoting the transformation of industrial structure through innovation. In the course of that goal, F-REI strives to raise Japan's industrial competitiveness to the world's highest level and becomes one of the greatest "core centers for creative reconstruction" in the world, contributing to economic growth and the improvement of people's lives.



April 5, 2023

### Opening ceremony of the F-REI Fukushima Medical University Research Branch



The first research organization of F-REI, the Radioecology Unit, has commenced operations at the F-REI branch at Fukushima Medical University. The Unit was established to carry on research conducted at the F-REI branch at the National Institute of Radiological Sciences of the National Institutes for Quantum Science and Technology (QST). The opening ceremony was attended by Fukushima Medical University President Seiichi Takenoshita, QST Executive Director Toshihiko Hoshino, and others involved. With this as a start, we plan to increase the number of research groups to about 50 and enhance the R&D system during the seven-year period of F-REI's medium-term plan (Phase 1).

### Research undertaken by the Radiation Ecology Unit

The Unit is conducting laboratory-scale demonstration experiments to study how radioactive substances migrate to and accumulate in plants, freshwater fish, and other targets. The aim of the study is to search for factors involved in these phenomena and find measures to curb migration and reduce the accumulation of radioactive substances, deepening understanding through these experiments. At the same time, we disseminate information through risk communication using evaluation results regarding the curbing of migration and reduction of accumulation.

April 15, 2023

### Symposium commemorating the establishment of F-REI (Iwaki City)

This symposium was held to broadly publicize the role and vision of F-REI both domestic and outside Japan to promote collaboration with academia and industry as well as to accelerate our initiatives. Attendees included Minister for Reconstruction Watanabe, State Minister for Reconstruction Kojima, State Minister for Reconstruction Takeya, and Governor Uchibori of Fukushima Prefecture. We also received video messages from Prime Minister Kishida; Mr. Rafael Mariano Grossi, Director General of the International Atomic Energy Agency (IAEA); Ms. Julia Longbottom CMG, British Ambassador to Japan; and Mr. Pereric Högborg, Swedish Ambassador to Japan.

The symposium featured an introduction to F-REI's projects by President Yamazaki, and lectures by Mr. Vincent Grégoire, Chairman of the International Commission on Radiation Units & Measurements (ICRU) and Ms. Chieko Asakawa, Chief Executive Director of MiraiKan. Also featured were introductions of activities by local companies, presentations by local students, and a talk session between President Yamazaki and local companies students.



May 10, 2023

### First meeting of the R&D Council for Creation of New Industry, etc. held (Okuma Town)

Purpose of the R&D Council for New Industry Creation, etc. is to discuss the implementation of measures for R&D for the creation of new industries, etc. in accordance with Article 109 of the Act on Special Measures for the Reconstruction and Revitalization of Fukushima. The Council consists of 35 members: F-REI, relevant ministries and agencies, relevant organizations, Fukushima Prefecture, research institutions, and 15 municipalities, including the Hamadori area.

At the first meeting, attended by Minister for Reconstruction Watanabe, the Council members exchanged opinions and decided

on operating procedures and the establishment of working groups, reported in F-REI's medium-term and annual plans.

At the meeting, relevant organizations reported on their F-REI-related initiatives and expressed their expectations regarding the role that F-REI should play, followed by discussion.

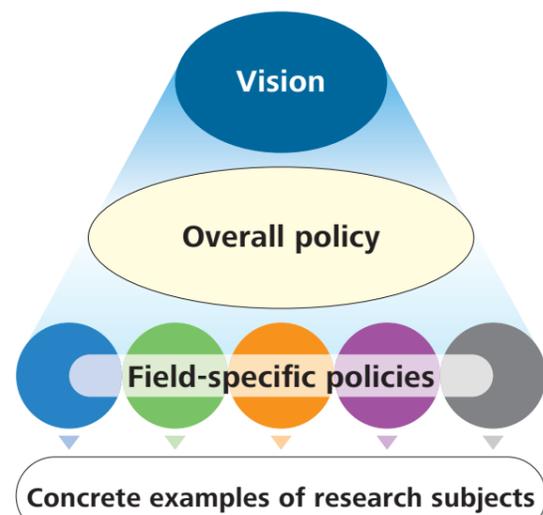
Additionally, prior to the meeting, Mayor Jun Yoshida of Okuma Town, where the meeting was held, hosted a site visit to "Manabiya Yumenomori (learning center)," which is under construction for its future opening.



### F-REI's basic policies finalized

We have put together policies that serve as the foundation for setting F-REI's research subjects, taking into account government documents and other relevant sources.

Based on the vision and overall policy, we continue to set research policies and specific research subjects for each field.



#### Vision

- Realize the reconstruction of Fukushima and Tohoku, and become a core center of creative reconstruction encouraging dreams and hope.
- Promote world-class research and lead the social implementation and industrialization of the research results.
- Raise Japan's industrial competitiveness to the world's highest level and contribute to the economy and people's lives.

#### Overall policy

Based on the research subjects related to the utilization of radiation science and dynamic measurement of radioactively contaminated environments, promote cutting-edge research in Fukushima Hamadori that drives the creation of industries such as robotics and drone technologies; next-generation agriculture, forestry, and fisheries; and clean energy.

July 7, 2023 onwards

### Call for FY2023 research proposals

We have issued a call for research proposals for FY2023 for the following themes in each field.

#### Robotics

- Research and Development Project to Promote the utilization of Robots and Drones in Harsh Environments
  - Research and development of robust robot and drone technologies that can be used in harsh environments such as disaster sites
  - Research and development of technologies to achieve cooperative work using a number of robots and drones
  - Research and development of robots and drones for the survey use in lakes, marshes, forests, etc.
- Standardization of Performance Evaluation Methods for Marketization and Industrialization of Field Robots, etc.
- Research and Development Project for Drones that Achieve Long Flight Times, High Payloads, and Carbon Neutrality
- Research and Development Project of sensor technology for drones for disaster prevention and response
- Advanced Remote Technology for Decommissioning and its Application in the Outer Space Field



Drones and robots operating in harsh environments

#### Agriculture, Forestry, and Fisheries

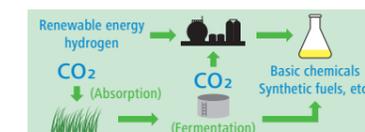
- Promotion of Agriculture, Forestry and Fisheries
  - Development and demonstration of super energy-efficient production technology in land-extensive farming
  - Development and demonstration of export-oriented fruit production technology
  - Construction and demonstration of bird and animal damage prevention systems utilizing advanced technology
  - Construction and demonstration of a system for energy recycling technology in horticulture
  - Development and demonstration of technologies that contribute to the integrated farming of arable land and livestock that does not depend on chemical fertilizers or pesticides
  - Development of new materials making good use of unutilized agricultural, forestry, and fishery resources
  - Research on future directions toward revival of agriculture, forestry, and fisheries in Hamadori and other areas
  - Research projects contributing to the revival of the agriculture, forestry, and fisheries industries in Hamadori and other areas



Smartification of agriculture, forestry, and fisheries (farming machinery control systems)

#### Energy

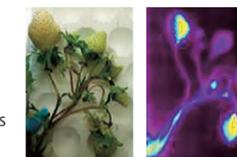
- Research and Development of Core Technologies for Negative Emissions
  - Research, development, and demonstration of the use of plants for CO<sub>2</sub> fixation and negative emissions
  - Research, development, and demonstration of the use of algae for CO<sub>2</sub> fixation and negative emissions
- Research and Development of Bio-integrated Green Chemical Technology
- Research and Development of Hydrogen Energy Network Construction



Achieving carbon neutrality (Manufacturing of chemical products, etc. in bio-chemical process)

#### Radiation Science, Medicine and Drug Development, and Industrial Applications for Radiation

- Development of stable and efficient manufacturing technology for RI using accelerator
- Development of Radioisotope (RI) Imaging Technologies Aimed to Enhance Agricultural Productivity and Sustainable Agriculture and Demonstration of the Developed Technologies
- Research and Development on diagnostic and therapeutic drugs labeled with RI
- Feasibility study on technologies, such as ultra-large X-ray CT device, which promote digitalization of industries



Research and development of radiation imaging technology

#### Collection and Dissemination of Data and Knowledge on Nuclear Disasters

- Development of methodologies to evaluate the influence of human activities on radionuclides transport in the environment and the effectiveness of measures to control such transport
- Policy Planning Research that Contributes to Solving Problems for Reconstruction from Nuclear Disasters
- Community Development Research and Learning/Community Hub Development Project in the Fukushima Hamadori Area
  - Community development research in the Fukushima Hamadori area
  - Learning/community hub development project in the Fukushima Hamadori area



Implementation of community development for reconstruction revitalization and effect verification research

September 27, 2023

**First meeting of Working Group for Regional Collaboration was held. (Naraha Town)**

The Regional Collaborative Working Group was established in the R&D Council for Creation of New Industry, etc. for the purpose of “solving future issues with a view of 30 years ahead in Hamadori and other areas in Fukushima afflicted by the Great East Japan Earthquake and nuclear disaster” and “contributing to creative reconstruction of Fukushima and Tohoku by creating attractive local communities through collaboration between F-REI and local municipalities, etc.” The group comprises F-REI, the Reconstruction Agency, Fukushima Prefecture, 15 municipalities from the Hamadori area, and the Fukushima Innovation Coast

Promotion Organization. The group conducts surveys and studies in various forms in partnerships with municipalities, mainly in the Fukushima Hamadori area, to ensure that the effects of F-REI’s initiatives in R&D, industrialization, and human resource development for creating new industries spread throughout the region.

In the first meeting, the Reconstruction Agency reported on its request for budget appropriation and facility development, and F-REI reported on the status of its call for research applications, explaining its initiatives for regional collaboration, followed by opinion exchange among the group members.



October 12, 2023

**Second F-REI Industry-Academia-Government Networking Seminar held (Sendai City)**

With an aim to build an industry-academia-government collaboration system involving businesses and other establishments and to create opportunities for connections, F-REI hosts industry-academia-government networking seminars, as well as talk sessions in relation to collaboration and industrialization.

The second seminar was jointly held with the Tohoku Economic Federation under the theme of “Industry-Academia-Government Collaboration and Industrialization” with 156 participants, mostly from companies based in the Tohoku region. The seminar consisted

of two parts. Part 1, delivered by Mayor Hirotohi Wako of Tomiya City, Mr. Joichi Ebihara, Representative Director of AiCT Consortium, and Ms. Miho Koike, CEO of Material Concept, Inc. was focused on their efforts to date in industry-academia-government collaboration and industrialization. In Part 2, Mr. Keiichi Sasaki, President of Miyagi University, moderated a talk session featuring four panelists: the three lecturers from the Part 1 and F-REI Vice President Emura. Panelists discussed future industry-academia-government collaboration, industrialization, and their expectations for F-REI.



October 13, 2023

**First Advisory Board Meeting held (Tokyo)**

Purpose of the Advisory Board Meeting is to receive advice from advisors on the overall operation of F-REI, the status of each project, and other matters from a broad perspective.

At the first meeting, Advisors Kazuhiko Ishimura, Kyosuke Nagata, and Yuko Harayama attended in person, and Advisor Hajimu Yamana attended remotely. From F-REI, President Yamazaki, board members, executive directors, field managers, and deputy field managers were among those attending.

The meeting started with an introduction of F-REI’s initiatives, followed by a vigorous exchange of views with the advisors on the direction of research activities and how the research center should be established. The advisors presented various valuable advice to achieve F-REI’s missions as a driving force for enhancing Japan’s scientific and technological capabilities and industrial competitiveness, in the interest of contributing to economic growth and improvement of people’s lives.



November 26–December 1, 2023

**Views exchanged with Europe-based international advisors (UK, Germany, and Sweden)**

President Yamazaki traveled on business to Europe to visit three international advisors based in Europe: Dr. Fiona Rayment (UK), Prof. Reimund Neugebauer (Germany), and Dr. Svante Lindqvist (Sweden).

President Yamazaki explained F-REI’s projects in detail to respective international advisor to enrich understanding of F-REI’s

activities, exchanging views on how to make F-REI an international research center. President Yamazaki also asked the international advisors for continuous cooperation including future visits to Japan. It was a good opportunity to reaffirm F-REI’s commitment to continuing its activities with appropriate advice and support from international advisors.



## Main Activities in FY2023

December 8, 2023

### First Working Group meeting on R&D, etc. was held (online).

The Working Group on Research and Development, etc. discusses coordination among organizations related to various measures for creating new industries in Fukushima, preparing an R&D environment that contributes to the enhancement of international competitiveness, dissemination of research results, developing and securing human resources, and other initiatives. The first meeting was held remotely, with the Reconstruction Agency reporting on its request for budget appropriation and facility development, followed by a status report on R&D and other activities and opinion exchange between F-REI and other group members.



January 12, 2024

### Second meeting of the R&D Council for Creation of New Industry, etc. was held. (Tomioka Town)

At the second meeting, which was attended by Mr. Hiraki, State Minister for Reconstruction, F-REI reported on its activities and meeting details for each working group. Additionally, the Reconstruction Agency described its request for budget appropriation for fiscal 2024 and facility development status. The council members then exchanged opinions on issues and other matters brought up in F-REI-hosted municipal roundtable discussions and the Regional Collaborative Working Group.



January 12, 2024

### Best F-REI logo chosen

F-REI reached out publicly for logo designs from April 21 to June 30, 2023. Logo designs submitted by 125 applicants across Japan were reviewed based on opinions from the general public and the Screening Committee, composed of experts.

After this process, Ms. Ayaka Takahashi's design was chosen as the best logo in recognition of its sense of excitement and familiarity as well as being original, ambitious, and challenging. In conjunction with the announcement of the best logo, an award ceremony was held to present an award certificate, introduce the logo, and take commemorative photos.

The concept of this logo is "people's ideas and the history that brought about F-REI connecting to the future." The bird's nest is tinged with six unique colors representing the six Tohoku prefectures including Fukushima, and the bird about to spread its wings to go global was designed based on the narcissus flycatcher, Fukushima's prefectural bird.



February 21, 2024

### Second Advisory Board meeting held (Namie Town)



At the second meeting, F-REI explained recent trends, followed by a lively exchange of views on policies in the five research areas and other matters with the advisors, who gave helpful advice. The advisors also toured facilities in the Hamadori area to further enhance insights.



February 23, 2024

### F-REI Forum—Applying environmental dynamics evaluation in community development—held (Iwaki City)

Purpose of the F-REI Forum is to report on its activities and research outcomes. Participants discuss the role of F-REI and other topics.

With a theme of "Applying environmental dynamics evaluation in community development," F-REI gave an update on its activities for reconstruction, revitalization, and community development, reporting on research outcomes regarding the

dynamics of radioactive substances in environments such as forests. Additionally, a panel discussion was held with enthusiastic debate on the role of F-REI and expectations from F-REI going forward featuring participants active in local communities, research and educational institutions, and other fields.



## Memorandum of Understanding (MOUs), etc. for Collaborative Partnership

F-REI has signed MOUs with municipalities as well as institutions based in Fukushima Prefecture, such as companies, universities, and high schools, to move ahead with activities in a unified manner with local communities.

By signing MOUs, F-REI widens its circle of cooperation, enhances its visibility, helps people understand its activities, and builds a network to co-create the future of Fukushima.

# 2023

### 4/1 MOU concluded with National Institute of Technology, Fukushima College

We concluded an MOU with the National Institute of Technology, Fukushima College to cooperate in R&D, human resource development, and other areas.



### 4/5 MOU concluded with Fukushima Medical University

We concluded an MOU with Fukushima Medical University to cooperate in R&D, human resource development, and other areas.



### 4/15 MOU concluded with Iwaki City

We concluded an MOU with Iwaki City to promote collaborative activities making effective use of the resources of both parties for information exchange and dissemination.



### 5/17 MOU concluded with Fukushima University

We concluded an MOU with Fukushima University to cooperate in R&D, human resource development, and other areas.



### 5/29 MOU concluded with Namie Town

We concluded an MOU with Namie Town to promote collaborative activities, making effective use of the resources of both parties for information exchange and dissemination.



### 5/30 MOU concluded with University of Aizu

We concluded an MOU with University of Aizu to cooperate in R&D, human resource development, and other areas.



### 9/1 MOU concluded with Minamisoma City

We concluded an MOU with Minamisoma City to promote collaborative activities, making effective use of the resources of both parties for information exchange and dissemination.



# 2024

### 1/25 Comprehensive collaborative partnership agreement signed with The Toho Bank, Ltd.

We concluded a comprehensive collaborative partnership agreement with The Toho Bank, Ltd. to promote mutually beneficial cooperation in relation to the enhancement of F-REI's visibility, creation of networks with local companies, and practical implementation of research results.



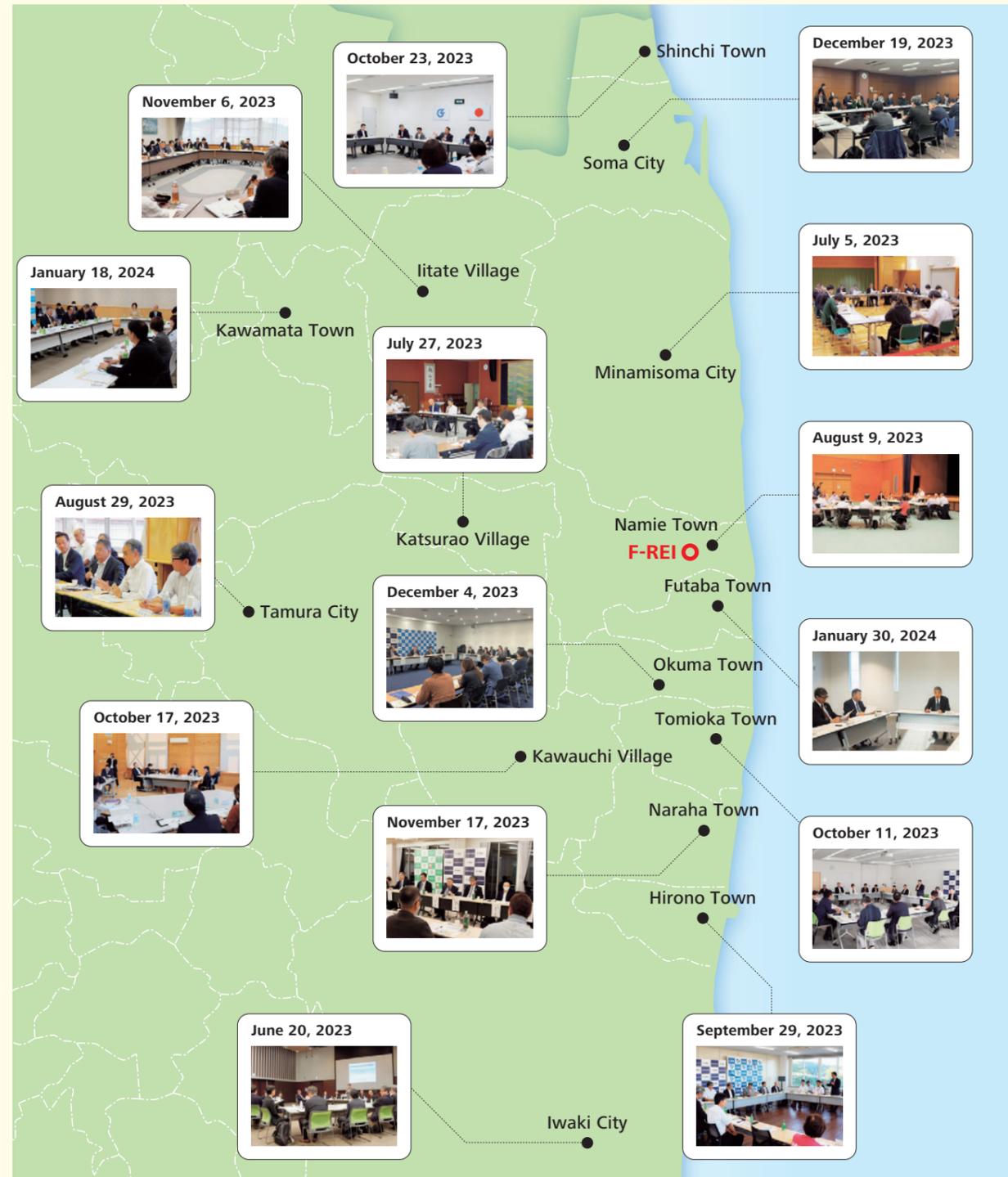
### 3/8 MOU/agreement on educational and research cooperation concluded with Tohoku University

We concluded an MOU with Tohoku University to cooperate in R&D, human resource development, and other areas. In addition, following the conclusion of an agreement on educational and research cooperation, Cooperative Graduate School, the "Collaborative Department of Radiation Environment Biomedical Sciences," has been set up in Medical Science at the Tohoku University Graduate School of Medicine. This is F-REI's first joint graduate school initiative. The two institutions work in partnership to develop human resources in providing graduate students with education, research guidance, etc.



# Municipal Roundtable Discussions

Aiming to build a wide-area collaboration system for R&D, industrialization, and human resource development initiatives undertaken by F-REI, municipal roundtable discussions were held in 15 municipalities in Hamadori and other areas to conduct discussions with various entities, such as municipalities, companies, organizations, and local residents.



[June 20, Iwaki] Visit to an agricultural corporation (tomatoes) and energy-related company, followed by round-table discussions.



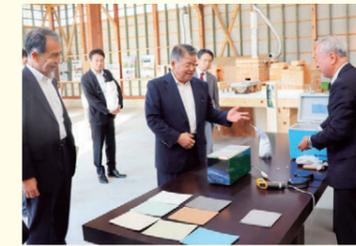
[September 29, Hirono] Visit to a thermal power plant, a banana cultivation facility, and a university satellite lab, followed by round-table discussions.



[November 17, Naraha] Visit to a development and demonstration facility for remote control equipment and a sweet potato storage facility, followed by round-table discussions.



[July 5, Minamisoma] Visit to an agricultural corporation (mainly broccoli), a vaccine manufacturer, and a robotics-related company, followed by round-table discussions.



[October 11, Tomioka] Visit to a decommissioning-related product manufacturer and a lumber product (panel log) manufacturer, followed by round-table discussions.



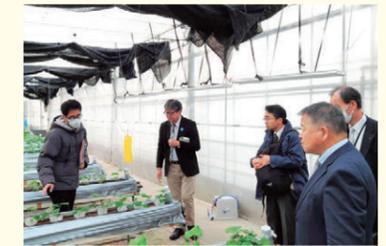
[December 4, Okuma] Visit to an incubation facility and Manabiya Yumenomori (learning center) followed by round-table discussions.



[July 27, Katsurao] Visit to a dairy farmer, an agricultural corporation (flowers), and a land-based shrimp farmer, followed by round-table discussions.



[October 17, Kawauchi] Visit to a winery and a factory for construction machinery parts, followed by round-table discussions.



[December 19, Soma] Visit to a smart community demonstration facility and a wasabi cultivation facility, followed by round-table discussions.



[August 9, Namie] Visit to an agricultural corporation (flowers), a laminated wood manufacturing facility, and a concrete product manufacturer, followed by round-table discussions.



[October 23, Shinchi] Visit to a natural gas power plant and a plastic product manufacturing plant, followed by round-table discussions.



[January 18, Kawamata] Visit to a plant vaccine factory and a wire harness and cable manufacturing factory, followed by round-table discussions.



[August 29, Tamura] Visit to a plant factory, forest cooperative, a bell pepper and hop farmer, and biomass power plant, followed by round-table discussions.



[November 6, Iitate] Visit to a metal product manufacturer and a wood biomass power plant, followed by round-table discussions.



[January 30, Futaba] Visit to a nanomaterial manufacturing plant, a drone maintenance factory, and a yarn manufacturing facility, followed by round-table discussions.

# Top Seminar

As part of its human resource development initiatives targeting the younger generations that will bear the future of the region and support the creative reconstruction and development of Fukushima over the medium-to-long term, F-REI has been holding seminars where F-REI executives are among those serving as lecturers to generate interest in and convey the possibilities of cutting-edge science and technology to students.

May 17	Fukushima University
May 30	University of Aizu
June 13	Soma High School
June 30	Aizu Gakuho Junior High & High School
July 4	Aizu High School
July 13	Odaka Industrial Technology and Commerce High School
August 31	Asaka High School
September 12	Futaba Mirai Gakuen High School

September 25	National Institute of Technology, Fukushima College
September 26	National Institute of Technology, Fukushima College
October 4	Fukushima Medical University
October 4	Fukushima High School
November 7	Higashi Nippon International University
November 24	Fukushima University
December 1	Iwaki High School
December 7	Haramachi High School

## May 17, 2023 Fukushima University

Lecturer: President Yamazaki

A seminar was held for about 100 freshmen under the theme of "To Fukushima University students in the Faculty of Food and Agricultural Sciences: Recommendations on how to live life at your university."



## July 4, 2023 Aizu High School

Lecturer: Auditor Nakanishi

Auditor Nakanishi gave a seminar for about 240 second-year students on the topic of "Mysteries of Plants: The Path I Have Taken." After the lecture, students actively asked questions, demonstrating a high level of interest.



## September 25, 2023 National Institute of Technology, Fukushima College

Lecturer: Auditor Morishita

A seminar on "Intelligent Robotics Research at F-REI" was given to about 70 third-year students from the Departments of Mechanical System Engineering and Electrical and Electronic System Engineering, followed by a lively Q&A session.



## November 7, 2023 Higashi Nippon International University

Lecturer: President Yamazaki

With the theme of "To the Students at Higashi Nippon International University—To Become Future Leaders," he presented the fascination and potentiality in advanced science and technology to about 60 sophomores from the Faculties of Economics and Management and Health and Welfare.



## May 30, 2023 University of Aizu

Lecturer: President Yamazaki

A seminar was held for about 240 freshmen and others under the theme of "To the students of the School of Computer Science and Engineering at the University of Aizu: Recommendations on how to live life at your university."



## July 13, 2023 Odaka Industrial Technology and Commerce High School

Lecturer: Auditor Morishita

With the theme of "Robotics Research that F-REI is aiming for," a seminar was held for about 100 second-year students, delivering an enthusiastic message about the future of robotics research.



## September 26, 2023 National Institute of Technology, Fukushima College

Lecturer: President Yamazaki

"To the students at the National Institute of Technology, Fukushima College, who will live through the 21st century" was the theme of a seminar presented to about 120 third-year students from the Departments of Applied Chemistry and Biochemistry, Civil and Environmental Engineering, and Business Communication.



## November 24, 2023 Fukushima University

Lecturer: Vice President Emura

On the theme of "Be an innovator!—What I want university students to try," Vice President Emura delivered his message as a researcher of optical communication technology to about 170 freshmen in the Faculty of Symbiotic Systems Science.



## June 13, 2023 Soma High School

Lecturer: Executive Director Owada

Executive Director Owada shared the "importance of education, research, and innovation" rooted in anatomy and neuroscience, his areas of expertise, with about 160 second-year students.



## August 31, 2023 Asaka High School

Lecturer: Executive Director Owada

Executive Director Owada delivered a message to about 40 second-year students and other attendees who will support innovation in the next generation. The seminar was on the topic of "My medical research and what F-REI is aiming for."



## October 4, 2023 Fukushima Medical University

Lecturer: Auditor Nakanishi

The seminar "Isotopes and radiation are wonderful tools that break new ground in research" delivered by Auditor Nakanishi to about 180 freshmen conveyed potential uses of radiation.



## December 1, 2023 Iwaki High School

Lecturer: Auditor Morishita

With the theme of "Cutting-edge research, from mechanical engineering to biomedical engineering," current researches on AI and medical engineering were introduced to about 280 second-year students.



## June 30, 2023 Aizu Gakuho Junior High & High School

Lecturer: Executive Director Owada

A seminar was held on the subject of "My medical research and F-REI" for about 680 junior high and high school students. Their feedback were "interesting" and "easy to understand."



## September 12, 2023 Futaba Future School

Lecturer: President Yamazaki

A seminar was held for about 130 second-year students with the title of "To Students at Futaba Future School: To Become Future Leaders," conveying the importance of "learning how to think things through."



## October 4, 2023 Fukushima High School

Lecturer: Executive Director Owada

At a seminar for about 50 first-year students on "My medical research and F-REI," Executive Director Owada encouraged the students by delivering presentation, "Experience is a stepping stone for tomorrow."



## December 7, 2023 Haramachi High School

Lecturer: Executive Director Owada

With the theme of "My medical research and F-REI," Executive Director Owada presented to about 140 second-year students and delivered his heartfelt message, "wishing the students to be a person who could lead Fukushima and the world in the future."



## President / Vice Presidents / Executive Directors / Auditors

 <p><b>President</b> <b>Dr. Koetsu Yamazaki</b></p> <p>1976 Master of Engineering, Graduate School of Engineering, Kanazawa University 1982 Doctor of Engineering, Osaka University 1994 Professor of Engineering, Kanazawa University</p> <p>2014 President of Kanazawa University 2022 Special Advisor at Kanazawa University 2022 Special Advisor to the Reconstruction Agency 2023 Incumbent</p>	 <p><b>Vice President (R&amp;D Management)</b> <b>Dr. Katsumi Emura</b></p> <p>1982 Master of Engineering, Graduate School of Engineering, University of Tokyo 1992 Doctor of Engineering, University of Tokyo 2016 Director, Executive Vice President, and CTO at NEC Corporation 2022 Senior Advisor at NEC Corporation 2023 Incumbent</p>	 <p><b>Vice President (Administrative Supervisor)</b> <b>Naohito Kimura</b></p> <p>1992 Graduated from the Department of Chemistry, Faculty of Science, University of Tokyo 1998 MPA (Master of Public Administration), School of International and Public Affairs, Columbia University 2022 Director-General, Ministry of Education, Culture, Sports, Science and Technology 2023 Incumbent</p>
 <p><b>Executive Director (Business Planning and Industrialization)</b> <b>Toshihiro Bannai</b></p> <p>1994 Master of Engineering, Graduate School of Engineering, University of Tokyo 2002 Master of Science, Nuclear Engineering Department, Massachusetts Institute of Technology 2022 Counselor at the Reconstruction Agency 2023 Incumbent</p>	 <p><b>Executive Director (Human Resource Development, Global Issues, External Funds)</b> <b>Dr. Yuji Owada</b></p> <p>1989 Graduated from the School of Medicine, Tohoku University (with medical license) 1996 Doctor of Medicine, Graduate School of Medicine, Tohoku University 2006 Professor at the Graduate School of Medicine, Yamaguchi University 2015 Professor at the Graduate School of Medicine, Tohoku University 2020 Special Assistant for the President at Tohoku University 2023 Incumbent</p>	 <p><b>Auditor (Part-Time)</b> <b>Dr. Shin Morishita</b></p> <p>1983 Doctor of Engineering, Graduate School of Engineering, University of Tokyo 1997 Professor of Faculty of Engineering, Yokohama National University 2015 Director and Vice President of Yokohama National University 2020 Professor Emeritus of Yokohama National University 2021– Director of Niigata University 2023 Incumbent</p>
 <p><b>Auditor (Part-Time)</b> <b>Dr. Tomoko Nakanishi</b></p> <p>1978 Doctor of Science, Graduate School of Science, University of Tokyo 2001 Professor at the Graduate School of Agricultural and Life Sciences, University of Tokyo 2014 Member of the Japan Atomic Energy Commission of the Cabinet Office 2016 Professor Emeritus and Specially Appointed Professor of University of Tokyo 2019 President of Hoshi University (current Professor Emeritus) 2023 Incumbent</p>		

## Field Managers and Vice Field Managers

<p><b>1 Robotics</b></p>  <p><b>Field Manager</b> <b>Dr. Kenzo Nonami</b> Chairman of the Japan Drone Consortium</p>  <p><b>Vice Field Manager</b> <b>Dr. Fumitoshi Matsuno</b> Specially Appointed Professor, Osaka Institute of Technology</p>	<p><b>2 Agriculture, Forestry, and Fisheries</b></p>  <p><b>Field Manager</b> <b>Dr. Akihiro Sasaki</b> Advisor, Tokyo NODAI Research Institute Former Senior Vice-President at the National Agriculture and Food Research Organization</p>  <p><b>Vice Field Manager</b> <b>Dr. Tomohito Arai</b> Former Director-General at the Central Region Agricultural Research Center, NARO</p>
<p><b>3 Energy</b></p>  <p><b>Field Manager</b> <b>Dr. Akira Yabe</b> Fellow, NEDO Technology Strategy Center</p>  <p><b>Vice Field Manager</b> <b>Shirabe Akita</b> Honorary Special Advisor, Central Research Institute of Electric Power Industry</p>  <p><b>Vice Field Manager</b> <b>Dr. Yoshinori Nishikitani</b> Adjunct Researcher, Research Organization for Nano &amp; Life Innovation, Waseda University</p>	<p><b>4 Radiation Science, Medicine, and Drug Development</b></p>  <p><b>Field Manager</b> <b>Dr. Kazunori Kataoka</b> Director-General, Innovation Center of NanoMedicine, Kawasaki Institute of Industrial Promotion</p>  <p><b>Vice Field Manager</b> <b>Dr. Shunichi Yamashita</b> Vice President at Fukushima Medical University</p>  <p><b>Vice Field Manager</b> <b>Masamichi Chino</b> Executive Director, National Institutes for Quantum Science and Technology (assumed post on April 1, 2024)</p>
<p><b>5 Collection and Dissemination of Data and Knowledge on Nuclear Disasters</b></p> <p style="text-align: center;"><b>Field managers and vice field managers are being selected.</b></p>	

## International Advisor Group

 <p><b>Dr. Svante Lindqvist</b> Founder of the Nobel Museum</p> <p>Dr. Svante Lindqvist is an internationally renowned scholar in the history of science and technology and has served as President of the Royal Swedish Academy of Sciences (2009–2012) and Marshall of the Realm to the Swedish Royal Court (2010–2018). He is also a founding director of the Nobel Museum in Stockholm, Sweden, and served in the position for 11 years. As an honorary member of the Japan Academy, he has significantly contributed to academic exchange between Sweden and Japan.</p>	 <p><b>Prof. Reimund Neugebauer</b> Former President of the Fraunhofer-Gesellschaft</p> <p>Dr. Reimund Neugebauer headed the Fraunhofer-Gesellschaft e.V. (2012–2023), a leading applied research institute based in Germany, as President for 11 years. After studying mechanical engineering at the Technical University of Dresden, he served as Executive Director of the Fraunhofer Institute for Machine Tools and Forming Technology (1994–2012) and Managing Director of the Institute for Machine Tools and Production Processes at TU Chemnitz (2000–2012). Since 2022, he has been a member of the Future Council of the Federal Chancellor of Germany.</p>
 <p><b>Dr. Fiona Rayment</b> Vice Chair of the OECD/NEA Steering Committee</p> <p>Dr. Fiona Rayment has contributed to the nuclear energy sector in strategic and operational aspects for over 30 years. As a chemistry and engineering expert, she holds positions as a Fellow of the Royal Academy of Engineering, in the Royal Society of Chemistry, and at the UK National Nuclear Laboratory. She is also a regular keynote speaker at international nuclear conferences and Vice Chair of the Steering Committee of the Organization for Economic Cooperation and Development/Nuclear Energy Agency (OECD/NEA). While supporting growth in diversity in science for years, she is leading women, people with disabilities, and other individuals in roles in the nuclear sector.</p>	 <p><b>Dr. Subra Suresh</b> Former Director of NSF</p> <p>Dr. Subra Suresh is an internationally recognized scholar in the fields of materials science and engineering, mechanical engineering, bioengineering, and health science and technology. and served as Director of the U.S. National Science Foundation (NSF) from 2010 to 2013. Under his leadership, NSF programs and initiatives have placed the United States at the vanguard of science and engineering, produced next-generation scientists and engineers, and advanced economic growth and innovation. He was also President of Carnegie Mellon University (2013–2017) and Nanyang Technological University (2018–2022).</p>

## Advisory Board

 <p><b>Kazuhiko Ishimura</b> President of AIST</p> <p>1979 Master of Engineering, Graduate School of Engineering, University of Tokyo 2008 Representative Director, President and Executive Officer at Asahi Glass Co., Ltd. (now AGC Inc.) 2015 Chairman and Representative Director at Asahi Glass Co., Ltd. (until 2021) 2018– Vice Chairman, Keizai Doyukai (Japan Association of Corporate Executives) 2020– President, National Institute of Advanced Industrial Science and Technology (AIST) 2021– President and CEO, AIST</p>	 <p><b>Dr. Kyosuke Nagata</b> President, University of Tsukuba</p> <p>1981 Doctoral Program, Graduate School of Pharmaceutical Sciences, University of Tokyo 1985 Research Assistant, Department of Molecular Genetics, National Institute of Genetics 1991 Assistant Professor, Department of Life Science and Technology, Tokyo Institute of Technology 2001 Professor, Institute of Basic Medical Sciences, University of Tsukuba 2013– President, University of Tsukuba</p>
 <p><b>Dr. Yuko Harayama</b> Professor Emeritus, Tohoku University</p> <p>1996 Doctor of Education, University of Geneva 1997 Doctor of Economics, University of Geneva 2002 Professor, Graduate School of Engineering, Tohoku University 2013 Full-time Member of the Council for Science, Technology and Innovation (until 2018) 2013– Professor Emeritus, Tohoku University 2020 Executive Director, RIKEN (until 2022)</p>	 <p><b>Dr. Hajimu Yamana</b> President of NDF</p> <p>1981 Doctor of Engineering, Tohoku University 2002 Professor, Backend Engineering Research Division, Kyoto University Research Reactor Institute 2013 President, International Research Institute for Nuclear Decommissioning (IRID) (until 2014) 2015– President, Nuclear Damage Compensation and Decommissioning Facilitation Corporation (NDF)</p>

## Special Advisors for the President

 <p><b>Tomoko Namba</b> Founder and Executive Chairman, DeNA</p> <p>1999 DeNA Co., Ltd. founded CEO (until 2011) 2017– Executive Chairman, DeNA Co., Ltd. 2021– Vice Chairman, Keidanren (Japan Business Federation)</p>	 <p><b>Dr. Shunichi Yamashita</b> Vice President at Fukushima Medical University</p> <p>2013 Director and Vice President, Nagasaki University (until 2017) 2018– Special Assistant to the President and Vice President at Fukushima Medical University 2021 Director General of the National Institutes of Radiological Sciences at the National Institutes for Quantum Science and Technology (until 2023)</p>
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\*All titles in this document are as of the time of publication.

## Activities in FY2023

2023	
April 1	F-REI Opening Ceremony
April 1	MOU concluded with National Institute of Technology, Fukushima College
April 5	Opening ceremony of the F-REI Fukushima Medical University Research Branch
April 5	MOU concluded with Fukushima Medical University
April 7	Approval of medium-term plan and business implementation plan, including subsidies
April 14	Determination of International Advisor Group
April 15	F-REI Iwaki Office opening ceremony
April 15	MOU concluded with Iwaki City
April 15	Symposium commemorating the establishment of F-REI held (Iwaki City)
April 19	ICRU International Symposium “Revitalization of Fukushima and Radiation Measurement” held (Iwaki City)
April 28	Research and Development Operations Plan for FY2023 (Annual Plan) submitted
May 1	Determination of Advisory Board
May 8	Determination of Special Advisors for the President
May 10	First meeting of the R&D Council for Creation of New Industry, etc. held (Okuma Town)
May 17	MOU concluded with Fukushima University
May 17	F-REI Top Seminar held (Fukushima University)
May 29	MOU concluded with Namie Town
May 30	MOU concluded with University of Aizu
May 30	F-REI Top Seminar held (University of Aizu)
June 13	F-REI Top Seminar held (Soma High School)
June 20	Municipal roundtables held (Iwaki City)
June 29	Trip to Germany
–July 4	(the President was among those visiting the Headquarters of Fraunhofer-Gesellschaft, etc.)
June 30	F-REI Top Seminar held (Aizu Gakuho Junior High & High School)
July 4	F-REI Top Seminar held (Aizu High School)
July 5	Municipal roundtables held (Minamisoma City)
July 7	Call for a commissioned research project for “Promotion of Agriculture, Forestry and Fisheries” issued
July 13	F-REI Top Seminar held (Odaka Industrial Technology and Commerce High School)
July 14	Determination of Field Managers and Vice Field Managers
July 27	Municipal roundtables held (Katsurao Village)
July 28	Call for a commissioned project for “Research and Development of Bio-integrated Green Chemical Technology” issued
July 28	Call for a commissioned project for “Research and Development of Core Technologies for Negative Emissions” issued

August 2	Call for a commissioned project for “Standardization of Performance Evaluation Methods for Marketization and Industrialization of Field Robots, etc.” issued
August 4	Call for a commissioned project for “Advanced Remote Technology for Decommissioning and its Application in the Outer Space Field” issued
August 4	Call for a commissioned project for “Research and Development Project to Promote the utilization of Robots and Drones in Harsh Environments” issued
August 4	Call for a commissioned project for “Development of methodologies to evaluate the influence of human activities on radionuclides transport in the environment and the effectiveness of measures to control such transport” issued
August 4	Call for a commissioned project for “Policy Planning Research that Contributes to Solving Problems for Reconstruction from Nuclear Disasters” issued
August 4	Call for a commissioned project for “Community Development Research and Learning/Community Hub Development Project in the Fukushima Hamadori Area” issued
August 8	Call for a commissioned project for “Development of Radioisotope (RI) Imaging Technologies Aimed to Enhance Agricultural Productivity and Sustainable Agriculture and Demonstration of the Developed Technologies” issued
August 9	Municipal roundtables held (Namie Town)
August 10	Call for a commissioned project for “Research and Development of Hydrogen Energy Network Construction” issued
August 29	Municipal roundtables held (Tamura City)
August 30	Call for a commissioned project for “Feasibility study on technologies, such as ultra-large X-ray CT device, which promote digitalization of industries” issued
August 31	F-REI Top Seminar held (Asaka High School)
September 1	MOU concluded with Minamisoma City
September 1	Call for a commissioned project for “Research and Development Project of sensor technology for drones for disaster prevention and response” issued
September 12	Lectures given to science teachers at high schools in Fukushima (Futaba Future School)
September 12	F-REI Top Seminar held (Futaba Future School)
September 15	Call for a commissioned project for “Development of stable and efficient manufacturing technology for RI using accelerator” issued

September 25	F-REI Top Seminar held (National Institute of Technology [NIT], Fukushima College)
September 26	F-REI Top Seminar held (National Institute of Technology [NIT], Fukushima College)
September 27	First meeting of Working Group for Regional Collaboration was held (Naraha Town)
September 29	Municipal roundtables held (Hirono Town)
October 1–7	Trip to the U.S. (the President was among those visiting the Pacific Northwest National Laboratory [PNNL], etc.)
October 4	F-REI Top Seminar held (Fukushima Medical University)
October 4	F-REI Top Seminar held (Fukushima High School)
October 4	Call for a commissioned project for “Research and Development Project for Drones that Achieve Long Flight Times, High Payloads, and Carbon Neutrality” issued
October 11	Municipal roundtables held (Tomioka Town)
October 12	Second F-REI Industry-Academia-Government Networking Seminar held (Sendai City)
October 13	First Advisory Board Meeting held (Tokyo)
October 15	Science experiment class held for parents and children (Namie Town)
October 17	Municipal roundtables held (Kawauchi Village)
October 23	Municipal roundtables held (Shinchi Town)
October 26	On-site lecture provided (National Institute of Technology [NIT], Fukushima College)
November 6	Municipal roundtables held (Iitate Village)
November 7	F-REI Top Seminar held (Higashi Nippon International University)
November 10	Call for a commissioned project for “Research and Development on diagnostic and therapeutic drugs labeled with RI” issued
November 15	On-site lecture provided (Waseda University)
November 17	Municipal roundtables held (Naraha Town)
November 21	Lecture given for staff at NIT Fukushima College (National Institute of Technology [NIT], Fukushima College)
November 24	F-REI information session held for University of Aizu students and other attendees (Namie Town)
November 24	F-REI Top Seminar held (Fukushima University)
November 26	Trip to Europe (the President and other guests exchanged views with international advisors based in Europe)
–December 1	
December 1	F-REI Top Seminar held (Iwaki High School)
December 4	Municipal roundtables held (Okuma Town)
December 7	F-REI Top Seminar held (Haramachi High School)
December 8	First Working Group meeting on R&D, etc. was held (online)
December 19	Municipal roundtables held (Soma City)

December 26	F-REI information session held for high school students in natural science club activities in the Kenpoku and Soso Districts (Futaba Town)
2024	
January 8	Trial Course was held, F-REI Science Lab’s “Search for Radiation,” a learning opportunity for elementary and junior high school students planned by NIT Fukushima College students. (Iwaki City)
January 12	Second meeting of the R&D Council for Creation of New Industry, etc. was held. (Tomioka Town)
January 12	Best F-REI logo chosen
January 18	Municipal roundtables held (Kawamata Town)
January 25	Comprehensive collaborative partnership agreement signed with The Toho Bank, Ltd.
January 30	Municipal roundtables held (Futaba Town)
February 21	Second Advisory Board meeting held (Namie Town)
February 23	F-REI Forum—Applying environmental dynamics evaluation in community development—held (Iwaki City)
March 1	Call issued for Unit Leaders (PI) in the robotics and energy fields
March 8	MOU/agreement on educational and research cooperation concluded with Tohoku University
March 28	On-site training provided (human resource development for analysis of radioactive substances)

### Four Functions of F-REI

<span style="color: blue;">■</span> Research & Development	<span style="color: orange;">■</span> Industrialization
<span style="color: green;">■</span> Human resource development	<span style="color: purple;">■</span> Control Tower

On the occasion of the publication of “Year in Review”

**Dr. Katsumi Emura**  
Vice President (R&D Management)

We have defined F-REI’s research and development aims through discussion with field managers, deputy field managers, contractor researchers, and many other parties. We steadily move our initiatives forward to bring value to local communities, drawing more people in to work together to achieve the same goals.

**Naohito Kimura**  
Vice President (Administrative Supervisor)

Since we began our activities in April, we have been busy and the year went by quickly. Our activities may seem to be moving at a slow pace, but I’m confident the day will come when small efforts add up to achieve significant and tangible results. Please look forward to that day!

**Toshihiro Bannai**  
Executive Director (Business Planning and Industrialization)

In fiscal year 2023 Japan, the Nikkei Stock Average exceeded all-time high during the bubble era and Japan made its first successful moon landing. I hope this year, in which F-REI was established, will be recalled in the future by many people as the year Fukushima and other regions in the country began to regain their vitality.

**Dr. Yuji Owada**  
Executive Director  
(Human Resource Development, Global Issues, External Funds)

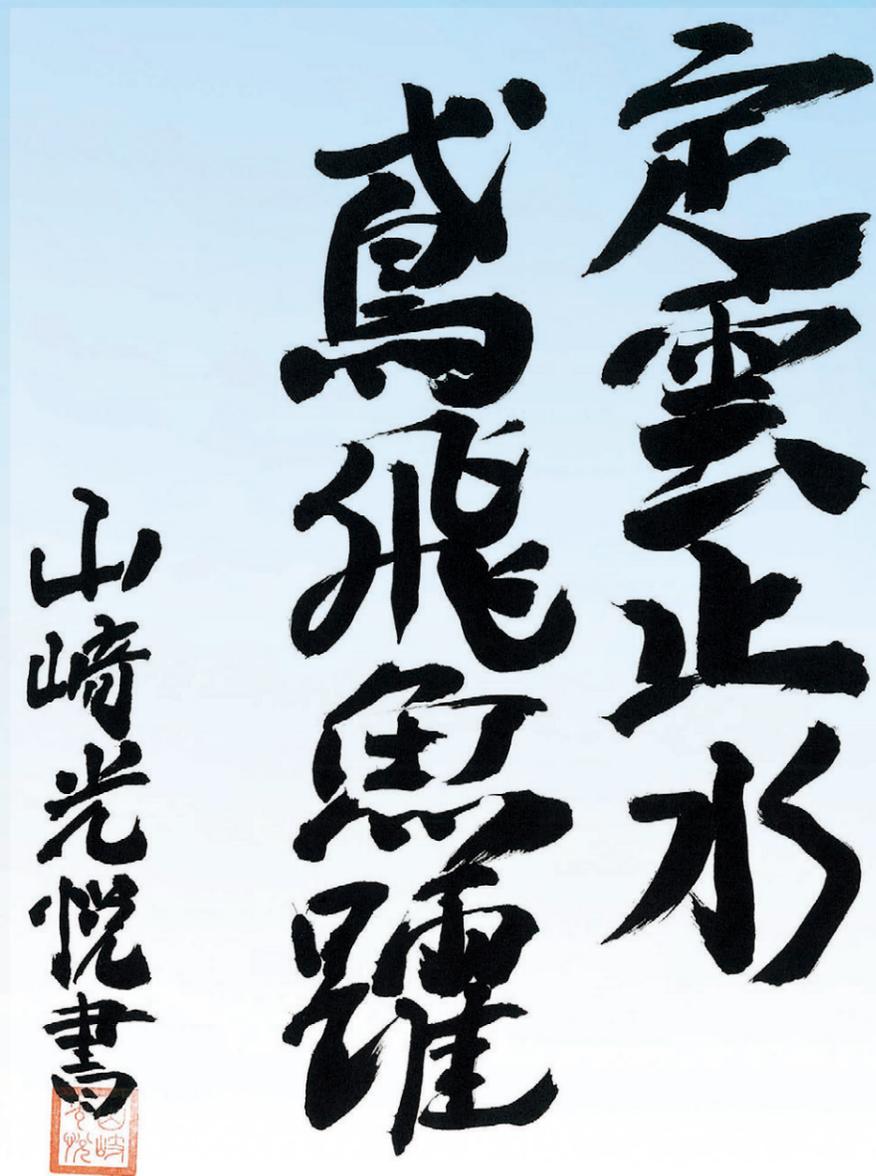
The beautiful Abukuma mountains seen from F-REI remain just the same as they used to be. However, over the past year, I have realized that the reconstruction of the town and restoration of people’s lives are still halfway complete. We do our best to help F-REI take root in the community and contribute to recovery as quickly as possible.

**Dr. Shin Morishita**  
Auditor (Part-Time)

Issai Sato, a Confucian scholar who stood as a spiritual pillar for many brilliant people at the end of the Edo era, wrote this in his Genshishiroku (Sato’s analects): “Walk in the darkness of the night with a lamp in my hand. I must not worry about the darkness, and trust the lamp.” His words about 200 years ago still resonate with us.

**Dr. Tomoko Nakanishi**  
Auditor (Part-Time)

It has been a year since I settled in Namie Town. Although I am still at a temporary residence, F-REI is somehow beginning to take shape as a result of the unified efforts of everyone involved. We will step up efforts toward full-scale operation.



“F-REI Year in Review” Editorial Postscript of Public Relations Team

“What is F-REI?”—This was our starting point, but it’s already been a year since then. We continue to move forward with our aspiration to “make the area a desirable place to live for everyone.” Please look forward to our future activities! (Editorial board members: Tanaka, Kawaguchi, Matsuba)



**[A steeplejack flies in motionless clouds, fish dance in still water.]**  
Being active but not too active, and making necessary movements in absolute stillness. Stillness in motion, motion in stillness.  
Excerpt from a Chinese classic “The Unencumbered Spirit—Reflections of a Chinese Sage”