Yasumasa Matsui Explores

the Frontlines of Nuclear Energy

Interpreting the Future of Energy Through Dialogues in the Field

Kohei Hisamochi
President of Hitachi GE Vernova Nuclear Energy

Yasumasa Matsui
Freelance Announcer and Journalist

Part 2 | INTERVIEW

—— Interview with Kohei Hisamochi, President of Hitachi GE Vernova Nuclear Energy

Taking the Nuclear Energy Business to the Next Phase. Accelerating Growth through Hitachi and GE Vernova's Collaborative Creation

—— Carve out a Future with Sincerity as Their Strength

The second part of Yasumasa Matsui Explores the Frontlines of Nuclear Energy features an interview with Kohei Hisamochi, who became President of Hitachi GE Vernova Nuclear Energy in April 2025. Nuclear power generation systems are again attracting attention as one of the stable energy systems that support a carbon-neutral and digital society. The nuclear energy business is entering a new stage because domestic power plants are restarting, small modular reactors are being commercialized, among other factors. Now Hitachi's Nuclear Energy business is required to increase the safety of nuclear power generation, gain the trust of society, and drive growth. What is on President Hisamochi's mind?

■ To be an engineer who harnesses nuclear energy for peaceful purposes

Matsui: Nice to meet you. Thank you for your time today. Let me introduce myself briefly. I joined TV Asahi Corporation in 1986 and worked as an announcer for 25 years. After Japan was hit by the Great East Japan Earthquake and the accident at the Fukushima Daiichi Nuclear Power Station in 2011, I became a dedicated nuclear accident journalist. Now, I work as a freelance announcer and journalist. You were appointed to be president of Hitachi GE Vernova Nuclear Energy in April 2025, President Hisamochi. Did you pursue a career as an engineer in the nuclear energy field before then?

Hisamochi: Yes. Since I joined Hitachi in 1993, I have mainly been engaged in safety measures. For example, I handled severe accident countermeasures for Boiling Water Reactors (BWR) and conducted Probabilistic Safety Assessments (PSA). PSA is a

method of assessing safety by calculating risks through quantifying the probability of various potential events at nuclear facilities and their impact.

Matsui: I have heard that you graduated from Kyushu University 's graduate school. Were you born in Kyushu?

Hisamochi: Yes. I was born in Matsuura, Nagasaki and lived there until I finished high school. I then studied nuclear engineering at Kyushu University and its graduate school.

Matsui: Why did you choose to study nuclear engineering at college?

Hisamochi: Growing up in Nagasaki, I often heard stories about the atomic bombing, which naturally led me to think deeply about war and nuclear energy. I concluded that what led Japan to war was that Japan lacked domestic resources, and I wanted to work to solve energy resource issues in the future. Hearing about the scientists who developed the atomic bomb made me strongly determined to become an engineer who could apply nuclear energy for peaceful ends.

Matsui: There are many different specialties in nuclear engineering. Did you start researching nuclear reactor safety assessment as a student?

Hisamochi: No. When I was a student, I aimed to be a researcher. I was interested in theoretical fields like quantum mechanics and particle physics. For example, I conducted experiments using accelerators to collide protons with metals and analyzed nuclear spallation reactions. This type of research can usually be applied in the medical field. When I was looking for a job, however, I wanted to contribute to efforts to support society as a whole, so I sought a job at an energy-related company.

Matsui: That's why you joined Hitachi. But why Hitachi?

Hisamochi: Because I wanted to be involved in manufacturing in the energy industry—in the construction of large nuclear facilities. There were not so many companies involved in that kind of business, and I chose Hitachi partly because people senior to me recommended the company. I used to discuss the ideal direction of nuclear technologies with them. I had the strong impression that this was a company seriously engaged in nuclear energy, and that also encouraged me to choose Hitachi.

Photos of President Hisamochi, who was born and brought up in Matsuura, Nagasaki (provided by President Hisamochi)

Understanding that this might be my final role in nuclear energy

Matsui: After joining Hitachi, you got involved in safety assessment, so you must have been working on the front lines of the industry when the accident at the Fukushima Daiichi Nuclear Power Station occurred.

Hisamochi: Although I was not at the site, I assessed the status of the plant, working with the Government-TEPCO Unified Response Headquarters that took charge of accident response at the head office of the Tokyo Electric Power Company (TEPCO). On the day of the accident, March 11, I was at the Japan Nuclear Safety Institute near Tamachi Station. We were having a meeting in the afternoon when the earthquake occurred. I had an overseas business trip scheduled after that, so I went to Keisei Ueno Station on foot and waited there. It was difficult to get through to anyone over the phone. When I managed to get through to the office in the evening, I was told to give TEPCO help because they were in serious trouble. I still remember it was very hard to go anywhere. In the company building itself, for instance, the elevators were out of service and we had to walk everywhere, up and down the stairs to the emergency response unit on the 29th floor.

Matsui: On the day, we, the press, gathered at TEPCO's head office. I experienced the seriousness of the situation gradually becoming clear in real time. You must have felt a considerable sense of crisis as you came into contact with information on the front lines of the response to the accident.

Hisamochi: As I mentioned earlier, I was working on severe accident countermeasures at the time. A severe accident is a situation where the core of reactor is significantly damaged. This was exactly what was happening at that time. In fact, I had helped develop the procedures for responding to a core meltdown together with TEPCO, so I had all the necessary steps in mind and was able to explain what needed to be done.

However, it was frustrating that we could not get all the information from the site. I was anxious—wondering if the data we couldn't see might point to a more serious situation. At the same time, I held on to hope, thinking, "We'll do everything we can with the data we do have," and "There are still options." Deep down, I was prepared for this to be my final role in the nuclear energy field, but I never gave up hope and tackled the situation with a determination to contribute all the knowledge I had as an engineer.

Matsui: We also felt strongly that we had to report the facts and avoid any misinformation. However, in some cases, even if data was disclosed properly, it was learned the data was wrong due to malfunctioning equipment. You were also in a difficult situation. You must have been young at that time.

Hisamochi: I was in my early 40s.

Matsui: To have calmly handled such a major accident at that age shows great strength of character. Knowing that someone like you is now leading Hitachi's nuclear energy business is reassuring—even though we must do everything to prevent another accident. Were you involved in the response efforts for some time afterward?

Hisamochi: Yes, I provided technical support for reactor core cooling for about six months. At the same time, I discussed safety measures with TEPCO in a way that could be applied in the current nuclear power plants that incorporated lessons from the accident. As someone responsible for plant safety, I was committed to doing everything I could.

Expanding global operations by combining the strengths of Hitachi and GE

Matsui: At that time, Hitachi and the General Electric Company (GE) (currently, GE Vernova) had already formed a joint venture. Did you get any support for your accident response activities?

Hisamochi: We kept in touch with people related to safety measure technologies of our sister company in the US, GE Hitachi Nuclear Energy (currently, GE Vernova Hitachi Nuclear Energy). In the U.S., they had experience with a meltdown at the Three Mile Island nuclear power plant. It was not designed by GE, but the engineers shared their experience and the lessons they learned. They gave advice about controlling reactors during the severe accident at Fukushima.

Matsui: Hitachi GE Nuclear Energy, Ltd. (currently, Hitachi GE Vernova Nuclear Energy, Ltd.) was founded in 2007. It has been almost 20 years since then. I think the relationship of collaborative creation has steadily deepened.

Hisamochi: Yes, I think so, too. Our company was originally founded by Hitachi and GE to globally deliver the latest BWR technologies. In 2024, GE spun off its energy-related businesses, including nuclear, into GE Vernova. As a result, we changed our name to Hitachi GE Vernova Nuclear Energy, Ltd. on June 1 this year. Our U.S. sister company is now GE Vernova Hitachi Nuclear Energy.

GE Vernova, having developed BWRs, has improved their basic design. Hitachi, on the other hand, has continually manufactured and constructed the major equipment for nuclear reactors over the approximately 70 years since it began its nuclear energy business in the 1950s. We are working to advance nuclear technologies and enhance their value by combining the technologies, experience and areas of specialization of the two companies.

Specific examples of collaborative creation include the development of large reactors such as the simply designed Economic Simplified Boiling Water Reactor (ESBWR) which makes natural-circulation cooling possible, the innovative light-water reactor, Highly Innovative Advanced BWR (HI-ABWR), an evolution of the international standard ABWR which is undergoing design certification in the U.K., the BWR-300 small light-water reactor that is a balance of economic efficiency and safety, the development of small reactors such as the power reactor innovative small module (PRISM), a metal-fueled sodium-cooled fast reactor and the maintenance of existing nuclear reactors. The permitting and licensing procedures for the construction of a nuclear power plant are time-consuming and laborious. GE Vernova Hitachi Nuclear Energy is familiar with regulations overseas, including in North America. Our strengths include our manufacturing (monozukuri) and demonstration capabilities. The two companies working together can advance their global expansion.

Developing new safety technologies and promoting digitalization in the field of nuclear energy

Matsui: I suspect that your activities to develop and implement new safety technologies reflect the lessons learned from the accident at the Fukushima Daiichi Nuclear Power Station. What are some examples of this?

Hisamochi: It is important to consider Common Cause Failures (CCFs) when working to improve the safety of nuclear power plants, in addition to the lessons learned from Fukushima. CCFs are when multiple machines or systems, which are designed to be redundant to ensure safety, fail at the same time due to a common cause. Measures to prevent CCFs include avoiding the use of common designs or parts to increase the diversity of the systems, or increasing the independence of the individual systems.

For instance, in the design of the Economic Simplified Boiling Water Reactor (ESBWR), Highly Innovative Advanced BWR (HI-ABWR), and BWRX-300, Hitachi GE Vernova Nuclear Energy increased the diversity of the cooling systems used in these nuclear reactors. Conventional nuclear reactors include pumps that use electricity in the systems that cool reactors or inject water into the reactors in the event of an accident. Unlike these conventional reactors, the new reactors have passive safety systems that can cool the reactors

using natural circulation when the supply of electricity has been cut off.

HI-ABWRs are equipped with systems that can cool debris passively in the event of a core meltdown, incorporating the design and expertise and knowledge regarding safety that has been accumulated during the development and operation of ABWRs. In addition, HI-ABWRs have multi-stage safety systems to respond to accidents, including newly developed filters that limit the dispersal of radioactive materials outside the reactor. The small modular reactor market is attracting attention worldwide. In this market, we are concentrating on the BWRX-300. It uses an integrated reactor separation valve that directly connects the reactor pressure vessel (RPV) to a separation valve to reduce the risk of damaged piping. It also uses a natural-circulation core cooling system. While it is of course important to have multiple layers of measures for handling accidents, we should focus more on measures to prevent meltdown accidents from occurring in the first place.

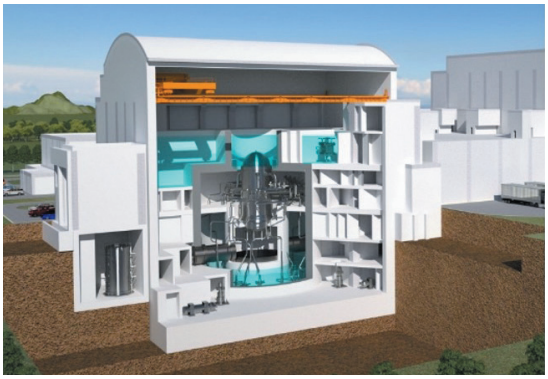
Matsui: In recent years, the digitalization of society has increased radically. The Hitachi Group is also promoting digital innovation in its Lumada business. Is the use of digital technologies accelerating in the nuclear energy field as well?

Hisamochi: Yes. We are accelerating our use of digital technologies in nuclear facilities to solve two issues mainly.
One is the improvement of business processes at nuclear power plants. Monitoring and other operations at nuclear power plants are heavy burdens because the reactors are complex and have many components. There are a large number of processes ranging from construction to management, and person-power is necessary to record data in each process. That is the first issue. We have great expectations regarding the labor-saving capabilities of digital technologies while they also maintain the accuracy, safety and reliability of operations.

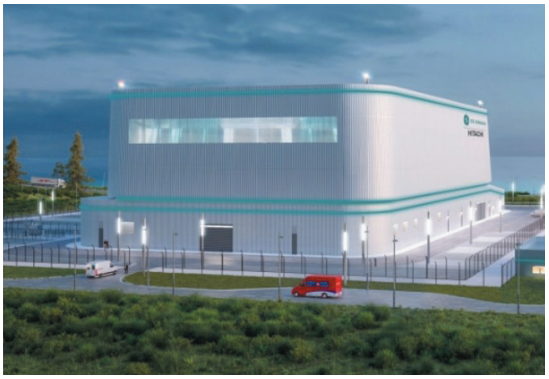
The second issue is the utilization of human resources. The working age population will continue to decrease in the future. It is necessary to use digital technologies to allow the knowledge of skilled workers to be widely shared with the young workers at design and construction sites to maintain the quality of our operations.

To promote the digital transformation (DX) of the field of nuclear energy, we established the Digital Transformation Division in FY2024. In collaboration with the Hitachi Group's digital engineering company GlobalLogic and other companies, we developed a system to reproduce a nuclear power plant in a metaverse space. This system reflects information about the design, construction, maintenance, and management of the reactor, serving as a platform for sharing data and the knowledge of skilled workers. This is the embodiment of Lumada 3.0, which is working to solve the issues that society and our customers are facing by converting data into value using Hitachi's domain knowledge and AI technologies. We are also accelerating initiatives to utilize generative AI to support the preparation of reports and manuals.

In reality, the digitalization of the field of nuclear energy has been slow because safety, reliability, and security are more important in this field than in other



Innovative light-water reactor "HI-ABWR"



Light-water small modular reactor "BWRX-300"

industries. The Hitachi Group has been cultivating information technology, operational technology and information security technology for many years. Through collaborative creation with related business divisions, we aim to lead the industry in digitization.

Creating opportunities for hands-on experience with new reactors to develop human resources in the field of nuclear energy

Matsui: You have mentioned that human resources is a key phrase. Is the number of people that want to work in the field of nuclear energy growing?

Hisamochi: After the 3/11 disaster, the number dropped of course. Since then, we have welcomed more newcomers who expect the company to expand its business overseas or were willing to contribute to the revitalization and decommissioning activities in Fukushima. My impression is that more people are motivated by a desire to help solve energy issues. Maybe this is because the news coverage of carbon neutrality and the surging prices of energy prices is increasing. There are also new employees who want to contribute to the revitalization of Fukushima and decommissioning of the Fukushima Daiichi Nuclear Power Station using technologies just because they are difficult challenges. It makes me feel reassured to have human resources like this available to us.

Matsui: However, Japan is concerned about the future decrease of the number of workers throughout the country. What do you think about the efforts to develop human resources in the field of nuclear energy?

Hisamochi: Today, the most serious issue is the difference in the degree of experience that the different generations of workers have. People in their 50s and 60s are the only generations who have experienced whole projects, from design to construction and operation. People in their 30s and 40s have only experienced parts of a project, such as the reinforcement of the seismic performance of reactors. It is important to raise employees' overall experience level by bridging these generational gaps in future human resource development efforts.

In my own experience, as soon as I entered the company, Units 6 and 7 at the Kashiwazaki-Kariwa Nuclear Power Station had just started operating. I was only involved in severe accident analysis for a very short period of time, so, I did not feel that I could contribute well in that area. However, after that, I participated in multiple projects, which allowed me to gain a lot of valuable experience.

Ideally, we would have multiple nuclear power plants operating by gaining the understanding and trust of society, and we would renovate or replace these power plants with new ones every several years. This will create an environment where all of the engineers of every generation can gain experience in the various phases of projects, and this will further our human resource development efforts. However, we will concentrate on overseas projects due to the difficulty of the current domestic situation. I would like to increase the number of short-term projects as much as possible. In this area, small modular reactors are promising. The BWRX-300 has advantages in terms of its cost competitiveness, short construction period and improved reliability and safety. If the number of projects increases due to the acceleration of BWRX-300 projects, there will be more opportunities for engineers to gain experience in the various phases of projects.

We have enhanced our systems, including internal training systems, so that our employees are able to hand down skills to the next generation of employees, but the best place for doing this is still nuclear power plant construction sites. Having an overall plan makes it possible to develop a structured guidance system. Practical guidance during hands-on work is an effective way to enable experienced personnel to transfer skills and expertise to younger employees.

One of my key roles is to create more opportunities such as these. We are moving forward with a BWRX-300 construction project in Canada. In other countries, we are moving forward with the licensing and permitting procedures, and the reactor is being examined as one of the possible candidates for planned new reactor projects. We are concentrating on accelerating the selection of the BWRX-300 for these projects.

Integrity to restore trust in nuclear technology and global strategies

Matsui: Previously, it would take almost 30 years to construct a nuclear power plant, starting with the selection of its location. Now, small modular reactors are developed, and DX is advancing in the field of nuclear energy. We are facing an era where the commonly held beliefs of the past are outdated—in a positive way. The field of nuclear energy is becoming more appealing.

Hisamochi: Even though there are tailwinds in the nuclear power industry, I don't think nuclear energy has gained the full trust of society yet. What we can do is first develop technologies and then, we need to strive to enable society to understand our business and work to restore their trust in our industry.

It is important to maintain the basic value that we provide through technologies and skills that are reliable, certain, and safe, especially in the field of nuclear energy. Sincerity is a particularly important part of this as one of the elements of the Hitachi Founding Spirit that we have preserved carefully: harmony, sincerity and pioneering spirit. I think all of the senior and junior employees and colleagues with whom I have worked to date have been people who have been committed to sincerity. We have developed an attitude that is essential in the field of nuclear energy over the long history of the company. An example of this attitude is our not compromising manufacturing safety or product quality. We should think about the attitude for our stakeholders, as well as Hitachi.

I feel that we must convey this to society and strive more than ever to obtain their understanding of the attitude. I expect that we will increase the transparency of our management of information, and we will increase society's understanding of our business using digital technologies. Furthermore, technologies and systems that were previously difficult to create even when we had the idea for them are now increasingly feasible due to our use of state-of-the-art digital and sensing technologies. It is important to take on new challenges while preserving the things that need to be preserved, so that the field of nuclear energy is more appealing and the number of engineers increases. In this area, I have high expectations for the young people not constrained by precedent and the employees in the middle of their careers who have experience in other fields.

Matsui: I look forward to seeing many different developments in the future. Finally, could you tell me about your vision of the future?

Hisamochi: First, in Japan, we believe contributing to the revitalization of Fukushima is important, and we will fulfill our role in the decommissioning of the Fukushima Daiichi Nuclear Power Station. At the same time, we will seriously focus on restoring society's trust in and use of nuclear technologies by implementing safety measures and resuming operations in compliance with the new regulations and standards for the existing nuclear facilities.

Globally, it is predicted that demand for electricity will grow rapidly with progress in the digitalization of society. AI technologies in particular require large amounts of electricity. Beyond the established priorities of safety and economic efficiency, we must

increase our flexibility by standardizing designs and using modular technology. This will enable us to swiftly deliver the nuclear technologies that society needs. To achieve this, over the next five years or so, we aim to expand our global businesses, which include large reactors, by advancing with the BWRX-300 project in Canada in parallel with the existing domestic businesses, working together with GE Vernova Hitachi Nuclear Energy. Furthermore, we will concurrently move forward with the development of streamlined design and construction methods looking ten years into the future.

I feel that being appointed the president of Hitachi GE Vernova Nuclear Energy is a huge responsibility now that nuclear energy is entering its next phase. I will steadily fulfill my role in presenting a vision for the future of nuclear energy and accelerating the growth of our company to realize that vision. Additionally, by sincerely providing nuclear technologies, we will contribute to solutions to domestic and international energy and climate issues.

Matsui: I think I know more about your personality because of this interview, President Hisamochi. Thank you very much.

【Interviewer's Note】

My first impression of President Hisamochi was that he was gentle and brave. He had prepared manuals for handling severe accidents in the event of a meltdown together with clients. On March 11, the day of the Fukushima accident, he started to respond to the accident at the head office of TEPCO (He was still in his 40s at that time.). Now, he heads Hitachi GE Vernova Nuclear Energy. It is a natural consequence of his actions, and I feel that he is reliable.

Kohei Hisamochi

President of Hitachi GE Vernova Nuclear Energy

Born in Nagasaki. Received a master's degree in Nuclear Engineering, Department of Applied Atomic Nuclear Engineering, Faculty of Engineering, Kyushu University in 1993. Joined Hitachi, Ltd. the same year. Became General Manager, Procurement and Sourcing Division Nuclear Engineering, Nuclear Business Planning Department, Hitachi-GE Nuclear Energy, Ltd. (currently, Hitachi GE Vernova Nuclear Energy, Ltd.) in 2017, General Manager, Nuclear Engineering and Product Division in 2019, Director (Executive Vice President) and Chief Lumada Business Officer, Nuclear Energy Business Unit, Hitachi, Ltd. in 2020 and President and Representative Director, Hitachi Plant Construction, Ltd. in 2023. Current position from April 2025.

Yasumasa Matsui

Freelance Announcer and Journalist

Born in Inami, Nanto City, Toyama Prefecture. Graduated from Toyama Prefectural Takaoka High School. Graduated from the Department of Chemical Engineering, School of Engineering, Tokyo Institute of Technology (now Institute of Science Tokyo). In 1986, he joined TV Asahi as an announcer. He co-hosted Music Station with Tamori, served as a sportscaster on News Station, and worked as a news and information anchor on programs such as Station Eye, Wide Scramble, and Yajiuma Plus. In 2008, he became the principal of TV Asahi's announcer school, Ask. During his two years in this role, he trained over 100 announcers who went on to work nationwide. In March 2011, following the 2011 Great East Japan Earthquake (and subsequent Fukushima Daiichi Nuclear Power Station accident), he transferred from the announcer department to the news department as a reporter covering the nuclear power plant accident. He later served as a reporter covering the Imperial Household Agency and weather-related disasters, and worked as a commentator. In 2023, after leaving TV Asahi, he established his own agency, OFFICE Yuzuki. He also serves as a plastic model history research advisor for Tamiya Inc., ambassador for Nanto City, Toyama Prefecture, and media advisor for sake company, DASSAI Inc.

• This article is published on Hitachi's energy portal site.

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