

Overview of JANSI Annual Conference 2023

- ◆ Time & Date: March 15, 2023 (Wed), 14:00-17:00
- ◆ Venue: Tokyo International Forum Hall D7
- ◆ Format: Hybrid (also delivered via Webex)
- ◆ Number of participants: Approx. 500 people



Keynote speech



Panel discussion

Opening Remarks



Chairman, Japan Nuclear Safety Institute (JANSI)

William Edward Webster Jr.

As Chairman of JANSI, I am honored to welcome you to the Annual Conference 2023. This 10th JANSI Annual Conference is a time when the nuclear industry comes together and reaffirms our collective commitment to earnestly pursue the highest standards of nuclear safety.

Today, considering the COVID-19 situation and viewer convenience, we decided to hold the Annual Conference in a hybrid format combining participation at the venue and remote participation. We have 500 participants at the venue and online including the representatives of JANSI member companies and nuclear-related organizations as well as members from the JANSI domestic advisory committee and international advisory committee. Furthermore, we have more than 20 representatives from about 14 overseas and international organizations. Thank you very much for your participation.

This Annual Conference is held every March with the aim of reaffirming the seriousness of the accident at Fukushima Daiichi Nuclear Power Plant and renewing our collective commitment to never forget the lessons learned from the accident.

November 15 2022 marked the 10th anniversary of the establishment of JANSI. I would like to express my heartfelt gratitude to all members and stakeholders. JANSI has faced various difficulties during the 10 years since our founding, but we have been able to achieve great results with the support of all members and stakeholders. Notably, last October, JANSI's power plant peer review program was granted equivalency with WANO (World Association of Nuclear Operators) peer review marking an

important achievement for the Japanese nuclear industry.

Four years ago, the JANSI Board of Directors approved a 10-year strategy for JANSI. As you know, much has changed in the last four years that highlight the importance of an affordable, reliable, carbon-free, and secure source of energy. Today nuclear energy is recognized as a source of energy that meets all these fundamental imperatives. Next fiscal year (FY2023) will be the mid-year of our 10-Year Strategy. Noting the substantial progress of JANSI programs as well as the demands of dynamic global energy situation, in FY2023 we will conduct a deep review of our strategy and revise the strategy for the next 10 years with a focus on FY2033. Based on the above, in this Annual Conference, we would like to confirm the results of activities over the past 10 years and look toward future activities, in order to contribute to the formulation of strategies and action plans for the next 10 years.

In the 10 years since its establishment, JANSI has progressed from a start-up organization to a mature organization implementing programs important to nuclear safety. We further recognize that the 10-year anniversary is only a milestone on a long journey. Under the slogan "Excellence Starts at Home," each and every one at JANSI continues to strive for self-improvement including improving technical capabilities and leadership, and we will do our utmost to further improve the effectiveness of self-regulatory activities in close cooperation with our member companies and nuclear-related organizations such as ATENA, WANO and NRRC. I would like to ask for your continued understanding and cooperation in JANSI's business activities.

Guest Speech



Chairman, Nuclear Regulation Authority

Shinsuke Yamanaka

This year marks the twelfth year since TEPCO's Fukushima Daiichi NPS Accident. Many organizations were established after much reflection and review of the accident. JANSI, which was established in 2012, has led safety improvement programs taken by nuclear operators to ensure safety is pursued in Japan's nuclear industry.

It is my understanding that JANSI is comprised of 200 staff formerly working for nuclear operators, and are therefore a group of professionals with high practical skills. I believe JANSI is a nuclear regulatory institution of the private sector. Its organizational size is on par with that of the NRA. JANSI has a long record of activities conducted and accumulated compared to other organizations.

As Chairman of NRA, I would like to speak my expectations for JANSI on four topics: Sharing technical information, Continuous improvement of safety, Inspection and safety/security, and Cultivation of human resources.

I would first like to speak about the sharing of technical information. JANSI's NUCIA contains a wide range of trouble information, and this is disclosed to the public. In the Technical Information Review Meeting, NRA also shares information on domestic and overseas nuclear facilities, and discusses/reviews its significance for improving safety.

We believe NUCIA is an important source of information. With the establishment of the New Regulatory Requirements in Japan, power and water supply has been



strengthened, which greatly improved safety. However, when examining various trouble data in overseas nuclear plants, we are surprised at the methods employed for screening and inspection which greatly differ from ours. Considering such perspectives, we are currently re-analyzing and reviewing if strengthening measures applied in Japan can function effectively. I expect JANSI to analyze and evaluate data, and to propose effective safety improvement measures to nuclear operators, and to disclose such activities to the public. Please share the results and findings of analysis and review with NRA so we can hold dialogue and discussions.

My next topic is on the continuous improvement of safety. As one of the lessons learned from TEPCO's Fukushima Daiichi NPS Accident, when new information on nuclear safety is acquired, NRA immediately applies the new information into the regulatory requirements and operators are required to conform with back fitting. While this seems like an exceptional way for improving safety, the primary responsibility for nuclear power safety lies with the operator. We believe that there are better methods for improving safety and other autonomous non-regulatory approaches. Regarding measures against common cause failure of digital safety protection systems, instead of applying the back fit policy, the operators autonomously established technical requirements under the supervision of ATENA authorized by NRA. While there are areas with inadequate communication between the operators and ATENA, we expect measures to be implemented in a disciplined and strategic manner in the future. While JANSI does conduct review on nuclear operators and conducts regulatory activities in the private sector such as evaluating improvements in safety and providing support, it is unclear how the results of review have been applied to safety improvement programs implemented by operators. We would like to hold discussions with JANSI in the future regarding the topic of continuously improving safety.

My next topic is the new inspection system implemented from April 2020 and the improvement of safety and security. The new performance-based inspection system utilizing risk information had kicked-off smoothly. Regarding free-access of inspectors, I believe the trust built in the field is functioning well. JANSI has already developed inspection-related guidelines such as CAP and CM, and has implemented programs over a wide area to encourage operators to improve safety. On the other hand, the topic of nuclear facility security, due to its nature, has often been held from being disclosed, and pertaining activities have only been performed by a limited number of staff by both NRA and operators. Naturally, the topic of security poses difficulties in information being shared between operators and issues being identified. We expect JANSI to fulfill the role of taking initiatives to realize the sharing of information between operators as well as providing support for making improvements.

My last topic is on the cultivation of human resources in the nuclear area to improve nuclear safety and security. One of the causes of recent troubles that occurred stems from the culture of the nuclear industry not prioritizing safety and security. Another issue that needs to be reviewed is the improvement of practical and technical skills of operator employees. Humans are the core which comprises the culture. The cultivation of human resources is key for utilizing personnel and strengthening the organization. Considering the weak state of nuclear education in universities, we expect JANSI to contribute to the issue of human resource cultivation.

We expect JANSI to develop as a private regulatory institution through cooperation with other organizations like ATENA. We also expect various obstacles to be overcome to hold dialogue regarding nuclear safety and security with NRA, and hope new initiatives shall be taken to become an organization open to society. On the other hand, we NRA will continue to devote our efforts into nuclear regulation, and strive to hold dialogue with various stakeholders. We are praying for JANSI's further development in the future. This concludes my greetings.

Guest Speech



President and CEO, Institute of Nuclear Power Operations (INPO)

Robert Frederick Willard

The Japan Nuclear Safety Institute (JANSI) and the U.S. INPO were both established amidst a crisis in each country's nuclear power industry—the Three Mile Island accident for INPO, and the Fukushima Daiichi Nuclear Power Plant (1F) accident for JANSI. Following INPO's establishment, the U.S. nuclear industry continued to expand, prompting new construction projects to proceed rapidly and changes to occur in the organization of power utilities. INPO has solidified its business and made steady endeavors to affect the safety and reliability performance of industry. Likewise, JANSI, amidst many challenges and uncertainties in Japan's nuclear industry, had to launch and execute programs. And through those efforts, JANSI achieved success and has come to be highly regarded from an international nuclear industry standpoint, as demonstrated by the institute becoming the first self-regulatory organization to gain a WANO-equivalent status with peer reviews (PR).

But neither JANSI nor INPO can keep basking in its past glories. For INPO, repeated use of its program has significantly affected the safety and reliability performance of industry. But over time, that performance has plateaued, which we have come to realize a decade ago as not ideal. INPO needed to review the challenges that the industry has focused on and the approach to addressing them. So over the next decade, we introduced a continuous performance monitoring methodology to turn our eyes to and address deterioration trends. Also, in light of the direct impact that a power utility organization has on power plants, INPO started to continuously monitor the performance of corporate headquarters, setting new industry standards in the areas of leadership, technical conscience, integrated risk, performance of corporate headquarters, and sustainability. We also arranged to take measures when levels 1 and 2 INPO event reports showed unfavorable trends in engineering, operation, maintenance, fuel, and plant reliability. Finally, after learning that greater transparency between INPO and its members enhances self-awareness and coordination, we started to provide our views on the performance of member companies in near real-time.

The next decade will be an exciting period for both the U.S. and Japan. The demand for clean energy, especially electric power, is ever-growing and calls for the benefits of nuclear power and the need to utilize and expand existing reactors are increasing to a level unparalleled in recent decades. Currently, 90% of existing U.S. reactors are expected to apply for a second operation extension, prolonging their service life to 80 years. Fierce competition is also underway involving new reactor technologies of various scales, shapes, and operating concepts for new construction projects. What's critical here is to measure, in a visible way, a model safety and reliability performance of existing reactors. Both JANSI and INPO play a central role in the future performance of the nuclear industry and are important organizations that affect whether or not the nuclear industry would be widely recognized as a solution for domestic energy needs. INPO has great trust in what the nuclear industry is capable of, and is trying to voluntarily take on challenges. JANSI will also continue to meet the needs of the Japanese nuclear industry and ensure its globally acclaimed safety and reliability performance. I am convinced that JANSI and INPO are not only essential to the future and continued success of the nuclear industry, but also that they can demonstrate what can be achieved by having the entire industry pursue excellence and CEOs work united as a team.

Guest Speech



Chairman, Federation of Electric Power Companies

Kazuhiro Ikebe

At the end of last year, the “Future Course for Nuclear Energy Policy and Guidelines for Action (Draft)” was presented in the ministerial conference for nuclear energy policy, summarizing key challenges for future nuclear energy policy, course of action for its resolution, as well as guideline for actions to be taken. This guideline called for initiatives to be taken for the maximum utilization of existing nuclear power stations such as by extending duration of operation and accelerating the process for reprocessing, decommissioning and final disposal. Through statements such as, never forgetting our failure to prevent a disaster caused by our belief in the myth of safety and to continue reforming safety management to continue improving safety even after satisfying regulatory requirements, this guideline reemphasized the need for initiatives to be taken to autonomously improve safety.

The conduct and improvement of strict peer reviews by JANSI was also mentioned as one of the specific initiatives to be taken to develop an environment for the enhancement of safeguards. In preparation to implement the details in the guideline, we nuclear operators are committed to never allow an accident like TEPCO’s Fukushima Daiichi to occur again. We will reject the myth of safety, recognize the unique risks involved in the use of nuclear energy, and are intent on ceaselessly improving safety without becoming content with conformance to regulatory requirements. Therefore, the importance of JANSI’s role as an autonomous regulatory organization is ever increasing to fulfill our resolve.

JANSI, reaching its tenth-year last November since its establishment, has performed peer reviews, performance monitoring, and other initiatives as an autonomous regulatory organization of the nuclear industry, has promoted improvement by providing peer pressure in the industry, and has driven forward safety improvement initiatives taken by utilities. With WANO granting qualification for equivalency for the first time internationally regarding JANSI’s peer review program last October at WANO’s Governing Board Meeting, it was my impression that visible results were finally achieved as a product of ten years’ worth of hard work. We nuclear operators have taken initiatives to autonomously and continuously improve safety without becoming complacent with the safety myth, but it is critical for the entire industry including JANSI to coordinate closely with each other to improve safety under the spirit of “we are in the same boat” sharing a common destiny. The fiscal year of 2023 is an interim year for JANSI’s ten-year strategy where there is opportunity to confirm results of past activities and to confirm the course of action for future activities. With the ever-increasing importance of JANSI’s role, please continue your work to maximize the experience and know-how gained, take initiatives aiming for the pursuit of excellence for the continuous improvement of safety and continue your support for nuclear operators.

Finally, opportunities like discussions held during this conference are extremely valuable for learning initiatives being taken overseas. As nuclear operators, we will implement lessons learned and insights gained today in our future activities, and continue to push forward our activities to improve safety.

Part 1 Activity Report



President & CEO, Japan Nuclear Safety Institute (JANSI)

Hiromi Yamazaki

JANSI Activity Review and Future Initiatives ~ Instillation and Deepening of Self Regulation ~

With regard to an overview of JANSI's 10 years of progress, for the first five years, we were in the stage of introducing and instilling industry self-regulation. For the latter five years, we were in the stage of establishing it. In the beginning, there was no common understanding of the concept of industry self-regulation, and there were issues in communication between operators and JANSI. These made it difficult to get activities going. Over the years, we had many discussions with the operators and gradually fostered common understanding with strong guidance from INPO. In addition, with JANSI's activities becoming enhanced and functioning effectively, recently we are feeling a certain degree of effect in industry self-regulation activities.

JANSI was established under the industry's strong determination to prevent any events similar to the Fukushima Daiichi Nuclear Power Station accident. The largest reflections are that we were complacent that safety of nuclear power stations had been fully achieved and we lacked the attitude of humbly learning from new knowledge inside and outside Japan and continuously improving safety. From this reflection, the industry established self-regulatory organization JANSI, copying INPO in the US. Our mission of "untiring pursuit of excellence" is based on this reflection. Additionally, the vision of "the industry continuously improves by the initiatives of autonomous safety improvement by operators" is presented.

Industry self-regulation is the activity to pursue excellence by disciplining yourself and each other without being complacent about the current safety level and not stopping at satisfying legal regulatory standards, and by autonomously and continuously improving safety. JANSI takes on the role to assess, monitor and lead from a bird's eye view as an independent organization so that self-regulation activities of operators proceed effectively, efficiently and autonomously. Operators have responsibility of their own power stations for safety and collective responsibility including power stations of other operators. In other words, "We are in the same boat." JANSI conducts strict assessments from a position independent from individual operators, but we are a friend who walks together in the circle of industry.

Strong commitment of top executives of the operators is more important than anything for a self-regulatory organization to effectively function. Therefore, we have the CEOs of all utilities and JNFL in the Board of Directors, which is the highest decision-making body at JANSI, since 2018.

JANSI's activities originate from "excellence", or domestic and overseas initiatives that further increase safety margin and further improve reliability, beyond the regulatory framework, in operation management of power stations. Excellence is determined by area, such as operations, maintenance, radiation control, and organization and administration, and is universal such as at WANO and

INPO. JANSI also serves as a bridge that brings the world's excellence to Japan. In assessments, we identify gaps from excellence, and analyze underlying factors in leadership and management through interviews and discussions with responsible departments at the power station. JANSI has great advantages when exploring the background, such as understanding the Japanese culture and systems and talking and discussing with operators in Japanese. Operators themselves proceed with improvement activities, and JANSI supports this from a professional position. On doing so, communities are formed among operators according to area such as operations and maintenance, which function as a platform for improvement that shares best practices. To promote these improvements, peer pressure is made to effectively function in the close-knit communities among operators through integrated assessment of power stations.

When JANSI was established, various activities including peer reviews individually started. We developed the 10-year strategy in FY2018. The 10-year strategy organizes critical success factors for achieving the future vision of the industry and JANSI, and draws a roadmap of main actions, 20 actions organized into five categories, which contribute to such factors.

First is peer review. We conduct reviews based on Japanese culture and systems. Last October, JANSI's peer review was approved by the General Assembly of WANO that its process and quality are at world-level standards, after a 3-year review process. In the early years, JANSI's process was under development and power stations had a sense of burden and resistance to being pointed out. It took time to build a relationship of trust. Nowadays, the peer review process has matured, and power stations take it positively as a chance to gain improvement tips. We are now able to conduct effective reviews.

The peer reviews have identified improvement items common to domestic power stations. We have lead and supported improvement activities of operators, by forming communities by area according to each issue with operators, and having shared best practices, established guidelines and held seminars and trainings.

The second main activity I would like to introduce is continuous monitoring on plant performance. The peer review can check station performance in detail, but this is conducted once every four years, or once every two years together with WANO peer review. There were cases overseas where performance deteriorated without being noticed during this interval. Currently we are making systems so that we can take action early on if there are signs of deterioration while continuously checking the status. INPO began such activity first, and WANO is now proceeding with it worldwide. In Japan, JANSI and WANO are collaborating.

Next I would like to explain plant integrated assessment. Operator CEOs are required to show a strong attitude to take initiative in making improvements as the top leader of the company, along with the role and responsibility as a JANSI Board member. And so, we have a system where we encourage improvement through peer pressure of honor and shame by rating power stations on a 5-point scale based on peer review results and station performance information, presenting this result at a place for discussion with only CEOs (CEO session), increasing or decreasing the membership fee according to the result and commending excellent power stations. This system copies that of INPO, and it is an activity that encourages fellow passengers on the same boat to fulfill their mutual responsibility for safety. There were some concerns of whether peer pressure would effectively function in Japanese society, but we believe that it is functioning effectively, although limited, with few plants in operation.

In restarting Sendai Nuclear Power station in 2015 for the first time after the New Regulatory Requirements were enforced, we created a framework for industry-wide support for restarting plants in long-term shutdown safely and



without any troubles. Initially, there was no such idea among Japanese operators or at JANSI, but we decided to go with the idea after the importance of industry-wide initiative was pointed out by INPO. Currently we continue to support restart of subsequent plants. Additionally, we conduct training where a power station that started operation accepts operators from subsequent plants to experience actual equipment. We are also supporting preparation of the operation management framework toward completion of the reprocessing plant, with cooperation from all utilities.

JANSI collects and analyzes a vast amount of operating experience information from inside and outside Japan, and requests operators to take action when necessary. For the analysis, simple screen-outs due to different equipment are done as little as possible based on the reflection of the Fukushima Daiichi Nuclear Power Station accident, and we try to consider the significance of the impact of similar events. Opinions are regularly exchanged about the analysis results with the responsible department of the Secretariat of the Nuclear Regulation Authority. Additionally, domestic and overseas operating experience information is registered and disclosed in NUCIA.

JANSI has developed and implements leadership training for fostering the awareness to prioritize nuclear safety and acquiring non-technical skills such as communication and teamwork. The training is conducted by level, starting from CEO and onto field manager. In the early stage, focus was placed on emergency leadership based on the reflection of the Fukushima accident, but currently, leadership in both emergency situations and normal times is handled in a well-balanced manner.

As an activity to foster safety culture of operators, we conduct field safety culture diagnosis as well as conduct safety culture questionnaires, caravans and seminars and create educational materials. In the field safety culture diagnosis, approximately 50 people from each level are interviewed for about an hour to analyze their comments in detail and assess organizational culture characteristics. The results are directly explained to the operator CEO. Operators actively utilize JANSI's assessment results for improvement, in reviewing the state of their own organization. Recently, interview targets were expanded to Head Office executives, and improvements have been made to incorporate a systemic approach that comprehensively assesses interactions among various elements that contribute to organizational culture for analysis. Additionally, workshops are held at each operator to support improvement of self-assessment capabilities of the operator themselves.



The corrective action program (CAP) is an important system that serves as the core for the operator to promote autonomous and continuous improvement. JANSI jointly developed the CAP system guideline with operators in FY2017 with reference to advanced overseas initiatives, and has led and supported this system. Presently, the CAP system has been established at each power station and is effectively functioning.

Understanding and awareness of industry self-regulation was instilled and behavior was changed, through the activities of JANSI over the 10 years since it was established. Efforts to autonomously and continuously improve safety, such as the positive use of peer reviews and the use of community of each specialized area as a platform for improvement, have become widespread and are taking root as a culture. Furthermore, the mindset of "We are in the same boat", in which the entire industry shares a common destiny, is gradually being fostered. Going forward, we need to instill them in every detail of nuclear industry.

Next, let's look at performance of restarted plants so far. Capacity factor is still unstable due to severe accident response facilities construction work and



litigation factors, and 80 % at most. In view of the US stably maintaining it higher than 90% for more than 20 years since 2000, there is room for improvement given the difference in regulations. The number of unplanned shutdowns has dramatically improved compared to the time before the Fukushima accident. Since it was a much lower occurrence rate than the US even before the Fukushima accident, it is assessed that operation is even more reliable. In addition to the various actions of operators, we believe that the results of JANSI's activities were used to some extent. Across all domestic plants including plants in shutdown, the number of legally reportable events, number of cases of entry into LCO and number of cases of failure of important equipment have drastically decreased compared to the time before the Fukushima accident. Industrial accidents and fires have not significantly decreased since large-scale construction work is still ongoing.

As the role of JANSI in the nuclear industry, we do not intervene between the regulatory authority and operator, in view of our position as a self-regulatory organization. ATENA functions in this way representing the industry. On the other hand, we believe it is necessary for the national regulatory authority and industry self-regulatory organization to build a mutually complementary relationship. Opinions are regularly exchanged about the analysis results of domestic and overseas operating experience information. It is required to build a relationship of trust by further increasing opportunities of opinion exchange, but careful discussion is needed for confidentiality of information. We closely coordinate information with ATENA and NRRC, aiming to fulfill each other's roles through mutual cooperation.

Considering that there is great expectation for nuclear power generation from the public, it will become more and more important to always "pursue excellence" and build an "organizational culture that makes continuous improvements without giving up thinking".

I would like to talk about two points about the direction of our future initiatives.

Pursuit of excellence is often compared to continuing a journey. First, we would like to enhance and improve the system of continuous improvement that we have built in the past 10 years without slacking, and make it firmly rooted. To do so, we want to advance our operations such as continuously monitoring performance and improving organizational effectiveness, in addition to our activities that have matured over the years. We also want the awareness and behavior of continuous improvement to be established down to the frontline in the field of power stations, and foster awareness among operators to find issues early on their own accord ahead of a third-party organization and make improvements. Additionally, we want to form a strong community where operators support each other to pursue excellence in the entire industry. For these initiatives, we want to further strengthen our collaboration with WANO, contribute to the WANO's Action for Excellence, and implement initiatives including peer reviews and continuous monitoring on plant performance effectively and efficiently.

Next, we want to build a relationship of trust with the regulatory authority through JANSI's activities, recognizing our complementary roles, and further enhance collaboration with ATENA and NRRC to make the activities of the entire industry effective and efficient. Future activities of JANSI will be discussed with operators and related organizations in the review of the 10-year strategy scheduled in FY2023.

This concludes my review of JANSI's 10 years of progress and future activities. JANSI will continue to lead operators and continue our efforts for the culture of continuous improvement to take root, remembering the lessons learned from the Fukushima Daiichi accident.



Chairman,
World Association of Nuclear Operators
(WANO)

Tom Mitchell

I would first like to congratulate JANSI for its wonderful achievements over the past decade, as exemplified in its PRs gaining WANO-equivalent status. JANSI applied for equivalency in March 2019; WANO observed three JANSI PRs between February 2020 and August 2022, and subsequently gave equivalency to JANSI's PRs in an October 2022 WANO board meeting. This acquisition of equivalency assures that JANSI's PRs meet high international standards and accurately and consistently review nuclear power plants in Japan.

WANO will continue to closely coordinate with JANSI to ensure that members in Japan can pursue the highest level of nuclear safety. This coordination includes not only having JANSI conduct PRs on behalf of WANO but also introducing enhanced Performance Monitoring (ePM) in Japanese operators' plants. We are very pleased to have this WANO-JANSI partnership and look forward to maintaining this relationship and globally pursuing safety excellence as industry.

A major concern for international industry at the moment is the situation in Ukraine. Particularly challenging is the state of the Zaporizhzhia Nuclear Power Plant. In addition to WANO cooperating with the International Atomic Energy Agency (IAEA)—which is currently working to ensure the safety of power plants in Ukraine—staff members at WANO Paris Centre are endeavoring to support Ukraine's Energoatom on a regular basis. WANO is an organization committed to nuclear safety, and has neither influence over nor expertise in geopolitical issues. This means we need to be careful not to get drawn into the upheaval in Ukraine.

We support all WANO regional centres and seek to share with them and members our experience and information relating to operation. Despite the growing difficulty in sharing information—because of sanctions that governments have been imposing, among other factors—all regional centres and members must show solidarity and pursue WANO's mission of achieving nuclear safety. Geopolitical challenges and other issues should not obstruct nuclear safety. WANO is endeavoring to manage risks by doing everything it can for people on a global scale.

Part 2 Keynote Speech



CEO, Energy Northwest

Robert E. Schuetz

Improving Columbia Generating Station Performance by Embracing Self-Regulation

My company is a small, not-for-profit, public power energy generator located in the United States Pacific Northwest. We have a 100% clean energy portfolio of about 1500 megawatts. Our largest asset is the 1200-megawatt Columbia Generating Station, a General Electric BWR-5 with Mark II containment. I have about 1000 total employees, about 700 of whom directly support Columbia.

Columbia is very isolated from other nuclear plants which means we have to apply extra effort for effective collaboration with the industry. Diablo Canyon, currently scheduled to close in 2025 is the closest and is over 1000 kilometers away. The closest Boiling Water Reactor, Monticello, is almost 2000 kilometers away. Our federal regulator, the US NRC's regional office and the Institute of Nuclear Power Operations (INPO), who facilitates our self-regulation, are much further. We have struggled to stay abreast of industry initiatives and benchmarking opportunities due simply to the time, distance, and cost of those interactions. The robust industry collaboration fostered by INPO was a key aspect in overcoming this natural isolation.

My somewhat unusual career for a utility CEO helped to shape my approach for improving performance. I learned early on that the foundation of excellence is a thirst for continuous improvement and how that thirst is not a process, it's not a procedure, but for me a way of thinking, a commitment to making something better each and every day. Nuclear safety must be the overarching priority of everyone, not just the nuclear professionals, but the finance department, human resources, legal services. Every nuclear employee will attend a 3-week technical course in boiling water reactor fundamentals. All managers and supervisors will attend a 4-month management certification course patterned after the operator licensing curriculum.

Let me start with a brief review of my 28-year career in the US Navy submarine service. Our submarines are nuclear powered. Over the years the rules and processes are continuously updated to push the fleet toward improving performance. They were harsh in their inspections when gaps were identified. Your performance was graded, and those grades were well known throughout the fleet. The ability to operate at the excellence level was a key measure in determining if a ship's Captain would be promoted. But beyond that, I

must tell you that pride played a role as well. You didn't want to be the commander who got the below average grade.

Only the best and most accomplished nuclear operators were selected to serve on the inspection teams. These were fleet operators who had experienced the



same challenges as those being inspected. They didn't write trivial issues into the report which strived to highlight the biggest things that needed to be fixed. And when it was all said and done, the Captain could expect to receive a phone call from the four-star admiral in charge of the program - to check for understanding of the inspection team's report and to tell you in no uncertain terms that your performance better improve the next time around.

Following my retirement in 2008, I began my career in the commercial nuclear power industry as a Team Leader in the Plant Evaluations Department at INPO. In this role I led teams of around 20 or so industry peers to conduct biennial 2-week inspections and provide a report of the results directly to the utility's Chief Executive Officer. In this assignment I learned how valuable the industry coming together to essentially regulate themselves can be and how INPO strived to make it meaningful and effective.

One of my major personal learnings during my time at INPO was understanding the differing roles and responsibilities of the NRC and INPO and why the arrangement is effective and mutually supporting. Along the scale of performance, we have two extreme outcomes: at the bottom we have catastrophe or disaster, where poor operation of the facility results in a measurable effect on the health and safety of the public. At the top end perfection, which I have come to learn can never be achieved no matter how hard I work for it. INPO and the NRC each play to one of these extremes.

Our statutory regulator, the NRC, sees their mission to work with the licensee to protect the health and safety of the public. The NRC establishes rules and regulations that provide an adequate margin to ensure a problem or event has no effect on the public. This is the compliance level of performance. The sole focus of the NRC was the health and safety aspect, there is no direct interest in long term asset protection, capacity factor of the plant, cost of power, leadership, organizational effectiveness, and others. From a strictly regulatory perspective, there is no incentive for a utility to strive for performance above the compliance level. Performance above this level involves additional cost which can be an incentive not to improve.

On the other hand, INPO exists to help the industry pull itself up, toward perfection. As perfection is an unattainable goal, the industry establishes an excellence level that represents the best performance in each of the areas. In the short term the march toward excellence may require additional resources. But at the end of the day, improved performance has reduced our costs and increased our generation, my team has to respond to fewer emergent issues.

Compliance is easy to define, it is written into legislation, rules, and regulations. The requirements change very slowly, and it is enforced through: public exposure of the deficiency, increased oversight by the regulator, monetary fines and in extreme cases forced plant shutdowns. The statutory regulator arrives with a checklist, they examine your program and you either pass or fail. There is no incentive to do more than is required by the checklist.

Excellence is much harder to define if for no other reason than it is constantly changing, moving ever upward in the direction of perfection. Excellence is understood through a proven process to ensure the right people with the right experience are involved in the process at the right time and in the right place. New innovative solutions created at one plant become known industry wide. That is how excellence is identified.

When I joined INPO, I assumed there was an enforcement mechanism, a methodology to force the utility to improve their performance. In fact, as you



all know, there are no tools. Self-regulation relies on those being regulated having the desire to improve their performance. It requires making a commitment to their industry peers that they will work their hardest to make it happen. And that commitment also means you will help them to achieve their own goals. For a plant that is struggling, INPO will rally the industry to provide assistance to keep that plant moving forward. And that internal desire to improve is helped along by simple peer pressure. Everyone wants to be on a winning team. INPO provides monthly data so that you can compare performance with everyone else in the industry. Show my operations staff that they are number two and they will work twice as hard to be number one.

Peer pressure exists at my level too. INPO hosts an annual meeting with one session exclusively for CEOs. In that session our individual performance is compared to all the others. The CEOs at the bottom of the list are asked to stand up and explain what they are doing to improve and to receive critical feedback from our peers. No one wants to stand up at that meeting. I can't state this next point strongly enough, this session makes clear that we are answerable to each other, not to INPO. And that is the essence of self-regulation. While all of you would struggle to call out one of our peers — we really need to be ready and willing to do exactly that. A major incident will surely have a negative impact on all of us.

My peer review teams was a collection of nuclear professionals. Permanent INPO employees were typically former employees from nuclear utilities who had moved on to a new job at INPO. They tended to be experts in industry programs and processes and had broad experience in their area. They understood the various INPO guidance documents, and were excellent communicators, both verbal and written. Their participation brought credibility to the process and helped ensure we focused on the largest gaps to excellence. That helped me to create a meaningful message for when I briefed the CEO. For the host peers, I wanted mature thinkers who could as much as possible forget they are owners of the plant's performance and help the team talk to the right people to understand the gaps that were being evaluated.



Supporting INPO in staffing is a key learning for me in my current role as CEO. It's much easier to send a mediocre performer. If I send a less capable employee, I can't complain when my CEO peers do the same. So, if I want INPO to be the help I need on my company's journey to excellence, I have to send my best.

Following my time as Team Leader the next step was an 18-month assignment to Energy Northwest in the reverse loan program. I learned how a plant really operates on a day-to-day basis as a Maintenance Manager at Columbia Generating Station. As my 18 months approached and the time came for me to return to INPO, Energy Northwest made me an offer to stay on as Plant General Manager. From there I was promoted to Site Vice President and in 2021 I was selected as Chief Executive Officer. During my time at Energy Northwest the team of nuclear professionals has taken Columbia Generating Station from the bottom of the industry to near the top. We were rated 104 out of 104 operating reactors. Today, we are in the top quartile. Over the last decade we have reduced our cost of power by over 35%, we have increased our generation over 50 MW, we have reduced staffing by more than 250 people, we have cut our budget or held it flat every year, we had our first ever breaker-to-breaker run and our capacity factor in 2022 was 99.4%. I am sure we would not have accomplished the improved performance without the



assistance of the rest of the industry, facilitated by INPO. In my current role as a utility chief executive it is my responsibility to ensure we send our best, our brightest and our future leaders to help ensure INPO has the right resources, they produce the product to help move the industry as a whole toward excellence.

Also, we ask them to accredit our licensed operator training programs on behalf of the NRC. We ask them to collect, screen, trend and distribute industry operating experience. We ask them to collect, analyze and trend performance metrics. All of this effort does not come without a cost. My company is not-for-profit, and every additional dollar spent is charged directly to the ratepayers. When I have to create operating efficiencies to reduce costs, I expect INPO will do the same. If my ratepayer directs me to hold rates constant, I need INPO to feel some of that pain as well.

There is a line not to be crossed here. I feel free to comment and provide input on INPOs strategic direction, the resource allocation choices they make, their operating budget and capital spending plans. At the same time, I am careful not to interfere in their daily operations. If CEO try to argue with INPO leadership to manipulate the message, then the entire self-regulating scheme would be nullified. They must be independent in their daily work to improve industry operating performance.

Finally, I would like to end with a quick review of my learnings on self-regulation.

- Effective self-regulation is about striving at all times to be the very best, statutory or compliance regulation alone is about being satisfied with the minimum. Both of these approaches working together are important to a well running plant.
- Effective self-regulation is about the industry working together for the benefit of each individual plant and the industry as a whole. Effective self-regulation only works if the participants want to improve their performance. I have seen plants who fight the INPO process, who don't value continuous improvement. As a result, their performance stagnates, or worse it declines.
- Effective self-regulation requires that we make our best, brightest, and most talented employees available. An ineffective team made up of those who don't understand excellence write a report that makes me work on an issue that doesn't need to be worked on.
- The Chief Executives, need to speak openly and honestly about our own performance and the performance of others.
- Effective self-regulation requires that the eyes and ears of the industry. Whether it be INPO or JANSI, they can't make us better. They provide tools, a picture of excellence, a forum for industry collaboration, and a fair and objective view of a plant's performance. After that it is up to the plant staff. To fix my plant is my job.

Thank you for the opportunity to share my learnings on self-regulation as a key element in improved operational and nuclear safety. I wish you all success in your own journey to excellence.

Part 3 Panel Discussion

Expectations and Prospects for Future Activities

Panelists:

Robert E. Schuetz

CEO, Energy Northwest

Akira Yamaguchi

Director, Nuclear Safety Research Association
Professor emeritus, University of Tokyo

Victor M. McCree

Owner & Principal Operating Officer, NucLeader Consulting, LLC
Former Executive Director for Operations for the NRC

Nozomu Mori

Representative Executive Officer & President, Kansai Electric Power Company

William Edward Webster Jr.

Chairman, JANSI

Hiromi Yamazaki

President & CEO, JANSI

Moderator :

Yukari Yamashita

Managing Director, the Institute of Energy Economics, Japan



Ms. Yamashita: This panel discussion will cover expectations and prospects for future activities, looking ahead to the next decade. I would like panelists to first comment on the activity report and keynote speeches.

Dr. Yamaguchi, since JANSI's infancy, you have continued to offer coaching on the voluntary safety enhancement endeavors undertaken in Japan's nuclear industry. I'd like to hear from you first about how you assess Japan's current situation.

Dr. Yamaguchi: A working group on voluntary safety enhancement was established a decade ago under the Nuclear Energy Subcommittee of Japan's Agency for Natural Resources and Energy, and this group compiled a report in May 2014. The report stated that the Japanese public would not trust nuclear power businesses again unless nuclear power operators both gain—and get recognized as parties that feature—the purpose and strength to voluntarily and continuously enhance safety. Hearing President and CEO Yamazaki's presentation, I felt that the purpose and strength aspects are taking root considerably and that there is a solid level of competence, as demonstrated by JANSI's PR gaining WANO-equivalency. Still, more work is needed in terms of operators getting recognized from the public as parties that have purpose and strength.



The report also states about harnessing PRs to find weaknesses in operators' plant administration, reinforcing ties with WANO, and exercising leadership based on guaranteed independence from operators. I would like to discuss later the definitions of both guaranteed independence and the independence that JANSI should have.

Also described in the report is about ramping up communication between JANSI and regulatory authorities, and about a system that does not hamper frank exchanges of opinions between JANSI and operators. Earlier, Chair Yamanaka mentioned his expectations about communicating by overcoming various obstacles. My takeaway from that comment was that the same mindset is shared between the Nuclear Regulation Authority (NRA) and the report.

Ms. Yamashita: Mr. McCree, you have extensive experience with the NRC—the U.S. regulatory agency—and you also oversee JANSI's activities as a member of the institute's International Advisory Board. Please share your comments on the things you have noticed about JANSI and Japan's industry.

Mr. McCree: A decade after its establishment, JANSI has learned from a broad range of domestic lessons and has interacted with INPO, WANO, and other international organizations to drive its own organizational development. Japan has made great strides in nuclear safety and plant reliability as well, but I have three topics to share from my past experience.

The first point—based on my experience in the U.S. industry—is that INPO and the NRC have established a relationship of synergy and mutual trust. INPO aims for excellence, but it's important for them to work with an independent and trustworthy regulator, which is key both in terms of the performance of nuclear industry and interactions with the general public. More work can be done on the front of interface-building, and efforts on this point should be accelerated as it will open up communication opportunities, provide openings for industry, and improve efficiency.



The second point is learning. The strength of U.S. industry is that it emphasizes training, certification, and proficiency, and this has been central to INPO since the founding of the institute. JANSI is developing guidance for building a

Systematic Approach to Training (SAT)-based training programs and is also enhancing leader training programs. INPO and the WANO Atlanta Centre focus on excellence to offer opportunities for continuous learning, which I think are areas that Japan can reinforce as well.

The third point is risk perception; especially eliminating and mitigating risk. Safety is grounded on compliance with regulatory requirements, so we tend to focus on compliance. But excellence lies beyond compliance. Using risk information is important in this field as well. Japan's NRA decided in 2021 to start applying risk information. This is an important focus area, and I hope Japan continues to focus on eliminating risk.

Ms. Yamashita: Mr. Mori, you manage a power utility in Japan, and you happen to be serving a central role in Japan's voluntary safety enhancement efforts. In light of what Mr. Yamazaki and Mr. Schuetz spoke about, could you share your views regarding self-assessments on previous operator activities, as well as challenges to be addressed from here on?

Mr. Mori: While each of us nuclear operators worked to voluntarily enhance our safety by drawing on lessons learned from the 1F accident, we also established JANSI as an organization to lead our voluntary safety enhancement efforts from an independent standpoint. Operators need to engage in their individual voluntary safety enhancement activities by taking full advantage of JANSI's undertakings.



I have heard that operators initially pushed back against and resisted findings made through JANSI PRs. Efforts were thus made to change the mindset of operators, making them see PRs as invaluable opportunities to improve activities, humbly respond to findings, and engage in discussions for improvement. Operators accordingly realized that PRs can offer findings and advice that may have been missed without another pair of eyes, and this has allowed for enhancing organizational culture and improving work in the field. In this sense, operators have developed awareness for voluntary and continuous improvements, and a system for such improvements is increasingly coming together. We hope to keep collaborating with JANSI to promote voluntary safety enhancement efforts.

One issue going forward concerns maintaining, transferring, and enhancing skills. There was a period after the 1F accident when we faced difficulty in hiring employees as well as an increase in people leaving their jobs. Plants shut down over a certain period as well, during which time we could not adequately transfer skills as a result. Gradually, plants have started to get back online, and we are expecting see more plants operate for over 40 years. Securing personnel under these circumstances and adequately maintaining, transferring, and enhancing skills will be a challenge for us.

Ms. Yamashita: Mr. Webster, you have had many years of experience at INPO and have been active as JANSI's Chairman, meaning you have thorough knowledge of both Japan and the U.S.' voluntary safety enhancement efforts. How would you evaluate the current status of JANSI and Japan's voluntary safety enhancement?

Mr. Webster: Japan's voluntary safety enhancement efforts have made great strides over the past decade. PRs have seen strong involvement from power plant staff and solid support from executives; good conversations have been held in JANSI board meetings and CEO sessions; and the same is true among Chief Nuclear Officers (CNOs) as well. The structure of programs for training, safety culture diagnoses, operating experience (OE), safety recommendations and the like are also very sound.

As we look ahead and consider what is expected of us, we need to step into more challenging areas. For example, we must deal with the corporate headquarters' effectiveness and leadership as an organization and company. These were exactly the themes that drove performance improvement in the U.S. We need to consider how to achieve this in Japan too. On the risk management front, applying risk insights to operation decision-making is an important point too. And with there being calls for GX, we need to extend the operating cycle and consider operating period extensions and online maintenance. This will not properly function without the collaborative efforts of JANSI, ATENA, NRRC, and operators.

Ms. Yamashita: Now let's get into our discussion. There currently are increasing hopes for nuclear power from the aspects of energy security and decarbonization. To maximize the use of existing nuclear power plants, we need to see further enhancement in safety and reliability, which points to the importance of pursuing excellence and continuing to enhance performance without being content with just complying with regulatory requirements.



In light of this, I would like this discussion to focus on what needs to be worked on in terms of the system side of things to keep enhancing performance, and what mindset should be adopted when engaging in that process. And in the latter part of the discussion, I would like the panelists to discuss from the standpoint of what Japan's industry should do to effectively advance its voluntary safety enhancement activities and what is required in terms of improving efficiency.

I hope our conversation can provide some insight into the future course that JANSI and Japan's nuclear industry should take toward the next decade.

Ms. Yamashita: Mr. Schuetz, I'd like to hear from you first. Earlier, you shared about endeavors that U.S. electric utilities are making to improve their performance through self-regulation efforts. Please share anything to highlight, regarding how specifically certain efforts proved to be useful in the U.S. or examples that may be informative for Japan.

Mr. Schuetz: Historically, industry focused on supporting underperforming Plants through INPO. But in 2019, performance degradation became an issue among high-performing plants in the U.S., pointing both to the risk of the next event occurring at those plants and the possible issue being reduced oversight. It's not certain whether the plants got carried away with their success or thought no improvement was necessary, but either way, this trend prompted INPO to launch a new industry initiative called "Stay on Top." This program was set to summarize the five characteristics of plants that have successfully maintained exemplary performance, self-assess the details of the characteristics, and correct any gaps. INPO checks the responses provided by the plants, based on an aspect of maintaining performance at exemplary levels.



Ms. Yamashita: Mr. Schuetz, we have a question for you from the audience. This person says "Performance can never be perfect. Is there a method or indicator to measure the levels of excellence or compliance?" What would your response be?

Mr. Schuetz: Many indicators are available, but they are like canaries in a coal mine—they do not necessarily identify the issue. They only indicate a potential issue and offer an incentive for examining why there is a gap to the best in industry. This is why PRs are valuable: a team can come in completely unbiased, see what the data shows, and point out areas that could be problematic.

Ms. Yamashita: Mr. Mori, could you share your opinion about what operators in Japan should focus on going forward, while referencing efforts in the U.S., which Japan is modeling after?

Mr. Mori: What's important is to build a system that enables us to proactively make self-assessments and continuously improve ourselves without waiting for findings to be made by external parties. To this end, we are piloting a system to routinely track plant performance. The key is for Japan's operators to promptly identify their deterioration trends and learn from safety enhancement activities overseas. Looking back on the 1F accident, I think voluntary improvement efforts were likely insufficient. We Kansai Electric Power actively gain information from overseas operators and make improvements accordingly. Using domestic and international OE to raise risk sensitivity and apply collective actions if necessary—that's what's important.

Over the past decade, operators have given major priority to plant restart responses. Going forward, there still is much to learn from overseas in terms of introducing new technologies and improving station operations. What's important is to amplify peer pressure and share objective and critical opinions with one another to enhance not only one's own plant but also Japan's nuclear power business in its entirety.

Ms. Yamashita: The U.S. seems to be well ahead of Japan in terms of enhancing their performance continuously. Mr. Webster, please share with us what JANSI should focus on from here on.

Mr. Webster: The key is leadership, by which I mean the type of decisions leaders make, the questions they ask, the places they go, and the mindset they instill in the organization.



Japan's railroad and bullet train have a world-class reputation and the country's automotive industry is a global leader too. What I want to ask everyone is whether you want Japan's nuclear power industry to be recognized as world-class, and whether you truly seek to achieve that.

If so, JANSI can serve as a tool and drive that effort forward. It's not something for JANSI to do independently.

Ms. Yamashita: Moving on to the second point, I would like for our discussion to focus on the mindset required to continuously enhance performance. Mr. Schuetz, I'd like to hear from you again about anything to highlight as to the awareness that employees or CEOs should have.

Mr. Schuetz: Effective efforts of continuous improvement are very similar to industrial and occupational safety. Conversations need to be had daily while having full awareness of safety. This of course involves creating processes and procedures and following a system, but the system would be of no use if each employee does not believe in it, practice it, and feel its value. We need to make employees think every day about improving something. This does not have to be anything significant; for instance, it can be about making a minor change in a step of a certain process or picking up trash.

Energy Northwest has a model of excellence. We talk with all employees daily about how they performed on the previous day, and require them to communicate about their failure to meet expectations or any opportunities for improvement. Initially, there had been some difficulties as the employees were concerned they might be punished by reporting their failure. But now I feel this practice is helping in achieving better performance.

Ms. Yamashita: Now, Mr. Mori, I would like to hear your thoughts on the same question.

Mr. Mori: At Kansai Electric Power, I am committed to enhancing safety as the head of management and have stipulated my philosophy on nuclear safety. Despite my efforts to communicate and instill my thoughts and messages on safety to all employees, there is a need for the entire organization to understand and practice safety enhancement.

We also need to proceed by assessing whether voluntary safety enhancement efforts have really improved safety culture, safety, and skills, and whether the number of accidents has accordingly dropped.



In addition to creating a conference body and a framework, we need to keep assessing from the standpoint of capturing critical points. To this end, we annually assess safety culture development activities and promote improvement activities in particular; for example, this year we are supporting mid-career employees. We hope to continue to improve our activities by maintaining the safety culture PDCA cycle, and thereby enhance and improve safety culture awareness.

Ms. Yamashita: Lastly, Mr. Yamazaki, JANSI is in a position to lead Japan's nuclear industry. What points should you be aware of when engaging in efforts from here on?

Mr. Yamazaki: Some remarks from Mr. Schuetz's keynote speech struck a chord with me. One is about how excellence is grounded on the operators' desire to continuously improve themselves—that self-regulation relies on operators wanting to enhance their own performance, and that peer pressure would not work without this drive.



The current goal for self-regulation in Japan's industry is to establish a mindset in which every individual from top management to frontline field workers is committed to autonomous and continuous improvement, and to have this mindset manifest in daily behavior, judgment, and comments. This, in other words, represents an environment that has a well-established continuous improvement culture, with a perfect example being the "Stay on Top" initiative INPO has been proposing since 2019. But when we look at the front lines of

Japanese plants, they are too busy trying to comply with the new regulatory standards. I have to say that ingraining a continuous improvement mindset down to the front lines of the field is no easy task in this situation.

So what do we do? The first step is for top management to communicate with enthusiasm. The field has increasingly been arranging to make improvements daily. Steadfast efforts—such as steadily accumulating success by repeating corrective action programs and other activities—will eventually bring about a continuous improvement culture. JANSI's undertakings, including PRs, are designed to establish a continuous improvement process in the field and make it function effectively too. I hope operators reform their awareness by actively utilizing JANSI's activities.

Ms. Yamashita: Dr. Yamaguchi, could you share your request or comment for JANSI or the industry, if any?

Dr. Yamaguchi: At around 1990, 10 years after INPO's founding, performance in the U.S. was not necessarily as good as today's level. It took around two decades for the capacity factor to surge from 65% to 90% with the introduction of maintenance rules and the application of risks at around 2000. JANSI is 10 years old at the moment, so there's no need to panic, but still, the application of nuclear power is important from a GX perspective as well.



The key to achieving better performance is to have a good cycle: enhancing safety improves performance, which makes the plant perform well and run smoothly, in turn creating the incentive to further enhance safety again. But Japan has not reached this stage yet. As Mr. Schuetz has said, upfront costs will be needed, but clearing this part would usher in better economic efficiency and provide the incentive for enhancing safety. The important point is to trust that this would happen and to make efforts accordingly.

Ms. Yamashita: Our next discussion point is about promoting more effective and efficient activities. Mr. McCree, I'd like to hear from you first. I believe safety enhancement has two aspects: government-imposed regulations, and operator-issued voluntary regulations. My impression is that in the U.S., these two nicely complement each other like two wheels of a car and are very well balanced. You gained invaluable experience working at the U.S. NRC; could you offer any advice to the people in Japan, regarding the roles that national regulatory bodies and operators play?

Mr. McCree: Everyone in a team is required to have and properly execute their roles and responsibilities. The same goes for operators and regulators. The two parties must complement each other: they should be open but not intimate, and there needs to be independence but not isolation. I believe success will come if, under these circumstances, both sides serve their roles. That's the strength of the U.S. nuclear power industry. Regulators ensure public health and safety, while INPO pursues higher levels of safety, reliability, and performance.



Regulators are public organizations, so they are obligated to publicly disclose information about nuclear safety so long as it isn't confidential. This means information on performance, be it good or bad, needs to be disclosed. Operators, meanwhile, are primarily responsible for safety in their day-to-day operations. INPO and JANSI are similarly positioned, and these institutions and regulators must establish a strong relationship of trust.

Ms. Yamashita: Dr. Yamaguchi, please share your request to and opinion of JANSI or the industry, if any, regarding what's needed to further improve effectiveness and what to do to achieve better efficiency.

Dr. Yamaguchi: At the beginning of today's event, Chair Yamanaka stated his hope to converse with the NRA by overcoming various obstacles. Likewise, Mr. Schuetz said INPO and the NRC are in a mutually supportive relationship, and the report of the voluntary safety enhancement working group that I mentioned earlier also covers revving up communication with regulators in a way that keeps the exchange of views candid. I think these all point to how challenging it could be to communicate with regulators. In Japan's case, the first step is to present JANSI's independence to the public in a visibly recognizable manner, and present technological excellence after that. Explicitly presenting

JANSI's independence would lead to earning the trust of regulators, and, likewise, JANSI's self-regulation would benefit the regulators and generate the public's trust. We should thus reconsider what "independence" should look like for JANSI; I think we need to integrate a perspective that's slightly different from that of the U.S.

Ms. Yamashita: We would like to have closing remarks from each of you. Mr. Schuetz, Dr. Yamaguchi, and Mr. McCree, if we can have a message of support for Japan's nuclear power industry. Mr. Mori, Mr. Yamazaki, and Mr. Webster, please share your determination for your pursuit of safety enhancement for further excellence.

Mr. Schuetz: I trust the power of self-regulation. Despite its very low cost, I think it has been instrumental in bringing Columbia Generating Station from rock bottom to the top and in enhancing the performance of the entire industry. INPO's feedback is not music to the ears, but voluntary regulation enables plants to demonstrate exemplary performance and prompt external stakeholders to recognize the plants' competence. The more you practice it, the more value you obtain, so I hope Japan keeps working on self-regulation.



Dr. Yamaguchi: I think Japan's efforts to enhance performance are currently lagging behind those for safety. If JANSI is a party that features purpose and capability, focusing firmly on enhancing performance would create a virtuous cycle. I hope JANSI keeps enhancing its performance with purpose and strength onto the next decade.

Mr. McCree: Mr. Willard and Mr. Webster mentioned that leaving safety and performance as a legacy is crucial for supplying affordable, safety-guaranteed, and carbon-free energy. This is true both in and out of Japan. I think JANSI can become a great organization that helps Japan's industry achieve its goal.

Mr. Mori: We, the operators, are the main actors in self-regulation. To keep enhancing safety in a voluntary and continuous manner, we hope to maintain our attitude—listening carefully to the opinions of outside parties and constantly improving our efforts. We will strive to closely communicate with JANSI and shape a better format of self-regulation. The key is to show the regulators that operators are mutually improving one another on the premise of independence. To achieve self-regulation, I will propel our business while maintaining my awareness and purpose as a top executive of a nuclear operator.

Mr. Yamazaki: JANSI's activities have finally gotten on track, a decade after the institute's founding. Operators have started to become aware of self-regulation too, but we still need time for that awareness to fully trickle down to the front lines. I think we're just at the starting point.

I intend to make further advances and develop self-regulatory activities in Japan's industry to an internationally recognized level that's on par with those of the U.S. My hope is to keep promoting effective and efficient activities, bearing in mind the purpose behind JANSI's founding—preventing accidents similar to and maintaining lessons learned from 1F.

Mr. Webster: When I was invited to the conference for establishing JANSI a decade ago, it was not yet clear whether this endeavor would truly be effective and whether CNOs and CEOs would utilize JANSI. I shared helpful experience that I gained in the U.S., but the key was whether Japan's nuclear power industry was willing to change. Now ten years have passed, and so much has been accomplished. To move forward, we must review our 10-year strategy to identify issues, strengthen our partnerships with WANO, ATENA, and the NRRRC, and build a strong, complementary relationship with the NRA. JANSI will support the activities of industry while addressing various issues. We hope to work together to become a world-class industry.

Ms. Yamashita: Today we reflected on JANSI's decade-long history, and, while hearing about experiences in the U.S., we discussed topics for the future. I am convinced that JANSI will keep working with operators to improve and enhance safety in a continuous manner. I look forward to seeing your cooperation in the use of nuclear power in Japan.

Closing Remarks



President & CEO, Japan Nuclear Safety Institute (JANSI)

Hiromi Yamazaki

We arranged this conference in light of JANSI's 10th anniversary. Our goal was to devise strategies for the coming decade by reviewing what our past activities achieved and looking ahead to future activities. The event spanned many hours, and I thank you for participating. To meet society's expectations of nuclear power, we—industry members—must continue to pursue excellence and enhance our performance without being content with meeting regulatory requirements. Today's keynote speeches and panel discussion offered many insights into the direction toward which Japan's nuclear power industry should head. JANSI will continue to respond to operators' mandates and lead their autonomous and continuous improvement activities as a self-regulatory organization of industry. As the event organizer, I reiterate my deepest gratitude to our participants. Thank you.

JANSI is responsible for the wording of this document.
Some honorific titles have been omitted.