

JANSI Annual Report 2021



JANSI
Japan Nuclear Safety Institute

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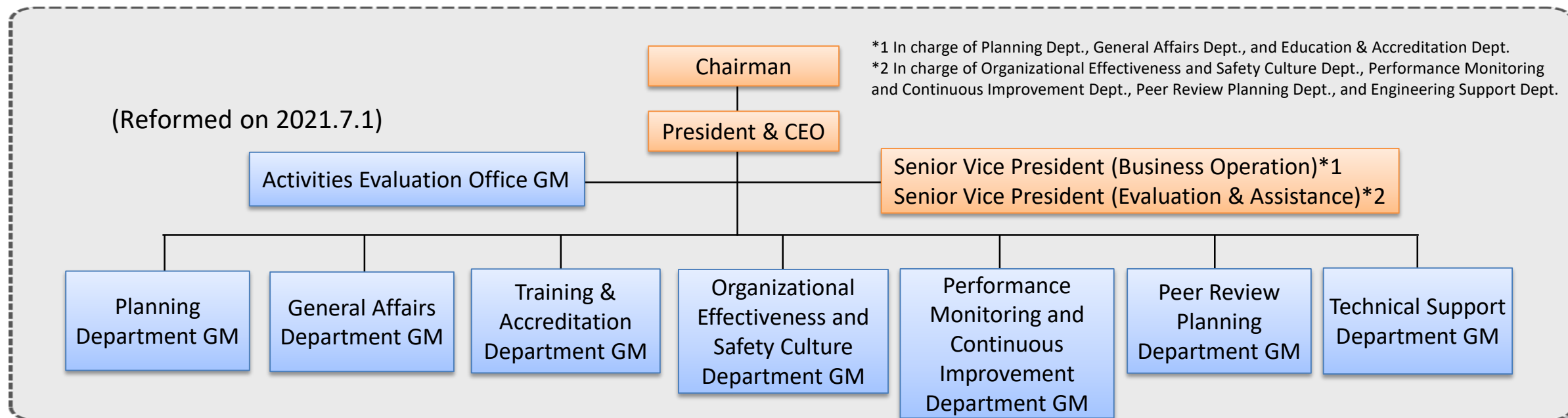
FY2021 Activity Status

C1~C5

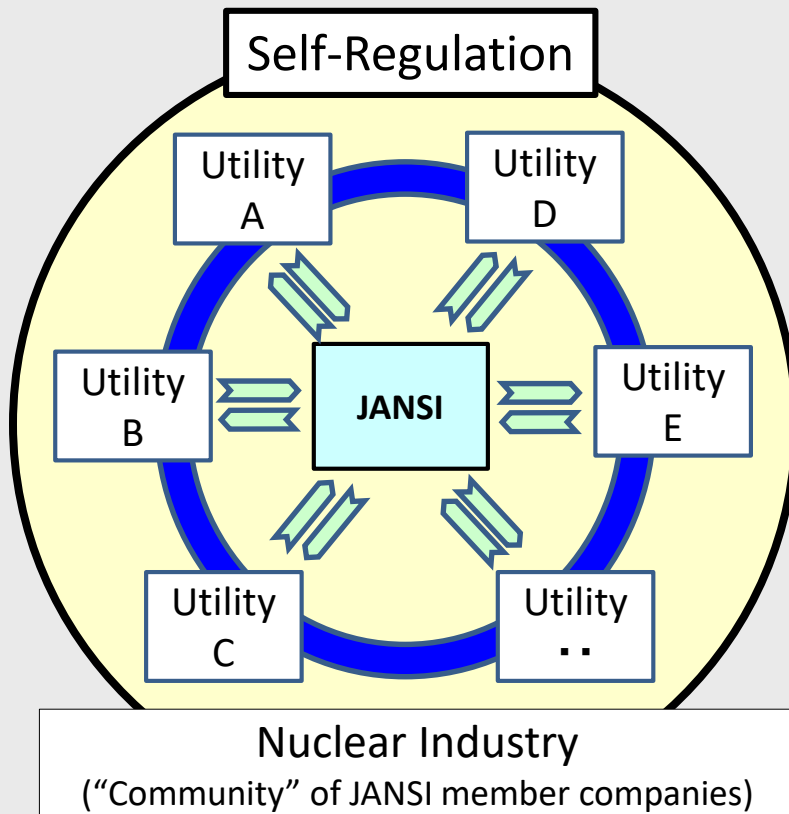
References

Overview of JANSI

- (1) Name : Japan Nuclear Safety Institute (JANSI)
- (2) Number of members : 129 (as of end of March 2022)
- (3) Number of personnel : 178 (as of end of March 2022)
- (4) Organization



- Established as **a self-regulatory organization** under the consensus of the industry “to prevent any events similar to the TEPCO Fukushima Daiichi Nuclear Power Station accident” (2012.11)
 - **Modeled on INPO (Institute of Nuclear Power Operations)** in the US nuclear industry
 - Concluded **"Coordination Principle"** with the operators. Shared basic ideas such as information sharing and ensuring independence
 - Developed evaluation and support activities such as peer reviews with the mission: **"Pursue the World's Highest Level of Safety in the Japan's Nuclear Power Industry (Untiring Pursuit of Highest Standards of Excellence)"**
- Formulated “Ideal which JANSI and Operators Strive for to Achieve Self-regulation,” and the operators and JANSI deepened discussions, making continuous improvements toward its realization (June 2017)
- The Board of Directors is composed of the CEOs of the operators and the JNFL (June 2018)
- Developed a Ten-Year Strategy, and defined main actions to realize the visions (March 2019)



A member of the Industry, but maintains independence

【JANSI members (operators)】

- As a main actor of self-regulation, operators fulfill their responsibilities as a member of community and continue to make united efforts to improve safety
- Individual and collective responsibility for safety of nuclear facilities
- Give authority and support to a self-regulatory organization to implement the mission

【JANSI(self-regulatory organization)】

- Roles and responsibilities to assist self-regulation activities effectively and efficiently
 - Evaluate and monitor self-regulatory activities (Watchdog)
 - Stimulate activities (Catalyst)
 - Promote activities by showing the path forward (Facilitator)
 - Be firm anchorage (Accountable Agent)
- Technical capacity that underpins the authority of self-regulation
- Appropriate relationship with the regulator

○ In order to realize self-regulation, clarified requirements such as responsibilities expected of the operators and JANSI, and set them as action targets when planning, implementing, and evaluating each activity.

○ Studied and established with the collaboration of the operators and JANSI

I. Fundamental principles

I-1 Nuclear Safety Focus

I-2 Involvement of CEO, CNO

I-3 Accountability of Operator

I-4 Accountability of JANSI

I-5 Independence of JANSI

II. Leadership

III. Governance

III-1 Organization management

III-2 Oversight

III-3 Audit

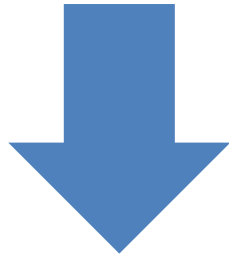
IV. Communication

V. Securing and developing JANSI human resources

CEO: Chief Executive Officer

CNO: Chief Nuclear Officer

○ At the time of establishment, from the viewpoint of ensuring independence, the Board of Directors consisted of vice presidents of the electric power companies other than the nuclear sector, vice presidents of manufacturers, and domestic experts.



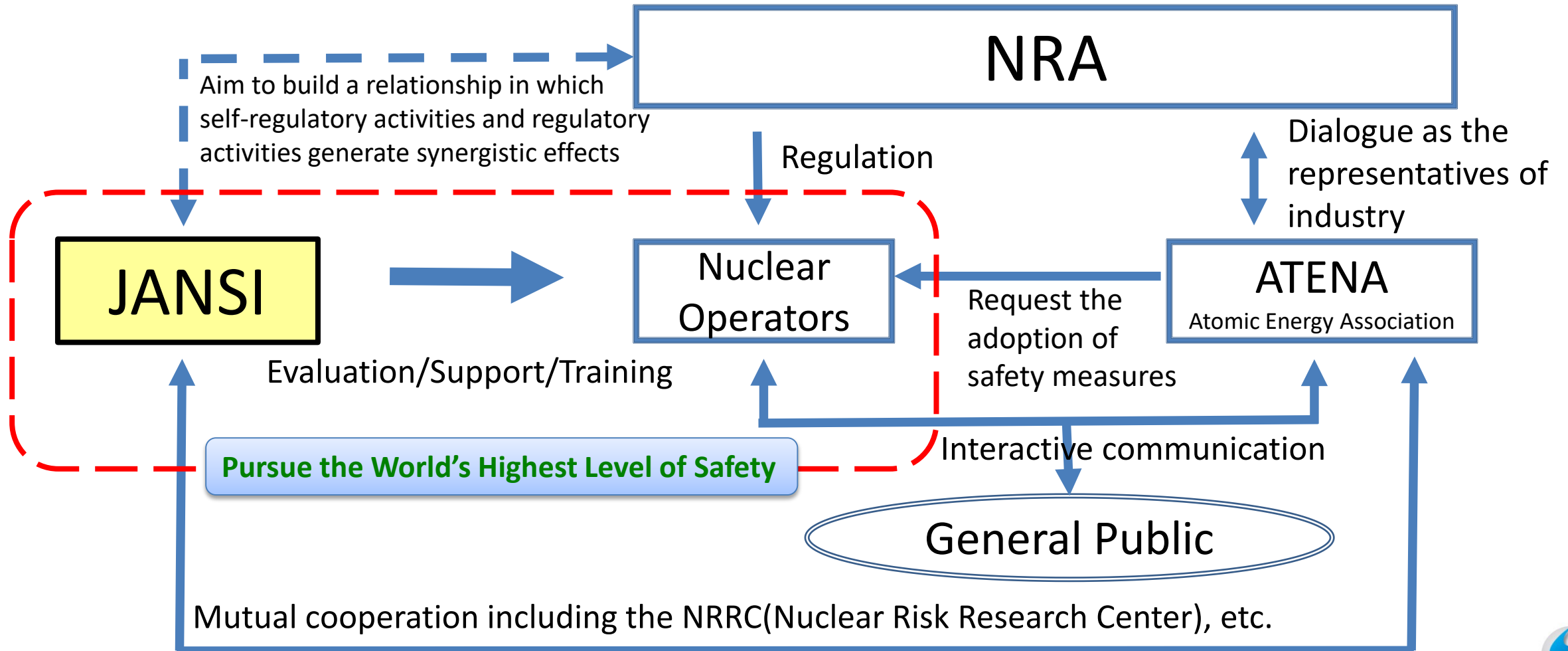
The leadership of the CEOs of electric power companies and their commitment to JANSI are essential to achieving self-regulation [Clarification of responsibilities as electric power companies, and enhancement of referral to JANSI]

○ The Board of Directors is composed of the CEOs of electric power companies and JNFL, and invited Mr. Webster, former INPO leader, as the Chairman.

✓ Vice Presidents of manufacturers were reorganized as the Associate Special Member Representative Meeting to discuss business operations and make recommendations to the Board of Directors and the President & CEO as necessary.

✓ Domestic experts were reorganized as the Domestic Advisory Committee to exchange opinions with the top management.

Common Goal: Improving Nuclear Safety



Relationship with the NRA

- Although self-regulatory activities and national regulatory activities are independent from each other, they aim to build a relationship that generates synergistic effects.
 - Information sharing on operating experience information (OE information) is underway
 - Careful discussions are being held on the mechanism for sharing information with the NRA including the peer review reports, while considering the business environment.

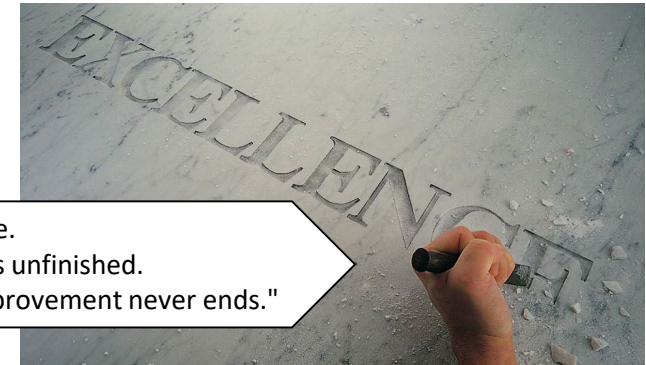
Relationship with Industrial Organizations

- Mutual cooperation with ATENA, NRRC, etc.
 - Concluded technical cooperation agreements with ATENA and NRRC, and have implemented: attendance at each other's conferences, information sharing, mutual business support, collaboration to solve important issues in the industry, etc.
 - Information has been shared with other organizations such as Japan Atomic Industrial Forum and Japan Electrical Manufacturers' Association as appropriate.

Relationship with INPO (Institute of Nuclear Power Operations)

- As self-regulatory organizations with the same vision of "pursuing the highest level of performance," INPO and JANSI mutually cooperates on behalf of the operators of the US and Japan on the issues of improving safety of nuclear power plants.
 - Benchmarking visit to US power plants
 - Exchange of opinions between the US and Japanese nuclear industries regarding the reflection of Fukushima Daiichi lessons learned

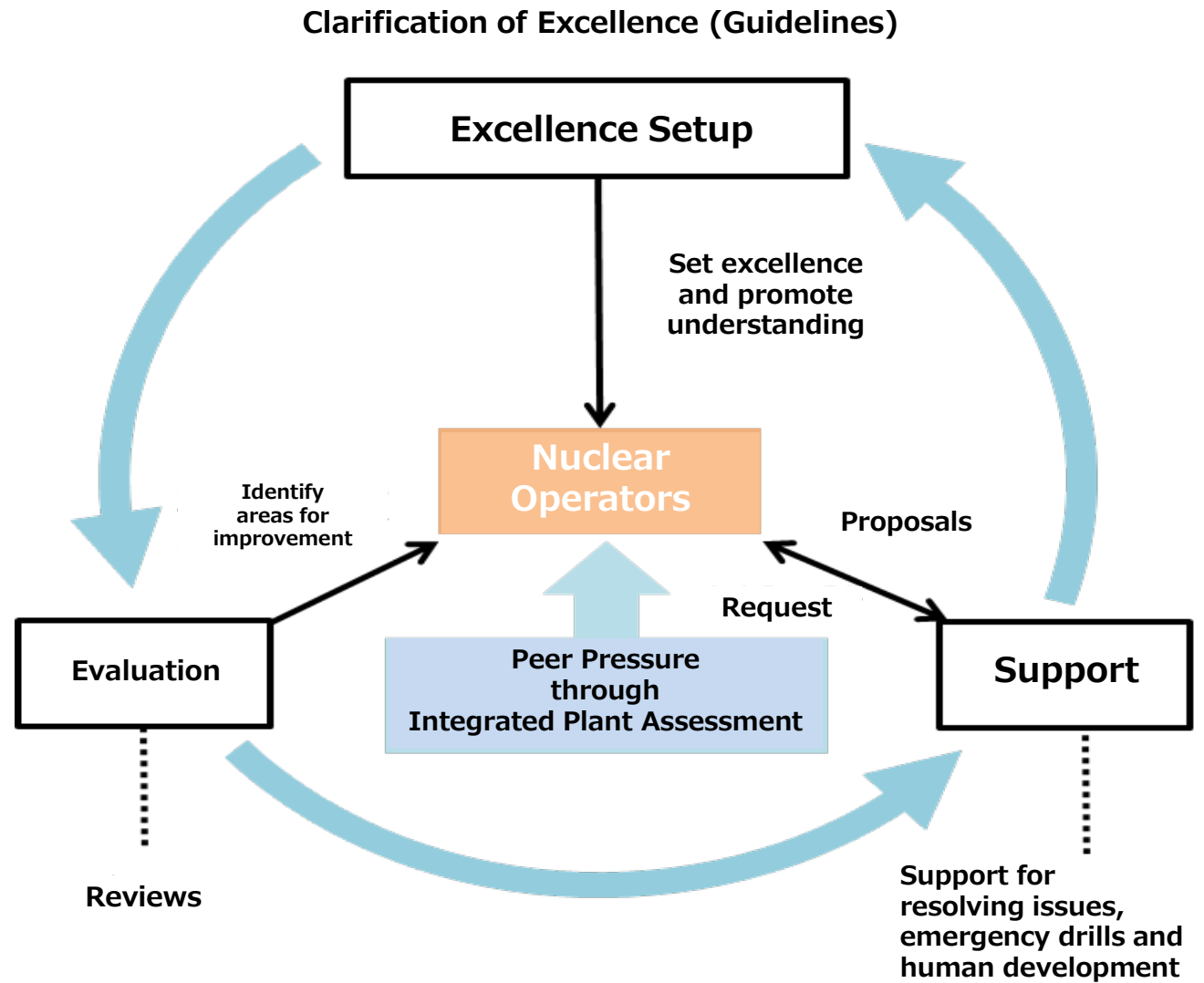
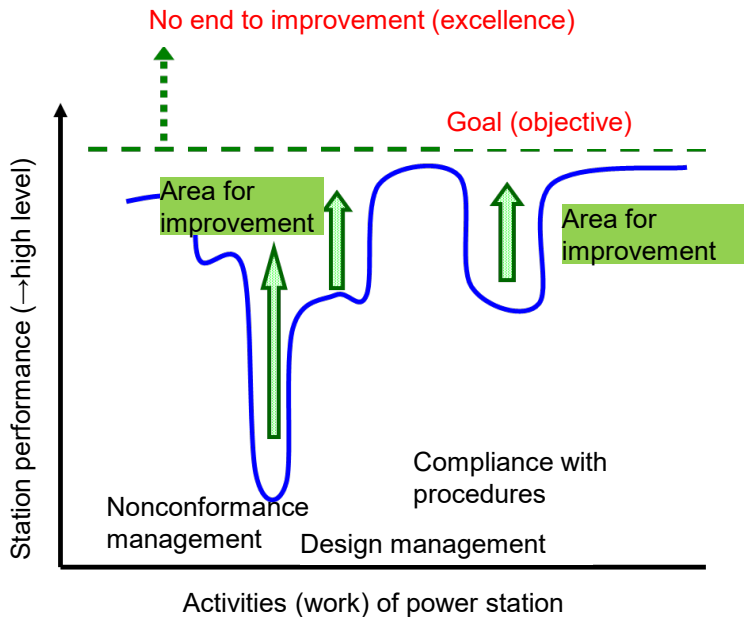
Reprinted from the INPO website.
The word "EXCELLENCE" remains unfinished.
It is a symbol of "The road to improvement never ends."



Relationship with WANO (World Association of Nuclear Operators)

- Although WANO and JANSI are independent organizations, they cooperate with each other to improve the safety of nuclear power plants by taking advantage of their respective characteristics. JANSI closely cooperates with WANO Tokyo Center.
- JANSI strives to grasp and pursue international standards for world's excellence and evaluation/support methods.
 - From JANSI: Dispatch reviewers to WANO peer reviews, provide PI information of domestic operators, etc.
 - From WANO: Dispatch overseas peer reviewers, etc.

Define the latest standards of excellence apply it in the cycle of **setting up excellence standards, evaluating** to these standards and **supporting** the operators in an effective and timely manner



Based on the reflection on the Fukushima Daiichi accident, JANSI drives the operator activities and pursue world's excellence beyond the regulatory framework.

For this reason, JANSI top executives directly informs the CEOs of the operators about the areas for improvement and encourages improvement.

【Peer Reviews】

- **Directly present peer review results (areas for improvement, etc.) to the operator CEOs**
(Regarding common issues, the content will be shared at the CEO session (a place for exchanging opinions exclusively for the operator CEOs, hosted by JANSI))

【Safety Culture】

- **Directly present the safety culture diagnosis results to the operator CEOs**

【Power Plant Integrated Assessment】

- **Present the integrated assessment results (5-grade evaluation) at the CEO session (Peer pressure)**

【Recommendation for safety improvement measures】

- **Directly present the consideration of safety improvement measures to the operator CEOs**

【CEO session, CEO training, Dialogue】

- **Direct exchange of opinions with the operator CEOs toward the realization of self-regulation**

- In order for peer reviews, safety culture diagnosis, and various support activities to be continuously effective, it is important to maintain a sound environment surrounding these activities.
- Frank dialogue with the operators is indispensable for observing/evaluating the operator performance, and its content is maintained on the premise that it is kept private and used productively.

○ Purpose of Development

- ① Study possible environmental changes in the next ten years, **identify the end state the industry and JANSI should achieve.**
- ② Clarify how individual activities and initiatives of JANSI relate to the desired end state, reorganize importance of each item, reach agreement in the Institute and share it.



JANSI closely collaborated with operators in the process of strategy development by seeking advice of experts in Japan and overseas.

○ Formulation of Ten-Year Strategy (Approved by JANSI Board of Directors in March 2019)

- ✓ During the target period of FY2019-FY2028, **with this strategy as a guide, JANSI will work hard with the operators to accomplish the desired end state.**
- ✓ Since this is a long-term strategy, effectiveness of the activities and business environment changes will be regularly evaluated and the strategy will be updated as necessary.

○Setting the Desired End State

- ✓ The Industry: ***The industry continuously improves by the initiatives of voluntary safety improvement by operators.***
- ✓ JANSI : ***JANSI drives initiatives for voluntary safety improvement as the self-regulatory organization in nuclear industry.***
- ✓ Embodies the future image of the industry and JANSI

○Main Actions to realize the Desired End State

- ✓ Critical Success Factors (CSFs) for the industry and JANSI are established to improve plant performance over the next ten years.
- ✓ Based on the CSFs, direction of JANSI activities is determined (5 categories).
- ✓ Associated actions are determined (20 actions).

Action Category	Orientation of Activities
Effective and Efficient Peer Reviews	<ul style="list-style-type: none"> Conduct peer reviews considering Japanese culture or systems in addition to international standards. Also, with strengthening the collaborative relationship, JANSI and WANO conduct alternate peer reviews every two years.
Continuous Monitoring and Timely Information Sharing on Plant Performance, Enhancement of Supports	<ul style="list-style-type: none"> Initiate continuous monitoring of plant performance through performance indicators (PI), and reflect it in evaluation and support activities. Upon collecting/analyzing operating experience (OE) information, the analysis is shared with the operators by the timely information sharing method. Find important issues common to the industry (including restart assistance and JNFL support) and individual weaknesses, driving initiatives for improvement as a nuclear industry. Bring out the commitment of the top management of the operators and prompt peer pressure.
Evaluation and Support for both corporate office and stations	<ul style="list-style-type: none"> Evaluate utilities' efforts both in corporate office and stations from organizational culture, safety culture and risk management points of view to provide necessary support.
Maintain and improve technical capability of operators	<ul style="list-style-type: none"> Support fostering "non-technical skills" and "awareness" necessary for ensuring nuclear safety of the operators and improving "knowledge and skills" necessary for station staff. Support Fukushima Daiichi lessons learned to be incorporated and regularly refreshed.
Strengthen foundation of self-regulatory organization: Roles, mindset and technical capability	<ul style="list-style-type: none"> Strengthen the role, mindset and technical skills required for the self-regulatory organization. Build a relationship of trust and respect with the utilities, NRA and other external organizations.

- **“Pursuit of excellence” is to continue the “journey.”**
- **JANSI clarifies the “course,” and firmly takes the “helm.”**



「Nuclear Safety」
【原子力安全にフォーカス】

「Community Committed to Excellence」
【常にエクセレンスを追求する共同体】

Status of Main Activities

Peer Review

- Conducted **25 times** since the founding of JANSI (2012)

<The Role of JANSI Peer Review>

- Evaluate the safety improvement activities of the operators
- Create a mechanism for the top management of the operators to commit to improvement through peer reviews



<Desired End States>

- Based on the premise that there is a feeling of trust between the power plant (interview content, reports, and other information will not be disclosed)
- Conduct “quality peer reviews” that will lead to improvements in power plants
- Continuous involvement through “evaluation and support”
- Ensure “independence”
- Seek “highest excellence” for JANSI itself too



Pursue the World’s Highest Level of Safety and Reliability

- Now under assessment for WANO equivalency.

Peer Review Track Record of the Past 3 Years

Peer Review Track Record of the Past 3 Years			FY2021
FY2018	FY2019	FY2020	
Ikata Kashiwazaki Kariwa (5-7) Sendai Tsuruga	Kashiwazaki Kariwa (1-4) Shika Ohi Hamaoka	Ikata Tokai Daini (Onagawa and Tomari were postponed due to COVID-19 pandemic)	Onagawa Ohi Takahama Genkai



○Support for improving power plant performance

- Currently conducting a Feasibility Study (FS) of PM&Cont.M as a mechanism to constantly grasp power plant performance. Notably in FY2021, we have taken into consideration the cooperation with WANO's ePM (enhanced Performance Monitoring), which will be the core of PM&Cont.M, and the future schedules, etc.
- Power Plant Integrated Assessment has been conducted from FY2016
 - Conduct evaluations based on the results of the previous FY, and share information in the CEO session
 - Power Plant Special Awards were given (to 3 plants in 2018, to 1 plant in 2019, to 3 plant in 2020, 0 plant in 2021)
- For the identified issues, support power plants through seminars on improvement measures, benchmarking visits, training, Senior Representative (SR) visits, and Technical Contact Point (TCP) for each specialized field.
- Currently developing activities to present excellence to the operators by organizing the concept of programs that are the basis of voluntary safety improvement activities such as Corrective Action Program (CAP), Configuration Management (CM), and Risk Management (RM).

○Restart Assistance, etc.

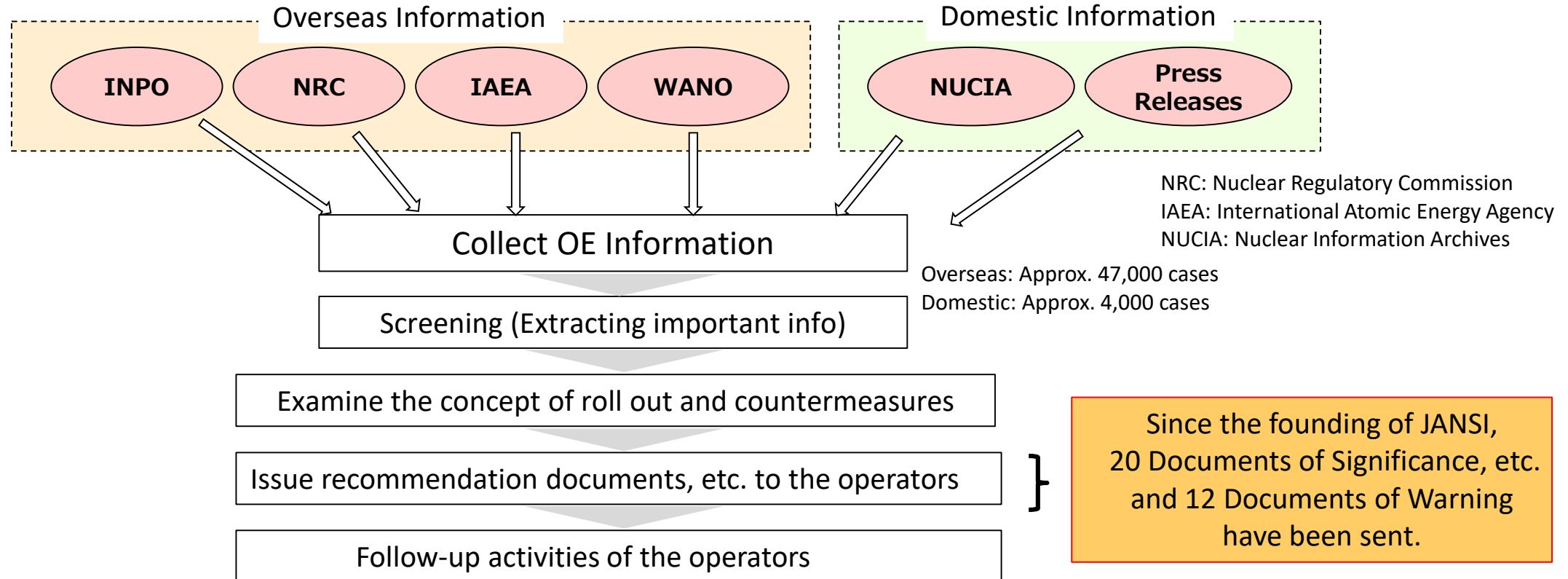
- Exchange opinions with the preceding restarting plants, and provide support such as walk-downs by utility experts as appropriate. Assist the restart of Mihama Unit 3 (stationed during startup), reflect the assistance results, etc. in the guidelines for restart after long shut down, and share with the operators
- Pre-completion support for the JNFL reprocessing plant is ongoing



【Power Plant Special Awards (All CEOs attended)】

Utilization of Operating Experience Information (OE)

- **Collect and analyze domestic and overseas OE information, and present measures etc. to the operators as necessary**
- Domestic OE information is registered in the public database (NUCIA), and if necessary, roll out will be required.



- In FY2021, two Documents of Warning were issued:

"Information sharing related to fatal accidents caused by CO2 emission from CO2 fire extinguishing equipment that occurred in the general industries"

"Information sharing related to troubles of the U.S. Callaway 1 Condenser Air Off Take System Radiation Monitor Drain Piping Loop Seal Loss (PWR WH)"

○ Safety Culture Diagnosis

- **On-Site Diagnosis:** Based on the results of a questionnaire survey every 3 years, it is **conducted every 3 to 4 years** for power plants, major plant manufacturers, and fuel processing manufacturers (Able to hear opinions of the on-site staffs, and grasp the potential problems)
The interview has been expanded to the corporate offices from FY2020
- Questionnaire Survey of Safety Culture: Conducted as a **fixed-point observation every 3 years** for Special Members and Associate Special Members

【On-Site Diagnosis】

On-site diagnosis observes and analyzes the target organization from multiple perspectives of organizational culture, and gives a diagnosis on how they are involved in maintaining and improving performance including safety, from an independent and objective standpoint.

Its purpose is to provide an opportunity for the target organization itself to recognize its own situation in relation to safety more correctly, and to improve its learning ability as an organization pursuing excellence in safety.

	On-Site Diagnosis Track Record of the Past 3 Years			FY2021
	FY2018	FY2019	FY2020	
Nuclear Power Plants JNFL	Fukushima Daini, Takahama, Shimane, Genkai, Oma	Tokai/Tokai Daini, Hamaoka, Tomari, Kashiwazaki Kariwa, JNFL	Tsuruga, Ikata, Sendai	Higashidori, Ohi, Shka, Onagawa, Fukushima Daiichi
Plant manufacturers Fuel manufacturers	Toshiba	Mitsubishi Heavy Industries	Hitachi-GE Nuclear Energy	Toshiba

【Safety Culture Surveys】

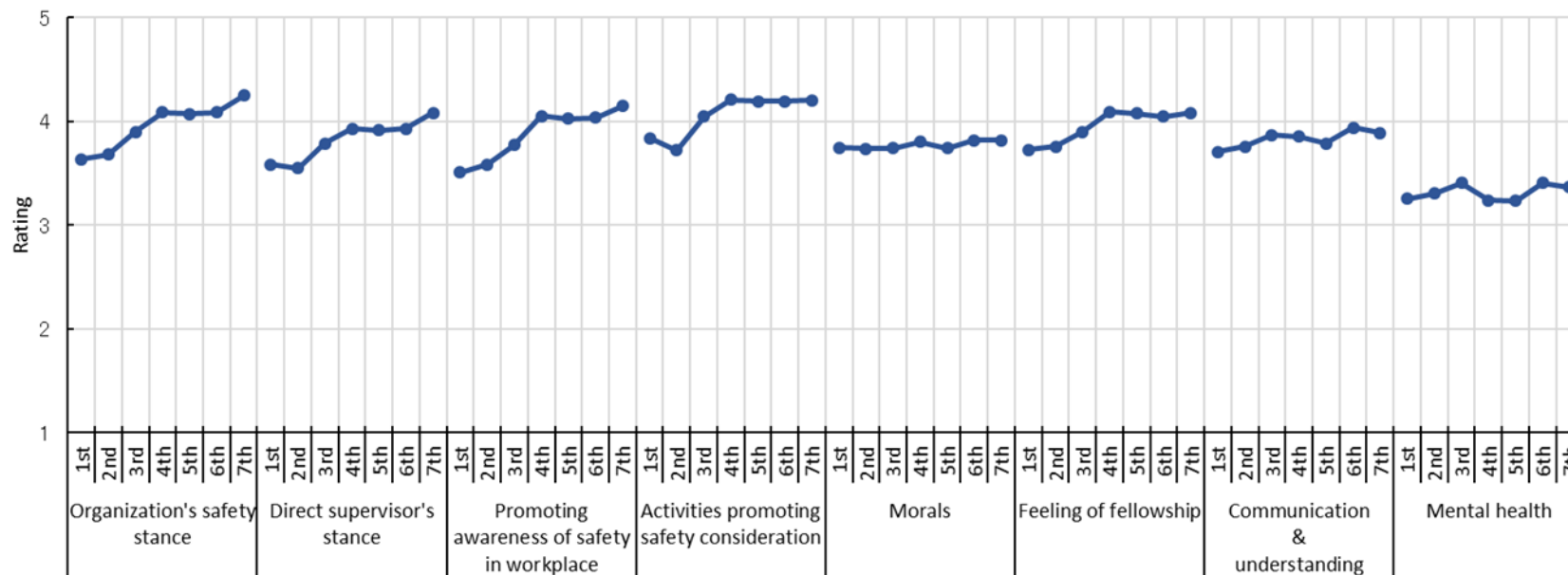
- ✓ Trends can be ascertained
- ✓ Statistical analysis allows comparisons to be made of the relative position of each member within the membership as well as between divisions within members' business establishments
- ✓ Hierarchical analyses can be made



- ① Areas are able to be clarified that organizations should prioritize.
- ② The focus of field diagnoses can be narrowed down.

Factor Rating Trends (Power Station Average)

(Vertical axis: Rating)



1st survey: FY2002-2004
4th survey: FY2012
7th survey: FY2021

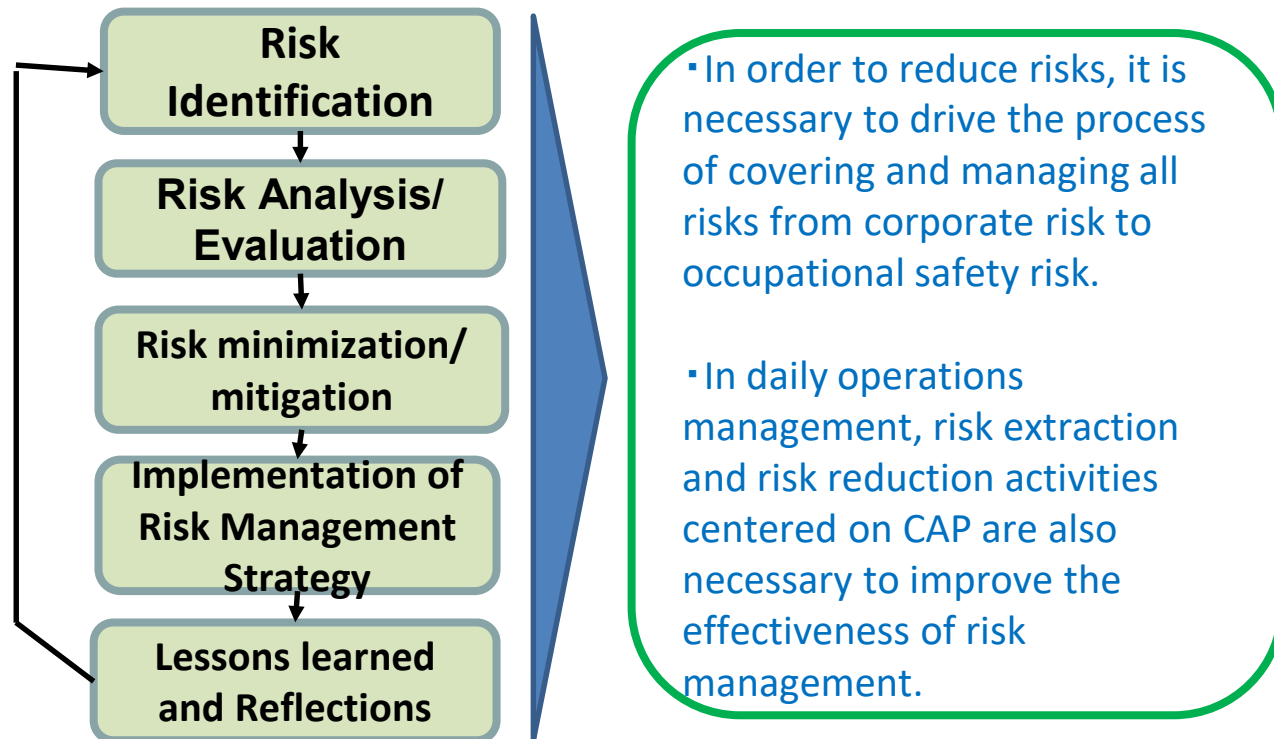
2nd survey: FY2006
5th survey: FY2015

3rd survey: FY2009
6th survey: FY2018

○Support for establishing a risk management (RM) structure

- In order for the operators to practice risk management and continuously improve safety, carry out support activities such as reviews including the corporate office.
- Trial RM reviews were conducted in FY2021 (Hamaoka, Sendai).

【Risk Management Process】



【JANSI's Support Activities】

- Disseminate recommendations to all operator CEOs regarding the establishment of a safety assurance structure that takes into account the nuclear safety related risks
- Establish RM Excellence Guideline
 - Investigate/reflect good overseas initiatives
- Confirm the initiatives of the operators
 - Support individually for on-site penetration
- Share specific initiatives in other domestic industries with the operators
- Implementation of risk sensitivity improvement training

○ Safety improvement measures evaluation, recommendation and support

Pursue world's excellence by investigating/collecting the latest findings of the world, and evaluate/support safety improvement measures of each operator.

- A) **Develop evaluation methods** (IAEA's SRS-46 is applied as methods different from those of operators and NRA. Participating in revision of SRS-46)
- B) **Safety Improvement Measures evaluation and recommendation** (1 Defense in Depth level 1-3 recommendation was issued in May this year. Now following up on the response status of 6 SA (Severe Accident) measures recommendations)
- C) **Survey on Good Practices of Safety Improvement Measures** (Now conducting an overseas survey of issues extracted from the gap with the U.S./Europe. U.S. STS, mid-loop operation, etc.)
- D) **Future Activities** (Evaluation using the SRS-46 will be completed in FY2022, overseas surveys and seminars & lectures will be continued)

【Evaluation of safety improvement measures】

A) Development of Evaluation Method

Adoption of IAEA SRS-46
"Assessment of Defense in Depth for Nuclear Power Plants"
(1) Independence, (2) Uniqueness, (3) Originality, (4) (Exclusion of) Self-righteousness
Now participating in the revision of IAEA SRS-46

B) Safety Improvement Measures Evaluation and Recommendation

- SA evaluation: Complete for FY2020
- DB-related: Under consideration/FY2021 interim report
- External events: Under consideration/FY2021 interim report
- Identify and consider issues related to safety measures
- Issue recommendations (1 for DB in FY2021, 6 for SAs)
- Follow up on recommendations (follow up on response status every year)

C) Survey on Good Practices of Safety Improvement Measures

Now conducting an overseas survey of issues extracted from the gap with the U.S./Europe.

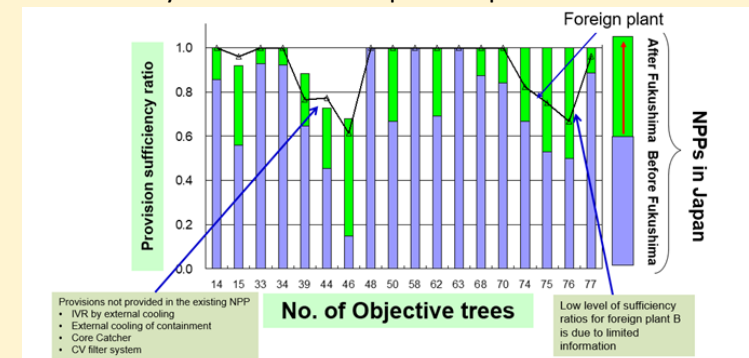
U.S. STS, Mid-loop operation, Digital I&C, External event measures, Source term behavior during SA, etc.

D) Future Activities

- By FY2022, evaluate Defense in Depth level 1-3 and measures against external events, and give an overall summary
- Operators support activities such as new findings surveys, effectiveness evaluations, and seminar & lectures held by JANSI will be continued in and after FY2023

Quantitative Evaluation of Safety Improvement Measures (SA evaluation example)

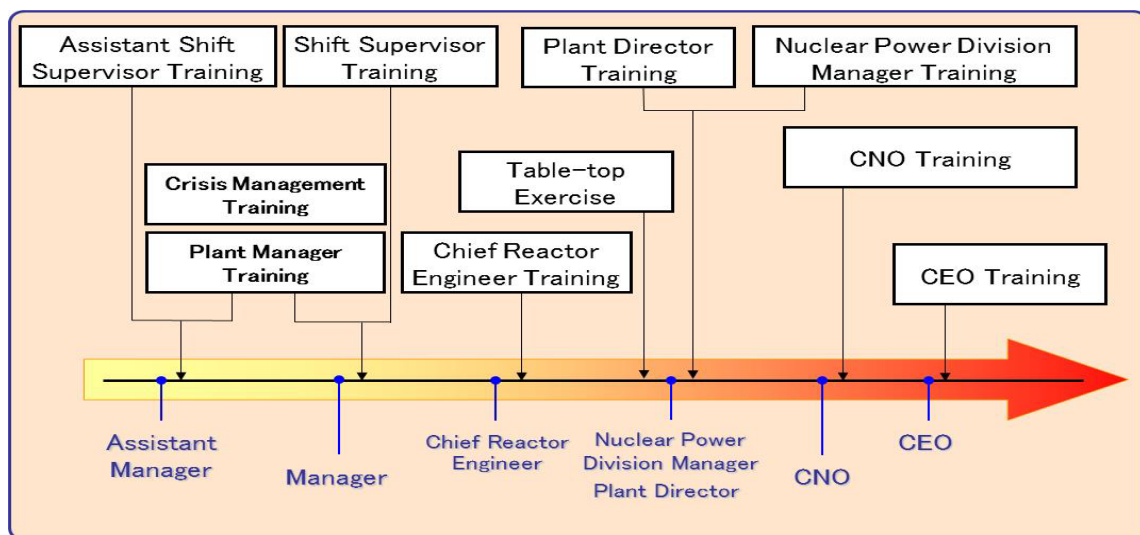
- Improvement of safety measures before and after compliance with new regulatory requirements
- Identify areas for improvement of safety measures
- Standard comparable to global standard
- Clarify differences from plant to plant



Example: Comparison of sufficiency evaluation between domestic PWR plant A and foreign plant B

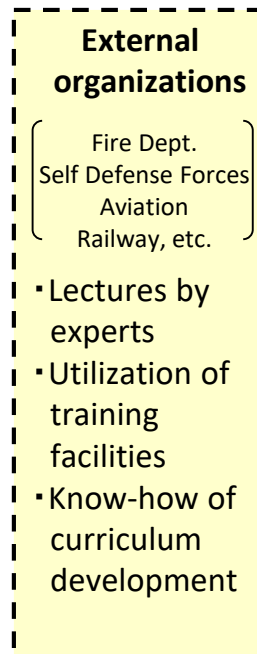
Leadership Training

- Conduct training for fostering awareness of making nuclear safety top priority and non-technical skills (leadership, communication, etc.)
- Provide 10 courses according to duty position for the management level employees including Shift Supervisors, Plant Directors, CNO/CEO, etc.
- In/after October 2020, trainings were held online due to COVID



- **Full-scale introduction of non-technical skill training from FY2021**
Contents specialized in non-technical skills, programs to experience basic characteristics of the skills by lecture, exercise, role play, etc. (Recorded 389 non-technical skill training participants in FY2021)

Cooperation



Crisis Management Training



Online Implementation

Training Track Record (Number of people)

FY2018	FY2019	FY2020	FY2021
266	203 (*1)	128 (*1)	221

*1 In FY2019/2020, a part of the training was canceled due to the COVID-19 pandemic

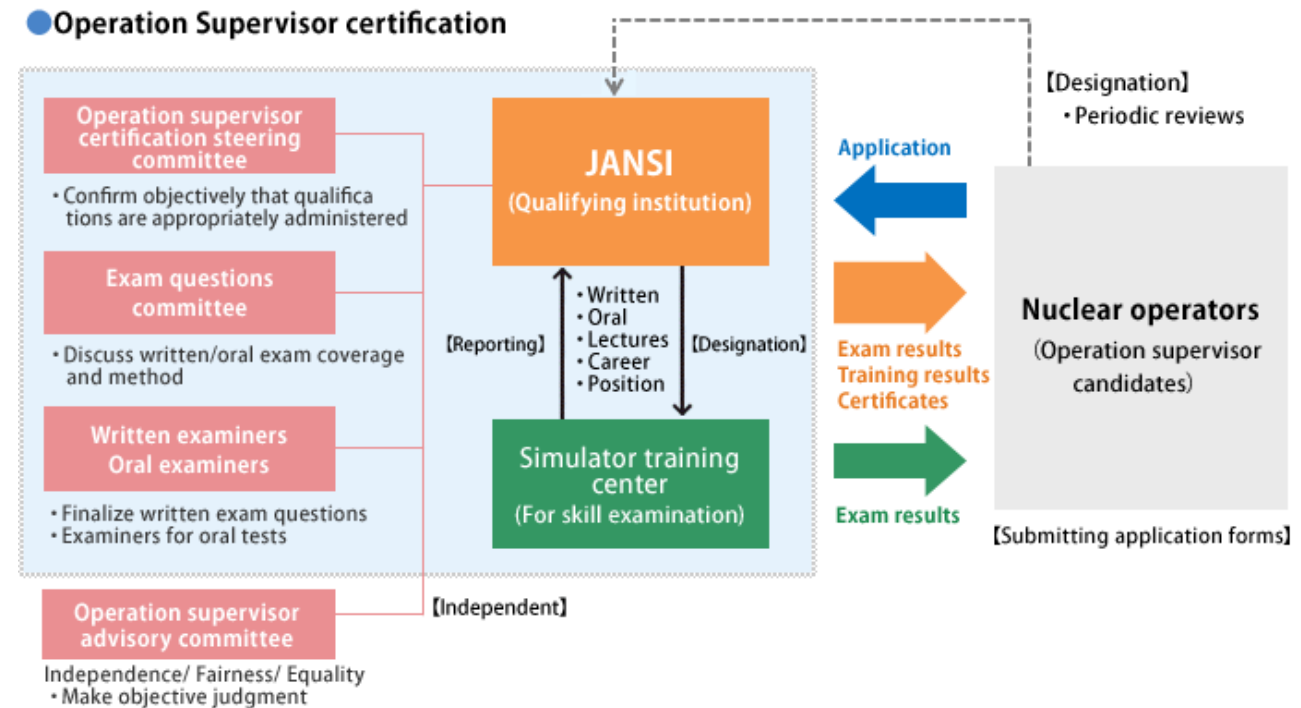
OSAT Support [SAT: Systematic Approach to Training]

- Provide support for the operators' efforts to secure the technical competence of the staffs through the development of guidelines, training, caravans, etc.
- In FY2020, practical training and power plant caravan were implemented online for each power plant (FY2020: 9 sites in 6 utilities; FY2021: 19 sites in 11 utilities)

Operation Supervisor Certification

◇ JANSI is designated as the qualifying institution from the nuclear operators, and carries out certification consistent with the Nuclear Power Plant Operation Supervisor certification rules (JEAC4804) and the pass/fail assessment rules of the nuclear operators (renewed every 3 years).

◇ In FY2021, oral/written examinations and lectures were held four times, and the certification results were announced.
(Conducted online since FY2020 due to the COVID-19 pandemic)



Annual Conference

• JANSI holds the “JANSI Annual Conference” to report on the results of its activities, and to receive opinions from domestic/overseas nuclear community in order to make future activities more effective.

Track Record of the Past 3 Years

Event Date	2020.3.18 (Cancelled)	2021.3.17	2022.3.23
Number of Participants	—	Approx. 600 (Held Online)	Approx. 600 (Held Online)
Panel Discussion	<p>The event was cancelled in response to the spread of COVID-19 infection and the "Basic Policy for Countermeasures against COVID-19 Infections" announced by the government. A tripartite talk was held on the <i>Denki Shimbun</i>, related to the theme "improvement of risk sensitivity" scheduled for the day.</p> <p>(Tripartite Talk) <u>Risk Management from the perspective of Hayabusa2 and Nuclear Power</u></p> <p>Yuichi TSUDA: Hayabusa2 Project Leader, Japan Aerospace Exploration Agency</p> <p>Professor Akira YAMAGUCHI: Nuclear Professional School, School of Engineering, The University of Tokyo</p> <p>Hiromi YAMAZAKI: President & CEO, JANSI</p>	<p><u>Establishment and Progress of Voluntary Continuous Safety Improvement Initiative</u></p> <p>(Chairman) Professor Akira YAMAGUCHI, Nuclear Professional School, School of Engineering, The University of Tokyo Fumihito OGATA: Executive Vice President, West Japan Railway Company Jeffrey B. Archie: Former CNO, South Carolina Electric & Gas Company (SCE&G) Yutaka FUJII: President & Director, Hokkaido Electric Power Company Kazuhiro IKEBE, President & CEO, Kyushu Electric Power Company Hiromi YAMAZAKI: President & CEO, JANSI</p>	<p><u>Enhancement of Resilience in Nuclear Safety - New Perspective for Plant Operation -</u></p> <p>Chairperson: Ms. Kyoko Oba (Deputy Chief Engineer, Japan Atomic Energy Agency (JAEA) / Associate Professor, Nagaoka University of Technology) Dr. Erik Hollnagel (Professor Emeritus, Linköping University / Ecole des Mines de Paris / the University of Southern Denmark) Mr. Jacques Regaldo (Senior Vice President, EDF / Former Chairman of the WANO) Dr. Kazue Nakajima (Executive Director, Japan Organization of Occupational Health and Safety / Professor, Osaka University Faculty of Medicine) Mr. Keisuke Nagai (Director and President, Shikoku Electric Power Company) Hiromi Yamazaki (President & CEO, JANSI)</p>



○Response to the COVID-19 pandemic

- Manage both "COVID-19 infection prevention measures" and "ensuring the effectiveness of JANSI activities"
- Regarding peer reviews, while considering the importance of face-to-face communication, incorporate the advantages of the online method, and taking into account the status of infection, promote the initiatives that make the best use of the both methods.
- For the leadership training and safety culture diagnosis, utilize the online method to achieve the same effect as conventional face-to-face training
- Promote process innovation utilizing the IT, etc. throughout the organization, and establish a foundation for switching to the remote work method

Main Operations	Overview of Initiatives
COVID-19 infection control measures	<ul style="list-style-type: none"> ▪ In FY2021 1H, workplace COVID-19 vaccinations were held for JANSI staffs
Peer Reviews	<ul style="list-style-type: none"> ▪ Postponed peer reviews in the first half of FY2020 ▪ From the second half of FY2020, promoted measures such as remote interviews and decentralized dispatch of small number of team members, in order to reduce contact with the front-line workers. Though under the COVID-19 pandemic, were conducted almost as planned.
Leadership Training	<ul style="list-style-type: none"> ▪ Cancelled a part of trainings in FY2020 due to the COVID-19 pandemic ▪ In/after October 2020, reviewed training design and teaching materials, and conducted training online ▪ Full-scale introduction of non-technical skill training from FY2021
Safety Culture Diagnosis	<ul style="list-style-type: none"> ▪ Performed on-site diagnosis of 6 of sites (5 stations, 1 plant manufacturer) in FY2021 ▪ Promoted digitalization support such as examining the content of interviews, and conducted on-site diagnosis interviews at 5 stations remotely including the corporate offices

○Support for industry-wide efforts following the physical protection (PP) flaw

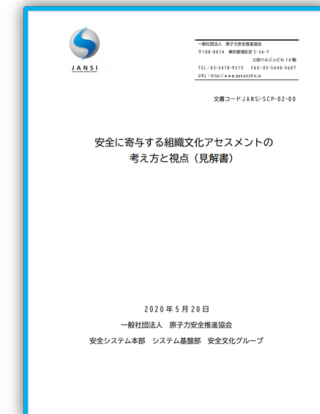
➤ Cooperation in the mutual review of operators on the PP-related work of each other*

- Each utility has conducted its business in a closed manner because PP-related information was confidential and considered not to be disclosed to other utilities for advice, and there has not been sufficient improvement made through learning from outside. (A point to be improved)
- JANSI provided initial training to the utility PP reviewers before conducting utility-mutual reviews. Training contents are:
 1. Peer Review Principles . . . What performance is, the Peer Review principles, etc.
 2. Observation . . . Behavior observation method, Observation Sheet creation method
 3. From observed facts to AFI . . . Procedures from observed facts to AFI creation, how to investigate the cause

*Critically compare and check the rules and operations associated with PP of each company, identify the areas for improvement existing in each company, make improvements, and share good practices throughout the industry in order to raise the overall level of physical protection.

➤ Evaluation of operators' safety culture self-assessment processes

- There are fundamental problems hidden in the deep part of the organizational culture of the operators, which are difficult to see on the surface, and it is important to extract and improve them by themselves.
- In response to requests from the nuclear operators, the safety culture self-assessment activities of each company were reviewed critically and cross-functionally based on JANSI's written opinion on self-assessment, etc. (May 2021)
- The following items were **extracted as weaknesses**.
Involvement of the management, comprehensive analysis, integrated interpretation of large amounts of materials, etc.
- The operators will **proactively consider and work on JANSI's advice**.
- JANSI will also lead and support the operators.



○Initiatives to promote understanding of JANSI's activities and voluntary safety improvement

➤ Background

The NRA, ANRE, Domestic Advisory Committee members, etc. have commented that it is hard to see JANSI's activities and that it is important to actively promote JANSI's voluntary safety improvement initiatives.

➤ Direction of the Initiatives

- ① Based on the fact that JANSI's activities function as a self-regulatory organization, will provide timely and appropriate information and hold dialogues by effective means based on the purpose of the appeal for each appeal target.
- ② Strict information management will be carried out for matters related to the privacy of individual power plants and for information related to INPO and WANO, ensuring confidentiality.

➤ Status of the Initiatives

- ① Enhancement of the content according to target and purpose
In addition to issuing JANSI On-Line four times a year, create public annual reports and post them on the website, and utilize them for dialogues with related organizations, etc.
- ② Enhancement of the public website

For the purpose of making information with higher needs more timely, easier to understand, easier to see, and easier to use, change the layout of the top screen, set up a site map, enhance the top screen such as banner, newly set up smartphone compatible screen, enrich "What's New," post peer review results, etc.



Codes and standards, maintenance skill certification tasks (transferred to external organization from April 2022)

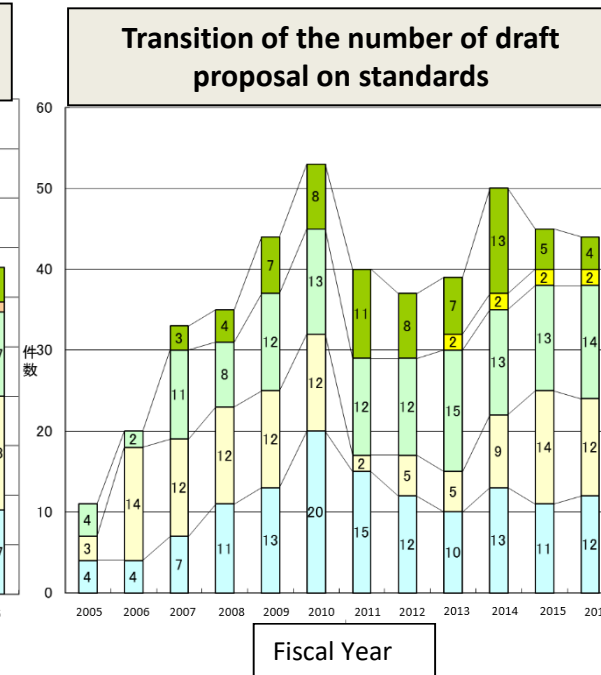
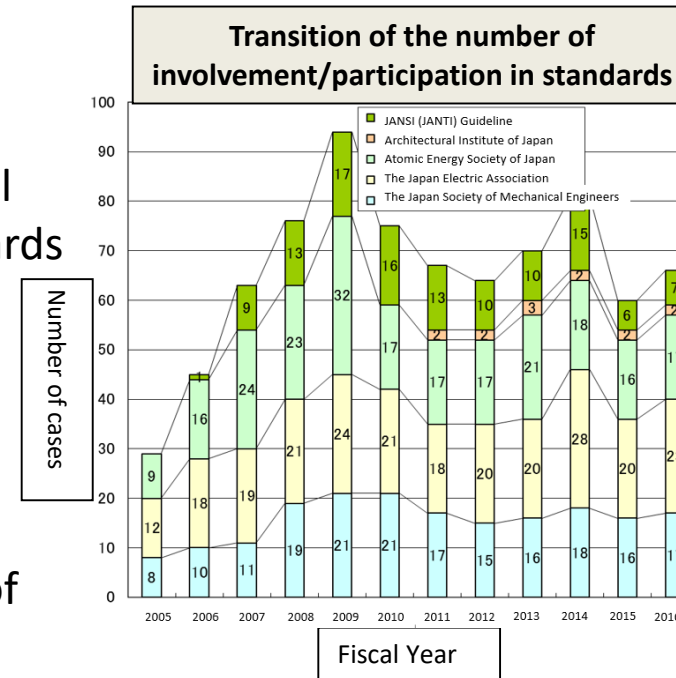
➤ Codes and standards activity

- ① Promptly incorporate domestic and foreign technical findings and research outcomes in the codes/standards and guidelines of academic societies.
- ② Target areas are: plant design/construction, plant operation/maintenance, reactor decommissioning, radioactive wastes, etc.
- ③ Cumulative results up to FY2016 are 673 cases of involvement/participation in standards and 381 cases of draft proposal on standards.

➤ Maintenance skill certification tasks

- ① In the maintenance skill certification system (built voluntarily by electric utility companies) that certifies qualifications for workers engaged in maintenance work at NPPs according to nation-wide common standards, carry out certification tasks as a neutral institution at the request of electric utility companies.
- ② The cumulative number of certifications up to FY2021 is 6,595.

All tasks are to be taken into consideration for transfer to other organizations in the 10-Year Strategy, and as a result of discussions and coordination with the FEPC, from April 2022, standards related tasks were transferred to the FEPC and certification related tasks were transferred to the JAPEIC.



FY2021 Activity Status

Ten-Year Strategy Main Actions	FY2021 Activity Status (Items with ● are related to Highly Focused Activity)
(1) Effective and efficient implementation of peer reviews (PR)	<ul style="list-style-type: none"> ● Ensure to implement power plant PR (4 NPPs: Onagawa, Ohi, Takahama, Genkai will continue to take measures to obtain WANO-PR equivalency.) ● Effective and efficient implementation of PR (Hold workshops for the purpose of training/capacity building of reviewers) ● Collaboration with WANO-LO(TC) (Meetings are held with WANO-LO about twice a month)
(2) Strengthen daily monitoring of plant performance	<ul style="list-style-type: none"> ● Implementation of Feasibility Study Phase 2 for performance monitoring system construction (PM&Cont.M) (Coordinate with WANO and operators on how to proceed considering the full-scale operation of WANO-ePM, and will start in the second half of FY2022.) ○ Utilization of PI (Provide WANO-PI quarterly, collect/evaluate voluntarily-set common PI)
(3) Continuously improve and conduct Integrated Assessment for nuclear stations	<ul style="list-style-type: none"> ○ Operation of plant integrated assessment (sharing of integrated assessment results based on FY2020 results) ○ Operation of power plant commendation (no plant commendation for this time) ○ Maintenance of past PI data (including recommended voluntary-set PI data).
(4) Upgrade OE tasks and actively provide information	<ul style="list-style-type: none"> ○ Collect/analyze OE information internally/externally and release documents to operators according to the significance (Issued information notices (2 cases)) ○ Study for improvement/upgrade of OE tasks <ul style="list-style-type: none"> ▪ Strengthening of OE information sharing (Enhancement of NICS registration function, continued full-scale operation of private database) ▪ Strengthening the utilization of OE information (Deepening of analysis method (improvement of OE analytical ability and trend analysis)) ▪ Enhancement of OE information processing (Consideration of OE-PI index enhancement (strengthening index enhancement, system construction))

Ten-Year Strategy Main Actions	FY2021 Activity Status (Items with ● are related to Highly Focused Activity)
(5) Strengthen the support for the operators to resolve shared important issues	<ul style="list-style-type: none"> ○Support for resolving important issues identified in PR (Shift to regular support from FY2022) <ul style="list-style-type: none"> ①Operations fundamental for shift-operators in accident response simulator training ②Mitigation of fire risk ③Support for performance improvement ④Comprehensive support for SAT : (Please refer to the Main Action (13)) ○Held Plant Performance Review Meeting (PPRM) (3 times) Report to the Board Meeting ○Support through MA Review Meeting (Held MA Review Meeting (5 times) and mid-loop operation information liaison meeting (1 time)) ○Regular contact and visit by Senior Representatives (SR) and support by the technical contact point (TCP) for inquiries from power plants, etc. in each specialized area (Regular communication was carried out from each SR to the relevant power plant in a timely manner, and the status of JANSI's support activities, etc. was communicated). ○Updated Excellence Guideline (Ex-GL) (OP, FP, MA, RP, CY, ES, EP)
(6) Provide support for autonomous safety activity programs	<ul style="list-style-type: none"> ○Support for constructing/operating new fundamental programs of operators <ul style="list-style-type: none"> ①CAP: Held "CAP Working-level working group" (5 times) ②CM: Held "CM-WG" (4 times) ③Common Voluntary PI: Held a "Common Voluntary PI Review Working Group" (2 times) ④RM: (Please refer to the Main Action (11)) ●Support for improving the risk sensitivity of station staffs (Education and training to increase risk sensitivity of station staffs: 8 sites, 3 corporate offices)
(7) Provide support for restarting plants	<ul style="list-style-type: none"> ○Provide support such as exchanging opinions with preceding plants in cooperation with WANO (Restarting support for Mihama Unit 3 and conduct questionnaire survey after the support)
(8) Provide support for reprocessing and other facilities	<ul style="list-style-type: none"> ●Support for reprocessing facilities (Support by each task team, JANSI progress meeting (8 times) and steering meeting (2 times), progress report of support activities to the Board Meeting, etc.) ○Other supports

Ten-Year Strategy Main Actions	FY2021 Activity Status (Items with ● are related to Highly Focused Activity)
(9) Strengthen oversight function including corporate offices	<ul style="list-style-type: none"> ○ Support for improving the effectiveness of operators oversight (Please refer to Main Actions (10) and (11)) ○ Participation in WANO CPR (Dispatched reviewers to CPR by Moscow Center) ○ Implementation of evaluation from the perspective of organizational effectiveness (Started consideration of implementation of evaluation from the perspective of organizational effectiveness)
(10) Upgrade safety culture diagnosis method	<ul style="list-style-type: none"> ○ Conduct safety culture diagnosis: 6 places (Higashidori, Ohi, Shika, Onagawa, Toshiba, Fukushima Daiichi) ○ Support for operators' safety culture fostering/improvement activities (evaluate the self-assessment process of all operators and present the evaluation results. In addition, detailed explanations and opinion exchanges have been conducted with 10 companies so far). ○ Review of safety culture diagnosis method (Conducted 10 Traits based on-site diagnosis, the 7th Safety Culture Questionnaire Survey) ○ Implementation of safety culture assessment based on PR results (in addition, provided information and evaluation advice for PR)
(11) Summarize safety improvement tasks and enrich RM support	<ul style="list-style-type: none"> ○ RM system development support (Startup of RM effectiveness evaluation/self-evaluation TF, held RM working-level meeting (3 times)) ○ Trial of RM review (Held RM trial review at 2 stations (Hamaoka, Sendai)) ○ Development of safety measures evaluation method (Conducted SA evaluation of Shika Unit 2 at the request of Hokuriku EPCO, FY2020 proposal follow-up report, proposal (No.7) issuance, interim summary of defense in depth level 1-3 and external events review, etc.) ○ Development of foundation for evaluation of safety improvement measures (Participation in IAEA SRS-46 revision CS meeting, etc.) ○ JSAR Guideline development (Completed JSAR guidelines creation)
(12) Leadership training for emergency preparedness	<p>[Leadership training]</p> <ul style="list-style-type: none"> ○ Planned and rational implementation of training <ul style="list-style-type: none"> ▪ Systematic implementation of CEO training, CNO training, Senior Management training, Station Manager training, etc. ▪ Held "Training Promotion Working Group" (June, November) and shared the training plan while confirming the intentions of the operators such as the scale and timing of the training. <p>[Support for nuclear emergency training]</p> <ul style="list-style-type: none"> ○ Activities based on the Nuclear Emergency Training Review Committee <ul style="list-style-type: none"> ▪ Held the emergency training presentation via the Web ▪ Held Nuclear Emergency Training Review Committee Meeting B (3 times) and Meeting A (1 time) ▪ Seminars and lectures related to emergency response were held ▪ Implement JNFL support as an alternative to Nuclear Emergency Training Assistance Visit

Ten-Year Strategy Main Actions	FY2021 Activity Status (Items with ● are related to Highly Focused Activity)
(13) Educate operators about systematic approach to training (SAT)	<ul style="list-style-type: none"> ○ Implementation of practical training and power plant caravan <ul style="list-style-type: none"> ▪ For SAT support, there were applications from 19 sites of 11 companies, and provided support for each power plant while confirming the needs of each company (confirmed that the support status will be shared by the "Training Promotion Working Group"). ○ E-learning attendance and promotion of guideline utilization <ul style="list-style-type: none"> ▪ Promote e-learning attendance and utilization of guidelines (145 people attended the e-learning (the cumulative total: 1592 people))
(14) Incorporate Fukushima Daiichi lessons learned	<ul style="list-style-type: none"> [Prevention of Fukushima accident from fading] <ul style="list-style-type: none"> ▪ Explain and share the utilization results and good practices of “maintaining conscience of Fukushima Daiichi accident video” in the "Training Promotion Working Group" (November). [Confirmation of Incorporating the lessons from the Fukushima Accident] <ul style="list-style-type: none"> ▪ Lessons learned from Fukushima Daiichi accident was posted on the member website, and held an online information session for the operators.
(15) Foster operators' awareness as owner of self-regulation by having discussion among executives	<ul style="list-style-type: none"> ○ Activities for understanding corporate office top management and station executives <ul style="list-style-type: none"> ▪ Held Board Meeting (5 times), CEO Session and CNO Session (4 times each) ▪ Held interviews between the President&CEO and the newly appointed CEO/CNO (6 times) ▪ Conducted leadership training for corporate office top management and station executives ▪ Conducted web interviews between the Planning Department GM and the newly appointed station managers (Oma, Ohi, Genkai, Shika) ▪ Conducted interviews with the station manager and other executives during the joint assessment ▪ Dissemination of various contents to the station working-level (issued "JANSI ACTIVITIES" (6 times), issued "JANSI Annual Report 2020," published articles in Denki Shimbun, etc.)
(16) Operator support in emergency, e.g. issue of significant event notice	<ul style="list-style-type: none"> ○ Cooperating with the operators and WANO-TC, participation in the operator-WANO training <ul style="list-style-type: none"> ▪ Incorporated areas of improvement for training in line with organizational reform in "JANSI Power Plant Emergency Preparedness Guidelines" (4th revised edition) ▪ Based on the above guidelines, participated in the operators nuclear emergency preparedness drill together with the operators and WANO-TC.

Ten-Year Strategy Main Actions	FY2021 Activity Status (Items with ● are related to Highly Focused Activity)
(17) Secure medium/long-term human resources and development of human resource development program	<ul style="list-style-type: none"> ○Securing medium- to long-term personnel (Human resources request through "Staffing Planning Meeting") ○Appropriate staffing (newly establish competence evaluation system) ○Maintenance and improvement of staff competence (Maintenance of staff training system) ○Sharing awareness and values within JANSI through knowledge management (KM) (Enhancement of information held by those who left the company, training textbooks, etc.)
(18) Raise awareness as self-regulatory organization by the executives	<ul style="list-style-type: none"> ○Small-group dialogue <ul style="list-style-type: none"> ▪ Conduct dialogue with the President&CEO (targets are transferees and all GLs: 40 people), and send a message from the President&CEO at each dialogue ▪ Individual dialogue between the Chairman and GMs ○Employee awareness survey <ul style="list-style-type: none"> ▪ Follow-up on the improvement status for proposals issued based on the results of FY2020 awareness survey
(19) Strengthen collaboration with NRA	<ul style="list-style-type: none"> ○Gathering information on the conclusion of a memorandum of understanding with NRA at WANO, etc. (There is no progress in concluding MOU with NRA at WANO and JANSI) ○Held "OE Regular Information Exchange Meeting" with NRA (3 times)
(20) Build peer relationships with WANO, INPO and other international organizations	<ul style="list-style-type: none"> ○WANO-related (World Governing Board Meeting (3 times), Tokyo Center Board Meeting (3 times), WIO Conference (2 times) participation) ○INPO-related (Held US-Japan CNO Leadership (LS) Meeting, participated in CEO Conference, held INPO-JANSI Meeting) ○Electricity of France (EDF) related (renewal of cooperation agreement with EDF) ○International organizations related such as IAEA, OECD/NEA, etc. (participate in ISRSC, etc.) ○International Advisory Committee related (conducting web conferences with committee members and holding International Advisory Committee Meeting)

Technology Basis	FY2021 Activity Status
(A) Support through autonomous guideline development	<ul style="list-style-type: none"> ○Development of Vessel Internals Inspection & Evaluation Guidelines: Held Review Meetings (3 times), Published 4 guidelines ○Development of EQ Management Guidelines: Held Review Meetings (2 times), EQ Management Seminar ○Development of guideline for Quality Improvement of Analysis work: Held Review Meetings (2 times), published the third edition of revised guidelines, held information session, completed hand-off to FEPC at the end of March 2022.
(B) Development of maintenance technology basis	<ul style="list-style-type: none"> ○Industry-wide platform for maintenance engineering, dissemination of technical basis information (improved the maintenance information library, maintenance/enhancement of database, enhancement of on-site engineer network activities, maintenance of deterioration mechanism, etc.) ○Revision support for maintenance management rules, etc. (revision support for maintenance management rules (JEAC4209))
(C) Organizational effectiveness support (QMS)	<ul style="list-style-type: none"> ○Support through QMS committee: Committee held (3 times) ○Support through Internal Audit Committee: Committee held (3 times) ○Training for improvement of quality assurance activities: QA new manager training, auditor training (once each) ○Support for revision of JEAC4111: At "special lecture" (The Japan Electric Association), was in charge of the lecturer
(D) Organizational effectiveness support (Human Performance)	<ul style="list-style-type: none"> ○Held Human Performance Improvement (HPI) Training: Basic, Advanced, RCA, Technical (4 times in total) ○Continuous study of training for HF specialist education: Conducted study through "QMS Task Review Meeting" (3 times) and held "HF Expert Meeting" ○Create safety awareness materials (posters): 3 times ○Provide results of HF analysis to PR personnel as reference information: 4PR (Ohi, Genkai, Takahama, Mihama)

Technology Basis	FY2021 Activity Status
(E) Manufacturer support	○Ensure to conduct manufacturer PR: 3 places
(F) Operation Supervisors Certification tasks	○Operation Supervisors Certification: 4 times ○Support for the operator experience training: Continued long-term acceptance (No new short-time acceptance) ○Enrich certifications: Explanation on knowledge and skills (KSA) catalog for emergency personnel, maintenance of standard KSA catalog for BWR operators, explanation of revision of JEAC4804 (Operation Supervisors Certification Regulations), etc.
(G) Maintenance Skill Certification tasks	○Granting certification and issuing certificates as per operators' request: Written exam: 23 people passed, Practical exam: 28 people passed, Exam certification: 28 people, Renewal: 893 people, Skills training (renewal pending): 170 people ○Consideration of transferring tasks to other organizations: Completed transfer of duties to JAPEIC
(H) Support development of codes and standards	○Promotion of codes/standards maintenance: <ul style="list-style-type: none"> ▪ Participation in codes/standards formulation meetings (committee, expert committee, subcommittee, review meeting, etc.) of the Atomic Energy Society of Japan, Japan Electric Association, and Japan Society of Mechanical Engineers using the WEB system. ▪ Actively plan, participate, and present in academic conferences, domestic/international seminars, lectures, and training sessions held on the web. ○Smooth transfer to FEPC: <ul style="list-style-type: none"> ▪ Technical support for relevant utilities, cooperation in technical studies related to codes and standards, etc. ▪ Completed transfer of duties to FEPC

1. Status of FY2021 activities pertaining to the foundation of organizational management

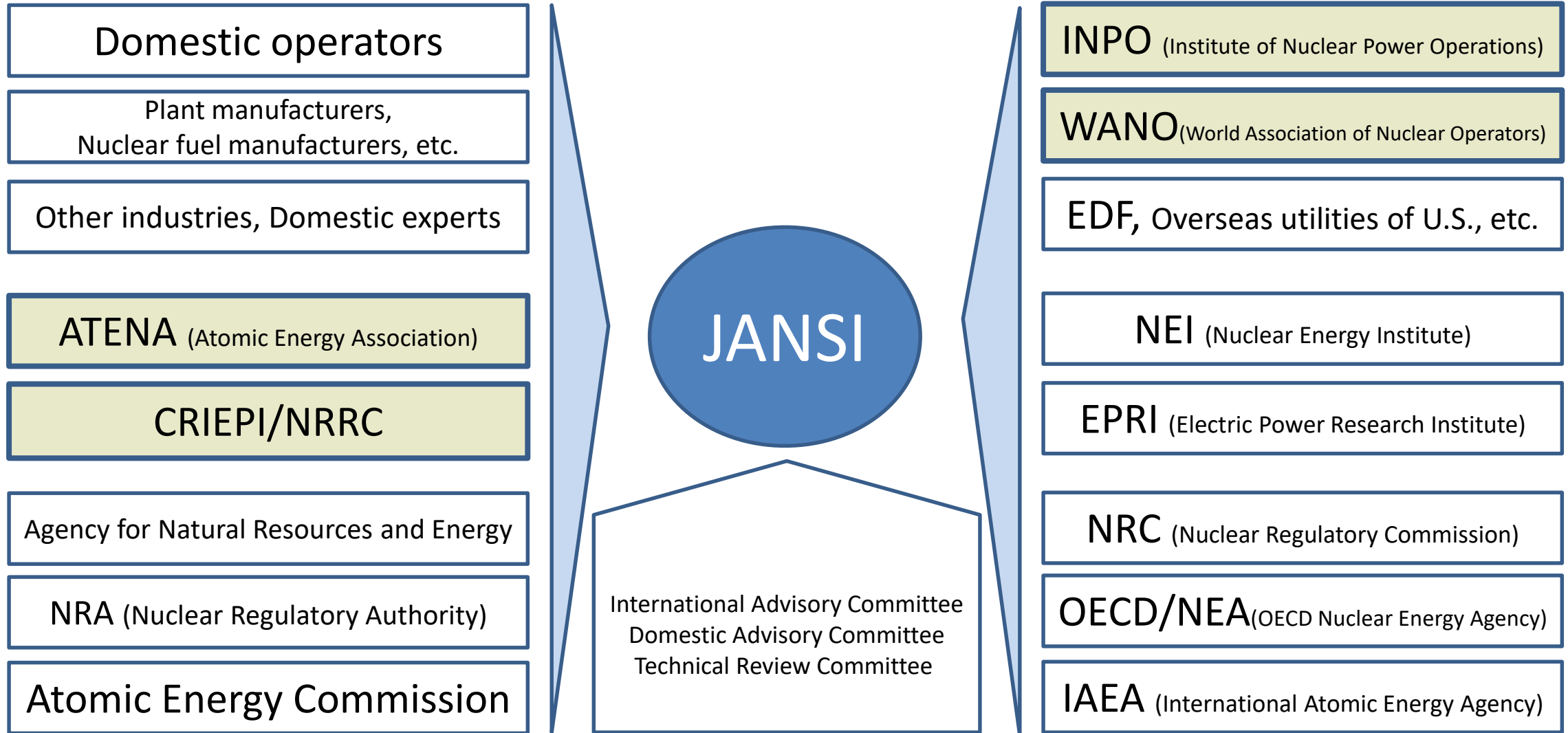
- (1) Promotion of business continuity activities corresponding to COVID-19
- (2) Implementation of self-assessment
- (3) Implementation of internal audit

2. Meeting status related to the Articles of Incorporation

- (1) General Meeting of Members 1 time
- (2) Board Meeting 5 times
- (3) Associate Special Member Representative Meeting 1 time
- (4) Domestic Advisory Committee Meeting 2 times
- (5) International Advisory Committee Meeting 1 time

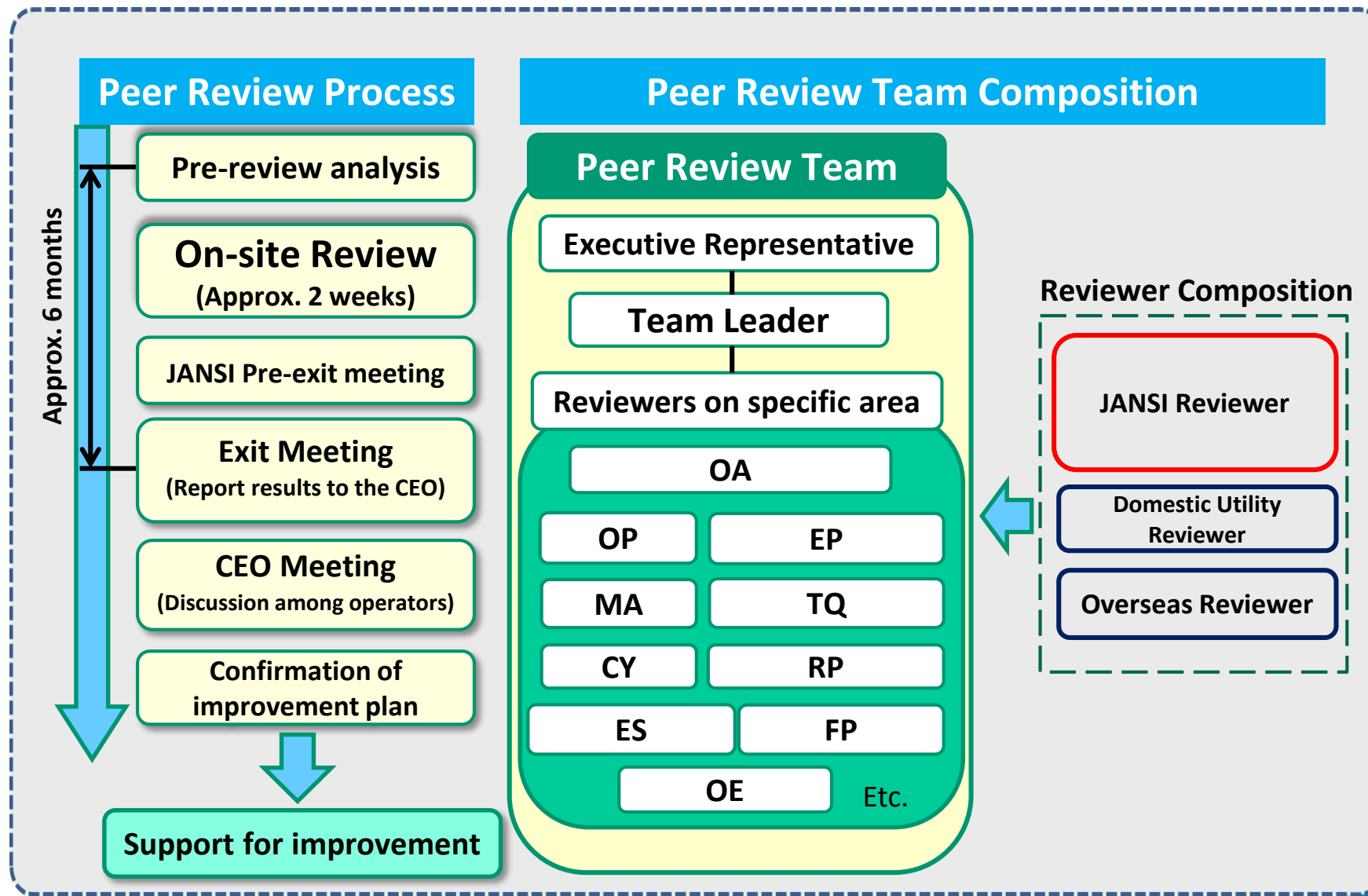
References

C1 Cooperation with domestic/overseas related organizations



◇ "Peer" means "colleague," "one in the same profession," and is an expert with abundant work experience in the nuclear industry.

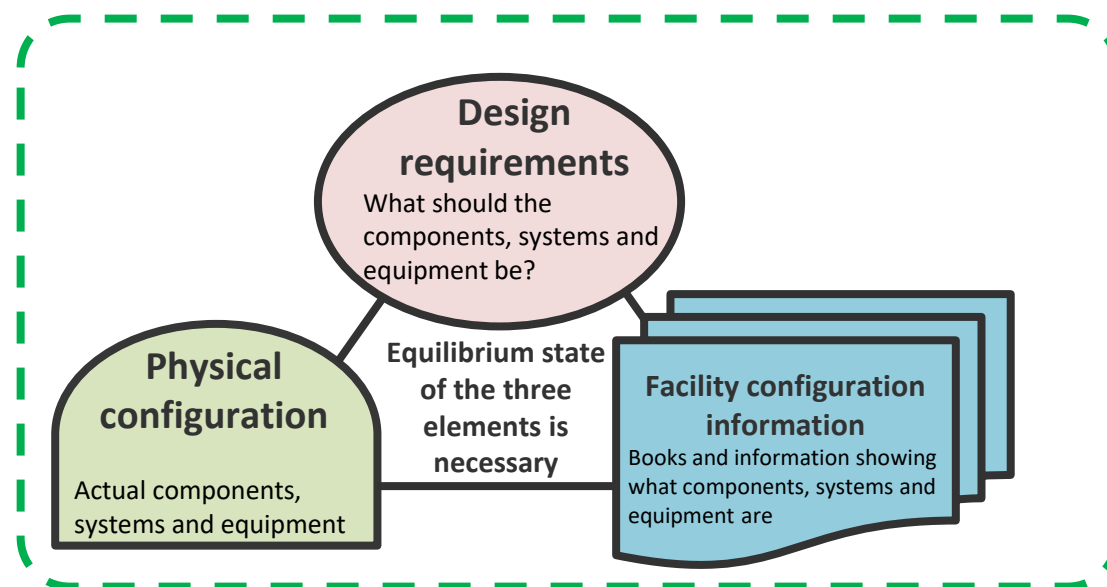
◇ Peer review is an initiative to improve safety and reliability by having experts visit the power plants, etc., and evaluate performance related to ensuring their safety (nuclear safety, radiation safety, and occupational safety) and reliability from their professional standpoint.



○ CM (Configuration Management)

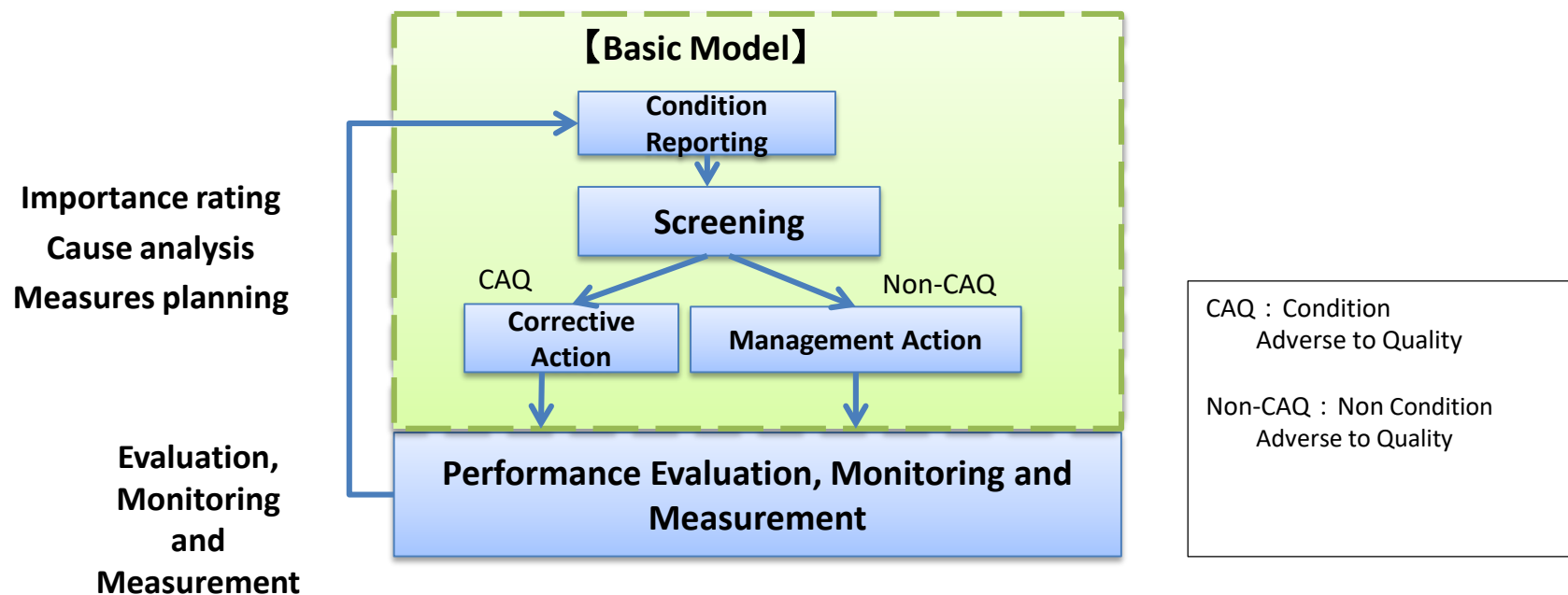
➤ A structure that constantly confirms and guarantees that each facility/equipment of a power plant is manufactured, installed, operated and maintained as required by the design.

→ In addition to ensuring the equilibrium state of the three elements--which are design requirements, physical configuration, and facility configuration information--when changes occur in the three elements, it is necessary to establish a process to evaluate and manage them.



○ CAP (Corrective Action Program)

- The CAP system is a process that collects and classifies concerns, awareness and performance status, and analyzes trends, in order to grasp the organizational vulnerabilities, and to take appropriate measures according to the degree of impact.
- Has the role of promoting overall improvement including not only the nonconformity but also the performance status of the organization and each department.
- By striving to prevent the occurrence of important issues and establishing a culture of continuous improvement, lead to an improved performance of the power plants.



○ Creation of JSAR Guideline

- A guideline for creating the Japanese Safety Assessment Report (JSAR) has been prepared and published. (PWR version and BWR version have been released)

