Activities of ATENA

February, 2026
Atomic Energy Association
(ATENA)

1. Outline of ATENA

2. Past Activities

3. Future challenges and direction

Overview of ATENA

Establishment July 1, 2018

Board of Directors Akihiko Kato, President & CEO / Junichi Matsumoto, Director, Hideya Kataoka, Director, and 2 auditors

Staff

Experts in each field have been gathered from nuclear operators and plant manufacturers (approx. 30 people)

(Areas of expertise) Safety design, external natural events, mechanical/electrical equipment, etc.

Member companies/organizations

11 utilities, 4 plant manufacturers, 4 related organizations

Hokkaido Electric Power Co., Inc., Tohoku Electric Power Co., Inc., Tokyo Electric Power Company Holdings, Inc., Chubu Electric Power Co., Inc., The Kansai Electric Power Company, Incorporated, Hokuriku Electric Power Company, Inc., The Chugoku Electric Power Co., Inc., Shikoku Electric Power Company, Incorporated, Kyushu Electric Power Company, Inc., The Japan Atomic Power Company, Electric Power Development Co., Ltd.,
Toshiba Energy Systems & Solutions Corporation, Hitachi, Ltd., Mitsubishi Heavy Industries, Ltd., Mitsubishi Electric Corporation,
The Federation of Electric Power Companies of Japan(FEPC), Central Research Institute of Electric Power Industry(CRIEPI),
Japan Atomic Industrial Forum, Inc.(JAIF), The Japan Electrical Manufacturers' Association(JEMA)

Observers: Japan Nuclear Safety Institute (JANSI), Japan Nuclear Fuel Limited (JNFL), Japan Atomic Energy Agency (JAEA)

ATENA's Mission and Vision

Mission

- ATENA will make decisions on introducing voluntary and effective safety measures **effectively utilizing the knowledge and resources of the entire nuclear industry**, and encourage nuclear operators to incorporate these effective measures into their actual site operations, thereby raising the level of safety at nuclear power stations even higher.

Vision

- ATENA will **exercise leadership in the nuclear industry and step forward to address issues related to nuclear safety**, thereby promoting initiatives by nuclear operators to enhance safety.

To achieve the above, ATENA will take on the following.

◎ The nuclear industry will implement safety measures voluntarily and in advance

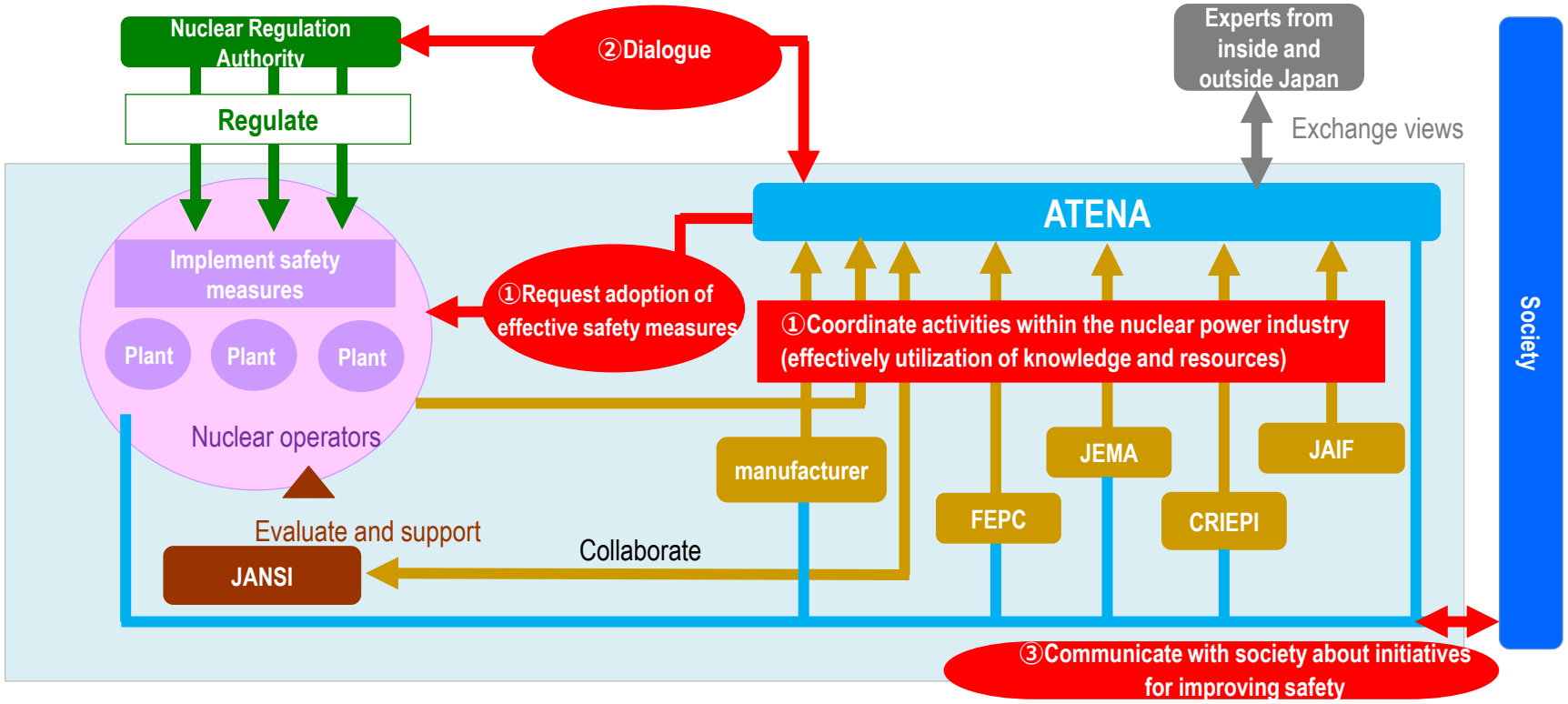
◎ Constantly question if existing safety measures could be improved

◎ Implement measures to voluntarily achieve an upward spiral in safety improvement

The above efforts are implemented while ensuring **"active participation from manufacturers" and "having the industry as a whole participate with the awareness that they are members of ATENA".**

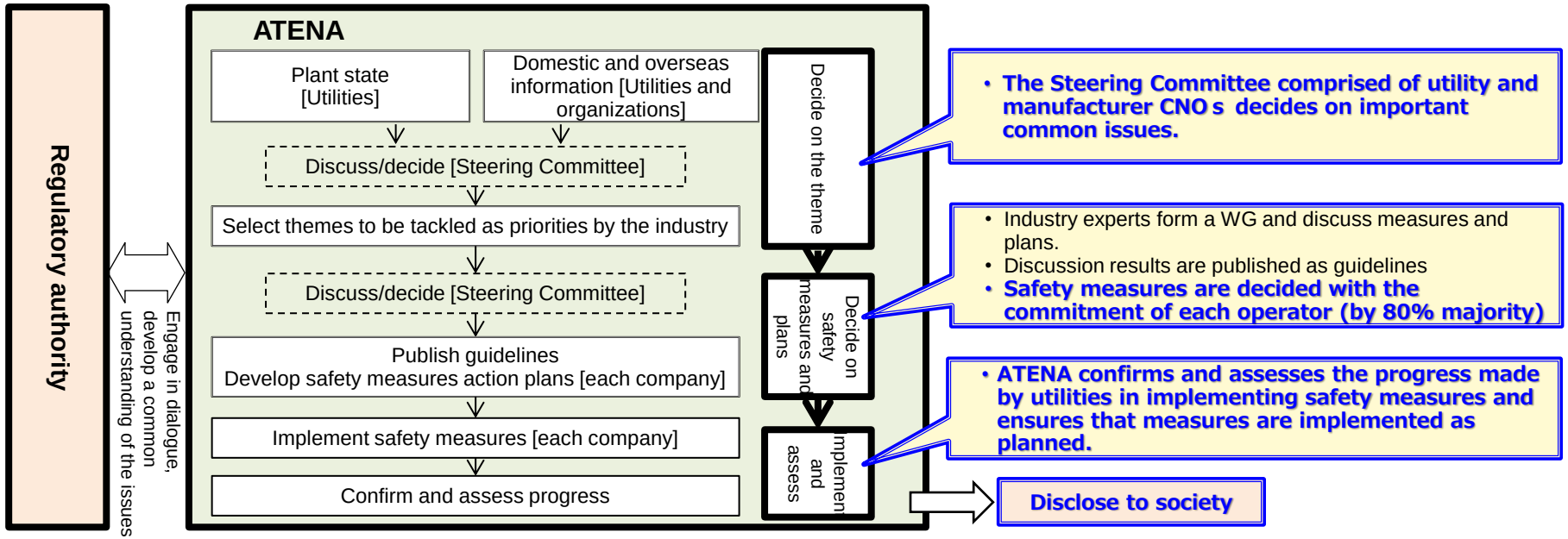
Role of ATENA

① Develop effective safety measures and request operators implement these safety measures by taking full advantage of ATEANA ‘s composition which complies of experts not only from utilities but also from manufactures.
Coordinate efforts across the industry in the identification and addressing phase so that effectively utilize the knowledge/resources available in each organization.
② Actively engage in dialogue with the regulatory authority under the common goal of improving safety.
③ Communicate with various stakeholders to improve safety.



Mechanism and characteristics of ATENA activities

- Utility and manufacturer CNOs **deliberate on important common technical issues and determine themes in the Steering Committee through a process that doesn't require unanimous agreement.**
- **All utilities commit** to implementing the measures decided in the Steering Committee.
- Staff assigned to ATENA with high levels of expertise discuss technical issues and stipulate safety improvement measures in guidelines. These measures are rolled out at each utility. **Activities implemented by the industry are coordinated in the technical discussions to effectively use resources**.
- ATENA as a representative of the industry, **engages in dialogue with the regulatory authority on common technical issues**.
- Results and progress in activities including technical reports are **disclosed to society.**



ATENA's approach to common technical issues

ATENA is to address the following common issues based on lessons learned from the Fukushima Daiichi Accident and subsequent efforts for safety improvement by utilities.

Key cause of the accident	Lessons learned from the accident	Industry's post-accident efforts	Further initiatives by the industry	
			ATENA's Approach	Common issues
Loss of safety Functions caused by tsunami + Accident management measures deployed at that time could not work sufficiently	Insufficient preparedness against external events voluntary efforts to improve safety had not progress enough after the deployment of AM measures Insufficient preparedness of off-site activities in case of radioactive material release	**Strengthening existing reactor safety measures** Prompt response of reinforcing safety measures and conformance to new regulatory requirements, which results; ・Strengthening measures for various external events ・Reinforcing defense in depth especially in 3rd and 4th layers + **Strengthening industry-wide framework** Establishment of JANSI and NRRC	Optimizing risk management in the entire range of the defense in depth ◎Step forward to address nuclear safety measures	①Proactively utilize new knowledge and advanced technologies
			◎Continuously ask if there are any areas for improvement in safety measures	② Prepare thoroughly for various external events
			Further Enhancing voluntary efforts ◎Continuously pursue a system which encourages a positive spiral of voluntary safety improvement efforts	③Establish a framework which promotes voluntary efforts for safety improvement

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Overview of ATENA's Activities since its establishment

ATENA has been developing its activities along with its roles as follows since its establishment in July 2018.

Role① Develop effective safety measures and request operators implement these safety measures

- ◆Develop and publish technical reports on common technical issues and request operators implement safety measures identified in the reports
  (26 reports were published since 2019)
- ◆Collect the status of implemented safety measures from operators and publish such information on ATENA website

Role② Proactive dialogue with the regulatory authority

- ◆Participate in NRA-CNO opinion exchange meetings and engage in discussions on common technical issues among operators with the NRA Commissioners since July 2019
- ◆Continue open discussion meetings on individual technical issues and regular meetings at administrative level

Role③ Communication with various stakeholders

- ◆Conduct meetings and information exchange with various nuclear related organizations domestic and abroad
- ◆Hold open forum, make external presentations and release email newsletters

Major accomplishments on common technical issues (1/2)

ATENA has been conducting technical reviews on prioritized common technical issues as listed below, then compiling the review results and requesting operators implement safety measures.

① Safety measures developed by investigating experience overseas

- Measures for **common cause software failure in digital safety protection systems** (expand the functions of analog circuits)
- Measures for **electromagnetic compatibility (EMC)** (confirm that electromagnetic phenomenon won't affect electronic equipment)
- Measures for of **24-hour operation testing of emergency diesel generators**
- Measures for improving maintenance of **emergency power system storage batteries** (improved maintenance process was introduced into maintenance program of each operator)
- Measures for **open phase conditions*(OPC)** (install automatic detectors)

* Event in which the circuit of one of the phases in external power (three-phase AC power) experiences open failure

② Voluntary efforts of safety improvements beyond the regulatory requirements

- **Response to the findings from the investigation and analysis of the TEPCO's Fukushima Daiichi Nuclear Power Station Accident**
- **Response to Noto Peninsula earthquake**
- **Review on LCOs* of severe accident response facilities** * LCO: Limiting Conditions for Operation
- **Optimized approach to natural events beyond regulatory requirements**

③ Efforts to realize safe and long operation

- **Publishment of aging degradation management guides and reports**

Major accomplishments on common technical issues (2/2)

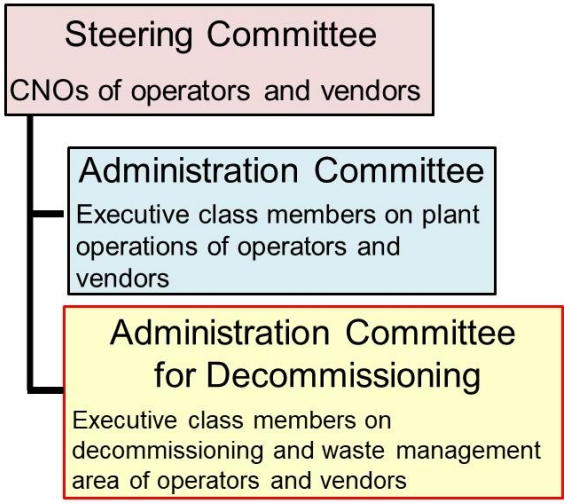
ATENA has been expanding scope of activities including coverage of advanced technologies and new knowledge, and wider coverage of technical area.

④ Coverage of advanced technologies and new knowledge

- Measures to **introduce new fuel (BWR10×10 fuel)**
- **Discussions on challenges for introducing innovative light-water reactors**
  ATENA identified a list of items (points of discussion) that may lack regulatory predictability and could have a large impact on further development works, and has been discussing on them with NRA experts
- Discussions on **the use of risk information** with NRA
  Expanding the scope of online maintenance (OLM) as the first initiative

⑤ Wider coverage of technical area

- **Reinforcement of organizational structure for decommissioning and waste management**
  - "Administration Committee for Decommissioning" newly established in Nov. 2025
  - New project launched to address the standardization of regulatory application procedures on clearance materials
- **Addressing issues to derive further value of nuclear power**
  - Efforts to **introduce flexible operation cycle**



Dialogue with the regulatory authority

○ Since July 2019, ATENA has been participating in NRA-CNO opinion exchange meetings and have been engaging in discussions with the NRA Commissioners.

○ ATENA management attended opinion exchange meetings with the NRA Chairman and Commissioners held in July 2023 and August 2025.

○ ATENA directors and practitioners (including manufacturers) participated in the open meetings and technical opinion exchange meetings held by the NRA to discuss technical matters.

○ In the regular administrative meetings, ATENA explained its stance on the opinion exchange themes and ways to make progress in technical issues.

[Results]

- 14 NRA-CNO opinion exchange meetings
  (number of times ATENA has participated since July 2019)
- Approx. 30 open meetings/technical opinion exchanges (in the last year)
- Regular administrative meetings
  (held approx. 30 times in the last year)

< NRA-CNO opinion exchange meetings >

Collaboration with external organizations: Domestic and abroad

◯ ATENA **signed technical cooperation agreements with nuclear-related organizations domestic and abroad** to effectively and efficiently promote ATENA activities.
◯ Technical issues are being examined while sharing opinions and information with each organization.

Nuclear power industry	Overseas organizations	Nuclear Energy Institute (signed cooperation agreement in June 2019)	・Exchange opinions at management level ・Exchange opinions on technical issues (e.g., open phase condition) by practitioners ・Obtain technical information (e.g., duration of emergency diesel generators operation test of each country) ・CEO of NEI provides commentary on ATENA activities and expectations ・Participation in the ATENA Forum
		Électricité de France (signed cooperation agreement in November 2018) (re-signed cooperation agreement in November 2023)	・Exchange opinions at management level ・Exchange opinions on technical issues (e.g., supplier nonconformance) by practitioners ・Participation in the ATENA Forum
	Domestic organizations	・CRIEPI ・JANSI (Japan Nuclear Safety Institute) ・Federeation of Electric Power Companies of Japan ・JEMA (The Japan Electrical Manufacturers' Association) ・Japan Atomic Industrial Forum, Inc ・JAEA (Japan Atomic Energy Agency)	・Exchange opinions at management level ・Exchange information, attend committee meetings each other ・Exchange information on use of risk information (NRRC at CRIEPI) ・Signed a cooperative agreement with JANSI ・Cooperate on gathering overseas information with JANSI
Academic associations			・Coordinate with activities implemented by academic associations, share information

Communication with various stakeholders

＜Forum in session＞

○ Hosting the ATENA Forum

- Held in February every year as a public event
- Discussed the promotion of the introduction of advanced/innovative technologies in nuclear power at the previous Forum in 2025

○ Presentation on ATENA activities at academic conferences

- Subcommittee on Nuclear Safety, the Committee on Comprehensive Synthetic Engineering, Science Council of Japan (August 2025)
- #11 East Asia Nuclear Forum (October 2025)

○ Articles in newspapers and journals

- Industry Newspaper “Denki Shimbun”: Publication of articles on the results of ATENA Forum (April 2025)
- Journal of the AESJ： Foreword provided by the President and CEO of ATENA (April 2025)

○ Meetings with executives of organization overseas

- Meeting with OECD/NEA (February 2025)
- Meeting with Nuclear Energy Institute (NEI) (September 2025)
- Meeting with EDF (July 2024)

○ Email newsletters

- Started to deliver ATENA email newsletters (January 2023)

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Current priority issues of ATENA

➢ Safety improvement with mid-long term perspectives

✓ **Initiatives to improve safety for sustainable use of nuclear power**

➢ Proactive use of new knowledge and new technologies

✓ **Enhanced efforts to collect and reflect latest information from both domestic and abroad with keeping in mind of one step ahead of the regulators' efforts**

➢ Evolution toward the reliable organization

✓ **Reinforcing ATENA's organizational structure**

・Reinforcing experts of natural hazard area → 16

・Aiming for transition to the legal entity → 17

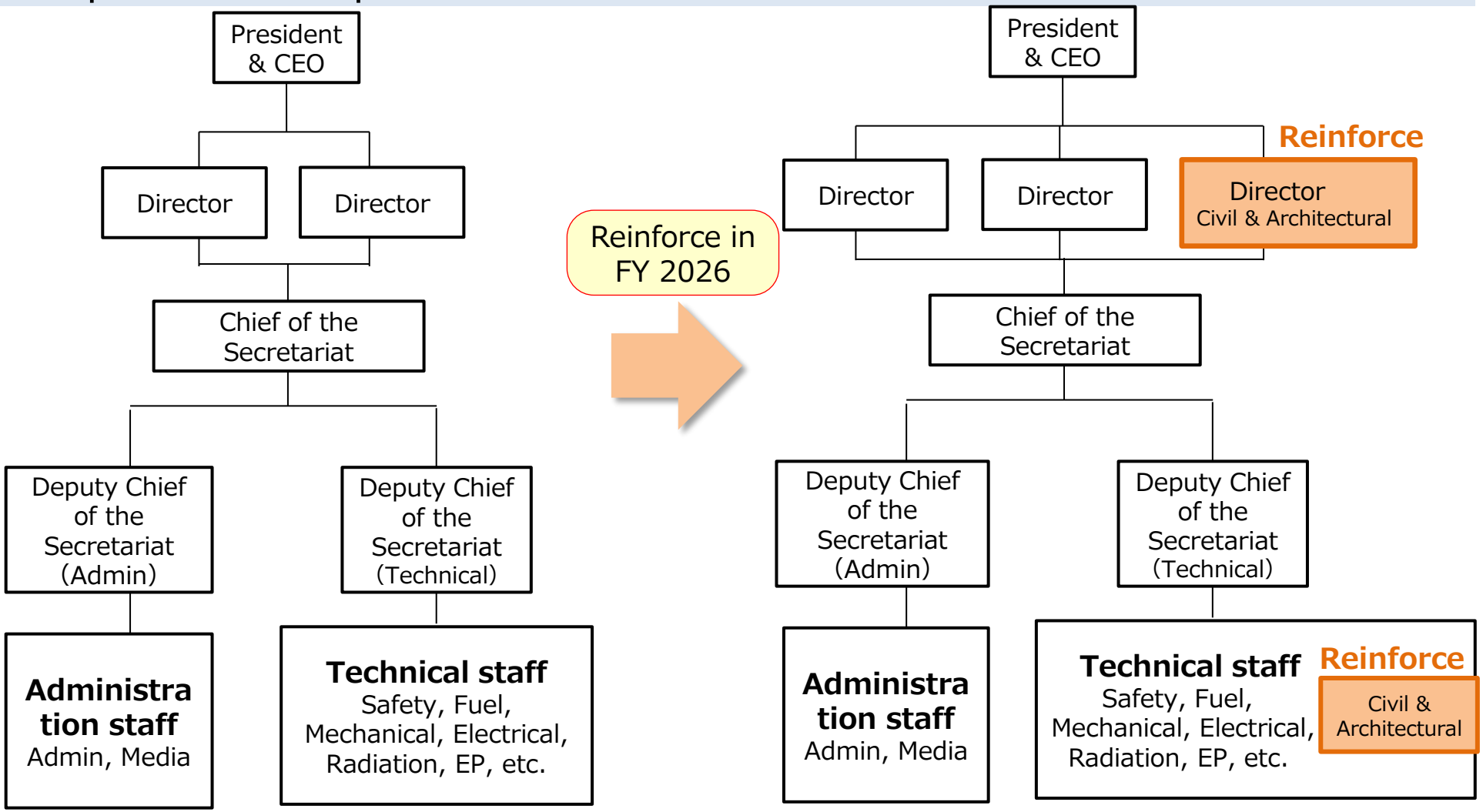
✓ **Building mutual trust with the regulators**

・Continuous and proactive discussions with the regulators

・Untiring demonstrations of the industry's voluntary initiatives to improve safety

Reinforcing experts of natural hazard area

- Newly assigned director and technical staff will function as a control tower addressing civil and architectural issues and regulatory requirements in cooperation with operators and NRRC.



Organizational transition of ATENA（Planned）

ATENA plays a key role in leading the industry to advance nuclear safety and effective use of nuclear power through ongoing dialogue with regulatory bodies. In order to continuously promote ATENA's important mission under a more robust organizational foundation, **we plan to transition to a General Incorporated Association in April 2026.**

＜Current structure＞

Atomic Energy Association
（unincorporated organization）
Operated along with the bylaws resolved at the general meeting

General Meeting
designate CEO, directors, auditors and chairperson of Steering Committee

Steering Committee
Composed by following members
- CEO, directors
- One person each from regular members category A
- One person each from associate members

Business operation
CEO, Directors,
Secretariat (Chief and Deputy chiefs),
Staff (Admin, Technical)
Working Groups

- **Administration Committee**
- **Administration Committee for Decommissioning**

＜New structure planned after April 2026＞

General incorporated association
Atomic Energy Association
Operated along with the articles of association required by law resolved at the general meeting of members

General Meeting of Members
designate directors and auditors

Board of Directors
- Composed by all directors
- Designate CEO
- Attended by auditors

Business operation
CEO, Executive directors,
Secretariat (Chief and Deputy chiefs),
Staff (Admin, Technical)
Working Groups

- **Administration Committee**
- **Administration Committee for Decommissioning**

Specific issues to be addressed with higher priority

- Enhanced use of risk information – upgrade of internal and external event PRA, promotion of risk informed decision making, fostering domestic PRA peer reviewers
- Initiatives to expand the scope of online maintenance (OLM)
- Improvement of the operational safety programs with appropriate management of severe accident facilities
- Improvement of the scheme and procedures about the safety analysis report – such as introducing much easier procedures to implement safety improvement measures in a timely manner
- Review and improvement of the current scheme of “Emergency Action Level”
- Efforts to accelerate endorsing process of the codes and standards
- Further investigation related to the intergranular cracking on stainless steel piping of PWR primary system
- Discussions on the basic approach to introduce innovative light-water reactors
- Deployment of new fuel - 10×10 fuel for BWRs, ATF
- Response to the findings from the investigation and analysis of the TEPCO's Fukushima Daiichi Nuclear Power Station Accident
- Technical discussions with NRA about the safety research – currently focused on the use of risk information and the aging degradation

Response to the inappropriate case of Chubu EPCO

Upon confirming the announcement by Chubu EPCO regarding inappropriate case on January 5, ATENA recognized that this case is an extremely serious matter that affects the entire nuclear industry. Then ATENA started the investigations of other operators whether they had conducted similar attempts as Chubu did and started discussions within the industry to find any measures to avoid recurrence of such case.

【 History to date 】

January 5: Chubu EPCO announced that inappropriate case had occurred in the method used to establish the Design Basis Ground Motion in the conformity assessment with the new regulatory standards for the Hamaoka Nuclear Power Station.

January 9: ATENA released the announcement on its webpage as follows

- ✓ This is an extremely serious matter that affects the entire nuclear industry, and it is deeply regrettable.
- ✓ At the ATENA's Steering Committee meeting held today, a reminder was issued from CEO of ATENA to the heads of the nuclear divisions of member companies to strive for proper business operations.

January 13: ATENA announced the start of investigations of other operators to ensure that they are not intentionally performing underestimations similar to those of Chubu EPCO

January 19: ATENA announced that as a result of investigating and verifying whether other operators had engaged in intentional underestimation similar to Chubu EPCO during the formulation process of the Design Basis Ground Motion used for reviews, no such facts were identified.

Technical reports published and to be published

FY2019	Publication date
○ Improvement Measures Proposed by Assessing Trends in Emergency Diesel Generator Malfunctions in Domestic Nuclear Power Plants	(June 21, 2019) [Rev. 1, November 7, 2019]
○ Guideline Regarding Performance Indicators (PI) Used in Nuclear Regulatory Inspections	(June 28, 2019) 【Rev.1 March 2, 2023】 【Rev.2 July 7, 2023】
○ Voluntary Guide on Introducing Cybersecurity Measures at Nuclear Power Plants	(March 12, 2020)
FY2020	**Publication date**
○ Guideline on the implementation of Licensee Inspections	(July 31, 2020) 【Rev.1 December 1, 2025】
○ Maintenance Guideline for Long-term Plant Shutdown	(September 25, 2020)
○ Guideline on Assessing Design Obsolescence	(September 25, 2020) 【Rev.1 June 6, 2023】
○ Discontinued Product Management Guideline	(September 25, 2020)
○ Design Guideline for the Base-Isolated Buildings Housing Severe Accident Equipment	(September 29, 2020)
○ Guideline for Deterrence and Adequate Response to Fraudulent Activity by Manufacturer/Component Supplier	(October 28, 2020)
○ Technical Requirements for Mitigation Measures of Software Common Cause Failures of Digital Safety Protection System	(December 24, 2020) 【Rev.1 October5, 2022】 【Rev.2 December 25, 2024】
FY2021	**Publication date**
○ Report of knowledge build-up related to aging for safe long-term operation	(March 25, 2022) 【Rev.1 July 23, 2024】
FY2022	**Publication date**
○ Operational safety program revision guideline for improving safety through a diverse range of facilities	(July 29, 2022)
○ Position paper on electromagnetic compatibility	(March 31, 2023) 【Rev.1 March 31, 2025】
FY2023	**Publication date**
○ Improvement of Crack Characterization Method by Ultrasonic Testing of PWR Primary Stainless Steel Piping Intergranular Cracks	(April 28, 2023)
○ AMG Revision Guidelines for Hydrogen Protection Measures in BWR Reactor Buildings	(June 13, 2023)
FY2024	**Publication date**
○ Guideline to create and operate a mid-term plan for emergency response	(September 27, 2024)
○ Methods to identify landslides and to assess the stability of landslides	(February 7, 2025)
To be published	
○ Report on the advancement of liquefaction evaluation methods (working title)	