

Panel Discussion

ATENA's efforts of enhancing nuclear safety

- What have been accomplished and
what should be pursued from now -**

February 16, 2023

Atomic Energy Association

Introduction

- Four years have passed since ATENA was established, and we recognize that it is time to reflect on our past activities.
- As ATENA is still a young organization, there is a great deal of room for reforming the organization and is in the process of questing the right direction of the organization's activities and making necessary changes.
- We would like to review our achievements so far and challenges in light of the expected role of the organization when it was established, and to make our future activities more effective.

ATENA's Activity Policy

① Efforts for solving the common technical issues

- ATENA shall address the common technical issues such as utilization of latest knowledge and technology and review them with its expertise in order to achieve the effective safety improvement in NPPs. The result of the review shall be assembled and published as technical reports if necessary.
- ATENA shall formulate effective safety measures independently of varied interests among utilities and request all utilities to incorporate them into their actual activities through the votes at ATENA's Steering Committee meeting even in case there are some utilities who do not agree on the measures.
- ATENA shall also confirm and publish the status of utilities' implementation.

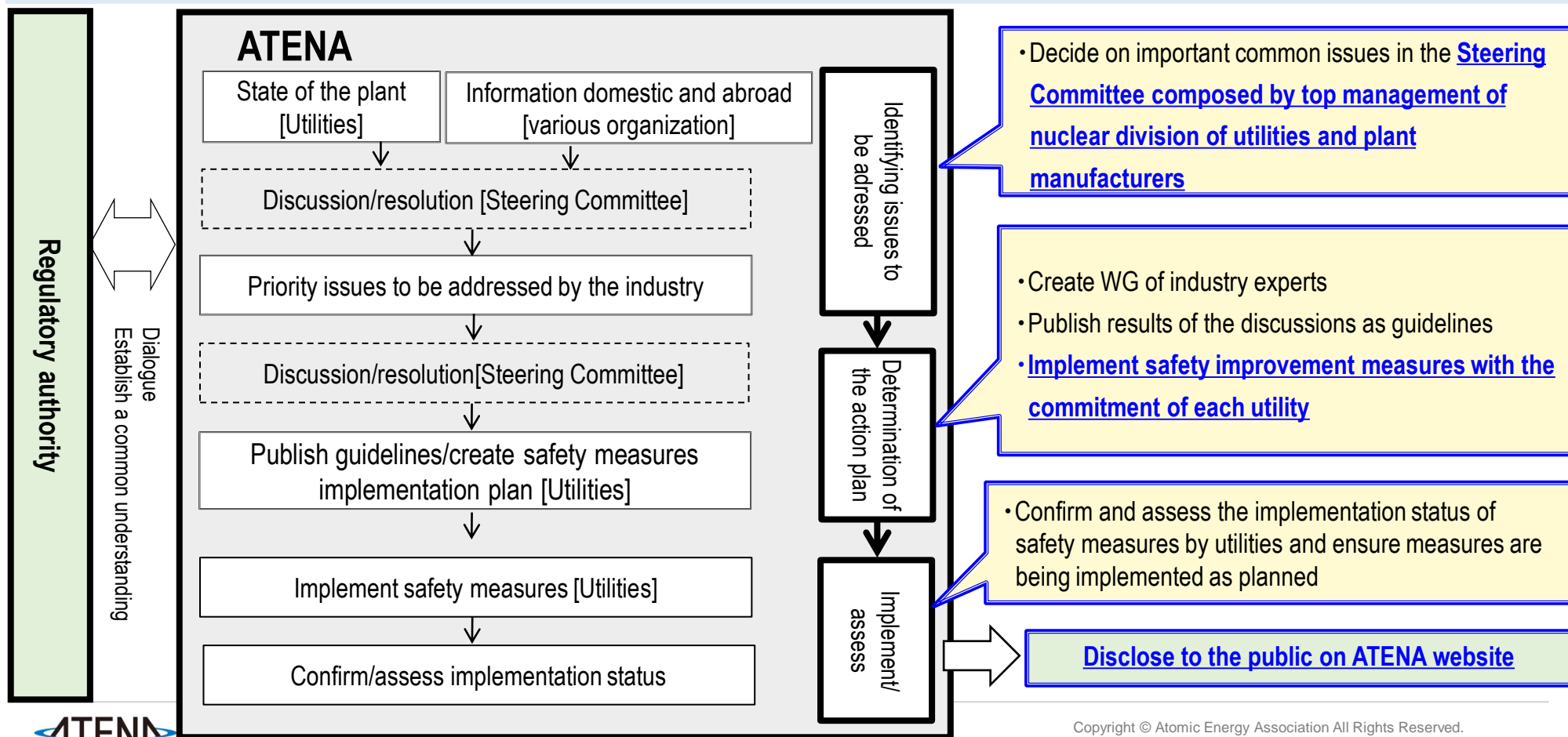
② Proactive dialogue with NRA

- ATENA shall be a single responsible body to handle regulatory issues common to utilities.
- ATENA shall engage in dialogue with NRA as a representative of the industry.

① Efforts for solving the common technical issues

Scheme of ATENA's activities

- Identify latest information domestic and abroad in nuclear power and designate especially important common technical issues as “themes”. Further improve safety at nuclear power plants by **creating guidelines for safety improvement measures and deploying the safety measures at utilities**.
- **Establish a common understanding** in discussing ATENA themes and safety improvement measures through dialogue with the regulatory authority and **disclose activity status to the public**



Selection of Themes

Extraction of
candidate
themes

Review the latest knowledge domestic and overseas and extract candidate themes that should be prioritized as common issues contributing to further improvement in safety.

Collect opinions on candidate themes from utilities and manufacturers

◆ Issues in operation of the power plant

Taking into account domestic and overseas trends, extract candidate themes by ATENA's own perspectives

◆ Information from NEI regarding regulatory issues and technical reports

◆ NRA's information handled at the Technical Information Study Meeting, NRA's research projects

Screening

Candidate
themes with high
priority

Priority scoring from the following perspectives

☐ Commonality (Issues common to the industry)

☐ Magnitude of effects

(contribution to safety improvement, risk reduction, cost effectiveness, etc.)

☐ Foresight (whether the industry is taking a step ahead)

☐ Effects of improving social awareness

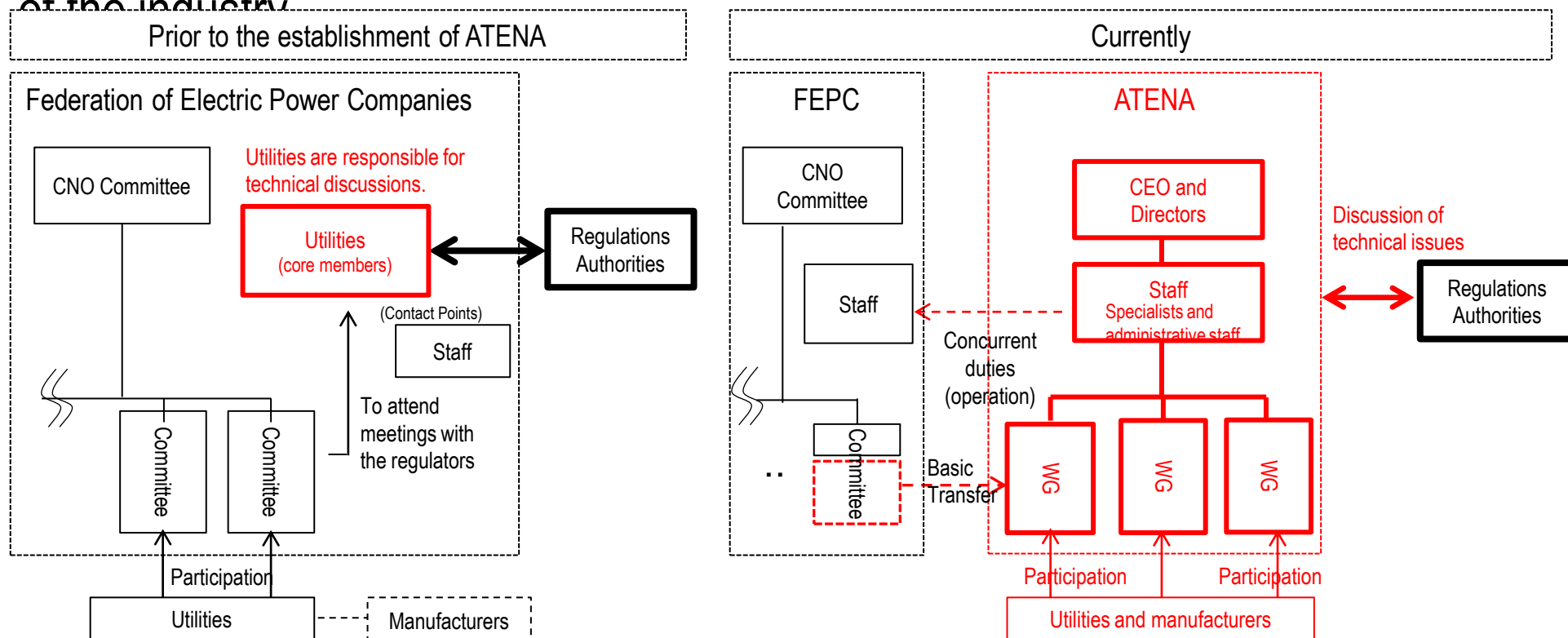
☐ Feasibility of initiatives

Theme
identification

Identify themes to be addressed by ATENA at the Steering Committee after confirming the scoring results of candidate themes.

ATENA's governance system

- When it is necessary to initiate technical discussions of common regulatory issues, ATENA formulates working groups (WGs) and ATENA's specialist staff plays a central role of conducting technical discussions.
- ATENA engages in technical discussions with the regulators as the representative of the industry.



List of main common technical issues (themes)

Technical issue	Theme
① Proactively utilize new knowledge and advanced technologies	Develop a new guideline for Cyber security
	Develop a new guideline to adopt measures for common cause failures in digital safety protection system
	Pursue efficient and effective operation with appropriate consideration of importance classification of SA equipment (Improvement of Limiting Conditions for Operation (LCO))
	Establishment of improvement measure for “Open Phase Condition”
	Establishment of proper management of electromagnetic compatibility (EMC) related to the instrumentation and control system
	Response to the findings from the investigation and analysis of the TEPCO's Fukushima Daiichi Nuclear Power Station Accident
	Deployment of new fuel
② Prepare thoroughly for various external events	Review of the methodology to assess “design basis ground motion formulated without specifying seismic sources”
	Establish evaluation method to ensure conformance of base isolated buildings housing SA equipment to technical standards
③ Establish a framework which promotes voluntary efforts for safety improvement	Develop industry's guide documents for specific procedure to fulfill the NRA's inspection reform
	Initiative of aging management for safe long-term operation
④ Others	Establishment of further improvement measures for Emergency Diesel Generators(EDG) reliability by analyzing operating experience
	Further Investigation Related to the Intergranular Cracking on Stainless Steel Piping of PWR Primary System

Published technical reports

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)
○ 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)
○ Maintenance Guideline for Long-term Plant Shutdown		(September 25, 2020)
○ Guideline on Assessing Design Obsolescence		(September 25, 2020)
○ 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, October 5, 2022]
FY2021		Publication date
○Report of knowledge build-up related to aging for safe long-term operation		(March 25, 2022)
FY2022		Publication date
○Operational safety program revision guideline for improving safety through a diverse range of facilities		(July 29, 2022)
To be published		
○Report on the advancement of liquefaction evaluation methods (working title)		
○Position paper on electromagnetic compatibility (working title)		

Current Status of Addressing Common Technical Issues

【 Accomplishments so far 】

- The practices of ATENA's operations have become established, such as to identify common technical issues, conduct technical reviews, compile and publish guidelines, request utilities to implement safety measures, and follow up the implementation status under ATENA's governance.
- To date, ATENA have identified more than 20 technical issues, and have requested utilities to implement safety measures in ten cases during past four years.

【 Questions to be discussed 】

- Are the technical issues that need to be addressed sufficiently identified?
- Are there any area for further improvements in the extraction process, scope to be covered, and screening criteria of technical issues?

Direction of activities for addressing common technical issues

【 Direction of Activities 】

● To identify technical issues

Candidate themes have been mainly collected from utilities and manufacturers. (Initially extracted from about 200 candidates; recently a few additional candidates have been collected. Instead, many of new themes have been identified which came from proposals of the regulators.)

⇒ Reinforce the process of extraction by ATENA experts from domestic and overseas trends.

⇒ Need to be more sensitive to overseas information through more enhanced and close communication with organizations abroad.

● Screening criteria for identifying technical issues

Although priority has been placed on improving safety when we extract themes, we need to additionally address issues for efficient use of nuclear power while maintaining safety with utilizing risk information.

② Proactive dialogue with NRA

Dialogue between ATENA and the regulators

➤ Opinion Exchange Meeting between NRA and CNOs of major utilities

- Discussions on the general issues of nuclear regulation between the NRA Commissioners, CNOs and ATENA executives. (about two or three times a year)

➤ NRA's open meetings and technical opinion exchanges meetings

- Exchange of opinions on specific technical issues at the practical level between experts of NRA and the industry

e.g., aging management, electromagnetic compatibility (EMC), new inspection system, software common cause failure of digital safety protection system, working team meeting of reinforcement of regulations by investigating Fukushima Daiichi accident

➤ Regular administrative meetings

- Daily communication on common technical issues (themes) between the Director of the Nuclear Regulation Planning Division and the ATENA Secretary General (approximately once a week)

Current status of dialogue with the regulators

【 Accomplishments so far 】

- ATENA's position to talk with the regulators as a representative of the industry is being established.
- In some cases, successful sharing of discussion points and the needs of both parties has led to a fruitful exchange of opinions.
(Such as discussions on new inspection system, aging management)
- In some cases, discussions with the regulators resulted in the new attempt of allowing industry's voluntary efforts to cope with new knowledge instead of introducing back fit by the regulators. (Software common cause failure of digital safety protection system, etc.)

Challenges in dialogue with the regulators

【 Questions to be discussed 】

- There are still occasional cases of passive responses to proposals of the regulators.
 - ⇒ The need for a shift to an active and proactive response at the WG level, so that proposals of the industry can be made through discussions of what should be done and who should be responsible to address safety issues.
The need to improve awareness and governance for this perspective.
- Technical review and compilation of guidelines require a reasonable amount of time. In order to carry out fruitful dialogue with the regulators on the result of technical review, it is necessary to share common understandings on issues from the initial stage of issue identification.
 - ⇒ It is necessary to initiate opinion exchange from the initial stage such as issue identification stage and beginning stage of technical review. How we realize such process of communication with the regulators?