



**WANO**

GLOBAL LEADERSHIP IN NUCLEAR SAFETY

STRATEGIC DOCUMENT



**UNITY**  
**TOWARDS NUCLEAR**  
**EXCELLENCE**

2023 TO 2030 AND BEYOND

OPEN DISTRIBUTION

WANO has served the global commercial nuclear power industry since its establishment in 1989. Its vision – **that WANO and its members will be worldwide leaders in pursuing excellence in operational nuclear safety for commercial nuclear power plants**, and its mission – **to maximise the safety and reliability of nuclear power plants worldwide** by working together to assess, benchmark and improve performance through mutual support, exchange of information, and emulation of best practices – remains as valid today as ever before.

The ratification of the WANO Charter on 15 May 1989 signaled each of the world’s nuclear leaders making a **commitment to work in unity toward the improvement of nuclear power safety and performance**. The necessity of global cooperation, collaboration, and dedication for the advancement of nuclear safety and the future of nuclear power, has tied the industry together across political and cultural boundaries since 1989.



## **WANO's strategic document, *Unity Towards Nuclear Excellence*, is a new direction for the evolution of the Association.**

The second iteration of WANO's strategy *Compass 2018-2022* was launched at the 2017 Biennial General Meeting (BGM) with a focus on providing more support to lower performing plants to improve safety and reliability. Other focus areas included support for new entrants and new units, creating a 'One WANO' concept for programme consistency and governance improvements, and greater coordination with other nuclear industry support organisations.

In 2019, member chief executive officers accepted the need to change the existing WANO programme structure. During the 2019 BGM, members approved a mandate for change with clear, simple targets on how best to shape the industry's future to help members more rapidly improve performance. The resulting initiative has been titled *Action for Excellence: Shaping the Nuclear Future* and forms the basis of WANO's new strategic document.

This new strategy is aligned with the *Action for Excellence* initiative and is designed to evolve what was achieved under *Compass 2018-2022*. It will enable achievement of the industry targets and address the identified challenges to support nuclear operators in further increasing safety and reliability of commercial nuclear power worldwide.

# WANO's strategy is focused on **three** **key areas**



Improve Global  
Industry Performance



Transform WANO



Influence the Evolution  
of Global Nuclear Power



A Safe, Reliable and Sustainable Industry



**A Strong, Adaptable and Sustainable WANO**



Although there has been great progress over more than three decades, the overall slow trend of industry performance improvement and the gap between the plants has remained the same. Lower performing plants tend to have more events that challenge their safe operation and represent increased risks to the global nuclear industry in the coming decades. **It is vital to decrease the variance in performance and increase all performance towards excellence.**

Looking to the future of the nuclear industry in 2030 and beyond, it is widely recognised that the industry will undergo substantial changes. Some older units will be retired, while others will undergo plant life extension. Some countries will choose to increase the use of nuclear power, and there will be new entrants into the commercial nuclear industry. Small modular reactors and other new technologies are expected to emerge and become significant contributors to the energy sector. These and other changes must be met with a coordinated and aligned global effort of all operators, WANO, and other stakeholders.

WANO's strategic approach in supporting the industry to achieve the 2030 goals and ultimately its mission is defined by decisive initiatives. These initiatives form the ways and means by which the three strategic focus areas are shaped into positive outcomes and attain the defined end-states that are described at the end of this document. They form the way that WANO will approach its strategy, and the details of how WANO will proceed are described below.

## 1. Set Standards

In setting standards of excellence, WANO shapes behaviours and norms within the nuclear industry. As part of continuous improvement, station and utility leaders and personnel adhere to the highest standards of performance. WANO's commitment is to seek out, establish and reinforce standards of excellence. These include documents describing excellence, such as Performance Objectives and Criteria (PO&Cs), Principles (PL) documents and Significant Operating Experience Reports (SOERs).

## 2. Measure and Compare Performance and Sustainability

To support industry improvement, WANO will need to develop and effectively communicate an accurate and current picture of industry performance through tools such as Peer Reviews, enhanced Performance Monitoring (ePM) and reporting of new data elements. WANO's ability to understand, assess and communicate any identified gaps in performance and challenges to sustainability will require strong engagement from members to help the industry to achieve and sustain excellent performance more rapidly.

### **3. Facilitate Continuous Improvement**

Both WANO and the industry must recognise that the pursuit of excellence is an ongoing commitment. This reflects the importance of sustaining performance gains while continuing to strive for improvement at the station and corporate level. WANO will encourage and facilitate continuous improvement through its integrated suite of performance analysis, assessment, and support services, and monitor improvement or assistance plans to drive sustained performance improvement.

### **4. Facilitate Continuous Learning and Leadership Development**

There is a need to place greater emphasis on an ongoing process of learning to maintain a highly proficient workforce and maximise the personnel capabilities to advance organisational and industry proficiency and performance. WANO will continue to play a key role in the development and continuous improvement of industry leaders, as leadership is recognised as an essential key to excellent performance. Roles within WANO offer an opportunity for industry personnel to gain valuable technical skills and international experience, which can be applied for the benefit of their parent companies, as well as their personal development. Additionally, there is an opportunity and necessity to invest in the development of the younger generation to be the future leaders of the industry. Many in the industry are facing the challenge of knowledge transfer due to the retirement or transfer of experienced personnel to new facilities, coupled with the difficulties in attracting the younger generation into the nuclear industry. WANO will develop its operation and cooperation with its members to support member competence development and succession planning.



## 5. Self-regulatory Authority

WANO and its Governing Boards have the responsibility to create and enforce stand-alone industry and professional standards of excellence. WANO engages industry executives, leaders, and peers to reinforce a collective responsibility – the success of the industry can only be assured if all plants achieve and sustain excellence in nuclear safety and reliability. Enabling a high performing industry fosters a high degree of trust, credibility, and collaboration with our members and responsibility among member CEOs. WANO's ability to help its members maintain high levels of industry performance is a key part of the value it provides to the industry.

IMPROVE GLOBAL INDUSTRY PERFORMANCE

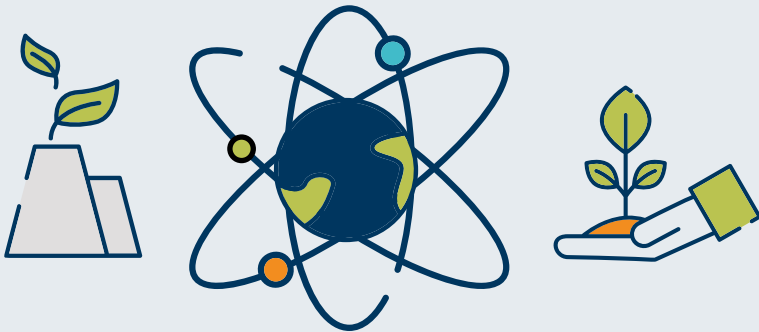


The WANO of 2023 to 2030 and beyond is a highly collaborative partner with its members, focused on helping the growing nuclear fleet attain and sustain excellent performance. It serves its primary mission to **maximise the safety and reliability of nuclear power plants worldwide, independent of geo-political and national boundaries**. Overcoming economic, political, cultural, communication and technical differences, WANO performs as an internal industry community network for open and trusted exchange of information, experience, and knowledge between nuclear operators.

WANO ensures the unity, consistency, and reinforcement of internal industry-wide standards of excellence for safety and reliability.

WANO encourages operators to benchmark their progress against each other's organisations and establish goals for further improvement of their performance. WANO accumulates, analyses, and shares global operating experience and promotes best industry practices. By identifying global trends of the nuclear fleet and helping operators determine early signs of performance decline, plant operators can take prompt corrective actions to prevent decline. WANO renders expert and methodical support tailored to the needs of each operator.

WANO will establish and embed its desired culture across the organisation. A culture of integrity, accountability, and high performance underpins WANO's efforts to support a high-performing nuclear industry. As leaders, excellence begins at home. WANO promotes excellence in the industry by demonstrating it in the WANO regional centres, London, and Shanghai offices.



WANO will describe its desired culture. Over the years WANO has evolved ways of behaving that form its culture. The influential forces of organisational culture contribute most effectively when they are harnessed, focused, and aligned with the strategic intent. While the WANO culture should support successful actions in most activities, behaviours may need to be adjusted to increase the chances of success in interactions across a wide range of cultures. WANO leaders must define “how we are to act” given the strategic environment we are in and the outcomes we seek. Culture cannot be taken for granted. Without thoughtful definition, communication and education, the benefits of a harnessed and focused organisational culture cannot be realised.

WANO will endorse the culture it defines. Cultures can develop or change without conscious intent, but once established, cultures are inherently resistant to change. Consequently, a deliberate approach is required to modify any established culture so that it strongly supports the direction of the organisation. Once defined, WANO's desired behaviours and cultural attributes must be clearly communicated to its workforce, emulated by its leaders, taught, developed, and reinforced. These attributes must be reinforced at all WANO regional centres and offices. Furthermore, the organisation must be attuned to changing cultural dynamics among stakeholders that may necessitate additional adaptive capability among WANO staff to achieve the *Action for Excellence* goals.

## Striving for Excellence

For more than three decades, WANO has focused on delivery of services to its members through five programmes: Peer Review, Performance Analysis, Industry Learning & Development, Member Support, and Corporate Communications. Achievement of the 2030 industry performance targets will require fundamental changes in WANO's operations and organisational model to help its members achieve the industry goals. It will require a mindset change and focus on delivering effective support to its members, as well as focussing on the industry's ability to adapt and balance between industry and individual plant needs. A comprehensive review of its operations worldwide began in 2019 which will lead to a new, more integrated suite of products and services as WANO engages with its members for

the coming decade and beyond. Additionally, WANO and its members will need to openly engage and communicate with one another and share accurate and timely information on plant performance.

## Peer Review

Peer Review will continue to be an important WANO service. WANO's Performance Objectives and Criteria will remain the standard against which plant operations are assessed. Under WANO's new operational model, peer reviews will take a graded approach, with teams focusing on areas with the highest potential for improvement. This will ensure that WANO provides the optimal level of support to deliver more valuable and actionable results.



## Enhanced Performance Monitoring

Enhanced Performance Monitoring will provide WANO members with a more continual view of current performance and trajectory, i.e. whether performance is likely to stay steady, improve or decline. Detecting early signs of declines and addressing them rapidly will help high performing plants maintain their high performance and guide other plants to improve more quickly and sustainably.

WANO will monitor plant performance through indicators, observations, interviews, reviews of plant activities and analysis of other data. Technical area experts and WANO representatives will have ongoing contact with their plant counterparts as an additional means of sharing information. WANO representatives will also take action to address any declines in stations observed through their monitoring activities.

Peer Review and enhanced Performance Monitoring will work together to provide members with a clear view of performance, identifying areas with the greatest potential for improvement. WANO will work closely with its members to gather industry and WANO resources to help make significant and lasting progress towards excellence.



## Member Support and Industry Learning & Development

WANO Member Support and Industry Learning & Development activities will become more integrated with Peer Reviews and enhanced Performance Monitoring. Support missions and learning programmes will be focused on addressing identified weaknesses and performance shortfalls, with the goal of supporting more rapid and sustainable improvement.

## Organisational Diagnosis and Recovery

WANO is also improving its support to members through Organisational Diagnosis and Recovery services. Organisational Diagnosis is a performance improvement tool used with a limited number of WANO members to help identify, diagnose, and recommend solutions to organisational issues that are adversely affecting performance at nuclear facilities. The Recovery function is a specialised process used in close collaboration with members to help plants with sustained periods of lower performance. This customised process helps members develop specific and result-oriented recovery plans and identify industry and WANO resources to accelerate and sustain performance improvement.



## Leadership Development

A key part of WANO's new organisational model is an emphasis on leadership development. Leadership teams and organisations perform more efficiently and effectively in providing direction to and oversight of operational activities, resulting in fewer industry events and higher levels of safety and performance.

## Engagement and Collaboration

To help support industry improvement, members will see more WANO engagement and collaboration. WANO's operations will be more focused and integrated, demonstrating a greater consistency of processes and services across the regional centres, and London and Shanghai Offices. WANO will provide an integrated suite of products and services that will be results-oriented, with the end goal of helping all member plants and facilities achieve and sustain high levels of performance.





# Challenges

## Achieving the Industry Goals



As the industry maps its course to achieve the performance goals, WANO Significant Operating Experience Reports (SOERs) provide key lessons learned to help members prevent significant events from occurring in the future. To achieve these goals and avoid complacency, every member will need to implement fully WANO SOERs. In addition, the industry and WANO must focus on the common functional areas that are precursors to significant and noteworthy events and encourage the sharing of best practices across the industry.

Engagement of the industry with WANO will be vital in ensuring the industry reaches the goals. Strong improvement plans are a necessity with corporate expectations and support being a critical factor for whether Organisational Diagnosis and Recovery support is required.

## Resourcing

WANO relies on its members to provide nuclear industry experts that support WANO operations worldwide.

As WANO engages in more sophisticated data analysis, enhanced Performance Monitoring, and higher-level collaborative support of members, there will be a growing need for skilled and experienced specialists to support WANO in developing a more diverse means to meet the resource requirements beyond the traditional secondment, including setting out clearly which key positions may require permanent employment within WANO.



This member investment of top personnel to WANO results in many benefits. In addition to helping deliver high-quality WANO services, secondees observe best nuclear industry practices and exercise leadership skills in a global environment. At the completion of their secondment, they return to their home company with a broadened base of experience, enhanced leadership skills, and new knowledge that can be applied as they progress throughout their career. WANO has a place for industry personnel at all stages of their careers, including the high-potential next generation who will become the nuclear industry leaders of 2030 and beyond.

## Information Exchange and Communications

WANO is a diverse and inclusive multicultural and multilingual organisation. For more than 30 years, WANO's official language has been English. Although English will remain WANO's official language, the organisation will find new ways to communicate multilingually with its members to better ensure understanding across the organisation's diverse membership.



## Secure and Accessible Information Systems

WANO continues to add to its vast quantity of nuclear industry operational data. To maximise the data potential for our members, WANO will re-organise its digital infrastructure. WANO will implement sophisticated data analysis technologies that provide members with greater insights into current plant performance and future performance trajectory.

A re-design of the WANO member website as a key communication tool will enhance accessibility and enable members to communicate with one another openly and securely across the industry, and WANO to communicate with its members in a timely manner. An ongoing focus for WANO will be on cyber security to ensure data and communications remain secure.



## Export Controls

WANO will continue to comply with the regulations intended to protect national security, foreign policy, and economic interests. At the same time, WANO will work to overcome existing limitations on the exchange of information for the purpose of ensuring the safe operation of nuclear power plants worldwide.



## New Units and New Entrants

Rapid expansion is occurring in many parts of the world, with new units now being planned, proposed, or under construction. This presents novel opportunities, and challenges, to all operators, WANO, and other stakeholders. Some new units are being constructed in existing, well-established fleets and regulatory frameworks. However, a growing number of countries and areas that currently have no commercial nuclear power programmes are seeking to add a nuclear component to their national energy mix for the first time. Although new units include additional safety features, constructing, starting up and operating new plants safely will require approaches tailored to the specific needs of each country or area, culture, regulator, and operator. WANO will need to adapt its processes to prepare to accommodate the growing number of members.

## New Technologies

The growth of the global nuclear fleet will also be affected by full-scale deployment of innovative nuclear technologies, including micro and small modular reactors (SMRs). These technologies may require new methods of operation that are different from conventional nuclear operations. WANO must be the visionary leader for new technologies to embed the importance of nuclear safety into the future operators understanding. WANO must set the standards for the operators of SMRs/Advanced Reactors through revising the WANO PO&Cs that will apply to them, define the services to be delivered by WANO and establish

a new membership structure to accommodate the new operators of the new technologies.

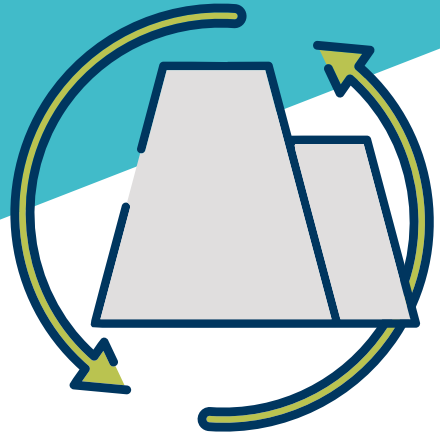
Both WANO and the industry need to be prepared for this expansion in deployment of various forms of nuclear power across the globe in many new countries and cultures.

## Extending Operating Lifetime and Decommissioning

Power reactors constructed in the latter part of the 20th century are approaching the end of their life cycle. Many are being extended into 'Long Term Operation', others are being shut down as they reach end-of-life, due to resource depletion, or for political, technical, or economic reasons. WANO will continue to support the safety of all nuclear units through the conclusion of commercial operation.



# Shaping the Nuclear Future



**In the ongoing global operation of the commercial nuclear power industry, nuclear safety remains the overriding priority. Industry leaders maintain a critical focus on nuclear safety culture and embedding the core values and behaviours that emphasise safety over competing goals.**

The nuclear industry of 2030 and beyond represents a strong and mature community that sustains and continuously improves performance. Excellence in nuclear plant operations is demonstrated by sustained event-free operations, timely safety improvements before there is an external requirement, well-managed and understood safety, design and operating margins, high levels of plant worker safety, and a strong nuclear safety culture and leadership. Robust emergency preparedness ensures that an accident or event, regardless of its cause, will be effectively mitigated to protect people and the environment. The industry realises that excellence is not a destination, but a journey of continuous improvement.

All established operators and new entrants accept and share the very special nature of nuclear technology.

# Collective Commitments by the Nuclear Industry

Achievement of the 2030 industry performance targets and the desired state of the nuclear industry will take dedicated, focused commitments by nuclear operators and corporate organisations.

1. Each nuclear operator commits to the 2030 industry goals.
2. Each member commits to support other members in their performance improvement journey, both directly and through WANO, including new entrants and technologies to the industry to ensure they achieve safe and reliable start-up.
3. Each member will engage in transparent performance discussions and will monitor, and support members using the Action for Excellence tools and expect one another to take ownership for results.
4. Each nuclear station or facility commits to supporting data collection through key performance indicators and functional areas to enable early detection of performance declines.
5. Each member will provide knowledgeable, skilled, and experienced individuals to WANO and provide continued engagement in the development of those individuals to ensure enhanced value to the member organisation on their return.
6. Each member will address leadership shortfalls by selecting, training, developing, advancing, and systematically planning for current and future leaders.
7. Each member will analyse and share operating experience and evaluate and implement WANO Significant Operating Experience Report (SOER) Recommendations as soon as possible to seek to prevent significant industry events.



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