



At Work

2020 edition

Foreword

The upcoming decade will be crucial for the energy sector and the nuclear industry particularly, as we attempt to achieve decarbonization globally. Nuclear power's role in the clean energy transition must be agreed universally this year, to ensure that the full potential of nuclear energy can be realized.

2019 has shown that the need for nuclear energy is increasingly recognized globally. A broad range of expert bodies have highlighted how nuclear energy is vital to ensure that electricity is available to all, while respecting the environment and tackling climate change.

For the first time in 18 years, the International Energy Agency published a report on nuclear energy – *Nuclear Power in a Clean Energy Future*. It concluded that removing nuclear energy from the equation would result in higher electricity prices and the transition to a clean energy system becoming drastically harder and more costly. The OECD Nuclear Energy Agency's report *The Costs of Decarbonisation* demonstrated that, once system costs are taken into account, nuclear energy is amongst the most cost-competitive low-carbon electricity generators available. The International Atomic Energy Agency (IAEA) hosted its first-ever conference on climate change and nuclear power, where World Nuclear Association made the case for nuclear in a high-level plenary session alongside key UN bodies.

World Nuclear Association continues to work very closely with partners globally to strengthen institutional support for nuclear energy. During 2019 we have contributed to consultations by the European Investment Bank and the International Commission on Radiological Protection – among others – ensuring that the industry's voice is heard loud and clear.

2019 saw exciting developments which reflect the dynamic nature of our industry. In November, we saw the start-up of the world's first floating nuclear power plant, the *Akademik Lomonosov*. Its reactors will supply electricity and heat to Russia's remote Chukotka region, as well as replacing a fossil-fuelled power plant. This is one of the first of the new type of smaller reactors which will bring the benefits of nuclear energy to new regions, smaller grids and different applications.

Looking forward to 2020, a total of 13 reactors are due to be grid-connected, a number not matched for the past 30 years. With this, we will welcome the UAE and Belarus to the nuclear family.

Overall, during this first phase of the Harmony goal (2016-2020), 43 reactors are expected to start in 10 countries, based on 20 different designs, and with capacities ranging from 35 MWe to 1750 MWe – a reflection of the dynamic nature of our industry and our strong commitment to innovation. This brings us close to meeting the first milestone of the Harmony goal, to construct an average of 10 GWe per year of new nuclear capacity between 2016 and 2020. However, a greater effort is needed to build on this good start and accelerate towards the goal of supplying 25% of the world's electricity before 2050.

The world's nuclear reactors continued to perform excellently, with several utilities already reporting record output. Five reactors, in India, Switzerland and the USA, reached the milestone of 50 years of operation, demonstrating the ability of nuclear reactors to provide reliable low-carbon electricity for much longer than originally expected. In 2019 Turkey Point 3&4 in the USA became the first reactors licensed to operate for 80 years.

Our Association is going from strength to strength, with 12 new members having joined in 2019. Our Working Groups have been even more active, publishing reports on methodologies to manage materials from decommissioning, countering counterfeit items in the supply chain, and the 19th edition of *The Nuclear Fuel Report*, to mention a few.

It has been yet another successful year for the World Nuclear University, which continues to focus on the development of future industry leaders. The Summer Institute, this year held in Romania and Switzerland, brought together some of the most talented individuals in our industry to be trained and mentored by experts. WNU also held courses in Russia, Brazil, Turkey and China – in all, more than 600 participants took part in different WNU programmes over the year.

As we concluded in our white paper, *The Silent Giant: The need for nuclear in a clean energy system*, nuclear power holds the potential to herald a truly sustainable world – enabling us to pass on a cleaner planet to future generations. For the decade ahead, World Nuclear Association is more focused than ever in serving our members' needs and representing the interests of the global nuclear industry to ensure that the full potential of our industry can be realized.



Agneta Rising
Director General



Kirill Komarov
Chairman

Highlights

In 2019 the Association took an active role in establishing nuclear energy as a key contributor to the future clean energy mix, connecting with policy-makers, government representatives and the international nuclear community through our outreach initiatives.

January

Working Groups

150 participants from over 60 member organizations around the world attend Working Group meetings in London to discuss activities and publications for the year ahead.

February

IEA workshop

Agneta Rising attends an International Energy Agency (IEA) workshop on nuclear power to provide input into a special IEA report, *Nuclear Power in a Clean Energy System*.

Waste management report published

The Waste Management & Decommissioning Working Group publish *Methodology to Manage Material and Waste from Nuclear Decommissioning*.

March

New Harmony branding

A new logo, modern design elements and a striking colour palette are introduced for the Harmony programme to highlight the role of nuclear energy in powering our electric future.



WEC joint workshop

A joint workshop is held with the World Energy Council (WEC) to explore shifting perspectives on the role of nuclear in the future energy system up to 2040.

Reactor Database

Interactive tables and charts are incorporated into pages across the Association's website, World Nuclear News and pages in the Information Library.

CORDEL Strategic Plan

The Cooperation in Reactor Design Evaluation and Licensing (CORDEL) Working Group publishes an outline of its scope of activity and direction from 2019 to 2023.

April

World Nuclear Spotlight Brazil

150 high-level global nuclear industry representatives and Brazilian decision-makers exchange information and experience, and support the country's plans to develop additional nuclear capacity.



World Nuclear Fuel Cycle 2019

World Nuclear Fuel Cycle (WNFC) 2019, co-organized by the Association and the Nuclear Energy Institute, takes place in Miami, USA, with 228 global nuclear professionals. Ahead of the event, 100 participants from 55 member organizations attend Working Group meetings.

AtomExpo

Agneta participates in the AtomExpo opening ceremony in Moscow, Russia and the Association hosts a roundtable on the best mix of nuclear and renewables to achieve sustainable development.

May

New IEA report

The Association issues a press release to welcome the publication of the IEA's report on *Nuclear Power in a Clean Energy System*.



United Nations Economic Commission for Europe

King Lee, Harmony Programme Director, takes part in an energy panel during the United Nations Economic Commission for Europe (UNECE) Resource Management Week in Geneva, providing a nuclear industry perspective to a large group of UN experts.

Clean Energy Ministerial

During the Tenth Clean Energy Ministerial meeting in Vancouver, Canada, Agneta participates in a Nuclear Innovation: Clean Energy Future (NICE Future) side event.

WNU short course

The World Nuclear Industry Today short course, organized by the World Nuclear University (WNU), is held in Istanbul, Turkey with 68 participants from the nuclear industry, universities and regulatory bodies.

June

Future Energy Forum

Agneta delivers a keynote speech in Seoul, South Korea, during the forum on *World Energy Industry and Korea's Role* and participates in a panel session.

WNU Summer Institute

The career development leadership programme takes place in Romania and Switzerland with 82 Fellows from 39 countries.



Equal by 30 campaign

The Association becomes a signatory of the Clean Energy Ministerial campaign putting gender equality at the heart of the global transition to a clean energy future.

July

WNU short course

The *World Nuclear Industry Today* short course is held in Brasilia, Brazil with almost 200 participants from ministries, regulatory agencies and embassies. Another short course is held in Nanchang, China with 62 participants.

August

Performance Report

World Nuclear Performance Report 2019 highlights that the world's nuclear power plants continue to perform excellently, but a much greater commitment from policy-makers is needed.

Talking Points update

The popular pocket-sized publication for nuclear industry communicators is updated with the latest facts and messages, and covers several new topics.

Supply Chain Working Group reports

The group publishes two new reports: *Adapting export controls on nuclear technology and information transfer to the challenges of cyberspace*, and *Countering Counterfeit, Fraudulent and Suspect Items in the Nuclear Supply Chain*.

September

Symposium 2019

World Nuclear Association Symposium attracts 550 top nuclear industry leaders, experts and executives from 40 countries around the world. At the Working Group meetings, 270 participants from over 118 organizations discuss radiological protection, sustainable used fuel management, and much more.



The Nuclear Fuel Report

The new edition is launched at Symposium. For the first time in eight years projections for nuclear generating capacity growth have been revised upwards.

Cooperation agreements

During Symposium the Association signs new memoranda of understanding with the OECD Nuclear Energy Agency and Foratom, strengthening the existing relationships.



24th World Energy Congress

Agneta moderates a panel of nuclear industry leaders who each share their vision of the bright future for nuclear. The World Energy Council launches a report on the future of nuclear as part of its *World Energy Scenarios 2019*, to which the Association contributed.

The Silent Giant

A new white paper on the need for nuclear in a clean energy system is released.



IAEA General Conference

The Association supports Brazil at a well-attended side event, entitled *Spotlight on emerging and expanding countries*, at the International Atomic Energy Agency (IAEA) General Conference.

UNECE joint project

The Association is leading a collaborative project with UNECE, the IAEA, and the OECD Nuclear Energy Agency to prepare a report on *Nuclear Energy for Sustainable Development: Entry Pathways*. The project will highlight the important role of nuclear energy in the transition to sustainable energy systems, and its progress is presented in Geneva, Switzerland at the UNECE 28th Session of the Committee on Sustainable Energy.

October

IAEA International Conference on Climate Change and the Role of Nuclear Power

Agneta represents the nuclear industry alongside senior leaders from multiple UN bodies, as well as the IEA and the Intergovernmental Panel on Climate Change (IPCC), at the first-ever IAEA conference on climate change.



Singapore International Energy Week

Agneta presents on the opportunities and challenges in advancing nuclear adoption, and the role of nuclear power in achieving a carbon-neutral future. The Asia edition of the *World Nuclear Performance Report* is released.

November

WNU Nuclear Olympiad

A team from Brazil wins the WNU Nuclear Olympiad final which takes place at the IAEA International Symposium on Trends in Radiopharmaceuticals in Vienna, Austria.

IFNEC Global Ministerial Conference

Agneta delivers a presentation at the International Framework for Nuclear Energy Cooperation (IFNEC) Global Ministerial Conference in Washington, D.C. at the White House.

December

UN Climate Change Conference (COP 25)

The Association participates in a UN-organized panel discussion on driving innovation for low-carbon industrialization to support achieving Sustainable Development Goal 9 (build resilient infrastructure, promote inclusive and sustainable industrialization, and foster innovation).

Representing the Global Nuclear Energy Industry

At World Nuclear Association, our mission is to promote a wider understanding of nuclear energy among key international influencers by producing authoritative information, developing common industry positions, and contributing to the energy debate.

We are an international trade body

Membership is made up of 186 companies from 43 countries, covering all aspects of the global nuclear industry, including:

- Major reactor vendors.
- Nuclear utility companies (responsible for 70% of the world's nuclear energy production).
- Uranium mining, conversion, enrichment and fuel fabrication companies.
- Nuclear engineering, construction and waste management companies, as well as R&D organizations.
- Companies providing services to the nuclear industry in areas such as transport, law, insurance and finance.

We have a global mandate to promote nuclear energy

As the only international industry organization with a global mandate to promote nuclear energy and represent the companies involved in the worldwide industry, we are in a unique position to share and advance best practices, work alongside other organizations across the globe, and provide unrivalled business opportunities for our members.

We represent the nuclear industry

We provide an invaluable forum and commercial meeting place for our members, who are leaders and specialists in all aspects of the nuclear industry. Through our Working Groups, our members shape positions on economic, safety, environmental and technical issues. Furthermore, we represent the industry and our members in key world forums that can influence the nuclear industry's regulatory and policy environment.

We inform and communicate on nuclear energy

The Association represents the industry at significant global energy forums, highlighting the integral role of nuclear energy in the future clean energy mix to governments and policy-makers. By providing strong messages directly to key decision-makers, we encourage governments to include nuclear in their energy policies.

We provide the latest and most important information about the nuclear industry. The World Nuclear Association website, with its Information Library and Reactor Database, and the World Nuclear News (WNN) service, are vital resources for the industry, government, media and academia.

We train future industry leaders

Our internationally recognized World Nuclear University (WNU) training courses provide a stimulating, multicultural and dynamic learning experience, opening a gateway to global networking for nuclear professionals.

We drive global action towards the Harmony goal

Harmony is the nuclear industry's vision for the future of electricity, with a goal of 25% of global electricity to be provided by nuclear energy before 2050. We drive global action towards reaching this goal through promotion and engagement with key stakeholders including policy-makers.

We are proud of our strong and growing global network of member companies

As of January 2020

Americas | 48 members
Argentina, Bolivia, Brazil, Canada, USA

Europe | 62 members
Austria, Belgium, Bulgaria, Czech Republic, Finland, France, Germany, Hungary, Italy, Luxembourg, Netherlands, Poland, Slovenia, Spain, Sweden, Switzerland, Turkey, Ukraine, United Kingdom

Russia and Central Asia | 14 members
Afghanistan, Kazakhstan, Russia, Uzbekistan

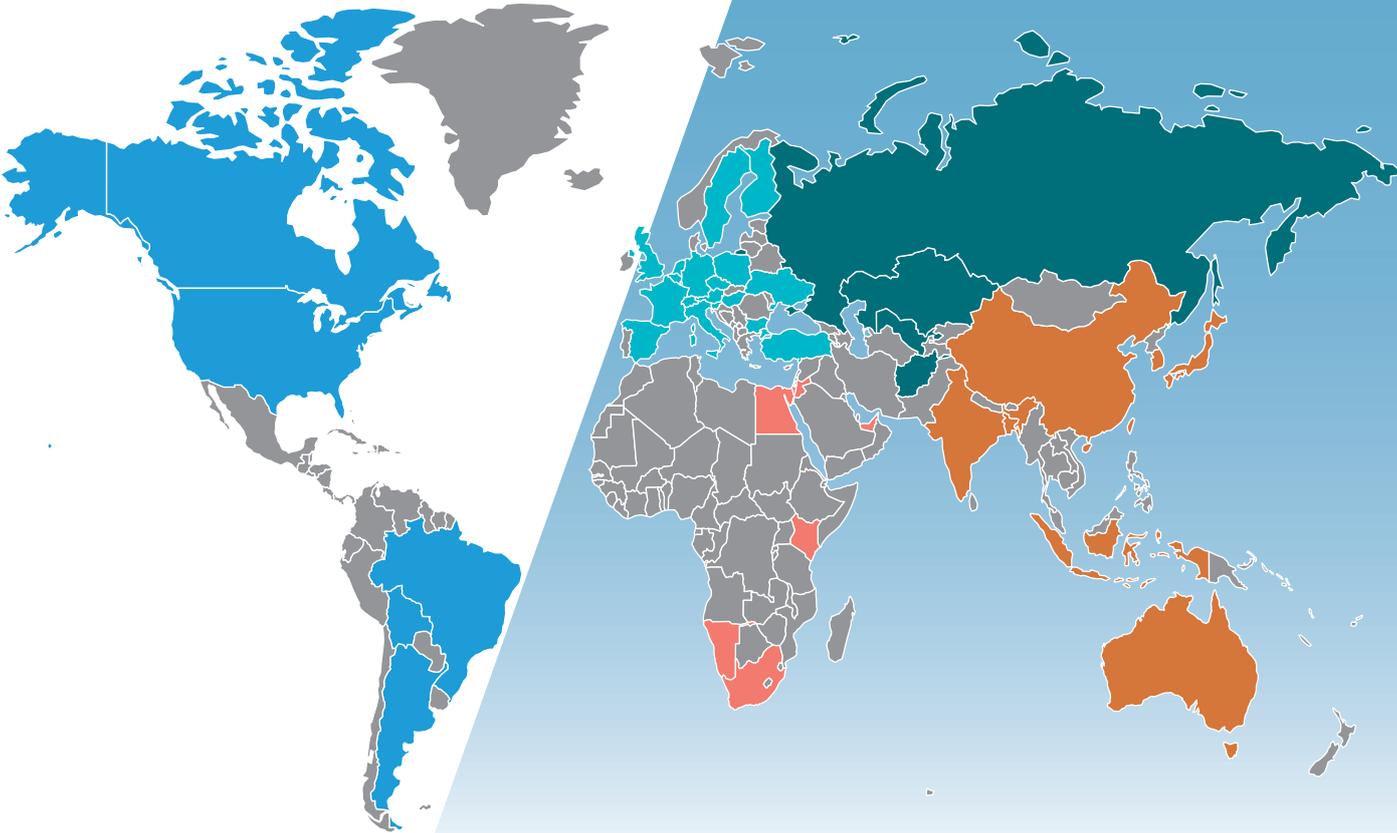
Africa and Middle East | 10 members
Egypt, Israel, Jordan, Kenya, Namibia, South Africa, United Arab Emirates

Asia-Pacific | 52 members
Australia, Bangladesh, China mainland and Taiwan, India, Indonesia, Japan, Singapore, South Korea

186 Members

13 New members

1 New country
Afghanistan





What will power our electric future?

To meet the growing demand for sustainable energy, we will need nuclear to provide 25% of electricity before 2050 as part of a clean and reliable low-carbon mix. Achieving this means nuclear generation must triple globally by 2050. The Harmony programme is a global initiative of the nuclear industry that provides a framework for action, working with key stakeholders so that barriers to growth can be removed.

The Harmony programme made significant progress in 2019. By working collaboratively with major international energy organizations, the Association elevated nuclear within the energy dialogue, highlighting its vital role in a future clean energy mix. The Association also engaged directly with governments in a range of important consultations.

Strategic Cooperation

By advocating nuclear as part of an affordable and reliable energy mix, Harmony has created new opportunities to cooperate with a range of influential stakeholders and to collaborate on joint projects. In 2019 this began to yield tangible results.

World Energy Council. The Association contributed to the World Energy Council (WEC) report, *The Future of Nuclear: Diverse Harmonies in the Energy Transition*, which was released at the World Energy Congress in Abu Dhabi.

United Nations Economic Commission for Europe (UNECE). The Association is deepening its cooperation with UNECE to ensure nuclear energy is included as part of its work “to improve access to affordable and clean energy for all.” King Lee, Director, Harmony Programme, has been appointed as the new chair of UNECE’s Nuclear Fuel Working Group and is a member of the Technical Advisory Group for UNECE’s Expert Group on Resource

Management. With the support of UNECE, the Association took part in a UN-organized side event at the UN Climate Change Conference (COP 25), on nuclear innovation for driving low-carbon industrialization to support achieving Sustainable Development Goal 9.

Nuclear Innovation: Clean Energy Future initiative.

The Association has been approved as an official industry partner of the Nuclear Innovation: Clean Energy Future (NICE Future) initiative of the Clean Energy Ministerial. The Harmony programme was presented during a webinar on the costs of decarbonization and the Association contributed to the NICE Future initiative book, *Breakthroughs: Nuclear Innovation in a Clean Energy System*. During the 10th annual Clean Energy Ministerial meeting in Vancouver, Canada in May, Agneta Rising presented at a NICE Future initiative side event on *Breakthroughs: Flexible Nuclear Energy Systems in a Clean Energy World*.



NICE Future event at the Tenth Clean Energy Ministerial (CEM10) meeting



Policy Development and Engagement

The Association participates in international energy policy development to advocate for nuclear energy, and in 2019 contributed to a number of policy engagement initiatives and consultations, promoting nuclear energy as a significant part of a diverse low-carbon mix.

Financing sustainable growth in the EU.

Consultation on establishing an EU classification system (taxonomy) for sustainable activities.

Australia government inquiry into nuclear energy.

Inquiry into prerequisites for nuclear energy generation including small modular reactor technologies in Australia.

European Investment Bank energy lending policy.

Consultation on support to long-term climate and energy targets and EU energy policy.

Regulated asset base model for UK nuclear.

Consultation on a sustainable funding model for new nuclear projects as part of a competitive energy market that can attract private finance.

Harmony Position Development

The Harmony programme continues to develop its position papers through a systematic process of engagement with the Association's member companies and leading nuclear energy experts. The *Level Playing Field* and *Harmonized Regulatory Processes* position papers are being finalized and the *Effective Safety Paradigm* issue paper has been prepared for consultation.

Communication Resources

The Association has developed a range of communication resources to help promote the Harmony goal and actions the industry needs to take to achieve it.

Progress updates. A newsletter, *Harmony Goal Tracker*, has been introduced to provide updates on key development and progress towards achieving the Harmony goal. The first edition was sent out in November 2019 and further editions are issued every two months.

Harmony toolkit. A toolkit was created for everyone who supports the development of nuclear energy as a reliable, affordable and clean source of electricity. It provides several resources to help promote the Harmony goal, providing help with explaining and presenting the Harmony goal and objectives in different ways, engaging with colleagues about Harmony and initiating discussions on what can be done to support the future of nuclear energy.

Harmony brochure. The Harmony brochure was updated to reflect the new Harmony brand, which was launched in early 2019.



Taking Action to Ensure a Clean Energy Future

Nuclear energy needs to play a vital role in delivering the sustainable energy transition. It is the fast track to a reliable and clean energy system and must be included in energy policies worldwide. Over the last year we have made significant progress in delivering this message to decision-makers, policy-makers, the international media and other key stakeholders through communication, outreach, and the Harmony programme, the driving force for global action towards more nuclear energy.

Clear signals that nuclear energy is vital

We are pleased to see a growing number of landmark reports from major international organizations that set out the important role of nuclear energy in a global clean energy future.

The International Energy Agency (IEA) published its first report on nuclear in 18 years, *Nuclear Power in a Clean Energy System*, noting that “Without nuclear investment, achieving a sustainable energy system will be much harder” and that it would result “in higher electricity prices for consumers.”

The OECD Nuclear Energy Agency (NEA) issued a report on *The Costs of Decarbonisation: System Costs with High Shares of Nuclear and Renewables*, mentioning that a low-carbon mix, relying primarily on nuclear energy, is the most cost-effective option to decarbonize.

Delivering important information to key audiences

We are launching a new series of white papers aimed at decision-makers to complement our existing range of information. In 2019 we published the first white paper, *The Silent Giant: The need for nuclear in a clean energy system*, to provide a simple and concise explanation of the key role of nuclear energy in a clean future. Launched during the World Energy Congress 2019 in Abu Dhabi, it is intended to be used when engaging with high-level stakeholders such as government representatives.

“*The supply chain is ready, and governments must take action to allow the nuclear industry to deliver the Harmony goal, to enable the world to meet the climate challenge.*”

Agneta Rising, Director General,
World Nuclear Association, speaking at the IAEA
International Conference on Climate Change and the
Role of Nuclear Power

“*Policy-makers hold the key to nuclear power’s future. Electricity market design must value the environmental and energy security attributes of nuclear power and other clean energy sources.*”

Fatih Birol, Executive Director,
International Energy Agency

Representing the industry in key forums and initiatives

We represent the global nuclear industry in key international forums and initiatives, making contributions to international dialogue on energy, climate change and sustainable development.

Tenth Clean Energy Ministerial and Fourth Mission Innovation Ministerial (CEM10/MI-4), Vancouver, Canada

The Association is a partner of the Nuclear Innovation: Clean Energy Future (NICE Future) initiative under the Clean Energy Ministerial (CEM), which seeks to address nuclear energy holistically within the context of broader clean energy systems. Agneta Rising took part in a NICE Future official side event, *Breakthroughs: Flexible Nuclear Energy Systems in a Clean Energy World*, during the CEM10 meeting in Vancouver, Canada in May 2019.

IAEA International Conference on Climate Change and the Role of Nuclear Power, Vienna, Austria

Agneta presented at the first-ever International Atomic Energy Agency (IAEA) conference on climate change and nuclear power, sharing the podium with the IEA, as well as key UN organizations including the Intergovernmental Panel on Climate Change (IPCC) and the UN Framework Convention on Climate Change (UNFCCC). During the conference, the Executive Secretary of the UNFCCC, Patricia Espinosa, called for help to boost climate action throughout the world and to have that action reflected in the next round of nationally-determined contributions and long-term low emissions development strategies in 2020. She highlighted: "Nuclear is a mature, low-carbon energy source, which already contributes to reducing emissions," and: "Nuclear energy can help limit global warming at 1.5 °C."

World Energy Congress 2019, Abu Dhabi, UAE

The Association was a knowledge partner of the 24th World Energy Congress. Agneta moderated a session titled *A new dawn for nuclear energy*, with industry leaders from around the world. The World Energy Council, with contributions from World Nuclear Association, launched a new report, *The Future of Nuclear: Diverse Harmonies in the Energy Transition*, at the Congress.

International Framework for Nuclear Energy Cooperation (IFNEC) Global Ministerial Conference, Washington D.C., USA

Agneta presented at the White House on the topic *Bringing the World SMRs and Advanced Nuclear*. During the event, US Secretary of Energy Rick Perry emphasized support for nuclear energy for tackling climate change and sustainable energy development. One of the key outcomes of the meetings was a call upon the UN and the World Bank to endorse nuclear as part of the solution to fight climate change.

UN Climate Change Conference (COP 25), Madrid, Spain

The Association joined representatives from the United Nations Industrial Development Organization, the International Maritime Organization and the World Intellectual Property Organization in a UN-organized panel discussion on driving innovation for low-carbon industrialization to support achieving Sustainable Development Goal 9. The vital importance of nuclear energy was highlighted as countries move towards declaring their long-term strategies for climate mitigation under the Paris Agreement.

Key Provider of Nuclear News and Information

We are uniquely placed, with our network of global members, to provide the latest and most vital nuclear information to the industry, government, media and academia. Our communication channels, including the World Nuclear Association website with its Information Library and Reactor Database, the World Nuclear News (WNN) service, and social media, allow us to share this information in a timely and accessible way.

Providing authoritative and accessible information and data

The **Information Library** section of the website features over 180 detailed papers covering every aspect of the nuclear industry, including current projects, future prospects, technology, policy issues and country-by-country briefings. The Library is a valuable resource for policy-makers, politicians and academics, as well as for the general public. In 2019 the number of page views for the Information Library increased by 52% from 4.6 million to 7 million.

The **Reactor Database** features country pages and a global dashboard that shows the most recent construction starts and grid connections, and highlights the top performing reactors worldwide. Combining data from the International Atomic Energy Agency's Power Reactor Information System (PRIS) with our own research, the database highlights the contribution made by nuclear energy worldwide.

Essential resource on nuclear fuel supply and demand

The Nuclear Fuel Report, published every two years, concentrates on the front end of the nuclear fuel cycle, (i.e. from uranium mining to electricity generation). In the latest edition of the report, for the period 2019-2040, projections for nuclear generating capacity growth in all scenarios have been revised upwards for the first time in eight years.

Sharing industry reports

The Association's Working Groups published a number of reports in 2019 including *Methodology to Manage Material and Waste from Nuclear Decommissioning* and *Making Use of the Reference Plant Concept for Licensing New Nuclear Units*. The full list of reports can be viewed on page 15 and can be downloaded from our website. Printed copies are available on request.

Highlighting the performance of the nuclear industry

The *World Nuclear Performance Report 2019* provides an up-to-date picture of the civil nuclear power sector today and how it is performing across several key metrics. The 2019 edition showed that the world's nuclear power plants continue to perform excellently and growth is strong. The report includes a number of case studies, including one on the five reactors that celebrated 50 years of operation in 2019.

Providing facts and data on nuclear

We provide key facts and data in easy-to-read, accessible publications.

Talking Points – a collection of high-level messages on nuclear energy backed up by supporting facts – was updated in 2019 and now includes several new topics. It is an essential communication tool for use by the nuclear industry to support its media and public communication activities as well as for internal communication.

The Pocket Guide combines useful facts on four key topics – *Nuclear Power, Energy and the Environment; Radiation; Nuclear Power Reactor Characteristics; and Uranium, Mine to Mill* – in one handy pocket-sized document.

The Harmony toolkit, which includes the Harmony brochure, helps to explain and present the Harmony goal and objectives, and provides guidance on how to engage with colleagues about Harmony, and to start a discussion on actions to support the future of nuclear energy.

Reporting on nuclear power

WNN places comprehensive coverage of the nuclear power sector in context using background information, expert commentary and links to relevant authoritative sources. WNN provides free and accurate news on a daily basis, and can be easily accessed through its website, daily and weekly emails, and on its social media channels.

“WNN provides a balanced global view.”

“WNN is concise and factual. I rely on that to stay up-to-date on nuclear topics.”

WNN survey 2019

Reaching international media

In 2019 we issued 17 press releases, held a press conference at AtomExpo and participated in several media interviews. As a result, the Association gained impressive global coverage including in New Europe, Global Times, The Washington Post, Bloomberg and Reuters.

WORLD NUCLEAR ASSOCIATION

4.6 M Visitors to Association website **+65%**

7 M Views of Information Library **+52%**

27 K Twitter followers **+22%**

18 K Facebook followers **+8%**

14 K LinkedIn followers **+57%**

wnn world nuclear news

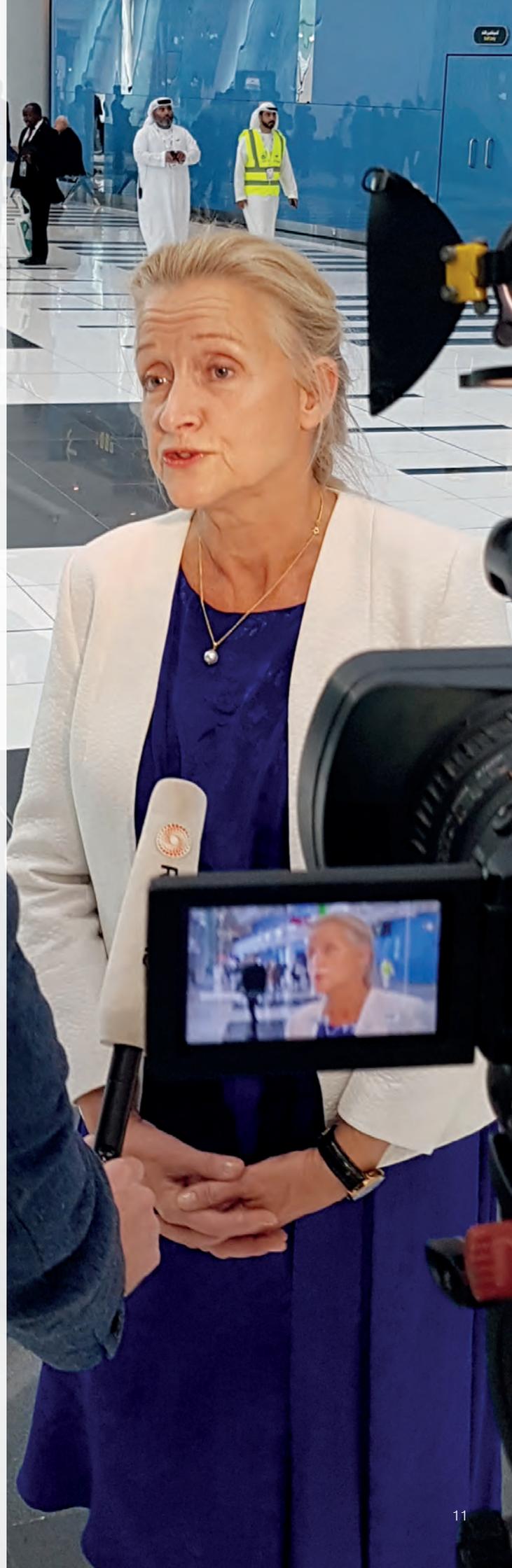
1.1 M Visitors to WNN website **+32%**

36 K Twitter followers **+11%**

145 K Facebook followers **+1%**

12 K LinkedIn followers **+520%**

(Percentage change compared to 2018)



Unique Business and Networking Opportunities

World Nuclear Association runs events which provide a global forum and commercial meeting place for industry members and the opportunity to connect with other professionals.

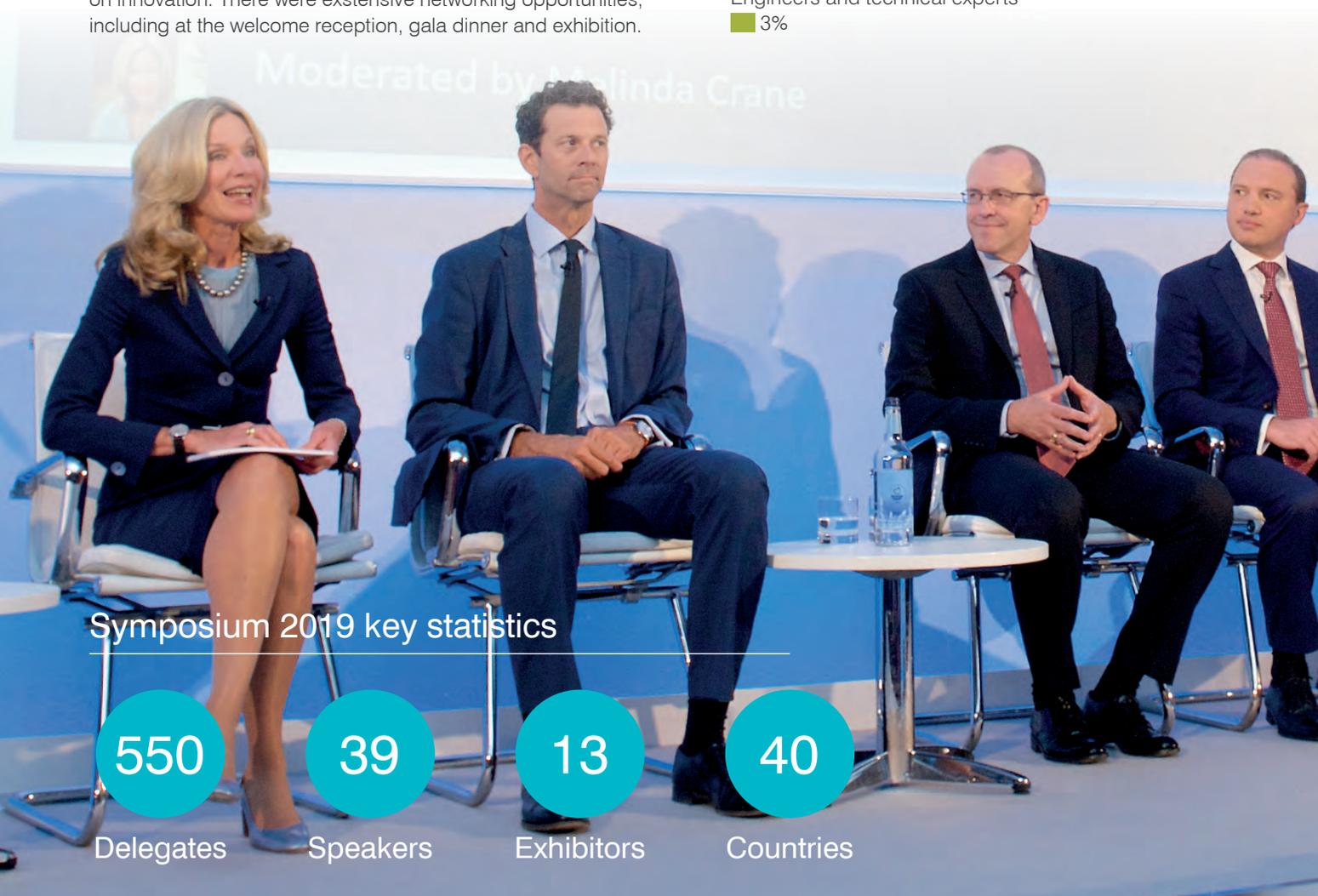
In 2019 we organized World Nuclear Association Symposium, World Nuclear Fuel Cycle conference, Working Group meetings, as well as World Nuclear Spotlight Brazil.

World Nuclear Association Symposium

The leading annual event for the nuclear community takes place every September in London, UK. Organized in conjunction with the Association's Working Group meetings, it attracts leaders and experts of the industry from around the world.

In 2019, 550 delegates from 40 countries, including regulators, governments and academia, united to shape the future of nuclear. The programme included presentations from leading experts and top leaders from around the world, and an exciting high-level panel on innovation. There were extensive networking opportunities, including at the welcome reception, gala dinner and exhibition.

Delegate positions at Symposium



Symposium 2019 key statistics

550

Delegates

39

Speakers

13

Exhibitors

40

Countries

World Nuclear Fuel Cycle

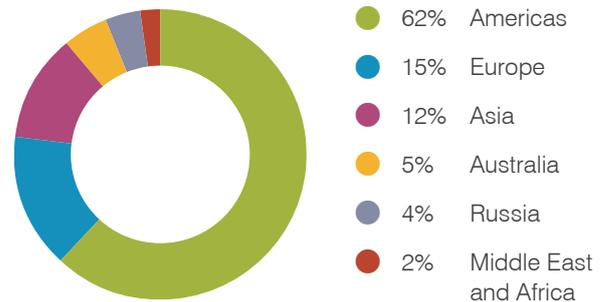
The World Nuclear Fuel Cycle (WNFC) conference, run annually in collaboration with the Nuclear Energy Institute, provides an international forum to discuss issues affecting the nuclear fuel cycle, with leading industry experts providing insights to help participants navigate the complex fuel marketplace. The conference takes place in a different location each year, enabling people from all continents to attend. WNFC 2019 was held in April in Miami, USA, and participants had the opportunity to visit the St. Lucie nuclear power plant.

Working Group meetings

The Association provides many opportunities for its members to interact and collaborate. The meetings are often combined with social events to maximize opportunities for business networking and are held throughout the year, typically in January, April (alongside the WNFC conference), and September (alongside the Symposium).

In October the Working Group on Cooperation in Reactor Design Evaluation and Licensing (CORDEL) held a technical workshop on *Current Status and Difficulties of I&C Modernization*, organized in cooperation with the International Atomic Energy Agency (IAEA). The workshop attracted 35 participants from 27 organizations (utilities, I&C suppliers, regulators) and 15 countries.

WNFC 2019 participation by region



World Nuclear Spotlight

The Association works with existing and emerging nuclear countries to demonstrate the international industry's support for their nuclear power programmes through World Nuclear Spotlight events. The events bring together industry representatives, government officials and decision-makers to discuss the global nuclear landscape, specific requirements for nuclear development in the host country and opportunities to drive forward its nuclear power plans.

Spotlight Brazil, April 2019

- Organized in collaboration with ABDAN (Brazilian Association for the Development of Nuclear Activities), by invitation of the Brazilian Ministry of Energy.
- 150 international industry representatives, Brazilian government officials and decision-makers.
- High-level meeting with 24 key representatives from the nuclear industry and the Brazilian government.
- Extensive media coverage.

“The Brazilian government is committed, body and soul, to carry out the necessary reforms that will show our capacities and enable the country to start a new sustainable chapter.”

Bento Albuquerque,
Minister for Mines and Energy,
speaking at the Spotlight Brazil high-level meeting



Industry Collaboration

Working Groups are forums for sharing leading practice, conducting analysis, and developing consolidated positions on important industry issues. They are open to World Nuclear Association members and invited observers.

Several Working Groups act as the interface for the industry at policy-setting organizations, such as the International Atomic Energy Agency (IAEA). Each group is chaired by an expert from a member company, and has a mentor assigned to it from the Board. Technical and administrative support is provided by the Secretariat.

Working Groups

Fuel Cycle	<ul style="list-style-type: none"> • Fuel Report • Sustainable Used Fuel Management • Transport • International Network for Safety Assurance of Fuel Cycle Industries
Plant Performance	<ul style="list-style-type: none"> • Cooperation in Reactor Design Evaluation & Licensing • Supply Chain • Capacity Optimization • Waste Management & Decommissioning
Cross-Cutting	<ul style="list-style-type: none"> • Radiological Protection • Law • Economics • Security

Whilst each Working Group agrees its own areas of focus, the groups are generally working towards:

- Determining market trends in their sector.
- Encouraging efforts to harmonize regulatory approaches at an international level.
- Ensuring that regulations are fit for purpose and do not have an adverse impact on operations.
- Maintaining a dynamic industry.

Working Groups meet in person two to three times a year with regular web or teleconferences to implement decisions and monitor progress. The proceedings and presentations are made available on the members website.

Advisory Groups

- Advisory Panel
- Communication Group
- Innovation Panel

Other Fora

- Fuel Cycle Members' Forum

September 2019
Working Groups
attendance

118

Organizations

300

Participants

29

Countries

2019 Working Group publications

The Nuclear Fuel Report: Global Scenarios for Demand and Supply Availability 2019-2040

Making Use of the Reference Plant Concept for Licensing New Nuclear Units

Safety Classification for I&C Systems in Nuclear Power Plants: Comparison of Definitions of Key Concepts – Revision

Countering Counterfeit, Fraudulent and Suspect Items in the Nuclear Supply Chain

Adapting Export Controls on Nuclear Technology and Information Transfer to the Challenges of Cyberspace

Non-Linear Analysis Design Rules Part 2a - Specification of Benchmarks on Nozzles under Pressure, Thermal and Piping Loads

CORDEL Strategic Plan 2019 - 2023

Methodology to Manage Material and Waste from Nuclear Decommissioning

Stakeholders

Industry

- World Association of Nuclear Operators (WANO)
- World Energy Council
- World Nuclear Transport Institute (WNTI)
- European Nuclear Installations Safety Standards Initiative (ENISS)
- Foratom
- European Utility Requirements for LWR Power Plants (EUR)

Standards developing organizations (SDOs)

- SDO Convergence Board
- Nuclear Quality Standards Association (NQA)
- Institute of Electrical and Electronics Engineers (IEEE)
- International Electrotechnical Commission (IEC)

Governments and regulators

- International Atomic Energy Agency
 - Safety Standards Committees (NUSSC, RASSC, TRANSSC)
 - SMR Regulators' Forum
- OECD Nuclear Energy Agency (NEA)
 - Committee on Nuclear Regulatory Activities (CNRA)
- International Energy Agency (IEA)
- Multinational Design Evaluation Programme (MDEP)
- Nuclear Suppliers Group
- OSPAR Commission

Other multilateral forums

- International Commission on Radiological Protection (ICRP)
- International Nuclear Law Association (INLA)
- International Radiation Protection Association (IRPA)
- Electric Power Research Institute (EPRI)



Fuel Cycle Working Groups



Transport

Chair: Kurtis Hinz (TAM International)
Deputy Chair: Tony Grange (Westinghouse)
Staff Director: Serge Gorlin

- Discusses issues and trends relating to the shipment of front-end nuclear material.
- Confers with the insurance community to improve options for nuclear transport.
- Develops communication materials explaining how and why we transport radioactive material.
- Gathers information from members regarding experience with carriers and ports.
- Discusses policies with intergovernmental agencies that could support more diverse shipping options.

International Network for Safety Assurance of Fuel Cycle Industries (INSAF)

Chair: TBC
Staff Director: Stephen Tarlton

- Offers a forum for exchange of information on nuclear fuel cycle facility safety.
- Discusses safety regulation, design, control, training, and accident/event information at fuel cycle facilities.
- Gives assurance to key stakeholders.
- Provides input to the development of global nuclear safety standards.



Sustainable Used Fuel Management

Chair: Mikhail Baryshnikov (TENEX)
Deputy Chair: Cecile Evans (Orano)
Staff Director: TBC

- Shapes industry positions with a view to engaging in the international debate on sustainable management strategies for the back end of the fuel cycle.
- Acts as a forum for experts to share good practices and major developments in used fuel management.

Member Perspective

Gabi Schneider

Executive Director,
 Namibian Uranium Institute (NUI).
Working Groups: Fuel Report;
 Radiological Protection; Transport;
 Waste Management & Decommissioning



As Executive Director of NUI, I am responsible for national and international stakeholder relations, for the work of the Institute's Sustainable Development Committee, and for the training that NUI provides in the fields of radiation safety, health, and environmental management. Participation in Working Groups offers a number of benefits, providing a platform to interact with international experts and keeping up-to-date with the latest developments in the nuclear sector. At the same time it also gives an opportunity to communicate what is happening in the Namibian uranium sector. Partaking in the Working Groups is very rewarding, allowing our institute to gain knowledge, and putting it on the international map.



Fuel Report

Chairs: James Nevling (Exelon) and Alexander Boytsov (TENEX)
Staff Director: Olga Skorlyakova

- Oversees production of the Association's biennial *Nuclear Fuel Report*.
- Develops scenarios for future nuclear capacity out to a 20-year horizon.
- Discusses classification of existing mines, projects under development, and anticipated uranium supply versus demand.
- Examines key factors affecting supply and demand in the conversion, enrichment and fuel fabrication markets.
- Analyzes the contribution of secondary supply to the global nuclear fuel cycle.

Sub-groups: Demand, Uranium, Conversion, Enrichment, Secondary Supply, Fabrication.



Plant Performance Working Groups



CORDEL: Cooperation in Reactor Design Evaluation and Licensing

Chair: Zhou Fang (SNERDI)
Deputy Chairs: Hae Ryong Hwang (KEPCO E&C), Donald Hoffman (Excel Services), Franck Lignini (Framatome)
Staff Directors: Byung-Chan Na, Alexiei Ozeretzkovsky, Mohammed Rababah

- Promotes cooperation with major national and international actors in standardization and harmonization.
- Enables innovation for existing nuclear power plants, new build including SMRs, and advanced reactors.
- Identifies key technical issues in nuclear mechanical codes and standards such as non-linear analysis methods and fatigue life analysis methods for convergence.
- Supports members in the development of new methodologies such as system-based design codes.
- Reviews and compares safety requirements interpretation and implementation in reactor designs in different countries for optimizing licensing processes.
- Analyzes the current state of play and challenges on central topics related to instrumentation and control such as safety classification, defence in depth and diversity, and cybersecurity.
- Provides a voice for the industry in the revision of existing IAEA nuclear safety standards and the creation of new standards.
- Organizes events responding to members' needs involving all the related stakeholders internationally.

Task Forces: IAEA Nuclear Safety Standards, Mechanical Codes and Standards, Design Change Management, Small Modular Reactors, Licensing and Permitting, Digital Instrumentation & Control



Supply Chain

Chair: Laurent-Olivier Coudeyre (EDF)
Staff Director: Greg Kaser

- Monitors and identifies trends in the market for nuclear components and services.
- Communicates with international stakeholders on industrial developments.
- Encourages the development of supportive mechanisms for product quality assurance and continual performance improvement.
- Supports timely, consistent and efficient nuclear power plant construction.
- Promotes the harmonization and streamlining of export controls on nuclear technology, goods and services.

Member Perspective

Johannes Pickelmann

Head of I&C Design Authority,
 Framatome GmbH.

Working Group: CORDEL.



As Head of the I&C Design Authority, I support the Framatome business by fostering standardization, and by evaluating and managing the development of innovative solutions and technologies. Alongside my active contributions to the IAEA and the International Electrotechnical Commission (IEC), I chair the CORDEL Digital Instrumentation & Control Task Force. With CORDEL representing the industry, I am fully convinced that we are making significant contributions to international standardization work. Based on our successes in the past years and the continuously improving relationships with the OECD Nuclear Energy Agency working groups, the IAEA and the IEC, the industry's views on safety-related I&C are well-perceived and accepted.



Long-Term Operation Task Force (part of the Capacity Optimization Working Group)

Co-Chairs: Mike Baron (Global Nuclear Associates) and Abderrahim Al Mazouzi (EDF)

Staff Director: Mohammed Rababah

- Demonstrates that long-term operation of nuclear facilities is proven and viable.
- Identifies and advocates policies that can help facilitate the long-term operation of nuclear facilities.
- Provides a forum for experts representing different industry areas, including utilities and suppliers, to exchange leading practice and new developments in relation to long-term operation.
- Acts as a catalyst to improved safety, efficiency and innovation in long-term operation.



Waste Management & Decommissioning

Chair: Mike Pieraccini (EDF)

Staff Director: TBC

- Establishes consensus regarding a more effective system of nuclear waste management and decommissioning.
- Promotes efficiency through the appropriate re-use and recycling of material, and the long-term disposal of radioactive waste from nuclear sites.
- Raises awareness through the publication of reports and papers.

Member Perspective

Chi Sing Lee

First Deputy General Manager, Daya Bay Nuclear Power Operations and Management Co

Working Groups: Long-Term Operation Task Force; Fuel Report; Economics.



Apart from the safe operation and maintenance of six 1 GWe PWR units, I am in charge of the corporate governance, internal control and audit as well as external cooperation of my company. I have been active within several Working Groups since 2015 as I believe knowledge and experience should be shared within the industry to support deployment of nuclear power – part of the solution to the climate and environmental challenges we face. As Daya Bay nuclear plant is at the early stage of exploring long-term operation (LTO), my participation in the LTO Task Force allows my company to interact with other organizations that have LTO plans and experience. Attending also provides me with the opportunity to join in other Working Group meetings, all in a single journey.



Cross-Cutting Working Groups



Radiological Protection

Chair: Marcel Lips

(Kernkraftwerk Gösgen-Däniken)

Deputy Chairs: Josip Zic (McMasters University) and James Owen (BHP)

Staff Director: Koji Kakehashi

- Participates in IAEA radiological protection-related committees and guidance document processes.
- Provides feedback on the International Commission on Radiological Protection's reports.
- Develops positions on areas such as regulation of low-dose radiation.



Economics

Chair: Milton Caplan (MZ Consulting)

Deputy Chair: Irina Skvortsova (Rosatom)

Staff Director: Philippe Costes

- Develops a better understanding of the capital costs of nuclear plants.
- Analyzes system/grid costs associated with electricity generation.
- Discusses conditions for fair competition among low-carbon electricity generation.
- Reviews changes that will have an impact on electricity markets, such as costs of storage, load-following and demand-side management.
- Identifies socio-economic benefits of nuclear development.
- Analyses the full life-cycle of low-carbon energy sources.



Advisory Groups



Advisory Panel

Chair: Tim Gitzel (Cameco)
Deputy Chair: Clark Beyer (Global Fuel Solutions)
Staff Director: Virginie Ryan-Taix

The Advisory Panel seeks to identify challenges facing the global nuclear industry, opportunities to advance its position in policy arenas, and ways to improve public acceptance of nuclear energy. It provides recommendations on how the Association should position itself in addressing these challenges.



Communication Group

Chair: Jayne Hallett (Urenco)
Deputy Chair: Adrian Bull (National Nuclear Laboratory)
Staff Director: Vaishali Patel

The Communication Group shares new ideas and best practice for communication activities that help disseminate key messages to the wider industry and beyond. The group also provides support for specific projects identified as priorities for the Association. Its members are communication experts from member companies and invited representatives from other nuclear energy associations.



Law

Chair: Chris White (Urenco)
Deputy Chair: Elina Teplinsky (Pillsbury)
Staff Director: Philippe Costes

- Analyzes developments in global nuclear liability and insurance.
- Examines challenges faced by nuclear new build.
- Reviews the impacts of nuclear cooperation agreements.
- Brings emerging legal issues to the broader Association membership's attention.



Security

Chair: Roger Howsley (World Institute for Nuclear Security)
Deputy Chairs: Taisiya Afanasyeva (Rosatom) and Robert Rodger (National Nuclear Laboratory)
Staff Director: Greg Kaser

- Coordinates industry views on emerging issues related to nuclear security.
- Fosters confidence in the security of nuclear facilities and of materials under industry control.
- Communicates with international stakeholders on industrial developments.
- Shares and brings to the broader Association membership's attention expertise and leading practice for management of physical protection, cybersecurity, personnel reliability and security culture.



Innovation Panel

Chair: Christopher Eckerberg (Vattenfall)
Staff Director: David Hess

With increasing international effort and collaboration on nuclear innovation, the Innovation Panel has been set up to monitor innovation and promote its importance across all the Association's activities. The panel will engage with international innovation initiatives, support the Association in communicating innovations and breakthroughs on nuclear energy, ensure that innovation is considered in the annual work programme of all Working Groups, provide a forum for sharing leading practice on managing innovation, and for analyzing innovation successes and failures.

Other Fora



Fuel Cycle Members' Forum

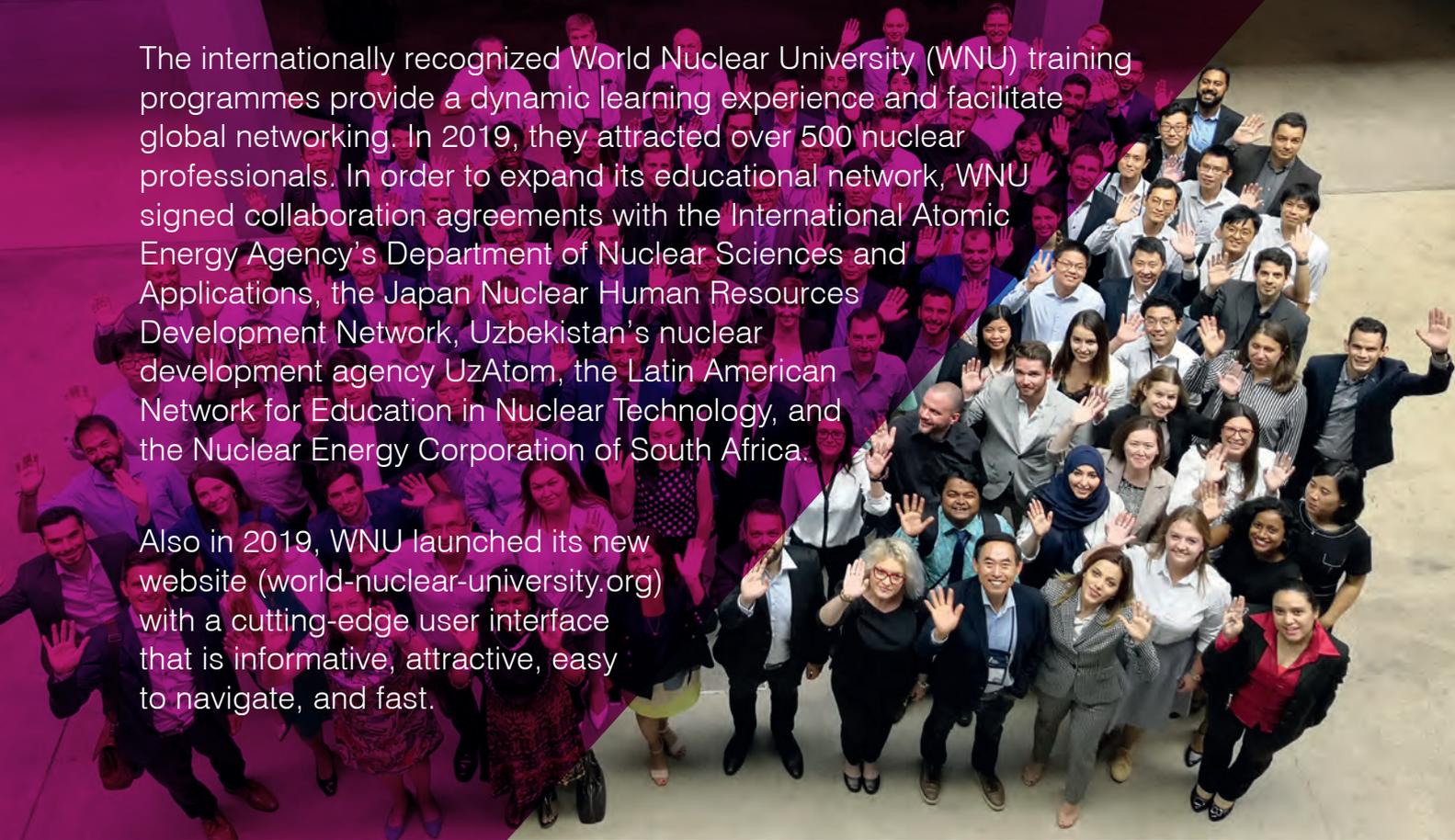
Chair: Anna Bryndza (UxC)
Staff Director: Koji Kakehashi

The Fuel Cycle Members' Forum focuses on developments in nuclear fuel and trade, typically attracting 80-90 people to its meetings. Sessions consist of formal presentations and panel discussions as well as reports from Working Groups of the association. An advisory panel to FCMF, as well as regular surveys of participants, helps set the Agenda of FCMF meetings.

Building Competencies for Innovation

The internationally recognized World Nuclear University (WNU) training programmes provide a dynamic learning experience and facilitate global networking. In 2019, they attracted over 500 nuclear professionals. In order to expand its educational network, WNU signed collaboration agreements with the International Atomic Energy Agency's Department of Nuclear Sciences and Applications, the Japan Nuclear Human Resources Development Network, Uzbekistan's nuclear development agency UzAtom, the Latin American Network for Education in Nuclear Technology, and the Nuclear Energy Corporation of South Africa.

Also in 2019, WNU launched its new website (world-nuclear-university.org) with a cutting-edge user interface that is informative, attractive, easy to navigate, and fast.



WNU Nuclear Olympiad

The Nuclear Olympiad is an international challenge for undergraduate and graduate students on effective public communication of nuclear science and technology. The challenge includes three rounds: making and promoting a video on nuclear technologies; taking part in an interview; and writing a report on their public opinion surveys regarding nuclear technologies. There were an impressive 5,389 total votes cast for the videos in the first round. At the final in November, at the International Atomic Energy Agency (IAEA) headquarters in Vienna, Austria, four finalists presented their reports. The winners were Vitor Fernandes de Almeida and his team from Brazil.



New book on radiation technology

WNU has published *Advanced Radiation Technology* – a broad reference text for professionals, governments and regulatory authorities, as well as interested individuals.



WNU Executive Enhancement Course

The Executive Enhancement Course is a tailored programme that provides board members and senior executives with a greater understanding of the global nuclear energy sector. It aims to strengthen their leadership and influencing skills. In 2019, a dedicated application process was launched, and is available through the WNU website. Several individual and group coaching courses are planned for 2020.

WNU Summer Institute

Organizations around the world rely on the Summer Institute to provide leadership training for their career development programmes. 2019 was the 15th successful year of enhancing nuclear education for future leaders and professionals, welcoming 82 Fellows from 39 countries.

The 2019 Summer Institute took place in Bucharest, Romania and Baden, Switzerland from 23 June to 27 July. The programme develops a broad understanding of nuclear topics and essential skills for effective leadership. Lectures are delivered by industry leaders and experts. Key invited leaders in 2019 included representatives from partner organizations including Mary Alice Hayward, IAEA; William Magwood, OECD Nuclear Energy Agency; and Peter Prozesky, World Association of Nuclear Operators.

An initiative derived from the Summer Institute is the Network for Nuclear Innovation (NNI). Fellows discuss current nuclear industry challenges and produce an original piece of work. The eight NNI projects in 2019 included: using hydrogen to achieve decarbonization; diagnosing organizational health and culture; small modular reactors market analysis; human resource development; and innovative methods for communication. The NNI articles are available on the WNU website.

WNU School on Radiation Technologies

The School on Radiation Technologies (RT School) is a two-week intensive leadership and communication development programme for professionals in the radiation technologies field, including radioisotope production. In October, the RT School was held in Obninsk, Russia, featuring expert-led workshops and lectures, technical tours, and industry leader presentations. It concluded with a module on Network for Innovation in Nuclear Applications (NINA) where Fellows worked in teams to investigate important issues in radiation technology. The 2019 projects were about security of supply for Ac-225 for targeted alpha therapy; a smart business plan for a food irradiation facility; and prostate cancer theranostics. These are available on the WNU website.



76%

of Alumni said they were promoted in their careers as a direct result of participating in the Summer Institute.

Summer Institute Alumni (2005-2018) survey conducted in 2019

World Nuclear Industry Today Course

Each year, WNU offers national courses designed for education and research centres, nuclear industry, supply chain companies, and regulatory authorities. Taught by international experts, each course is adapted to the phase of nuclear development of the host country with the objective of offering practical knowledge, a global perspective of the industry today, and an exciting vision of the future. In 2019, courses were held in: Istanbul, Turkey; Rio de Janeiro, Brazil; and Nanchang, China.

WNU events in 2020

17-20 May

Extended Leadership Development for Summer Institute Alumni, Russia

3-6 June

The World Nuclear Industry Today, Brazil

13-15 July

The World Nuclear Industry Today, China

15 June to 20 July

Summer Institute, Japan

28 September to 1 October

The World Nuclear Industry Today, Kazakhstan

Governance and Organization

The Director General is responsible for the running of the Association and is ultimately accountable to the Board of Management. The Board holds final approval on proposals made by the Director General, including strategic and budgetary decisions.

The Board of Management

The Board comprises senior executives from member companies who meet twice a year and serve for two years. The Chairman of the Board is also appointed for a two-year term, after serving as Vice-Chairman in the preceding year.

The Board fulfils all statutory duties pertaining to the Association's governance, and sets policies and strategic objectives acting on proposals from the Director General.

To ensure balance among the elected members of the Board, each of the three categories of institutional membership – suppliers, generators and general – must be represented by at least two members.

Board members act as mentors for the various members groups. This enables the Board to monitor the activities of the groups and to shape their overall agenda.

In 2019, the Board met on 4 April in Rio de Janeiro and 4 September in London.

There are also two Board sub-committees, whose members serve two-year terms and report directly to the Chairman of the Board:

- The Governance and Nominations sub-committee oversees appointments to the Board and handles Director General and senior staff succession planning.
- The Audit and Finance sub-committee carries out regular reviews of the financial health of the Association, and holds in-depth dialogue with the auditor during the preparation of the annual accounts.

Board members

Chairman



Kirill Komarov
First Deputy Director
General, Rosatom

Vice-Chairman



Philippe Knoche
CEO,
Orano



George Borovas
Partner,
Shearman & Sterling



Elmer Dyke
Chief Commercial Officer
and Senior Vice President,
Centrus Energy Corp.



Hiroshi Sutani
General Manager,
Nuclear Fuel Contracts
Group, Kansai Electric
Power Co.



**Johan
Svenningsson**
Country Chairman,
Uniper, Sweden

Audit

In March 2019, an independent review of the 2018 Annual Report and Accounts was carried out by BDO LLP (formerly Moore Stephens LLP).

BDO concluded that the 2018 Annual Report and Accounts give a true and fair view of the state of the Association's affairs as at 31 December 2018 in accordance with UK Generally Accepted Accounting Practice (GAAP) and they were subsequently approved and signed off by the Chairman and Board of Management on 4 April 2019.

The 2018 Annual Report and Accounts were presented at the annual general meeting (AGM) held in London on 4 September 2019.

Membership meetings

There are two annual meetings where members are updated on the operations of the Association and have the opportunity to ask the Chairman and Director General questions. At the AGM, the accounts are presented for approval and any fee changes or alterations to the fee structure are put to a vote. Immediately after the AGM, the Members Council takes place, during which significant developments in the Association are presented to the member company representatives in attendance.

As of January 2020



Tim Gitzel
President and CEO,
Cameco Corp.



Leonam dos Santos Guimarães
President, Eletronuclear



Mingang Huang
Chief Economic Officer,
CNNC



Sang-don Kim
Executive Vice
President, KHNP



Michael Pacilio
Executive Vice
President and COO,
Exelon Generation



Songtao Pang
Senior Vice President,
CGN



Emmanuelle Verger
Head of the Fuel
Department,
EDF



Jay Wileman
President and CEO,
GE Hitachi Nuclear
Energy



Masahiro Yamamoto
Executive Director,
Mitsubishi Corporation



Liudmila Zalimskaya
Chairman of the Board
of Directors, TENEX



Mingguang Zheng
Senior Vice President,
SNPTC



Bohdan Zronek
Chief Nuclear Officer,
ČEZ

Honorary



Hans Blix
Director-General
Emeritus, International
Atomic Energy Agency



Gerald Grandey
Former CEO, Cameco
Chairman Emeritus



Ingemar Engkvist
CEO,
World Association of
Nuclear Operators

The Secretariat

World Nuclear Association is made up of an international Secretariat of 36 people, covering a broad range of expertise and experience, who are responsible for coordinating the work that the Association does on behalf of its members. Most of the Secretariat work from the offices in London, with representatives also based in India, China and Australia.

The Secretariat is led by Director General Agneta Rising. It is composed of four departments – Industry Cooperation; Communication; Finance and Administration; and World Nuclear University – and one project team for the Harmony programme.



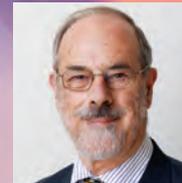
Agneta Rising
Director General



François Morin
Director, China



Shah Nawaz Ahmad
Senior Advisor, India,
Middle East and
South-East Asia



Ian Hore-Lacy
Senior Advisor, Australia



Philippe Costes
Senior Advisor

Harmony programme



King Lee
Director,
Harmony Programme



David Hess
Policy Analyst

World Nuclear University



Patricia Wieland
Head of World Nuclear
University



Sarah Cullen
Training Manager

Communication



Virginie Ryan-Taix
Head of
Communication



Jonathan Cobb
Senior Communication
Manager



Jennifer Corander
Events Manager



Louise Isted
Editor,
World Nuclear News



John Lindberg
Writer & Analyst



Claire Maden
Writer & Analyst



Brigita Mammetti
Visual Communication
Manager



Alec Mitchell
Senior Writer & Analyst



Vaishali Patel
Marketing &
Communication Manager



Richard Petrie
Graphic Designer



Warwick Pipe
Deputy Editor,
World Nuclear News



Stephen Tarlton
Writer & Analyst

Industry Cooperation



Serge Gorlin
Head of
Industry Cooperation



Koji Kakehashi
Visiting Research Officer



Greg Kaser
Senior Project Manager



Ki Hwan Kim
Visiting Research Officer



Rico Li
Visiting Research Officer



Byung-Chan Na
Director, CORDEL



Alexiï
Ozeretzkovsky
Project Manager, CORDEL



Mohammad
Rababah
Project Manager, CORDEL



Olga Skorlyakova
Senior Project Manager

Finance and Administration



Paul Kidman
Head of Finance and
Administration



Binita Shah
Accounts Assistant



Gabrielle Flannery
Office & Member
Relations Manager



Vivien Lotasz
Executive Assistant to
the Director General



Brian Musaindapo
IT Manager



Ana Rodriguez
Administration Assistant

World Nuclear Association Members

As of January 2020

ABDAN	Deep Yellow Limited	Hokkaido Electric Power Co Inc.
Agencia Boliviana de Energia Nuclear (ABEN)	Denison Mines Corporation	Hokuriku Electric Power Company
ALARA Logistics	Deugro France sarl	HZC International
Alpiq AG	DIAMO	Iberdrola Generacion S.A.
ARAO-Agency for Radwaste Management	DMS s.r.o.	IBRAE
ARMZ Uranium Holding Co. (JSC Atomredmetzoloto)	Doosan Heavy Industries & Construction	Idaho National Laboratory (INL)
Association for Regional and International Underground Storage (ARIUS)	Dynamic Vision	Idemitsu Kosan Co. Ltd
Australian Nuclear Science and Technology Organisation (ANSTO)	EDF	Imperial College London
Bannerman Resources Limited	Edlow International Company	Industrias Nucleares do Brasil S.A.
BATAN The National Nuclear Energy Agency, Indonesia	Electric Power Development Co Ltd (J-POWER)	Intelligent Systems
BHP Billiton Olympic Dam	Electronics Corporation of India Limited	International Nuclear Services
Boss Resources Ltd.	Eletronuclear	Israel Atomic Energy Commission
Bureau Veritas UK Limited	Emirates Nuclear Energy Corporation	ITOCHU Corporation
Burges Salmon LLP	Energoatom	Japan Atomic Power Company, The
Cameco Corporation	Energy Fuels Inc.	Japan Nuclear Fuel Limited
Canadian Nuclear Laboratories	ENGIE	Japan NUS Co. Ltd
Casonet International BV	ENUSA Industrias Avanzadas S.A.	Japan Steel Works Ltd, The
Central Research Institute of Electric Power Industry (CRIEPI)	EPZ	Jiangsu Shengtong Valve Co. Ltd
Centrus Energy Corp.	Eskom Holdings Limited	Jordan Atomic Energy Commission (JAEC)
CEZ, a. s.	Euratom Supply Agency	JSC Atomenergomash
CGNPC Uranium Resources Co Ltd	European Mutual Association for Nuclear Insurance	JSC Atomstroyexport
China National Nuclear Corporation	EXCEL Services Corporation	JSC Rusatom Energy International
Chubu Electric Power Co Inc.	Exelon Generation Company LLC	JSC Rusatom Service
Chugoku Electric Power Co Inc.	Experconnect	Kansai Electric Power Co Inc.
Cimtas Pipe	Fennovoima	KAZATOMPROM
CLP Power Hong Kong Limited	FinNuclear Association	KEPCO E&C
Commonwealth Independent States Navigation Inc.	Fluor-BWXT Portsmouth LLC	KEPCO Nuclear Fuel Co. Ltd.
Context Information Security Ltd.	Framatome	Kernkraftwerk Gösgen-Däniken AG
CONUAR S.A.	Freshfields Bruckhaus Deringer LLP	King's College London (Project Alpha)
ConverDyn	Fuelco LLC	Korea Atomic Energy Research Institute
Curzon Uranium Trading Ltd.	GE Hitachi Nuclear Energy	Korea Electric Power Corporation
Daher Nuclear Technologies GmbH	GEODIS Wilson - STSI	Korea Hydro & Nuclear Power Co., Ltd
Daya Bay Nuclear Power Operations and Management Co. Ltd	Global Fuel Solutions	Kyushu Electric Power Co. Inc.
Deep Geo Repository Inc.	Global Nuclear Associates	Laramide Resources Ltd.
	Goviex Uranium Inc.	Lesedi Nuclear Services (PTY) Ltd
	Gowling WLG LLP	Lightbridge Corporation
	Greenland Minerals and Energy Ltd	Lloyd's Register
	Heathgate Resources Pty Ltd	Marubeni Corporation
	Hitachi-GE Nuclear Energy Ltd.	McMaster University

Mitsubishi Corporation	Rosca Solutions
Mitsubishi Heavy Industries Ltd	Rosenergoatom Concern
Mitsui & Co Ltd	RSB LOGISTIC Projektspedition GmbH
Moltex Energy	Segra Capital Managment, LLC
MOSAYK srl	Shearman & Sterling LLP
MVM Hungarian Electricity Private Limited Company	Shikoku Electric Power Co Inc.
MZ Consulting Inc.	Silex Systems Limited
NAC International	Sojitz Corporation
Namibian Uranium Association	South African Nuclear Energy Corporation (Necsa)
National Nuclear Laboratory	State Company "Navoi Mining and Metallurgical Combinat"
New York Nuclear Corporation	State Nuclear Power Technology Corporation (SNPTC)
NexGen Energy Ltd	Sumitomo Corporation
NKENT Consulting	Taiwan Power Company
North West University	TAM International Inc.
Nuclear Electric Insurance Limited	Techsnabexport (TENEX)
Nuclear Fuels Corporation	Teollisuuden Voima Oyj (TVO)
Nuclear Power and Energy Agency	Terrestrial Energy Inc.
Nuclear Power Plant Company Bangladesh Limited	The University of Manchester's Dalton Nuclear Institute
Nuclear Risk Insurers Limited	Thomas Thor Associates
Nuclear-21	Tohoku Electric Power Co Inc.
NUKEM Technologies Engineering Services GmbH	Tokyo Electric Power Company Holdings Inc (TEPCO)
Numerco	TradeTech
NuScale Power, LLC	Turner Harris Consulting Ltd
OKG Aktiebolag	TVEL Corporation
Ontario Power Generation	UK Atomic Energy Authority
Orano	Uniper
Orascom Construction	Uranium Corporation of India Ltd (UCIL)
PAKS II Nuclear Power Plant Private Company Limited by Shares	Uranium One Inc.
PGE EJ 1 Sp z o.o.	Urenco Limited
Pillsbury Winthrop Shaw Pittman LLP	UxC, LLC
Pinsent Masons LLP	Vattenfall AB
Plateau Uranium Inc.	Vimy Resources Limited
PricewaterhouseCoopers LLP	Westinghouse Electric Company
Rio Tinto Uranium	Wood Nuclear Limited
Risk Engineering Ltd	World Institute for Nuclear Security (WINS)
Rockett Science Inc.	
Rolls-Royce Plc	
ROSATOM State Atomic Energy Corporation	

New members in 2019

Agencia Boliviana De Energia Nuclear (ABEN)

Denison Mines

Deugro France sarl

Diamo

Dynamic Vision

Global Fuel Solutions

GoviEx Uranium

Idaho National Laboratory (INL)

MVM Hungarian Electricity Private Limited Company

PAKS II Nuclear Power Plant Private Company Limited by Shares

Rosca Solutions

Tokyo Electric Power Company Holdings Inc (TEPCO)

The University of Manchester's Dalton Nuclear Institute



Together we can shape the future of nuclear energy

By becoming a member of World Nuclear Association, you become part of the international network that is shaping the future of nuclear energy. We provide unique opportunities to help your company and the global nuclear industry make a difference.

Main benefits

Network with industry leaders and technical experts from around the world and from across the nuclear value chain.

Raise your company's international profile in a globalizing nuclear market.

Influence decisions on topics of strategic importance to nuclear development.

Support the promotion of nuclear energy and the industry's vision in the international arena.

Develop and share common industry positions and best practices on strategic issues.

Additional benefits

- Be represented at meetings of key international organizations such as the International Energy Agency, International Atomic Energy Agency, OECD Nuclear Energy Agency, United Nations Economic Commission for Europe, World Energy Council.
- Smart and effective contributions to national dialogue through events and collaboration with industry and national associations.
- Immediate access to the latest and most reliable nuclear information, including the Information Library and World Nuclear News.
- Free printed copies of the biennial *Nuclear Fuel Report*, and *The World Nuclear Supply Chain* report.
- Privileged access to industry reports, presentations and contact directories through our private members website.
- Discounted rates for our conferences and for sponsorship and exhibition opportunities.
- Priority access to information on training and courses offered by World Nuclear University.

Membership is open to companies from anywhere in the world, with a stake in the future of nuclear and with business across any part of the nuclear fuel cycle.

If you are interested in joining, please contact: membership@world-nuclear.org or +44 (0)20 7451 1520.

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www.world-nuclear.org
info@world-nuclear.org

