

Four Pillars of Support for a Fast-Globalizing Nuclear Industry



Public Information & News

Nuclear Fuel & Supply Chain

Industry Contacts & Cooperation

Representation in Key International Forums

A satellite image of East Asia, showing a thick, brownish-grey haze covering a large portion of China. The haze is denser in the central and northern parts of the country, obscuring some geographical details. The surrounding seas, including the Yellow Sea and the East China Sea, are visible in shades of blue and green. The Korean Peninsula is visible to the east, and parts of Japan are visible further east. The landmasses of Russia and Mongolia are visible to the north and northwest.

● Beijing

A Cloud Over China – and the World

A thick layer of haze over China symbolizes a global outpouring of polluting emissions that constitute a profound challenge to the world's future.

While air pollution increasingly menaces the health of billions of citizens worldwide, an even wider danger - that vast emissions of greenhouse gases may soon destabilize Earth's climate - is testing humankind's capacity for collective action to protect the common interest.

The imperative is a global clean-energy revolution, which can succeed, says the OECD's International Energy Agency, only with a huge expansion of nuclear power, led by major industrial economies.

The World Nuclear Association's role is to raise public awareness of the environmental necessity of nuclear power, to foster cooperation within the nuclear industry, and to represent the industry in key world forums.

Shanghai ●



World Nuclear Association: Four Pillars of Support for a Fast-Globalizing Nuclear Industry

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Nuclear Counsellor to the CEO
EDF



Jiashu Tian
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CNNC



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Chairman-Emeritus, WNA



Zack Pate
Chairman-Emeritus, WANO
Honorary member



International Support for the World's Premier Clean-Energy Technology

In the 21st Century, humankind must face a challenge unprecedented in history: Can we meet the vast requirements and aspirations of a still-expanding global population without disrupting the very earthly conditions that enabled civilization to evolve?

A broad scientific and political consensus now accepts that environmental destabilization poses a threat so severe as to require urgent action to reduce emissions from energy production everywhere. What remains at issue is whether and how we can accomplish the necessary technological transformation.

In 2001 this challenge gave impetus to the creation of the World Nuclear Association when some sixty enterprises, then members of the Uranium Institute, set out to build WNA on its foundation. Their guiding premise was straight-forward: that a hugely expanded worldwide use of nuclear power will be essential if a global clean-energy revolution is to be achieved.

All of us involved in the WNA project began keenly aware of the controversies that surround nuclear power and of the declining pace of the industry's growth. But we drew confidence and conviction from the industry's steady maturation both technologically and in the evolution of a global nuclear safety culture. Our animating belief was that nuclear power offers attributes of unique and immense value in the crucial struggle to reconcile man and environment.

Our vision has been to build a world-class nuclear organization that would enlighten the public debate while aiding the many enterprises involved in nuclear power to strengthen their collective capability to deliver its benefits on an expansive global scale.

After a decade of work on the WNA project, we believe we have made great strides in developing a broad worldwide membership, fostering cooperation among the industry's enterprises, and representing the case for nuclear energy in world forums that shape public opinion and public policy.

Like the nuclear renaissance and the nuclear industry itself, WNA remains a work in progress. But our aim stays clear. As we strive to support the industry and advance its renaissance, we take immense pride in the nuclear profession we represent.



John Ritch
Director General

Four Pillars of Industry Support



The World Nuclear Association is the international organization that supports the global nuclear industry.

Today the nuclear industry holds a unique place in the world economy, both in its fundamental virtue – the potential to deliver clean energy affordably on a massive global scale – and also in the challenges it faces, which range from the technological sophistication and high capital cost of its plants, through the complexity of its supply chain, to its special associated concerns of weapons proliferation and radiological protection.

Despite these challenges, the past decade has seen nuclear energy's intrinsic merits overcome entrenched resistance and attract a worldwide resurgence of policy interest. But much remains to be done. Fulfilling the potential of the nuclear renaissance will require the nuclear industry to act on the principle that its interests in national contexts can often be best upheld and advanced by action in the international arena. The compelling reason is globalization, which creates an imperative throughout the world nuclear industry to:

- Achieve coherent representation in key international forums that shape the nuclear industry's regulatory and policy environment
- Engage efficiently in nuclear commerce and in identifying best practices from a global industry now representing nearly 15,000 reactor-years of practical experience
- Share information relating to the nuclear fuel market and to efficient development of international supply chains for reactor new-build and ongoing nuclear operations
- Maintain on the internet – for public education and as an industry resource – an authoritative, comprehensive presentation of the facts on nuclear energy worldwide.

The WNA agenda responds to these imperatives of globalization with action in four categories:

- ▶ **Representation in Key International Forums**
- ▶ **Industry Contacts & Cooperation**
- ▶ **Nuclear Fuel & Supply Chain**
- ▶ **Public Information & News**





Some WNA activities directly benefit member companies individually; some constitute shared support for the industry collectively. It bears emphasis that many are so essential that, if not performed by WNA, the industry would surely find it necessary to reinvent them by *ad hoc* means – with less efficiency and greater cost.

“An overarching WNA purpose is to foster interaction among industry leaders to help shape the future of nuclear power.”

Industry endorsement of this agenda is reflected in WNA's expanding member base. Since its inception in 2001 on the foundations of the Uranium Institute, WNA membership has tripled to encompass virtually all world uranium mining, conversion, enrichment and fuel fabrication; leading reactor vendors; major nuclear engineering, construction, and waste management companies; and operators representing nearly 90% of world nuclear generation. Many smaller companies – in nuclear transport, law, insurance, brokerage, industry analysis and finance – have also joined WNA to gain visibility, contacts and a vantage on industry developments.

An overarching WNA purpose is to foster interaction among industry leaders to help shape the future of nuclear power. Led by senior industry executives, the WNA Board sets priorities, budgets and fees. The WNA agenda is implemented by a dedicated London-based secretariat and carried forward by industry Working Groups which meet three times a year.

WNA and WANO: A Complete Mosaic

"In 1989 the nuclear industry created the World Association of Nuclear Operators (WANO) to promote professional excellence and a strong safety culture in every nuclear power plant worldwide. Since 2001 WNA has forged an invaluable complementary role by representing and upholding industry interests on key topics outside WANO's exclusive focus on safety.

"Today, as they work to advance the safe and successful use of nuclear energy around the world, these two organizations deserve the industry's unwavering support. Each is contributing substantially to the future of nuclear power."

*Zack Pate
Chairman-Emeritus, WANO*

1 Representation in Key International Forums

A frontline WNA role is to represent the nuclear industry in world forums that shape the regulatory and policy environment in which the industry operates.

In contrast to industry efforts that were once *ad hoc* and sporadic, systematic representation by WNA now yields improved efficiency and impact in industry engagement with:

- International Atomic Energy Agency
- UN Framework Convention on Climate Change
- International Commission on Radiological Protection
- UN Commission for Sustainable Development
- Nuclear Energy Agency of the Organization for Economic Cooperation and Development
- Convention for the Protection of the Marine Environment of the North-East Atlantic
- International Chamber of Commerce
- World Business Council for Sustainable Development
- International Institute for Strategic Studies, Council on Foreign Relations and other leading institutions of policy analysis.

Key topics on which WNA represents the nuclear industry include:



Climate Change

In the context of ongoing United Nations negotiations on climate change, WNA coordinates industry strategy to build worldwide recognition of nuclear power's unique and hugely expandable clean-energy contribution.



Reactor Design Standardization

To engage with international regulatory bodies, an expert WNA Working Group is preparing far-reaching recommendations to promote reactor design standardization and regulatory harmonization.



Radiation Protection

Backed by industry experts, the WNA secretariat interacts with international standard-setting bodies to challenge unbalanced and unwarranted regulation that hinders the beneficial use of nuclear power.



Event Definition

WNA engages with the IAEA to review basic definitions used in the International Nuclear and Radiological Event Scale (INES) to ensure accuracy in grading and to minimize the potential for public misunderstanding.



Regulation of Mining and Transport

WNA coordinates industry action to surmount localized policy impediments that block or hinder efficiency in the responsible mining of uranium and the safe transport of nuclear fuel.



International Nuclear Trade

Complementing the role of the World Nuclear Transport Institute, WNA works to overcome international barriers to legitimate commerce in civil nuclear equipment and supplies.



Non-Proliferation

A WNA Working Group is providing an evolving industry response to various proposals, including the establishment of an IAEA fuel bank, that would attempt to “internationalize” sensitive aspects of the nuclear fuel cycle.



2 Industry Contacts & Cooperation

A fundamental WNA role is to act as a global forum and commercial meeting place for leaders and specialists representing all aspects of the industry. The pre-eminent event on the nuclear industry's calendar is the **Annual WNA Symposium** in London. Each September the symposium attracts 800 nuclear executives and offers a yearly opportunity for CEOs from major nuclear companies to convene informally. Each April the joint **WNA-NEI World Nuclear Fuel Cycle conference** draws 350-400 experts to venues rotating annually from Europe to Asia to America.

In conjunction with these events, **WNA Working Groups** meet as vehicles for industry cooperation. Some Working Groups coordinate WNA representation in international forums. Others engage to strengthen industry capabilities in:



- **Nuclear law and contracting**
- **Efficient plant operations and capacity optimization**
- **Waste management and decommissioning**
- **Nuclear economics**
- **Assessing and publicly communicating on minor core damage**
- **Demonstrating Corporate Social Responsibility in the handling of uranium from mining to disposal.**

A key example of WNA-fostered cooperation is the new World Nuclear Communicators Network. This limited-access online forum connects public communication specialists working for operators, vendors, and nuclear associations in dozens of countries.

WNCN links these experts so they can efficiently share:

- **Best practice** in communicating on specific nuclear issues and events
- **Timely information** on unfolding nuclear events of international interest or concern.

WNCN was intensely active in conveying updated information to industry communicators as events unfolded at Fukushima. On a daily basis and during



**WORLD
NUCLEAR
COMMUNICATORS
NETWORK**

specific incidents, WNCN will strengthen the nuclear industry's capability to speak to the public with clarity, timely accuracy and credibility.

Modernising Learning, Development and Knowledge Management

Presented by Paul Adler

CEO, KorteQ Limited



As the world's nuclear center of gravity shifts to Asia, WNA has responded with an **Outreach Initiative in China and India**. Our purpose is to foster valuable interaction between the international nuclear industry and nuclear enterprises within those huge emerging markets.

In 2010, WNA partnered with CNEA to inaugurate an annual China International Nuclear Symposium. A similar annual event was launched in India in 2012. These events will be coupled to meetings of the WNA Working Groups. WNA's aim is to maintain a global approach to the WNA agenda while adding focal points of activity in Beijing and Mumbai-Delhi.



3 *Nuclear Fuel & Supply Chain*

A core WNA activity, tracing to the days of the Uranium Institute, is to provide an expert forum on developments in the nuclear fuel market.

Plenary sessions are held three times yearly, and six “interest groups” on **mining, conversion, enrichment, fuel fabrication, secondary supplies, and demand** meet and communicate regularly.

A **biennial WNA Market Report** compiles comprehensive data from companies, national sources and international agencies to support what is globally recognized as the most authoritative analysis of the world nuclear fuel market.





In anticipation of an era of worldwide nuclear new-build, WNA is now devoting increased attention to supporting companies in the task of building the complex supply chains needed to ensure quality while satisfying expected requirements for local content.

A new **WNA Supply Chain Working Group** has begun work to:

- Maintain updated information on planned reactor construction
- Determine the market potential for key components
- Assemble a database of leading companies worldwide
- Identify “pinch points” of supply
- Develop ways to improve product qualification practices
- Initiate a periodic WNA Market Report consolidating supply chain information.



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The **WNA Public Information Service**, available on WNA's heavily used website, functions as the world's base-load supplier of comprehensive and accurate information on nuclear energy.

With an encyclopedic range of some 200 frequently updated papers, this authoritative resource receives a **“hit” every 6-7 seconds around the clock**, and is used both by the public and also the industry itself. No other nuclear website ranks as a close second. In providing this service, WNA fills a cyberspace void that would otherwise be occupied by sources dispensing far less reliable information.



WNA's **World Nuclear News** has become the world's leading nuclear news service. For an internet audience of companies, journalists and policymakers, WNN provides concise daily reporting on nuclear industry developments. The WNN website attracts some 60,000 different users each month, and WNN's email subscription list of 22,000 continues to grow. During events at Fukushima, WNN's timely and objective coverage served as a prominent global resource.

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Activities within the “Four Pillars of Industry Support” constitute the fundamental WNA agenda.

In addition, the platform provided by an organization representing the full diversity of the global nuclear industry offers wide opportunity for innovations to promote investment in the future of nuclear technology and the nuclear profession. These include:



The WNA Index

To stimulate nuclear investment, WNA launched the WNA Index (WNAI), a rule-driven and weighted basket of some 65 publicly traded stocks representing companies focused on nuclear fuel, reactors, generation, construction and supporting technology.

Through licensing, WNAI-based exchange-traded funds now offer a diversified nuclear investment on the New York, London and other major exchanges.

Public investment in these funds has directly benefitted dozens of WNA companies. Meanwhile, engagement with the financial community to explain the Index enables the WNA secretariat to educate analysts and investors on the nuclear industry’s expansive long-term prospects.



Support for Women-In-Nuclear



Women-in-Nuclear, a global organization with national chapters, promotes the advancement and expanded employment of women in the nuclear profession. To support this goal, WNA now acts as WIN’s global secretariat.





The World Nuclear University

In 2003, to commemorate the 50th anniversary of President Eisenhower's "Atoms for Peace" initiative, WNA united with IAEA, WANO, and NEA in the "World Nuclear University" partnership to initiate cooperative activities aimed at building global perspective and leadership in the nuclear industry.



Of immediate practical relevance, WNU offers a one-week orientation course, presented in countries in early stages of nuclear development, to impart global perspective on commercial, operational and legal aspects of today's nuclear industry.



The most prominent WNU initiative is the **WNU Summer Institute**, a unique 6-week leader-development programme held in Oxford University. Focused on the full range of global topics relevant to nuclear power, the Summer Institute's intensive agenda combines world-class speakers with problem-solving and team-building exercises. Each year WNA member companies send 80-90 promising young professionals to the Summer Institute in the expectation that the growing network of former WNU Fellows in 50 nations – over 700 strong – will gain increasing significance in the leadership of tomorrow's nuclear industry.

Building an Institution

Former WNA Chairmen: leadership with a shared purpose



We launched WNA because nuclear energy is an idea whose time has come. Our vision was a truly global organization with a small, highly skilled secretariat to support the industry worldwide.

Agneta Rising, Vattenfall



WNA quickly became our industry's global voice, making the case for nuclear power in UN forums while engaging with WANO, IAEA, ICRP and others to uphold and advance industry interests.

Jerry Grandey, Cameco



WNA responded to the global internet explosion by creating unique, world-class nuclear information and news services that are now globally referenced in key search engines and major media.

Jose Gonzalez, ENUSA



WNA forums, working groups and symposia serve every sector of our industry, enabling members to build contacts, stay abreast of complex developments, and cooperate on shared objectives.

Ralf Gueldner, Areva / E.ON



WNA is superbly cost-effective and a wise industry investment. To maximize value and impact, the industry should strive for universal WNA membership of all key vendors and nuclear utilities.

Andy White, GE / Trilliant

WNA Charter of Ethics: members with a common credo

At the time of its inception in 2001, the World Nuclear Association established a Charter of Ethics to serve as a common credo amongst its Member organizations. This affirmation of values and principles summarizes: (a) the responsibilities of the nuclear industry; and (b) the surrounding legal and institutional framework that has been constructed through international cooperation to fulfill President Eisenhower's seminal vision of "Atoms for Peace".



Charter of Ethics

We, the Members of the World Nuclear Association, affirm in this Charter of Ethics:

Premises

- ▶ Our belief that sustainability must be the guiding principle of global development, requiring worldwide policies that meet the needs and aspirations of the present generation without compromising the opportunity of future generations to fulfil their needs and aspirations;
- ▶ Our confidence that nuclear power is a 'sustainable development' technology because its fuel will be available for multiple centuries, its safety record is superior among major energy sources, its consumption causes virtually no pollution, its use preserves valuable fossil resources for future generations, its costs are competitive and still declining, and its waste can be securely managed over the long-term;
- ▶ Our conviction that nuclear technology is a unique and indispensable tool of sustainable global development –
 - Unparalleled in its capacity to generate electricity cleanly, safely and on a large scale for a rapidly expanding world population whose future depends on the availability of environmentally sound energy resources; and
 - Highly beneficial and cost-effective in worldwide efforts to promote agricultural productivity, eradicate virulent pests, protect livestock health, preserve food, develop water resources, enhance human nutrition, improve medical diagnosis and treatment, and advance environmental science;
- ▶ Our recognition that nuclear science is proving equally valuable in supporting industrial societies and in helping the world's poorest countries to advance;
- ▶ Our keen awareness of the need to strengthen and sustain public confidence, both in the reliability of nuclear technology and in the people and institutions responsible for using it;

Principles

- ▶ Our commitment to ensuring that nuclear technology is used safely and peacefully;
- ▶ Our resolve to prevent and expose unsafe or illicit practices regarding nuclear material and to use all necessary precautions to protect individuals, society and the environment from any harmful radiological effects arising from nuclear material during use, storage, transport and waste disposal;
- ▶ Our adherence to the principle and practice of transparency regarding all types of civil nuclear activity, insofar as there exists a demonstrable public interest in the availability of such information and consistent with the public interest in protecting:
 - Commercially valuable knowledge; and
 - The confidentiality integral to full and candid participation in voluntary systems of review and exchange designed to enhance and maintain nuclear safety;

- ▶ Our strong support for the work performed –

- By governments, through the International Atomic Energy Agency (IAEA), to promulgate nuclear safety standards for the worldwide nuclear industry and to ensure that there has been no spread of nuclear weapons arising from the civil nuclear fuel cycle; and
- In industry, through the World Association of Nuclear Operators (WANO), to develop and maintain, using a comprehensive system of technical exchange and operational peer review, a rigorous safety culture at nuclear facilities worldwide;
- ▶ Our shared obligation to support the work of the World Nuclear Association in providing an essential means by which participants in the global nuclear industry share knowledge, coordinate efforts to advance best-practice internationally, assemble and publish reliable information on nuclear power, and achieve sound representation in world forums that shape the policy and public environment in which the industry operates;

International Legal Obligations

- ▶ Our individual and common responsibility to uphold respective international legal commitments embodied in:
 - The IAEA statute; safeguards agreements concluded pursuant to the Treaty on the Non-Proliferation of Nuclear Weapons; additional protocols to the safeguards agreements; and regional and bilateral accords providing for IAEA verification;
 - The Convention on Nuclear Safety; the Convention on the Physical Protection of Nuclear Material; the Convention on Early Notification of a Nuclear Accident; the Convention on Assistance in the Case of Nuclear Accident or Radiological Emergency; the Convention on the Prevention of Marine Pollution by Dumping of Wastes and Other Matter; the Joint Convention on the Safety of Spent Fuel Management and on the Safety of Radioactive Waste Management; the International Convention for the Suppression of Acts of Nuclear Terrorism; and
 - Other international treaties and conventions that contribute to ensuring the safe and peaceful use of nuclear technology throughout the world;

Public Policy

- ▶ Our intention to cooperate, in a spirit of partnership, with those engaged in the research, development and operation of other technologies that yield energy without adverse effect on the biosphere; and
- ▶ Our determination to promote, as a matter of ethical principle and urgent public need, an ongoing debate on energy resources that focuses citizens and governments alike on the real choices facing humankind and on the severe dangers – for the prospects of global development and for the biosphere – if decision-making on this fundamental policy is shaped by ideology and myth rather than by science and facts.



Building Global Support for the French Example

For three decades, on the strength of a decisive national energy policy, France has been a world leader in its commitment to nuclear power and today enjoys the lowest electricity costs in Europe. Shown here, the four reactors of the Paluel Nuclear Power Station in Normandie meet 8% of France's electricity needs. Relying mainly on nuclear energy, France's electricity grid produces few greenhouse gases, and a new age of electric cars will enable that nation to curtail emissions still further.

The World Nuclear Association – through its expert forums, industry representation, and public information service – works to build worldwide understanding of the environmental merits of a nuclear-based energy strategy and to coordinate industry cooperation to meet an expanding global demand for nuclear power.



World Nuclear Association

Carlton House • 22a St. James's Square • London SW1Y 4JH • UK
t: +44 (0)20 7451 1520 • f: +44 (0)20 7839 1501
www.world-nuclear.org • wna@world-nuclear.org