



Nuclear Industry: Present and Future

Patricia Wieland

International Nuclear Atlantic
Conference (INAC)
24-29/11/2013

Information Library

Detailed country profiles and descriptions of the nuclear fuel cycle

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WNA

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World Energy Congress

Agneta Rising speaks on nuclear governance for growth



How is uranium ore made into fuel?

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Nuclear Economics

WNA Report Nuclear Power Economics and Project Structuring



WNFC 2014



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Carolinas appreciate nuclear's true worth

The total economic impact of the nuclear industry in North and South Carolina has been estimated to exceed \$100 billion...

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With nuclear concrete poured at Vogtle 4 it is now listed as under construction in our reactor database

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Representing the people and organisations of the global nuclear profession

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World Nuclear Association - WNA

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Information Library



Representing the people and organisations of the global nuclear profession

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Information Library

The WNA Information Library consists of nearly 150 frequently-updated information papers, which together provide encyclopaedic coverage of topics related to nuclear power and other nuclear technologies.

Fact and Figures

- World Nuclear Power Reactors and Uranium Requirements
- Nuclear generation by country
- Uranium production figures
- Heat values of various fuels
- Reactor Database Basic Search
- Reactor Database Advanced Search

Country Profiles

- Countries A-F
- Countries G-N
- Countries O-S
- Countries T-Z
- Others

Nuclear Fuel Cycle

- Introduction
- Uranium Resources
- Mining of Uranium
- Conversion Enrichment and Fabrication
- Nuclear Power Reactors
- Fuel Recycling
- Transport of Nuclear Materials
- Nuclear Wastes

Non-Power Nuclear Applications

- Overview
- Radioisotopes and Research
- Transport

Current and Future Generation

- Nuclear Power in the World Today
- Outline History of Nuclear Energy
- World Energy Needs and Nuclear Power
- Plans For New Reactors Worldwide
- The Nuclear Renaissance
- International Framework for Nuclear Energy Cooperation
- Cooperation in Nuclear Power
- Accelerator-driven Nuclear Energy
- Electricity Transmission Grids
- Fast Neutron Reactors
- Nuclear Fusion Power

Energy and Environment

- Climate Change - The Science
- Policy Responses to Climate Change
- Sustainable Energy
- Renewable Energy and Electricity
- 'Clean Coal' Technologies
- Energy Analysis of Power Systems
- Energy Balances and CO2 Implications
- Uranium Stewardship
- Environment and Health in Electricity Generation
- Uranium, Electricity and Climate Change

Economic Aspects

[CORDEL Working Group Annual Report](#) | [CORDEL: Aviation Report](#) | [CORDEL: Design Change Management](#) | [CORDEL: Nuclear Standards Harmonization](#) | [CORDEL: Standardization of Reactor Designs](#) | [Ensuring Security of Supply](#) | [Inside the Black Box - Exploring Nuclear Power Forecast Assumptions](#) | [Licensing and Project Development of New Nuclear Plants](#) | [Lifecycle GHG Emissions of Electricity Generation](#) | [Nuclear Power Economics and Project Structuring](#) | [Optimized Capacity: Global Trends and Issues](#) | [Russian Secondary Supplies](#) | [Greater Efficiency in Low-Level Material Management](#) | [WNA Nuclear Century Outlook](#)

Nuclear Power Economics and Project Structuring

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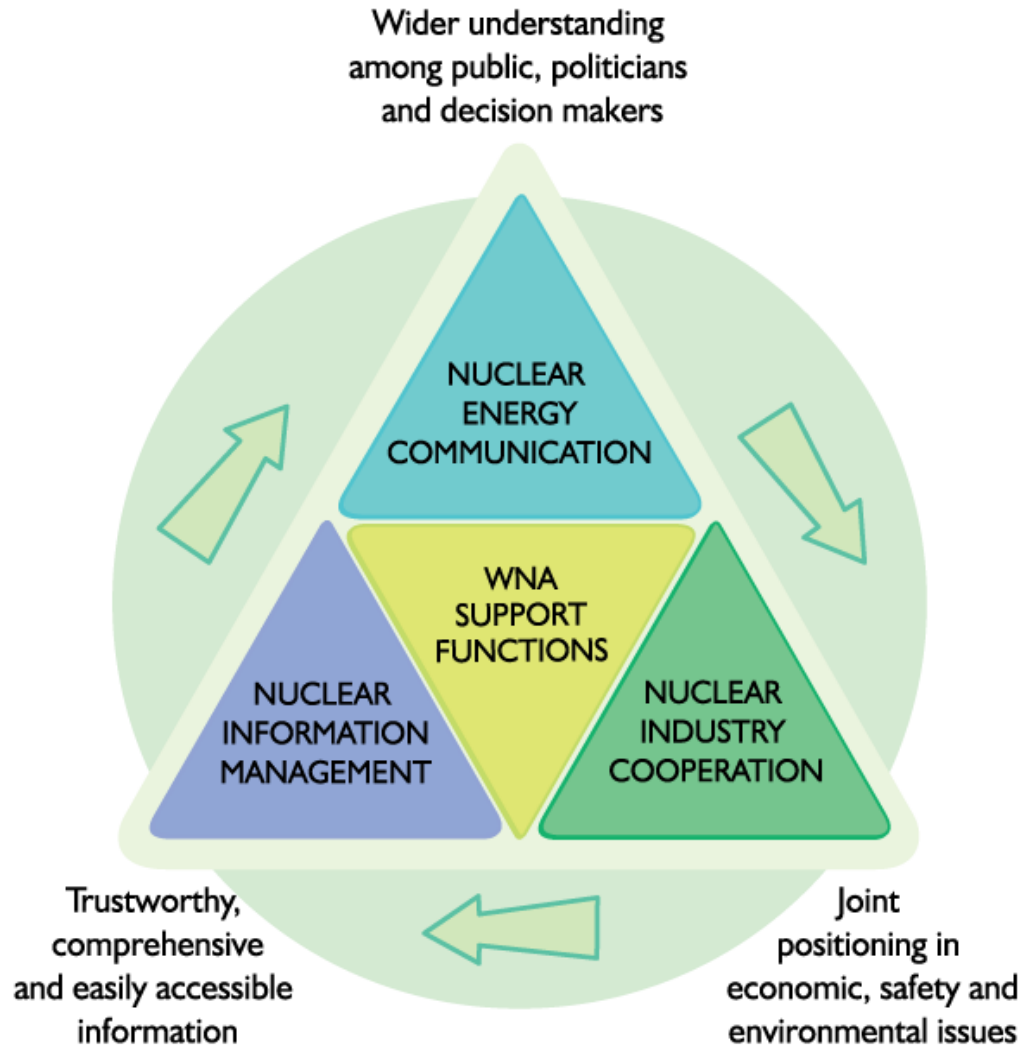
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The aims of this report are twofold. Firstly, to highlight that new nuclear build is fully justified on the strength of today's economic criteria and secondly, to identify the key risks associated with a nuclear power project and how these may be managed to support a business case for nuclear investment. It is written to promote a better understanding of these complex topics by the educated layperson, which may encourage subsequent wider discussion.

The information in this report is presented in the following sections –

- Section 1 The above Introduction
- Section 2 Highlights the excellent economic performance of current nuclear plants.
- Section 3 Demonstrates the need for substantial new electricity generating capacity worldwide.
- Section 4 Examines the ability of new nuclear plants to compete.
- Section 5 Identifies the key risks of nuclear projects and how they may be mitigated.
- Section 6 Considers project structuring and the different ways of allocating risks.
- Section 7 Highlights the role of government in ensuring adequate electricity supply.
- Section 8 Examines the role of financing major electricity infrastructure.
- Section 9 Offers concluding remarks

The new WNA structure: to more effectively meet the evolving needs of WNA members



2013 WNA Symposium - London



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 **WNA Leaders Panel** por **World Nuclear Association** em **Flickr**



World Nuclear Association • 9 semanas atrás

WNA Leaders Panel featuring: Lee Hee-Yong, Executive Vice President & Chief Nuclear Officer, Kepco Kirill Komarov, Deputy Director General, International Business and Development, Rosatom Luc Oursel, President and CEO, Areva Vincent de Rivaz, CEO, EDF Energy Danny Roderick, President and CEO, Westinghouse Jay Wileman, SVP Nuclear Plant Projects, Chief Operating Officer, GE Hitachi Nuclear Energy Frank Yee, Chief Nuclear Engineer, Candu Energy Inc.



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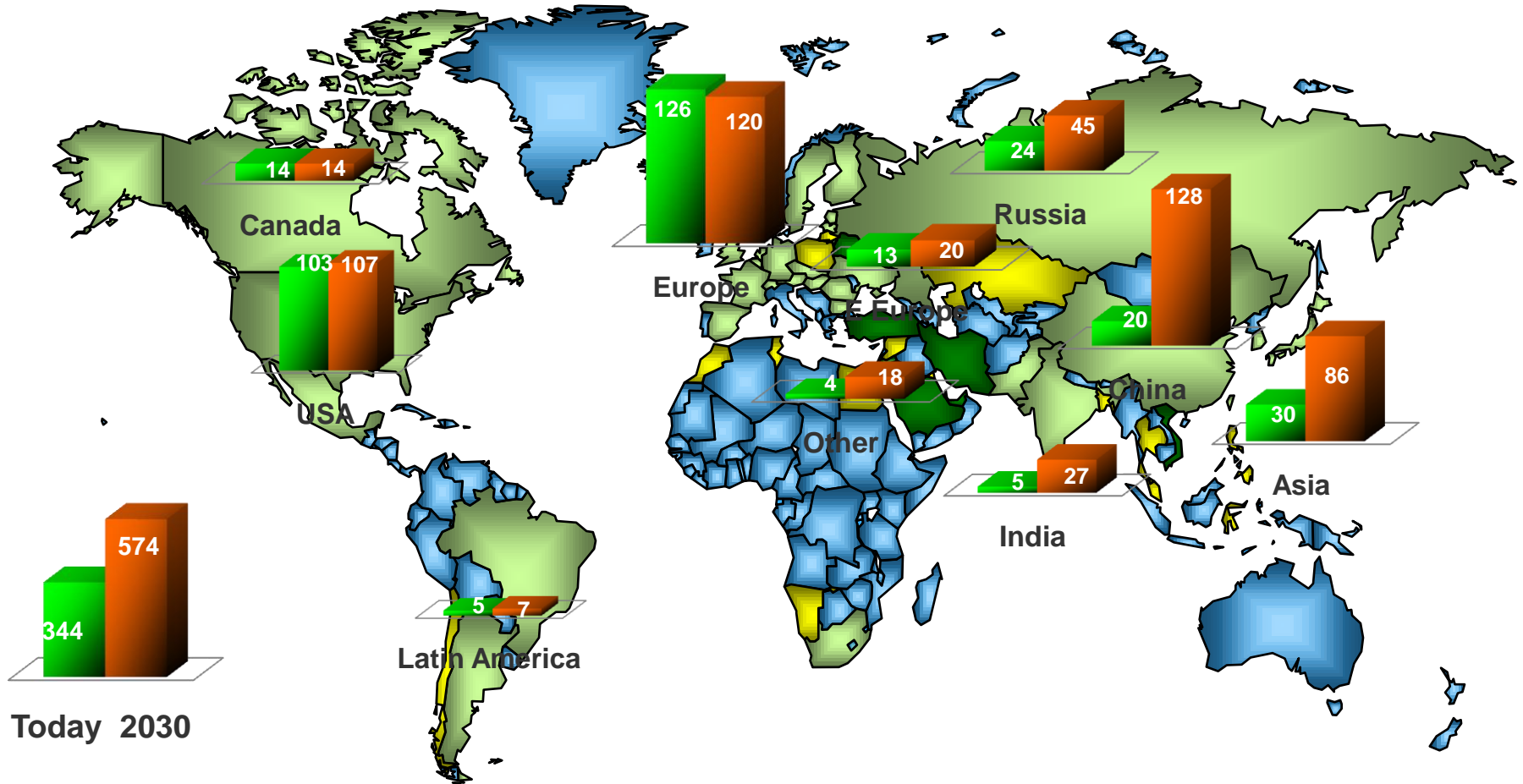
The World Nuclear Fuel Cycle conference (WNFC) is held in April each year at a location that moves from continent to continent in rotation.



Reference Case Capacity

Net GWe (2013 to 2030)

operating serious emerging



Nuclear Industry Association - UK

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What are the issues affecting the civil nuclear industry in the UK
Political opinion and new build capability, to decommissioning and waste management

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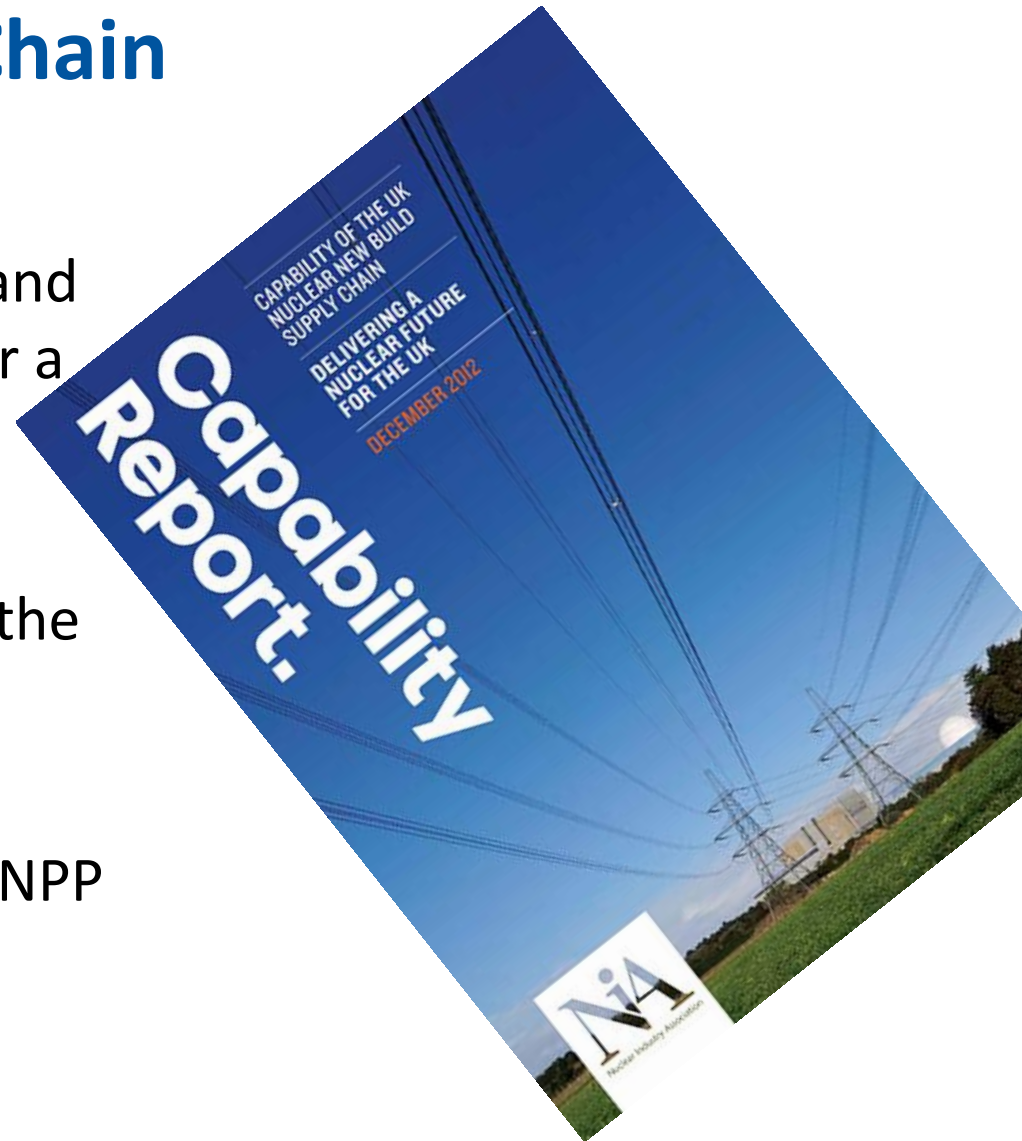
The Nuclear Industry Association (NIA) have published a new report on UK nuclear supply chain capability to deliver the proposed 16 GW programme of nuclear new build.

Recommendations are made for both industry and Government to minimise risks in delivery of the programme, and at the

Capability of the UK Nuclear New Build Supply Chain

A study to assess the capability and capacity of UK industry to deliver a programme of:

- new nuclear power stations in the UK over the next 15 to 20 years
- support the existing, operating NPP
- decommissioning



United Kingdom

NDA Nuclear Sites



Sellafield



Magnox



Dounreay



Research Sites



Sellafield



Key role in nuclear industry since 1940s

Largest nuclear site in Europe with over 1,000 nuclear facilities

Providing fuel reprocessing, fuel fabrication, storage of nuclear materials and radioactive wastes – the most diverse portfolio of any nuclear site in the world

New Build Plans for the UK



EDF Energy UK

Technology Choice - AREVA EPR

2 x 1600 MW EPRs for Hinkley

2 x 1600 MW EPRs for Sizewell

Horizon Nuclear Power Ltd

(Hitachi)

Technology Choice – Hitachi ABWR

Plans for 3 GW at Wylfa on Anglesey &

3 GW at Oldbury in Gloucestershire

HORIZON

NUCLEAR POWER

NU'GEN

NuGeneration Ltd

(Iberdrola/GDF Suez Joint Venture)

Technology under Assessment

Plans for 3GW at Moorside in Cumbria



WWW.NIAUK.ORG



Remarks

- Political support and commitment
- A stable and operating safety and security culture
- International cooperation and partnerships
- Continuous training: local, regional and global perspectives
- Proactive communications with interested parties
- Investor confidence
- Decommissioning and waste management solutions

“Nuclear power needs to grow faster to meet future energy demand and avert climate change.

We need better, smarter regulatory governance to promote safe operation and help achieve this necessary expansion of nuclear generation”



Agneta Rising
Director General of the World Nuclear Association,
at the World Energy Congress in Daegu, Korea. 2013.