

Explore the latest developments in nuclear power by attending IIR's 4<sup>th</sup> annual conference on:

# Nuclear Energy

Discussing the safety, economic viability and environmental compliance issues relating to nuclear energy in South Africa

7, 8, 9 and 10 February 2012

The Wanderers Club, Illovo, Johannesburg

Key speakers and experts discussing the future of nuclear energy in Africa include:

- ◆ Neli Magubane, *Director General, Department of Energy*
- ◆ Dr. Phil Mjwara, *Director General, Department of Science and Technology*
- ◆ Dr. Kelvin Kemm, *Chief Executive Officer, Stratek Business Strategy Consultants*
- ◆ Des Muller, *General Manager, Group Five Nuclear Construction Services*
- ◆ Phumzile Tshelane, *Vice President, Nuclear Industry Association of South Africa (NIASA)*
- ◆ Eben Mulder, *Chief Technical Officer, Q-Power Corporation*
- ◆ Mohsin Seedat, *Associate Director, KPMG*
- ◆ Dr. Ramatsemela Masango, *Group Executive: Nuclear Compliance, NECSA*
- ◆ Richard Worthington, *Manager: Climate Change Programme, Living Planet Unit, WWF South Africa*
- ◆ Thomas Myburgh, *Head of Radioactive Waste Management, Eskom: Koeberg Nuclear Power Station*
- ◆ Dr. Zeb Vilakazi, *Director, iThemba Labs*
- ◆ Dr. Van Zyl de Villiers, *Group Executive: Strategy, NECSA*
- ◆ Thomas Garner, *Manager: Growth and Energy, Exxaro*
- ◆ Advocate Boyce Mkhize, *Chief Executive Officer, National Nuclear Regulator*



Key topics to be discussed:

- ◆ The economic viability of nuclear energy in South Africa
- ◆ Mobilising South Africa's nuclear industry for new nuclear build
- ◆ An industry view on the developments required for nuclear energy to meet the IRP2010 criteria
- ◆ Energy options compared: science vs. reality
- ◆ Integrated energy planning and the prospects of including more sustainable energy options
- ◆ Conducting an environmental impact assessment (EIA) for developing nuclear reactors
- ◆ Nuclear waste management: drawing on the lessons from nuclear waste programmes at Koeberg
- ◆ Nuclear energy policy and implementation in the light of a constitutional democracy, public participation and the power of choice

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# Discussing the safety, economic viability and environmental com

Dear Energy Professional

The latest discussions concerning the expansion of nuclear energy in South Africa have certainly been controversial. Determining the value and dangers of nuclear energy is the central theme of the Institute for International Research's **Nuclear Energy** conference in February 2012.

As nuclear energy appears to be a certainty, the risks and challenges faced need to be explored in depth. This event will draw together a wide range of experts from various fields to enable critical discussion around the viability of nuclear energy and its growth in South Africa. Listening to the different viewpoints of key speakers will enable you to evaluate important issues regarding the environment, safety, localisation and construction as well as the economic viability of and political motivations for developing nuclear energy.

If you have an interest in this field, it is crucial that you attend in order to gain an understanding of what nuclear energy means for you and your organisation.

I look forward to welcoming you to our fourth annual event in February.

Kind regards

*PS Don't miss Dr Yves Guenon,  
Managing Director, Areva:  
South Africa, discussing  
nuclear energy and job creation*

**Keri Francis**, Senior Project Manager: Conferences, Institute for International Research

## Day one: 7 February 2012

08h00 Registration and early morning refreshments

08h30 **Chairman's opening remarks**  
**Dr. Kelvin Kemm**, Chief Executive Officer, **Stratek Business Strategy Consultants**

### The energy landscape and South Africa's position in developing nuclear energy

08h45 **The South African energy landscape**

- ◆ The nuclear new build programme and what it will mean for energy supply in South Africa
- ◆ Considering the risks and challenges of nuclear energy and ensuring compliance, transparency and accountability
- ◆ Encouraging industry to get involved with nuclear energy and promoting localisation
- ◆ Beginning the procurement process for nuclear energy: ensuring the right suppliers, right materials and right skills

**Neli Magubane**, Director General, **Department of Energy**

09h15 **Forging a nuclear construction strategy for South Africa**

- ◆ Nuclear construction alignments
- ◆ Building a nuclear construction resource
- ◆ Navigating challenging contractual strategies
- ◆ Making nuclear localisation goals a reality

**Des Muller**, General Manager, **Group Five Nuclear Construction Services**

10h00 **Mid-morning refreshments and networking**

10h30 **Mobilising South Africa's nuclear industry for nuclear new build**

- ◆ South African manufacturing industry's historical involvement in power generation projects
- ◆ South Africa manufacturing industry's involvement in nuclear projects
- ◆ Current nuclear capacity and capability of SA manufacturing
- ◆ The road ahead from a manufacturer's perspective?

**Rob King**, Managing Director, **Dorbyl**

11h15 **An industry view on the developments required for nuclear energy to meet the IRP2010 criteria**

- ◆ Implications of the deployment of 9.6GW of nuclear power as envisaged in the IRP2010
- ◆ Skills development to meet the nuclear programme
- ◆ Ensuring manufacturing readiness
- ◆ Meeting the regulatory challenges
- ◆ Funding and financing requirements and possible sources

**Phumzile Tshelane**, Vice President, **Nuclear Industry Association of South Africa (NIASA)**

12h00 **Open floor discussion: in order to allow a serious discussion to take place, an hour has been set aside before lunch for delegates to discuss with speakers and each other, key developments, issues and challenges in order to understand the true position of nuclear and its viability in South Africa. This discussion will be lead by Dr. Kelvin Kemm**

13h00 **Lunch and networking**

14h00 **South Africa's leading nuclear engineering solution**

- ◆ The impact of Fukushima on the perception of nuclear power generation
- ◆ Small-sized pebble bed reactors
- ◆ Distributed versus grid-based power generation
- ◆ Addressing the question: should South Africa resume its leadership position in terms of the pebble bed reactor technology?

**Eben Mulder**, Chief Technical Officer, **Q-Power Corporation**

14h45 **Energy options compared: science vs. reality**

- ◆ Grasping issues around safety and ensuring compliance
- ◆ Environmental consequences in the face of nuclear energy development
- ◆ Drawing on key issues around economics and sustainability
- ◆ Reliability of electricity supply

**Andrew Kenny**, Energy Policy Consultant

15h30 **Mid-afternoon refreshments and networking**

### The economic viability of nuclear power: financing and funding a power plan

15h45 **The economic viability of nuclear energy in South Africa**

- ◆ Determining the costs of nuclear energy in comparison with other energies
- ◆ How is funding for costs allocated? Where will the funding come from?
- ◆ Investigating the economic viability through the nuclear fuel cycle. From mining to waste: how have these costs been determined through the long term plan for nuclear energy?
- ◆ The financing of nuclear risk

**Mohsin Seedat**, Associate Director, **KPMG**

16h30 **Chairman's closing remarks and end of day one**

## Day two: 8 February 2012

08h00 Registration and early morning refreshments

08h30 **Chairman's opening remarks**  
**Dr. Kelvin Kemm**, Chief Executive Officer, **Stratek Business Strategy Consultants**

08h45 **Examining sound science as the basis of SA nuclear technology**  
**Dr. Phil Mjwara**, Director General, **Department of Science and Technology**

### Nuclear safety: how are we taking safety seriously and what are some of the inherent risks?

09h30 **Fukushima: a year later**

- ◆ The Fukushima accident and what it has meant for the global position of nuclear energy
- ◆ The impact of the accident on South Africa's operating nuclear installations
- ◆ Where are we now? Safety and compliance issues at NECSA and governing accountability
- ◆ What does Fukushima mean for South Africa's new build programme?

**Dr. Ramatsemela Masango**, Group Executive: Nuclear Compliance, **The South African Nuclear Energy Corporation (NECSA)**

10h15 **Mid-morning refreshments and networking**

### Nuclear energy and the environment

10h30 **Conducting an environmental impact assessment (EIA) for developing nuclear reactors**

- ◆ Investigating the environmental assessments being conducted at Thyspunt, Bantamskip and Duynefontein: what determined Thyspunt being recommended for the final environmental assessment?
- ◆ Assessing the EIA in light of technical descriptions of the proposed nuclear power plant not being available
- ◆ What are the challenges related to the exclusion zone? How is the exclusion zone being determined with regards to international standards for exclusion zones?
- ◆ How has the impact of nuclear waste on the environment been determined?
- ◆ What are the long term implications of nuclear waste and radioactivity for the environment? How much has been included in the EIA?

**Rob Hounsome**, Africa Business Development Manager, **Golder Associates**

11h15 **Looking at integrated energy planning and the prospects of including sustainable energy options**

- ◆ Addressing the issue of electricity supply options into the future and the potential impact of a political commitment to a 'nuclear fleet' in SA
- ◆ The prospects for renewable energy and the impact of state resources being directed to financing the establishment of a fully-fledged nuclear industry in South Africa
- ◆ The viability of establishing a competitive presence in global renewable energy industries in SA
- ◆ The value and legitimacy of integrated energy planning (as required by the Energy Act of 2008) in the face of geopolitical considerations driving the nuclear industry

**Richard Worthington**, Manager: Climate Change Programme, Living Planet Unit, **WWF South Africa**

12h00 **Open floor discussion: in order to allow a serious discussion to take place, an hour has been set aside before lunch for delegates to discuss with speakers and each other, key developments, issues and challenges in order to understand the true position of nuclear and its viability in South Africa. This discussion will be lead by Dr. Kelvin Kemm**

13h00 **Lunch and networking**

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## The management of nuclear waste

### 14h00 Management of Radioactive Waste Management at Koeberg - Africa's only Nuclear Power Station

- ◆ Brief historical overview of Koeberg nuclear power station
- ◆ Overview of the regulatory framework
- ◆ Radioactive waste: generation, classification, processing, storage, transport and disposal
- ◆ Nuclear waste challenges:
  - waste minimisation
  - waste disposal
  - retention of an ageing skills base

**Thomas Myburgh**, *Head of Radioactive Waste Management, Eskom: Koeberg Nuclear Power Station*

### 14h45 Determining the risk and identifying key strategies for effective radioactive waste management

- ◆ Managing the risk and identifying key challenges in the handling and management of nuclear waste
- ◆ Incorporating health, safety, quality and environmental concerns into the management of waste
- ◆ Highlighting quality and relevant regulatory and statutory requirements impacting the nuclear waste management processes and facilities
- ◆ Where does the future of nuclear waste management lie and what does it mean for various stakeholders?

**Alan Carolissen**, *Senior Manager: Nuclear Liabilities Management (Radwaste Management), NECSA*

### 15h30 Mid-afternoon refreshments and networking

### 15h45 Nuclear energy policy and implementation in the light of a constitutional democracy, public participation and the power of choice

- ◆ Drawing on public opinion in determining a nuclear energy policy: the people's right to be consulted on energy processes
- ◆ What does the public need to know about the safety and environmental risks inherent in nuclear energy?
- ◆ Can a constitutional democracy really exist in line with current nuclear developments?
- ◆ Ensuring public participation and improved accountability in energy policy processes. Is this possible?
- ◆ How will nuclear justify costs post-PBMR? What are the implications for the community and the nature of constitutional democracy?

**Mike Kantey**, *Chairman, Coalition Against Nuclear Energy (CANE)*

### 16h30 Chairman's closing remarks and end of day two

## Day three: 9 February 2012

### 08h00 Registration and early morning refreshments

### 08h30 Chairman's opening remarks

**Dr. Kelvin Kemm**, *Chief Executive Officer, Stratek Business Strategy Consultants*

### 08h45 The South African nuclear science power base

- ◆ Looking at the long history of scientific achievements in fundamental and applied aspects of nuclear research
- ◆ Examining how science and technology in South Africa is poised for growth in line with the policy framework that will see SA take on mega science projects, thereby creating a pool of critical skills necessary to launch any large scale build programme
- ◆ To what extent is the SA university system highly competitive internationally?

**Dr. Zeb Vilakazi**, *Director, iThemba Labs*

### 09h30 Nuclear technology applications: the impact beyond nuclear electricity

- ◆ Assessing the range of nuclear technology applications other than electricity generation
- ◆ Which human and industrial activities are quietly supported and enhanced by nuclear technology?
- ◆ What more should be done to promote and expand the wider use of radiation and radioisotopes?
- ◆ Understanding the significance of South Africa as a world leader in isotope exports

**Dr. Van Zyl de Villiers**, *Group Executive: Strategy, NECSA*

### 10h15 Mid-morning refreshments and networking

### Ensuring that the implementation of a nuclear build programme is integrated into the local economy

- ◆ Delivering nuclear projects to SA: competitive localisation
- ◆ Creating a climate for growth and encouraging skills development
- ◆ Drawing on the project requirements and viability for a South African market
- ◆ Meeting the challenges of creating world-class nuclear technology

**Milé Sofijanic**, *Executive, Murray & Roberts*

### 11h15 Exploring the viability of facilities for the corporate ownership of energy

- ◆ Real solutions for energy poverty in Africa
- ◆ Is there space for private ownership of appropriate nuclear generation facilities?
- ◆ Nuclear vs. typical renewable technologies as part of the solution

- ◆ What is the difference between storing CO<sub>2</sub> in deep coal and nuclear waste in the Kalahari?

**Thomas Garner**, *Manager: Growth and Energy, Exxaro*

**12h00 Open floor discussion:** *in order to allow a serious discussion to take place, an hour has been set aside before lunch for delegates to discuss with speakers and each other, key developments, issues and challenges in order to understand the true position of nuclear and its viability in South Africa. This discussion will be lead by Dr. Kelvin Kemm*

### 13h00 Lunch and networking

### 14h00 Ensuring quality in nuclear construction

- ◆ Evolution: conventional to nuclear
- ◆ Compliance requirements
- ◆ Evolution roadmap
- ◆ Current status

**Pretty Madwe**, *Quality Assurance Manager: Nuclear Construction Services, Group Five Engineering and Construction*

### 14h45 Nuclear power and job creation

- ◆ The impact that future developments according to the IRP2010 will have on job creation
- ◆ The need to develop the right skills in order to take advantage of the growth of the nuclear industry
- ◆ Ensuring safety as a key parameter of proposed nuclear energy expansion
- ◆ Stimulating foreign investment in order to ensure job creation and skills development

**Dr. Yves Guenon**, *Managing Director, Areva: South Africa*

### 15h30 Mid-afternoon refreshments and networking

### 15h45 Streamlining the nuclear regulatory and licensing process

- ◆ The current regulatory environment: ensuring sustainability and accountability through nuclear energy
- ◆ The role of the National Nuclear Regulator (NNR) and the future development of nuclear energy as outlined by IRP2010
- ◆ Defining governance and transparency in determining the regulation of and future proposals for nuclear energy
- ◆ Ensuring public participation and cooperative governance in the nuclear energy processes
- ◆ What are the challenges faced by the NNR currently and in light of future developments: key challenges including safety, waste management, cost analysis, human and environmental impact

**Advocate Boyce Mkhize**, *Chief Executive Officer, National Nuclear Regulator*

### 16h30 Health and safety for uranium mine workers: challenges and issues around safety

- ◆ Identifying the risks pertaining to radiation and exposure
- ◆ How are South African uranium mines managing health and safety risks?
- ◆ Creating an awareness of the risks and ensuring that mineworkers are aware of their rights when it comes to access to safety and health measures
- ◆ What will the new build programme mean for the increased mining of uranium?

**Mziwakhe Nhlapo**, *Unit Head: Health and Safety, National Union of Mineworkers*

### 17h15 Chairman's closing remarks and end of day three

## Day four: 10 February 2012

### Half-day workshop: The Integrated Resource Plan (IRP2010): what does it mean for future electricity development and nuclear energy?

- ◆ What does IRP2010 say about the growth of nuclear? Unpacking the plan for 6 new reactors by 2023
- ◆ The government's role in investigating cheaper suppliers to manage costs
- ◆ What needs to happen before the reactors can be developed?
- ◆ How much of the current demand will be met by IRP2010? How much of this will be met by nuclear?

**Dr. Kelvin Kemm**, *Chief Executive Officer, Stratek Business Strategy Consultants*

### Half-day site visit to Pelindaba nuclear facility: Safari-1

*A half-day site visit during which delegates will get the opportunity to visit the Safari-1 nuclear reactor. The tour will enable delegates to see the site as well as to investigate the facilities regarding safety and waste management.*

*The workshop will run from 09:00 to 12:00. Transport to Pelindaba will depart at 13:00. Delegates will arrive back at the venue at approximately 17:00. Lunch and refreshments will be provided.*



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# Nuclear Energy



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