

# Nuclear Build Africa 2016

**CPD Points**  
Attendees can  
claim two (2)  
CPD points from  
ECSA

5 – 6 April 2016, Sandton Sun Hotel,  
Johannesburg, South Africa

## Ascertaining Africa's readiness for nuclear power generation

### Panel of Confirmed Speakers

Chaired by: Dr Kelvin Kemm, CEO, **Nuclear Africa**

- Dr David Otwoma, Chief Science Secretary, **National Commission for Science, Technology and Innovation**
- Dr Geoffrey Rothwell, Principal Economist: Nuclear Development Division, **Nuclear Energy Agency, Organisation for Economic and Cooperative Development**
- Dr Margaret Mkhosi, President, **Women in Nuclear**, & Senior Manager – LEMS, **Necsa**
- Francois Mellet, Managing Director, **Arint South Africa**
- Dr Rudolph Nchodu, Head: Nuclear Physics Department, **iThemba Labs**
- Prof Harry Wichers Pr.Eng PhD GCC, Director: School of Mechanical and Nuclear Engineering, **North-West University**

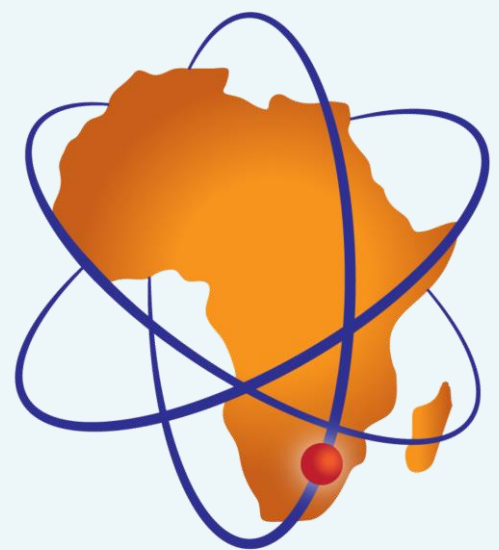
### Benefits of Attending:

1. Discuss in-depth techniques for conducting a cost analysis utilising the principles of new nuclear energy economics
2. Gain insight into the current status regarding the localisation strategy
3. Evaluate the integration of national nuclear waste management policy
4. Assess the efficacy of the nuclear safety policy and regulatory framework
5. Examine the conditions for building the human resource capacity
6. Demystifying the nuclear energy agenda in line with international standards

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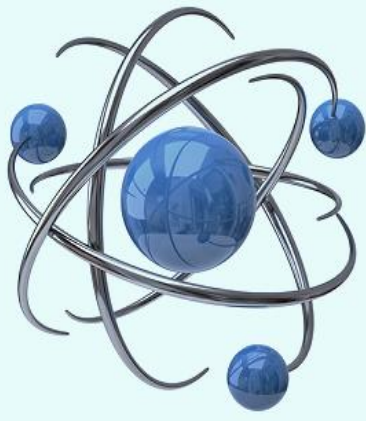
**Nuclear Africa**  
IN PARTNERSHIP WITH NUCLEAR AFRICA

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# Nuclear Build Africa 2016

5 – 6 April 2016, Sandton Sun Hotel, Johannesburg,  
South Africa

Dear Colleague,

Energy systems in Africa face a **myriad of interlinked and time sensitive challenges**. Tackling them requires truly innovative thinking. AMC International is calling for a collaborative group from different countries representing utilities, government, non-governmental, universities and thought leaders from diverse backgrounds to assemble together to **continue the dialogue surrounding some of the toughest questions about the adoption and future of nuclear energy as an addition to the base load energy mix**.

From my experience especially in **Africa among countries that are keen on adding nuclear to their energy mix** and attempting to use the IAEA Milestone approach emphasising the 19 infrastructure issues, we have had a mixed bag.

My questions to you are, how do we:

- Think **scientifically about these opportunities/challenges** while maintaining our values?
- **Advance safety and security** while reducing environmental effects?
- **Escalate energy access** for all while lowering costs?
- **Prioritise and exploit the impacts of our limited resources?**

To complement group discussions, you are invited to join peers, friends and colleagues at the **workshop** who think deeply and regularly on these issues. **Nuclear Build Africa** is expected to gather momentum as a cross disciplinary workshop that will offer **practical, workable solutions to the acceptance, environmental, financial, legal and technological challenges facing energy generation mix on the continent**.

Book now and **capitalise on strategies for meeting Africa's growing energy needs through nuclear energy**.

Best regards,

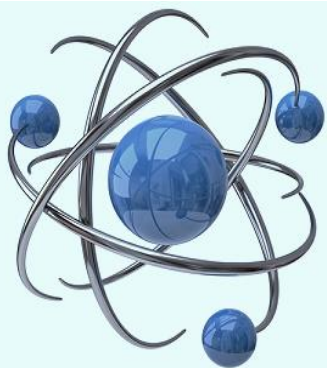
**Dr David Otwoma**

Chief Science Secretary

National Commission for Science, Technology and Innovation, Kenya

## Who Should Attend?

CEOs  
Managing Directors  
Directors  
Directors: Nuclear  
Directors: Nuclear Safety  
Directors: Technical Affairs  
Nuclear Safety & Regulatory Specialists  
Corporate Nuclear Specialists  
Senior Nuclear Safety Engineers  
Nuclear Project Engineer & Managers  
Nuclear Quality Managers  
Nuclear Safety Engineers  
Nuclear Safety Specialists  
Radiation Safety Officers  
Nuclear Energy Officers  
Senior Nuclear Physicists  
Nuclear Physicists  
Nuclear Engineers - Reactor Analysts  
Radiation Protection Officers  
Physicists: Radiation Protection  
Radiation Specialists  
Economists



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## Meet Your Facilitators

### Chairman: Dr Kelvin Kemm

Dr Kemm studied at the University of KwaZulu Natal where he gained degrees in mathematics and nuclear physics. On completing a PhD, he started work as a research and development scientist at the South African Nuclear Energy Corporation. He then moved into the field of the management of technology and became involved in a wide variety of projects in many industrial sectors, giving him wide exposure to the realities of the technological and industrial base of society.

**Dr David Otwoma**, who holds a PhD in Radiation Physics, an MSc in Nuclear Science and a BSc in Physics also lectures at the Technical University of Kenya. Currently he is the Chief Science Secretary at the National Commission for Science, Technology and Innovation. He was Secretary (Nuclear) in the Ministry of Energy and Petroleum seconded to the Nuclear Electricity Project (2011-2013), he served as the Chief Science Secretary at the National Council for Science and Technology (2007-2011) and was a Nuclear Safeguards Inspector at the International Atomic Energy Agency (IAEA) in Vienna Austria (1999-2006). 1988-1998 he was Senior Radiation Protection Officer at the Radiation Protection Board from 1988. Dr Otwoma impressive portfolio of awards, includes Nobel Prize for peace for the year 2005 as IAEA SG staff shared with the IAEA Director General Dr M. ElBaradei.

**Dr Geoffrey Rothwell** is the Principal Economist at the Nuclear Energy Agency of the Organization for Economic Cooperation and Development (Paris, France) where he is working on estimating nuclear power plant decommissioning liabilities, estimating employment generated by the nuclear power sector, managing the update of *Projected Costs of Generating Electricity* with the International Energy Agency, as well as serving NEA Member Countries. From 1986 to 2013, he was in the Department of Economics, Stanford University. From 2001 to 2013 he was the chief economist of the Economic Modelling Working Group of the Generation IV International Forum through the U.S. Department of Energy, Office of Nuclear Energy, and he is now acting as the Secretariat of the EMWG at the NEA.

### Dr Rudolph Nchodu

Dr. Rudolph Nchodu is the head of the Nuclear Physics Department at iThemba LABS, a national research laboratory managed by the National Research Foundation with the funding from the South African Department of Science and Technology. The laboratory has a separated sector cyclotron that can accelerate protons up to 200 MeV and heavy charged particles. The nuclear physics department has as its main activities research and training in basic and applied nuclear physics

### Prof Harry Wichers

Prof. Wichers is a registered professional mechanical and systems engineer. He started his career as Engineer-in-Training (EIT) at Iscor Vanderbijlpark, now Arcelor Mittal, where he was responsible for and successfully executed various Plant Performance Growth Projects. He has more than 20 years experience in Technology Management. He is also a registered Professional Engineer with ECSA, member of the Institutes of Business Management and Mechanical Engineers (SAIME) and founder member and ex-president of the Southern African Maintenance Association

### Francois Mellet

Francois began his career in 1978 at Eskom, where he was stationed at Koeberg Nuclear Power Station. He worked in the generation division as the Principal Technician before moving to Matimba Power Station in 1992. Afterwards he moved to the International Risk Control Africa (IRCA). His 8 years in IRCA was mainly spent in the assessment, development and training of clients in asset management, engineering, equipment reliability and maintenance related activities.

Since February 2007, Francois has been with ARINT South-Africa.

### Dr Margaret Mkhosi

With a career spanning over 20 years, Dr Mkhosi has worked her way to become one of South Africa's first female nuclear engineers. Dr Mkhosi manages many projects and is also the President of Women in Nuclear - SA (WiNSA) promoting broad-based understanding of the fields of nuclear science technologies and their applications; as well as encourages young people, especially women, to follow careers in science & engineering.

Dr Mkhosi holds a PhD in Nuclear Engineering as well as a M.S in Nuclear Engineering from The Ohio State University.

## Workshop Day 1: 5 April 2016

08:15 Registration

08:50 Opening Remarks

**Chairman: Dr Kelvin Kemm, CEO**

**Nuclear Africa**

09:00 **WORKSHOP 1: (09:00 – 12:30)**

### **LOCALISATION AND SKILLS OPTIMISATION OF NUCLEAR ENERGY POWER GENERATION**

Mobilising the national nuclear industry to gear up for the nuclear build program remains critical. Localisation plays an integral role in achieving successful implementation of nuclear energy power generation. Optimising skills and building human capacity continues to also plague the current nuclear industry.

This workshop covers the status regarding key areas such as:

**Session 1:** Ascertaining the most suitable localisation strategy to be incorporated in nuclear policy

- Benchmarking against international cases
- Discussing how to apportion localisation
- Strategies for building local content in the nuclear supply chain

**Session 2:** Reviewing the role of integrating the research and training capacities of higher learning institutions

- Capitalising on research centres on the continent
- Utilising higher education to meet human capital development objectives
- The need for synergies between higher education and government

**Session 3:** Evaluating the process for recruiting women and youth into the nuclear industry

- Discussing suitable collaboration strategies with international services
- Identifying the role of government departments and agencies in providing training and experience
- Creating avenues for knowledge transfer

**Session 4: Enhancing the Nuclear Education Capabilities for the SA new build programme**

**The Facilitators:**

**Prof Harry Wichers Pr.Eng PhD GCC**, Director: School of Mechanical and Nuclear Engineering, **North-West University**

**Dr Rudolph Nchodu**, Head: Nuclear Physics Department, **iThemba Labs**

**Dr Margaret Mkhosi**, President, **Women in Nuclear**, Senior Manager – LEMS, **Necsa**

12:30 Networking Lunch

13:30 **WORKSHOP 2: (13:30 – 16:30)**

### **NUCLEAR ECONOMICS: COSTING AND FINANCE STRUCTURING**

Assessing the costs of new nuclear power projects comes with difficulties, in particular changing regulatory demands. Low build rates, low capacity of highly skilled workforce in building reactors and high construction risks compound the problem significantly.

This workshop provides insight into the uncertainties that impact costing of new nuclear power projects. By attending this workshop attendees will be able to examine the economics of nuclear power.

**Session 1:** Developing a cost analysis and assessment model for nuclear energy projects

- Identifying the cost factors:
  - Capital costs
  - Plant operating costs
  - External costs
- Waste disposal costs
- Decommissioning costs
- Future cost competitiveness

**Session 2:** New nuclear economics: determining cost and cost uncertainties

- Implications of technology advancements
- Uranium enrichment
- Subsidising nuclear construction cost – is this tenable?
- Calculating total capital construction cost – key factors
- Levelised cost

**The Facilitator:**

**Dr Geoffrey Rothwell**,

Principal Economist, Nuclear Development Division, **Nuclear Energy Agency, Organisation for Economic and Cooperative Development**

16:30 Closing Remarks from the Facilitator

## Workshop Day 2: 6 April 2016

08:15 Registration

08:50 Opening Remarks

**Chairman: Dr Kelvin Kemm, CEO  
Nuclear Africa**

09:00 **Workshop 3: (09:00 – 12:30)**

### **NUCLEAR SAFETY, SECURITY AND PROTECTION**

Nuclear safety protocol forms the foundation for any nuclear program. The commitment of every stakeholder towards safety is paramount to the success of the nuclear build agenda. The status regarding implementing safeguards of nuclear materials, ensuring security and physical protection of utilities and facilitating measures in radiation protection are key points of this workshop.

**Session 1:** Prioritising nuclear safety from policy development to applications

- Compliance with international standards
- The role of an independent regulator
- Radiation protection protocol: protecting people, the environment and transport considerations

**Session 2:** Establishing effective and efficient nuclear security programs

- Tools for facilitating physical security of nuclear utilities
- Enhancing the safeguarding mechanisms of nuclear facilities
- Protecting nuclear information, technology and materials

**Session 3:** Planning and coordinating the reliability of nuclear plant facilities

- Developing a strategy for managing accidents
- Building a case for securing nuclear cyber information
- Identifying potential systems that improve and keep track of the nuclear supply chain
- Civil liability for nuclear damage

**The Facilitator:**

**Dr David Otwoma, Chief Science Secretary, National Commission for Science, Technology and Innovation**

12:30 Networking Lunch

13:30 **Workshop 4: (13:30 – 16:30)**

### **NUCLEAR WASTE MANAGEMENT AND THE NUCLEAR FUEL CYCLE**

Integrating the national nuclear fuel cycle strategy is one of the outstanding issues on the checklist. With the advent in technologies for managing spent fuel and disposing nuclear waste, it is imperative to identify which solutions work best for the nuclear build program.

This workshop will determine the following:

**Session 1:** Accountability strategies for a national nuclear fuel cycle and managing spent fuel

- Improving spent fuel management
- Dealing with ownerless waste of the continent
- Identifying who is responsible
- Best practices for handling radioactive waste from research reactors
- Used fuel policy development

**Session 2:** Integrating Nuclear Waste Handling, Disposal and Management

- Developing a strong legal and regulatory framework guided by international standards
- Learning from international cases
- Implementing practical and sustainable applications nuclear waste management

**The Facilitator:**

**Francois Mellet, Managing Director, Arint South Africa**

16:30 Closing Remarks and end of Workshop



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## Registration Form

Thank you for your interest in the conference. To register, please provide the following information

### Delegate(s) Information

1. Dr. /Mr. /Mrs. /Miss:	_____	Email:	_____
Department:	_____	Mobile:	_____
Position:	_____		
2. Dr. /Mr. /Mrs. /Miss:	_____	Email:	_____
Department:	_____	Mobile:	_____
Position:	_____		
3. Dr. /Mr. /Mrs. /Miss:	_____	Email:	_____
Department:	_____	Mobile:	_____
Position:	_____		
4. Dr. /Mr. /Mrs. /Miss:	_____	Email:	_____
Department:	_____	Mobile:	_____
Position:	_____		

### Register Me / Us for The Following

2 Day Workshop = R 9 890.00 ex VAT

NB: Above fees exclude accommodation

### Authorisation

Signatory must be authorised to sign on behalf of contracting organisation

Name:	_____	Position:	_____
Organisation:	_____	Email:	_____
VAT No.:	_____	Mobile:	_____
Telephone:	_____	Facsimile:	_____
Physical Address:	_____	Code:	_____
Postal Address:	_____	Code:	_____
Signature:	_____		

THIS BOOKING IS INVALID WITHOUT A SIGNATURE

### Method of Payment

Bank Transfer: Standard Bank, Branch – Hyde Park, Code – 00660534, Account No. 022307893, Swift Code – SBZAZAJJ.

Credit Card  MasterCard  VISA  Diners Club  AMEX

Card No.:                      Expiry Date:   /

Cardholder's Name: \_\_\_\_\_ Signature: \_\_\_\_\_

ID Number:                      CV No.

Authorisation Code: \_\_\_\_\_ Date: \_\_\_\_\_

### TERMS AND CONDITIONS

Accepted applications to attend the AMC International conference or training course ("Event") are in every case subject to these terms and conditions:

**Payment Terms** – Payment is due in full upon completion and return of the registration form. Due to limited conference space we advise early registration and payment by credit card to avoid disappointment. AMC International reserves the right to admit or refuse admission to delegates who have not shown proof of payment of conference fees or not agreed to sign an indemnity form.

**Speakers** - Views of Speakers at any Conference or Training Course – are their own and do not necessarily reflect the views of AMC International, its employees, agents or contractors.

**Delegate Substitutions** – Provided the fee has been paid in full, within the time frame as per our terms and conditions, substitutions at no extra charge can be made up to 10 working days, before the start of the Event. (Send notification for any such changes in writing for the attention of the Customer Services Manager at info@amc-intsa.com).

**Delegate Cancellations** – must be received by AMC International in writing and must be addressed to the Customer Services Manager at info@amc-intsa.com,

Cancellations received 10 working days before Event start-date, entitle the cancelling delegate to a full credit of amounts (credit to attend future event – not refund monies) paid to date of cancellation which may only be redeemed against the cost of any future AMC International Event, within one year from date of such cancellation;

Any cancellations received less than 10 working days before the Event start-date, do not entitle the cancelling delegate to any refund or credit note and the full fee must be paid;

Non-attendance without written cancellation to the Customer Services Manager is treated as a cancellation with no entitlement to any refund or credit.

**Speaker Changes** – Occasionally it is necessary for reasons beyond our control to alter the content and timing of the program or the identity of the speakers.

If AMC International cancels an Event, delegate payments at the date of cancellation will be credited to an AMC International Event (such credit is available for up to one year from the date of cancellation). If AMC International postpones an Event, delegate payments at the postponement date will be credited towards the rescheduled Event. If the delegate is unable to attend the rescheduled Event, the delegate will receive a full credit of amounts paid up to the date of postponement which may only be redeemed against the cost of any future AMC International Event (and such credit will be available for one year from the date of postponement). No cash refunds whatsoever are available for cancellations or postponements.

**Indemnity** – AMC International is absolved from and indemnified against any loss or damage as a result of substitution, alteration or cancellation/postponement of an Event arising from any cause whatsoever, including, without limitation, any fortuitous event, Act of God, unforeseen occurrence or any other event that renders performance of the Event impracticable or impossible.

A "fortuitous event" includes, but is not limited to, war, fire, flood, riot, industrial action, extreme weather or other emergency.

**Warranty of Authority** – The signatory warrants that he/she has the authority to sign this Application and agrees to be personally liable to AMC International for payments falling due pursuant thereto should such warranty be breached

### FOUR WAYS TO REGISTER

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