



Nuclear Industry Outlook

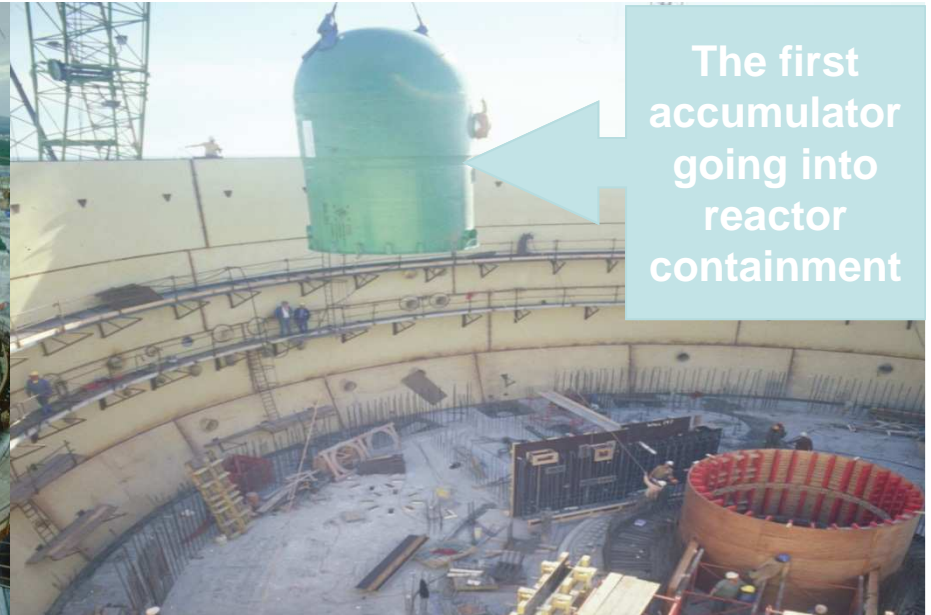
05 October 2012

Rob Adam

Contents

- The nuclear opportunity in South Africa
- Localization
- South African manufacturing capabilities
- Issues faced by South African companies

NPP construction (KCC 30 years ago)



The first accumulator going into reactor containment



Pump station. Marine works coffer dam

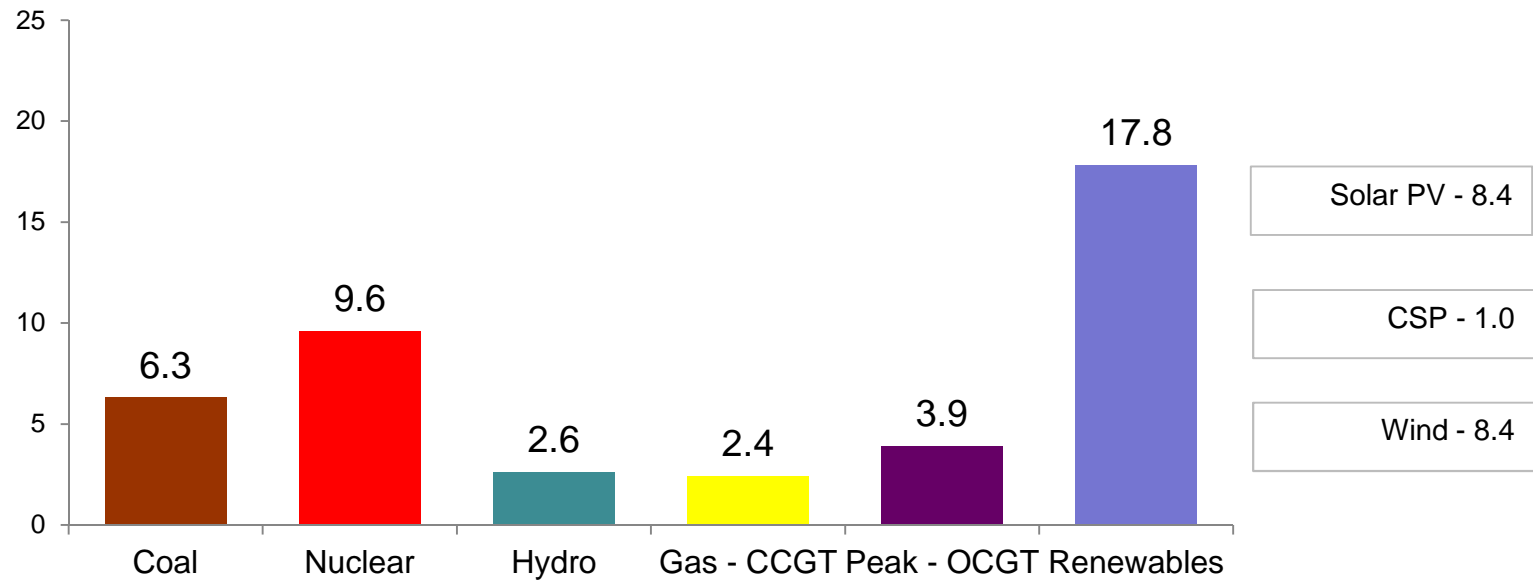


Nuclear opportunity in South Africa

IRP Outcomes

Policy-Adjusted IRP

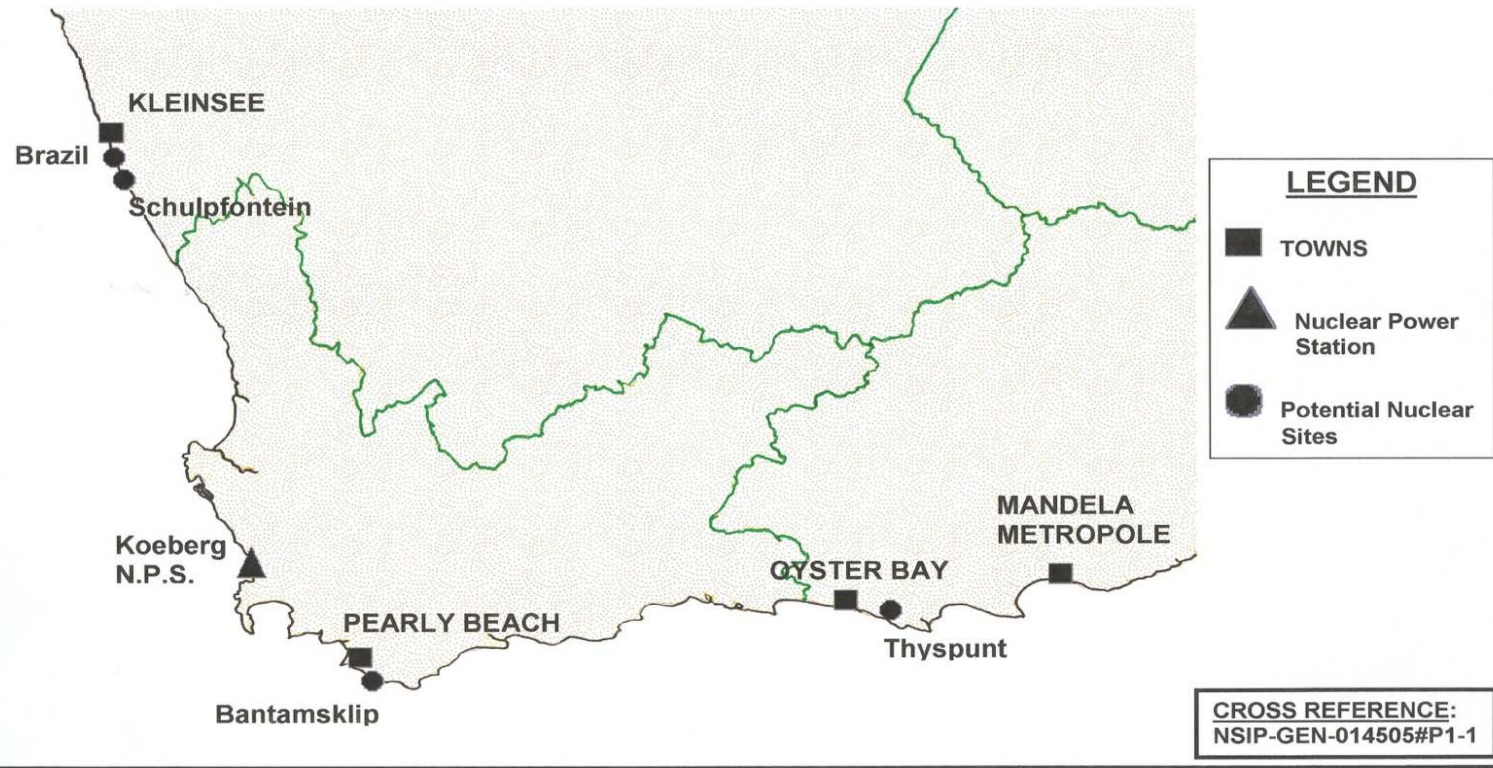
Total additional new capacity until 2030, in GW



Potential Nuclear Sites

NSIP-GEN-014510#P1-1

POTENTIAL NUCLEAR COASTAL SITES





Localization

Aims of Localization

- Saving foreign currency.
- Instilling a quality management culture in local suppliers.
- Increase in local high technology capacity.
- International collaboration (safeguards, quality, supply chain...).
- Human resource development

South Africa's Localization Base

- South African has extensive experience in large-scale construction projects. Any localization drive will be rooted in this existing capacity.
- Other industrial capacity has a mining and metallurgy base developed over many decades.
- Some high tech industrial development has taken place in the defence and nuclear sectors. South Africa designed and built its own attack helicopter. Uranium conversion, enrichment and fuel fabrication facilities have also been developed locally.

Government will set the framework for localization

- South African government has established the National Nuclear Energy Executive Coordination Committee (NNEECC or NEC²), chaired by Deputy President Kgalema Motlanthe to implement a phased decision making approach to the nuclear programme.
- The Nuclear Energy Technical Committee (NETC) was established to support the NEC².
- Eskom will manage procurement.
- A full investigation was undertaken by these committees to determine the capabilities, gaps and localization opportunities in the Local Nuclear Industry.
- Localisation thresholds will progressively increase as the country becomes more experienced in nuclear construction, manufacturing and licensing. For nuclear-1 it is estimated that the threshold for localisation will be 30 - 40%.

Reaction of the vendors

- Vendors have joined the Nuclear Industry Association of SA (NIASA).
- Workshops and road shows have been conducted by vendors in partnership with NIASA.
- Government sponsored reciprocal visits have been made by South African industry to vendor countries.
- Luc Oursel, CE of Areva, commented "Besides raising the local content of the South African build programme to meet the government's jobs and industrial aspirations, we will also integrate South African suppliers into our global supply chains." Areva has been based in South Africa since 2007.
- Westinghouse has been based in South Africa since 2007.
- Rosatom announced on 18 July their intention to open an office in South Africa. [Engineering News; 18 July 2012]
- Kepco has opened an office



South African Manufacturing Capabilities

Pre 1994

By the early 1990s South Africa faced an economic crisis.

- Gross domestic product (GDP) and investment rates were falling.
- Exports were highly concentrated around mining and mineral products.
- The currency was overvalued.
- The legacy of apartheid – in and outside the industrial economy – had resulted in widespread poverty, extreme inequalities and mass exclusion from economic activities.

This led to high unemployment on the one hand and low levels of productivity and competitiveness on the other.

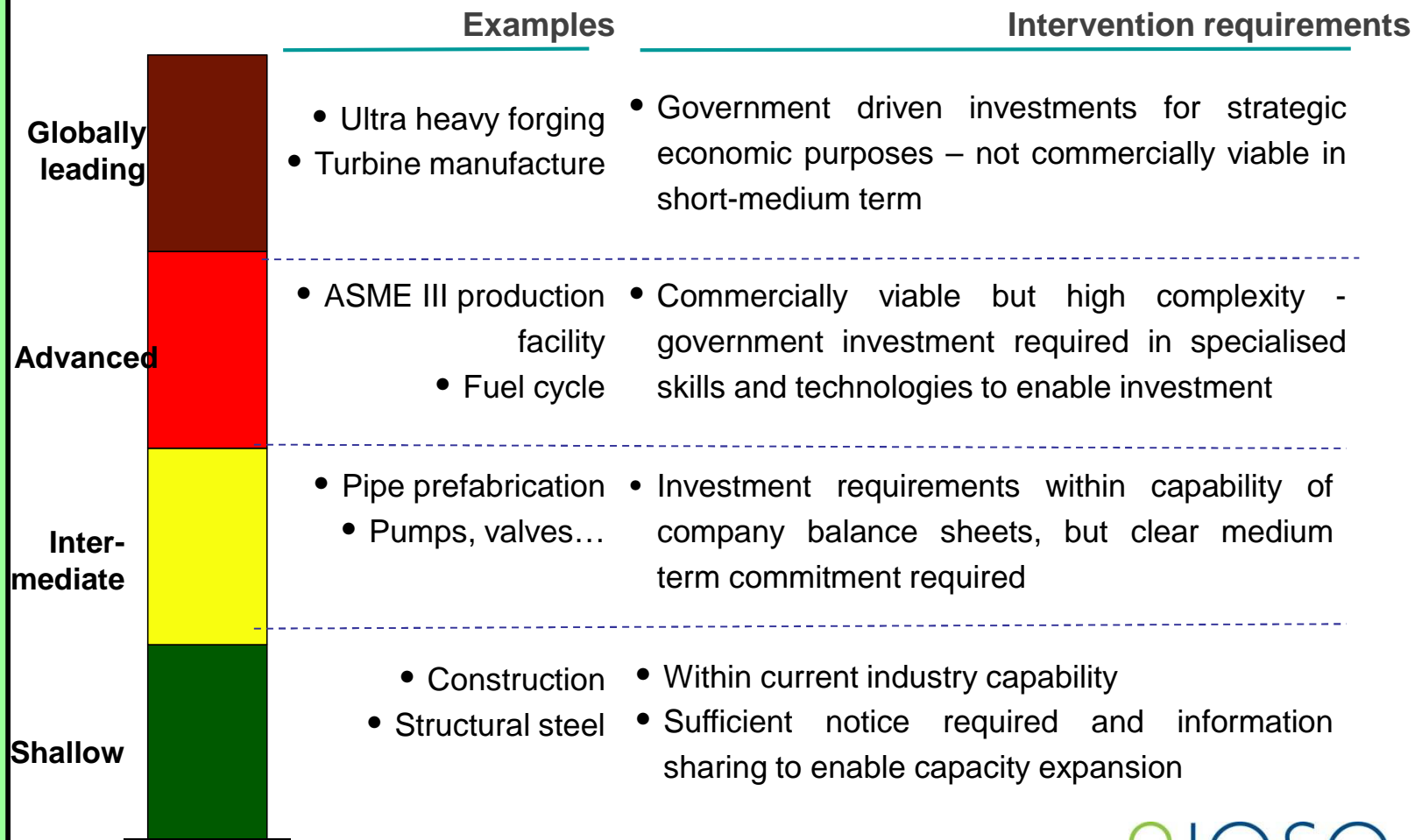
Post 1994

- South Africa needed to shift away from its inwardly focused and uncritically protected domestic economy, and integrate into the global economy in a more export-oriented, competitive and diversified manner. This has been painful.
- Initiatives like the Accelerated and Shared Growth Initiative of South Africa (ASGISA) implemented by government on all government tendered projects.
 - Contractor or supplier has to be rated in the following categories:
 - Black Woman Owned (BWO)
 - Black Economic Empowerment (BEE)
 - Small and Medium Enterprises (SME)
 - Local Content
 - Skills development

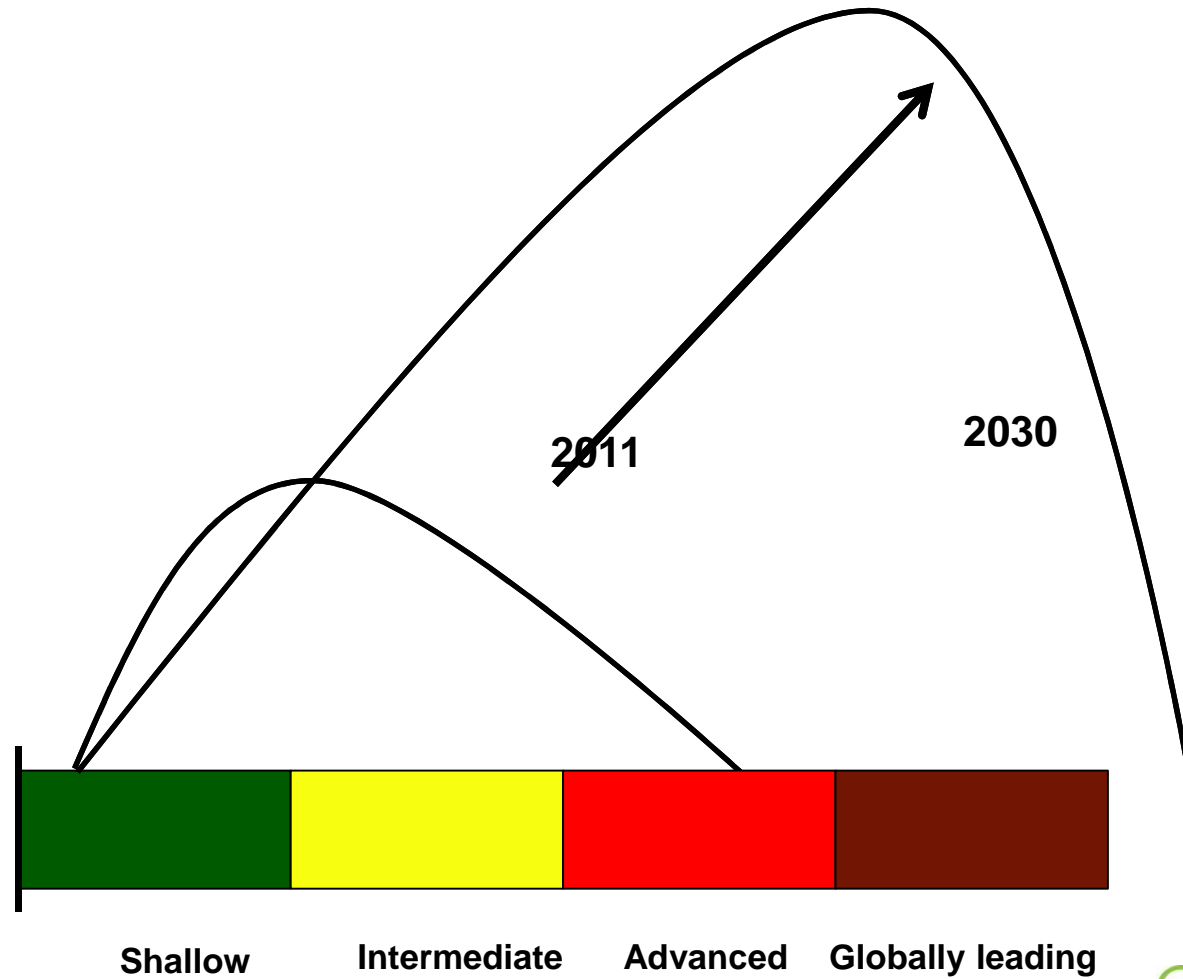
Manufacturing capabilities

- Although South Africa has the basic construction capabilities and many of the manufacturing capabilities, it does not hold international nuclear quality certification on a widespread basis yet.
- Smaller components for nuclear power plants, such as valves, doors, couplers, tanks, smaller forged components etc. can be manufactured in South Africa by applying nuclear quality standards to existing industrial capability.
- South Africa does not have the technology or expertise currently to manufacture heavy components such as turbines and pressure vessels.

Required Interventions



Localisation trend assuming reactor fleet



Issues faced by South African Companies

Waiting for Godot ☺

Decision makers do not fully appreciate what the inconclusiveness of the nuclear new build process means to industry...



BOO, EPCM? Or EPC?

We are not sure which way this is going to go. The only sign thus far is Paul O'Flaherty's presentation to the PC, where EPCM is showcased.



Will the EPCM go in two phases and choose the tech partner first and then allocate localization?

Different strategies are appropriate depending on the answer to this question.



The stop-start nature of nuclear in SA affects the HR pipeline

Boards are reluctant to allocate resources to employ, so the only demographic vector in the nuclear industry is ageing...



'YOU'RE DELIBERATLY PUTTING YOURSELF AT RISK OF ILL HEALTH BY BEING OVER 65...'

A corollary is that young people are disincementivised

Why enter a nuclear field or join a nuclear company when there is no certainty in an industry which is slow moving by its very nature anyway?



Black economic empowerment is also affected by delays

In an atmosphere of certainty, companies will readily establish appropriate mechanisms.





Thank You!!!

**Rob Adam
President of NIASA**

