

# Planning for 21<sup>st</sup> Century Power Systems

An Exchange on the Next Generation of Power Sector  
Planning Approaches

April 21st, 2016

Ian McRae Auditorium  
Eskom Academy of Learning  
Midrand, South Africa

Energy Planners around the world face a range of disruptive technologies that are shifting the landscape of planning-related analyses, processes, and ultimately decisions. This technological innovation presents substantial opportunities for clean and inclusive growth, but adds substantial complexity to the already difficult task of planning the power sector. How countries envision, plan and even conceptualize the power system is quickly evolving, and Energy Planners are being faced with a new collection of pressing and complicated questions – the answers to which will steer billions of dollars of investment each year, and ultimately impact the quality of life for millions of people.

This 1-day international forum seeks to unpack the analytical undertakings, institutional capabilities, data needs, and decision processes that might help to identify and inform the next generation of planning questions and pathways for South Africa, relying on a carefully selected suite of local and international expertise and experiences, and open and constructive public dialogue.

## Co-Hosts and Forum Organizers



energy  
Department:  
Energy  
REPUBLIC OF SOUTH AFRICA



sanedi  
South African National Energy  
Development Institute

Eskom

nerisa  
NATIONAL ENERGY REGULATOR OF SOUTH AFRICA

21st Century  
POWER PARTNERSHIP

CSIR

*“Planning for 21st Century Power Systems” is a collaborative project of the South Africa Department of Energy, National Energy Regulator of South Africa, South Africa National Energy Development Institute, the Council for Scientific and Industrial Research and Eskom, in conjunction with the 21st Century Power Partnership*



8:00 a.m. **Registration and Coffee**  
(30 minutes)

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**Welcome Address and Safety Procedures**  
(10 minutes)

8:30 a.m. **Callie Fabricius**  
*General Manager: Energy Planning*  
Eskom

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**Keynote Address**  
(20 minutes)

8:40 a.m. **Ompi Aphane**  
*Deputy Director General: Policy, Planning and Clean Energy*  
Department of Energy

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**International Perspective – The Next Generation of Planning Challenges  
and Opportunities from the 21st Century Power Partnership**  
(30 minutes)

9:00 a.m. **Douglas Arent**  
*Executive Director: 21<sup>st</sup> Century Power Partnership*  
Joint Institute for Strategic Energy Analysis

This session will provide reflections from the 21<sup>st</sup> Century Power Partnership on: drivers behind the next generation of planning questions; global good practices spanning data, tools, methods, approaches and processes; how technology disruptors are being accounted for in planning; and the importance of long-term scenario planning exercises to inform public policy.

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9:30 a.m. **Tea Break**  
(15 minutes)

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**Presentation – Reflections on the Current State and Future Opportunities for Power Sector Planning in South Africa**  
(35 minutes)

**Kubeshnie Bhugwandin**

*Technology Strategy Manager: Research, Testing & Development*  
Eskom

9:45 a.m.

This session will provide reflections on current state of the South African power sector from the perspective of its various, interlinked planning processes. It will review existing long-term energy plans and visions for the country, discuss implementation challenges for achieving desired goals, and identify future opportunities for South Africa both nationally and internationally.

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**Presentation – The Evolving Role of NERSA in Power Sector Planning Processes**  
(35 minutes)

**Bianka Belinska**

*Department Head: Electricity Infrastructure Planning*  
National Energy Regulator of South Africa

10:20 a.m.

This session will provide reflections on the evolving role of the National Energy Regulator of South Africa in current and future power sector planning processes.

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**Presentation – Demand Projections and their Role in Power System Planning Processes**  
(35 minutes)

**Morore Mashao**

*Senior Energy Planning Manager*  
Eskom

10:55 am

This session will serve as a deep-dive into the role of accurate and effective demand projections in energy sector planning. It will focus on how demand projections are being performed, what input factors are considered, and how demand projections affect long-term planning scenarios.

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**Presentation – Next Generation Distribution System Planning: Challenges and Opportunities for South Africa**  
(35 minutes)

**Prathaban Moodley**

*Technology Strategy Manager: Research, Testing & Development*  
Eskom

11:30 am South Africa’s government policy embraces the inclusion of distributed energy resources, such as embedded generation, advanced demand side management, and plug-in electric vehicles. These technologies will inevitably influence the way the distribution network is planned, designed and operated. This session will explore evolutions of distribution network planning and design as a result of distributed energy resources. It will also discuss barriers and opportunities for increasing the role of distributed energy resources in the South African power system within both Eskom Distribution and for the Municipal Distribution Companies.

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12:05 p.m.

**Lunch**  
(60 minutes)

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**Presentation – The Importance of High Fidelity Data for a New Paradigm of Power Sector Planning**  
(35 minutes)

**Tobias Bischof-Niemz**

*Director: Energy Centre*

1:05 pm Council for Scientific and Industrial Research, Republic of South Africa

Good data is essential to any plan. This session will discuss the importance of high quality data in planning exercises, and good practices with respect to data transparency and stewardship. As well, with wind and solar energy being “on the margin” for many generation planning decisions, this session will highlight the importance of data for “getting renewables right” in planning processes.

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**International Perspective – Evolving Planning Processes and Approaches in the U.S.A.**  
(35 minutes)

1:40 p.m. **John Shenot**  
*Senior Associate: U.S. Practice*  
Regulatory Assistance Project

This session will provide reflections from the Regulatory Assistance Project on evolving U.S. vertically-integrated utility planning processes and approaches.

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**International Perspective – Cost-Competitive Renewable Energy and a New Paradigm of Power Sector Planning**  
(35 minutes)

2:15 pm **Dennis Volk**  
*Programme Officer: Technology Cooperation and Country Support*  
International Renewable Energy Agency

Building on the previous session on data, this session will serve as a deep-dive into how generation and grid planning exercises are growing more complex when considering increasing penetrations of cost-competitive wind and solar resources. It will also review emerging approaches to addressing the increasingly complex set of planning questions.

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**Presentation – Macroeconomic Implications of Planning in South Africa**  
(35 minutes)

2:50 pm **Konstantin Makrelov**  
*Chief Director: Economic Policy*  
National Treasury, Republic of South Africa

This session will provide reflections from the National Treasury on the broader macroeconomic implications, issues, and opportunities of power sector planning processes and decisions in South Africa.

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**Presentation – The Next Generation of Regional Planning Considerations for Southern Africa**  
(35 minutes)

3:25 pm **Mbulelo Kibido**  
*General Manager: Grid Planning*  
Eskom

This session will provide reflections from Eskom on the challenges and opportunities for increased regional coordination and planning in the coming decades.

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4:00 p.m.

**Tea Break**  
(15 minutes)

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**Panel Discussion – Synthesis and Consensus-Building**  
(60 minutes)

*Moderated by Kevin Nassiep, South African National Energy Development Institute*

4:15 p.m. Maduna Ngobeni, Department of Energy  
Leslie Naidoo, Eskom  
Landon McMillan, National Treasury  
Wikus Van Niekerk, Centre for Renewable and Sustainable Energy Studies  
Douglas Arent, 21<sup>st</sup> Century Power Partnership

What do the delegates agree upon in terms of the planning methodologies, assumptions and approaches? Where are the areas of disagreement that require further work and consensus-building? Where are there high-value opportunities for improved coordination and/or international engagement?

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**Concluding Remarks and Next Steps**  
(15 minutes)

5:15 pm **Wolsey Barnard**  
*Deputy Director General: Energy Programs and Projects*  
Department of Energy, Republic of South Africa

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5:30 pm

**Event Conclusion**

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**POWER  
PARTNERSHIP**  
*Accelerating the transformation  
of power systems*