



**AFRICA CLEAN ENERGY CORRIDOR  
EXECUTIVE STRATEGY WORKSHOP**

**Abu Dhabi, 22 – 23 June 2013**

**WORKSHOP REPORT**

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## Abbreviations

AfDB	African Development Bank
AFREC	African Energy Commission
APUA	Association of Power Utilities of Africa
AU	African Union
AUC	African Union Commission
CEMA	Conference of Energy Ministers of Africa
COMESA	Common Market for Eastern and Southern Africa
CSP	Concentrated Solar Power
DFI	Development Funding Institutions
EAC	East African Community
EAPP	Eastern Africa Power Pool
EIB	European Investment Bank
GDC	Geothermal Development Company
IsDB	Islamic Development Bank
IPP	Independent Power Producers
IRENA	International Renewable Energy Agency
KETRACO	Kenya Electricity Transmission Company
NEPAD	New Partnership for Africa's Development
PIDA	Programme for Infrastructure Development in Africa
PPA	Power Purchase Agreement
RERA	Regional Electricity Regulators Association
SADC	Southern African Development Community
SAPP	Southern African Power Pool
UNDP	United Nations Development Programme
WRI	World Resources Institute

## 1. Introduction

An Africa Clean Energy Corridor Executive Strategy Workshop was organized by the International Renewable Energy Agency (IRENA) in Abu Dhabi on 22-23 June 2013. The workshop assembles representatives of regional bodies, power pools, utilities, independent power producers, ministries, financial institutions and development partners to discuss ways of developing an Africa Clean Energy Corridor to help meet Africa's growing power needs. The report provides highlights of the workshop discussion and recommended actions.

## 2. The Need for an Africa Clean Energy Corridor

Broad support was expressed by participants for an Africa Clean Energy Corridor initiative to accelerate the expansion of renewable power options in Eastern and Southern Africa. The initiative would include actions to assess cost-effective renewable energy resources, encourage the incorporation of more renewable power options in generation expansion plans, promote more coordinated planning of generation and transmission, and build a more enabling environment for renewable energy investment. Leaders of the New Partnership for Africa's Development (NEPAD), the East African Community (EAC), the Southern African Development Community (SADC) the Common Market for Eastern and Southern Africa (COMESA), and the African Union Commission (AUC) agreed that an Africa Clean Energy Corridor with a greater share of renewables would promote regional goals for better health and education, poverty reduction and economic growth.

Presentations by IRENA showed that renewable options like hydro, geothermal, wind, solar and biomass power can meet Africa's growing electricity needs in a clean and cost-effective way. Peak electric power demand has been projected to more than double between 2005 and 2025 in the Southern African Power Pool (SAPP) and to quadruple between 2013 and 2038 In the Eastern Africa Power Pool (EAPP). With electricity tariffs ranging as high as 16 cents per kilowatt-hour in Southern Africa and 17 cents per kilowatt-hour in Eastern Africa,

electricity generated from renewable sources is quite cost-competitive, typically costing 3 to 8 cents for hydro, 5 to 10 cents for geothermal, and 5 to 14 cents for wind power. With four-fifths of all electricity generated from fossil fuels in the Corridor today – from coal in Southern Africa and from oil and gas in Eastern Africa – renewable power can also yield significant reductions in carbon emissions.

### 3. Assessment of Cost-Effective Renewable Energy Resource Development Zones

Presentations on renewable resource assessments by IRENA, Ethiopia, Kenya and South Africa showed that several countries in the Africa Clean Energy Corridor already have quite sophisticated assessments of physical resource potential for hydropower, wind power, solar power, and geothermal power. However, it was noted that more detailed studies are needed in some countries to determine which areas have the greatest technical and economic potential for cost-effective development. In particular, to provide investment capital for renewable power projects, financial institutions require detailed measurements of potential energy output and assessments of associated revenue streams.

It was further proposed that coordinated zoning of renewable generating facilities could provide significant economies of scale in transmission infrastructure. High-voltage transmission lines can move large amounts of electricity at lower cost per kilowatt-hour. With large amounts of power clustered in renewable development zones based on resource potential, cost-effective high-voltage transmission lines could move electricity to major load centres such as energy-intensive mines and rapidly growing cities.

## 4. Incorporation of Renewable Power in Generation and Transmission Plans

Mosad Elmissiry, Head of the Energy Division in the New Partnership for Africa's Development (NEPAD), a technical body of the African Union (AU) that helps carry out the Programme for Infrastructure Development in Africa (PIDA) that was agreed by the Conference of Energy Ministers of Africa (CEMA) in 2012, led a roundtable on encouraging more renewables in long-term regional master plans. It was noted that the transmission plans of the Eastern and Southern Africa Power Pools assume a substantial amount of hydro power, but relatively small amounts of wind and geothermal power and very limited amounts of solar and biopower. Since these pool plans are based on a compilation of country-level generation plans, a key issue was thus whether the countries that belong to the pools fully consider renewable power options.

It was clear from the presentations that utilities had in fact considered a variety renewable power options in their expansion plans, even though they had not all been chosen. Hydropower is the most cost-effective generating option in the Democratic Republic of the Congo, Ethiopia and South Africa. Lawrence Musaba, Coordination Centre Manager of SAPP, noted that levelised costs in SAPP are significantly lower for hydroelectricity than for electricity generated from coal or liquefied natural gas. Zelalem Gebrehiwot, Technical Assistant to the Executive Secretary of EAPP, noted that wind and solar plants in EAPP can compete with geothermal plants. Participants from countries as diverse as Sudan, South Africa and Uganda agreed that no renewable energy technologies are intentionally disregarded in capacity plans. Rather, the utilization of specific technologies is dependent on resource availability, various technical factors, and cost-effectiveness.

But Uganda's Electricity Regulatory Authority noted that there was a lot of confusion about who is supposed to develop the least-cost generation expansion plan in many countries. Is it the ministry, the regulator, or the system operator? Participants were asked to consider if countries would benefit from an IRENA workshop to share best practices in this area. The

idea received a positive response, with participants noting that the processes in Kenya and South Africa might serve as useful examples to others.

Another key issue was whether renewable power options face regulatory or financial obstacles that fossil-fuelled power plants do not. One such obstacle is prevailing electricity tariffs which incorporate fossil fuel subsidies. Copperbelt Energy Corporation, an independent power producer (IPP) in Zambia, noted that fossil fuel subsidies there yield retail rates around six cents per kilowatt-hour, less than half those typical in neighbouring countries. They further noted that photovoltaic power costs would become competitive on the grid within four or five years as tariffs are adjusted to be more cost-reflective. Regulations in several countries also inhibit IPPs from selling electricity directly to off-takers, so these need to be reformed for renewable power to grow.

Justus Kageenu, Chairman of the Kenya Electricity Transmission Company (KETRACO) moderated a roundtable discussion on priorities for transmission links as renewable power grows. It was noted during the discussion that joint planning of generation and transmission links could bring substantial cost savings. The EAPP's 2011 Master Plan finds that regional planning could save US\$7.3 billion in addition to US\$25.2 billion gained by country-level planning done at present. The SAPP has found that coordinated regional planning could save US\$47.5 billion. It was also suggested that the regional power pools could assist in the integration of renewable power options on transmission grids by quantifying how much renewable energy could practically be introduced into the generating mix.

In fact, the coordinated planning and construction of reinforced transmission infrastructure could play a significant role in reducing the costs of power and raising the share of renewables generation in Africa. A recent IRENA study on the prospects for renewable energy in the Southern Africa Power Pool has found that if transmission and distribution infrastructure is systematically expanded to accommodate peak system demand, renewables could account for 46 percent of the regional generating mix by 2030.

## 5. Building an Enabling Environment for Renewable Energy Investment

Daniel Schroth, Principal Energy Specialist at the African Development Bank (AfDB), moderated a roundtable discussion on moving from resource assessment to concrete projects. A core issue was what financial institutions require to finance renewable projects. It was noted that assessment of renewable energy potentials includes not only resource mapping but analysis of technical potential, economic potential and market competitiveness of different technologies. Vestas, the Danish wind turbine manufacturer, suggested that companies should invest now in pilot projects to show that wind is technically and economically feasible. Eskom, the main utility in South Africa, noted the importance of reducing barriers to competition by IPPs, for example by simplifying procedures for grid connection, streamlining environmental impact assessments, and standardizing purchased power agreements (PPAs).

Elijah Sichone, Executive Secretary of the Regional Electricity Regulators Association of Southern Africa (RERA), moderated a panel on drivers of the renewable power business case. Among the key questions discussed was how to reduce required rates of return on renewable power projects in Africa by reducing the risks of investing in such projects. Abengoa, the world's leading developer of concentrated solar power (CSP) systems, noted that renewable power projects were often penalized by banks because of risks associated with deploying new technologies. Copperbelt Energy Corporation noted that the costs of moving equipment over poorly developed roads can also add significant premiums to the cost of renewable power, so road transport infrastructure may assist renewable power investment as well as transmission lines. Enel Green Power noted that utility tenders often disallow bids by competitors, further raising renewable costs. In this context, regulatory reform to allow greater competition should assist renewable power options, along with a clear legal framework that spells out rules for various players in the power market.



The United Nations Development Programme (UNDP) presented a recent report on Derisking Renewable Energy Investment, describing the higher costs of financing renewable energy projects in Africa and possible instruments to reduce the investment risks related to power markets, permits, social acceptance, resources and technology, transmission grids, counterparties, financial sectors, politics, and macroeconomic and currency fluctuations in Africa. The European Investment Bank mentioned the possibility of blended financing, with contributions by multilateral banks to reduce the cost of debt. Vestas noted that development of bankable data for renewable energy projects should lower their cost of equity. The African Development Bank said grants could help deal with the high up-front capital costs of renewable power plants. Loan guarantees were suggested by Abengoa and Enel Green Power, as well as by the Kenya Ministry of Energy, as a useful tool for reducing the perceived risk of renewable power projects in Africa and bridging the gap between required rates of return in Africa and elsewhere. Other tools suggested for reducing financing costs included tax incentives and official letters of support. ESKOM of South Africa noted the particular importance of such measures in reducing the cost of capital for IPPs, which lack the access to financing from development funding institutions (DFIs) that utilities often have.

## 6. Formulating an Action Agenda

Participants agreed that based on the stimulating discussions and practical suggestions made at the workshop, IRENA should draft proposed elements of an Action Agenda for the Africa Clean Energy Corridor and circulate these to participants for eventual endorsement by African Energy Ministers.

## Annex I: Workshop Agenda

**AFRICA CLEAN ENERGY CORRIDOR - EXECUTIVE STRATEGY WORKSHOP**  
22-23 June 2013  
Sofitel Hotel, Corniche  
Abu Dhabi, United Arab Emirates

Time	Topic	Process
<b>Day 1: Morning session : UPDATE ON AFRICA CLEAN ENERGY CORRIDOR</b>		
<b>Session 1: Welcome and Regional Setting for the Africa Clean Energy Corridor</b>		
09:00-09:50	Opening Session	Statements by: <ul style="list-style-type: none"> <li>▫ <b>Adnan Z. Amin</b> Director-General, International Renewable Energy Agency (IRENA)</li> <li>▫ <b>Mosad M. Elmissiry</b> Head of Energy Division, New Partnership for Africa's Development (NEPAD)</li> <li>▫ <b>Jesca Eriyo</b> Deputy Secretary General, Productive and Social Sectors, East Africa Community (EAC)</li> <li>▫ <b>Freddie Motlathledi</b> Senior Programme Manager for Energy, Secretariat of the Southern African Development Community (SADC)</li> <li>▫ <b>Mohamedain Seif Elnasr</b> Energy Economist, Common Market for Eastern and Southern Africa (COMESA) Secretariat</li> <li>▫ <b>Atef Marzouk</b> Senior Policy Officer of Infrastructure and Energy Department, African Union Commission (AUC)</li> </ul>
<b>Session 2: Overview of Africa Clean Energy Corridor Initiative</b>		
09:50-10:30	The Clean Energy Corridor Concept – An Overview	<b>Gauri Singh</b> Director, IRENA - Country Support and Partnerships
	Assessment of Corridor Potential	<b>Dolf Gielen</b> Director, IRENA - Innovation and Technology Centre
10:30-11:00	<b>Coffee and Tea Break</b>	
11:00-12:30	Update on Renewable Power in the Eastern Africa Power Pool (EAPP) Master Plan	<b>Zelalem Gebrehiwot</b> Technical Assistant to the Executive Secretary, Eastern Africa Power Pool (EAPP)
	Update on Renewable Power in the Southern African Power Pool (SAPP) Master Plan	<b>Lawrence Musaba</b> Coordination Centre Manager, Southern African Power Pool (SAPP)

Time	Topic	Process
	<b>Roundtable Discussion 1:</b> Encouraging more Renewables in Regional Master Plans	Roundtable Discussion moderated by: <b>Mosad M. Elmissiry</b> Head of Energy Division, NEPAD  Interveners: <ul style="list-style-type: none"> <li>▫ AUC</li> <li>▫ Association of Power Utilities of Africa (APUA)</li> <li>▫ Geothermal Development Company (GDC)</li> <li>▫ Independent Power Producers (IPPs)</li> </ul>
12:30-14:00	<b>Working Lunch</b> Presentation by: <b>Basel Dahleh</b> (Special Projects - Masdar)	
<b>Day 1 Afternoon session: RENEWABLE POWER POTENTIAL FOR AFRICA</b>		
<b>Session 3: Priorities for Assessing Renewable Power Potential in Africa</b>		
14:00-15:30	Status of Renewable Energy Resource Assessments in the Clean Energy Corridor	<b>Nicolas Fichaux</b> IRENA - Knowledge, Policy and Finance Centre
	Renewable Resource Assessment in Ethiopia	<b>Dereje Derbew Beyene</b> Senior Energy Analyst, Ministry of Water and Energy, Ethiopia
	Renewable Resource Assessment in South Africa	<b>Mokgadi Modise</b> Chief Director of Clean Energy, Department of Energy, Republic of South Africa
	Renewable Resource Assessment in Kenya	<b>Isaac Kiva</b> Senior Official, Ministry of Energy, Kenya
	Filling Gaps in Renewable Resource Assessments	<b>Hussein Elhag</b> Executive Director, African Energy Commission (AFREC)
15:30-16:00	<b>Coffee and Tea Break</b>	
16:00-17:30	<b>Roundtable Discussion 2:</b> Moving from Resource Assessment to Concrete Projects	Roundtable Discussion moderated by: <b>Daniel Schroth</b> Principal Energy Specialist, African Development Bank (AfDB)  Interveners: <ul style="list-style-type: none"> <li>▫ European Investment Bank (EIB)</li> <li>▫ Islamic Development Bank (IsDB)</li> <li>▫ KfW Development Bank</li> <li>▫ Ministry of Energy, Democratic Republic of the Congo</li> <li>▫ Ministry of Energy, Mozambique</li> <li>▫ Utilities from Ethiopia, South Africa and Tanzania</li> <li>▫ Vestas</li> <li>▫ World Resources Institute (WRI)</li> </ul>

Day 2 Morning session: BUSINESS CASE FOR RENEWABLE POWER IN AFRICA		
Session 4: Evaluating Cost Savings and Other Drivers for Renewables on African Power Grids		
9:00-10:30	Current and Projected Generating Costs and other Key Factors that affect the choice between Renewable and Fossil-fuelled Power on Africa's Grid	<b>Zelalem Gebrehiwot</b> EAPP  <b>Lawrence Musaba</b> SAPP
	Real world business models for profitable use of renewable power	<b>Mike Allen</b> Special Envoy for Renewable Energy, Ministry of Foreign Affairs and Trade, New Zealand
	Technical and Economic Benefits of Cross-Border Interconnection	<b>Karl Brownson</b> Director of Productions and Contracts - Regulation and Supervision Bureau, Abu Dhabi, United Arab Emirates
10:30-11:00	<b>Coffee and Tea Break</b>	
11:00-12:30	<b>Roundtable Discussion 3:</b> Key Drivers of the Renewable Power Business Case	Roundtable Discussion moderated by: <b>Elijah Sichone</b> Executive Secretary, Regional Electricity Regulators Association of Southern Africa (RERA)  Interveners: <ul style="list-style-type: none"> <li>▫ Abengoa, Spain - South Africa</li> <li>▫ Copperbelt Energy Corporation, Zambia</li> <li>▫ ENEL GreenPower, Italy</li> <li>▫ Vestas</li> <li>▫ AfDB</li> <li>▫ United Nations Development Programme (UNDP)</li> <li>▫ Electricity Regulatory Authority, Uganda</li> <li>▫ Ministry of Energy, Kenya</li> </ul>
12:30-14:00	<b>Working Lunch</b> Speech by: <b>Adam Kulach</b> , Head of the EU Delegation for the Gulf Cooperation Council Presentation by: <b>Ionnas Kaltsas</b> , Head of Policy and Trust Funds, EIB	

Day 2 Afternoon session: GRID DEVELOPMENT IN AFRICA		
Session 5: Requirements for Enhancement of African Power Grids		
14:00-15:30	Current Plans for Regional Transmission Enhancements	<p>Introduction by:</p> <p><b>Kudakwashe Ndhlukula</b> IRENA - Country Support and Partnerships</p> <p>Presentations:</p> <p>Transmission in the Eastern Africa Power Pool, IRENA Transmission in the Southern Africa Power Pool, IRENA</p> <p><b>Asami Miketa</b> IRENA - Innovation and Technology Centre</p>
	<b>Roundtable Discussion 4:</b> Priority Transmission Links as Renewable Power Grows	<p>Roundtable Discussion moderated by:</p> <p><b>Justus Kageenu</b> Chairman, Kenya Transmission Company (KETRACO)</p> <p>Interveners:</p> <ul style="list-style-type: none"> <li>▫ Agency for Energy Conservation, Djibouti</li> <li>▫ Ministry of Water Resources and Electricity, Sudan</li> <li>▫ Ministry of Energy and Power Development, Zimbabwe</li> </ul>
15:30-16:00	Coffee and Tea Break	
Session 6: An Action Agenda for the Africa Clean Energy Corridor		
16:00-16:45	Draft Action Agenda for discussion and comment	<p>Presentation of the Draft Action Agenda by:</p> <p><b>Jeffrey Skeer</b> IRENA - Country Support and Partnerships</p> <p>Discussion moderated by:</p> <p><b>Frank Wouters</b> Deputy Director-General, IRENA</p>

Session 7: Next Steps to Progress the Africa Clean Energy Corridor		
16:45-17:30	Summary and Closing Remarks	<p>Session summaries and reporting by:</p> <ul style="list-style-type: none"> <li>▫ <b>Justus Kageenu</b> KETRACO</li> <li>▫ <b>Elijah Sichone</b> RERA</li> <li>▫ <b>Mosad M. Elmissiry</b> NEPAD</li> <li>▫ <b>Daniel Schroth</b> AfDB</li> </ul> <p>Closing Remarks by:</p> <ul style="list-style-type: none"> <li>▫ <b>Adnan Z. Amin</b> Director-General, IRENA</li> </ul>
<b>ADJOURNMENT</b>		

## Annex II: Africa Clean Energy Corridor Key Stakeholders

*(Participants that attended the Workshop on June 22-23, 2013 are shown in bold and underlined)*

### REGIONAL ORGANISATIONS

#### **African Union Commission**

Mr. Aboubakari Baba Moussa, Director of Infrastructure and Energy  
Mr. Philippe Niyongabo, Head of Energy Division, Infrastructure and Energy  
**Mr. Atef Marzouk, Senior Policy Officer, Infrastructure and Energy**

#### **Association of Power Utilities of Africa (APUA)**

**Mr. Abel Didier Tella, Secretary General**

#### **COMESA – Common Market for Eastern and Southern Africa**

**Mr. Mohamedain Seif Elnasr (Ph.D.), Energy Economist, COMESA Secretariat**

#### **African Energy Commission (AFREC)**

**Mr. Hussein Elhag, Executive Director**

#### **East African Community (EAC)**

**Ms. Jesca Eriyo, Deputy Secretary General, Productive and Social Sectors**

Mr. Peter Kinuthia, Senior Energy Officer, EAC Secretariat

#### **Eastern Africa Power Pool (EAPP)**

Mr. Sherif Ewiss, Acting Executive Secretary

**Mr. Zelalem Gebrehiwot, Technical Assistant to the Executive Secretary**

#### **EAPP Independent Regulatory Board**

Mr. Haruna Masebu, Chairman

Mr. Anastas Mbawala, Assistant to the Chairman

#### **ECREEE (ECOWAS Centre for Renewable Energy and Energy Efficiency)**

**Mr. Hyacinth Elayo, Energy Policy Analyst**

#### **NEPAD (The New Partnership for Africa's Development)**

**Mr. Mosad M. Elmissiry, Head, Energy Division**

**RERA (Regional Electricity Regulators Association of Southern Africa)**  
**Mr. Elijah C. Sichone, Executive Secretary**

**SADC – Southern African Development Community**  
Mr. Remigious Makumbe, Director of Infrastructure and Services  
**Freddie Motlhatlhedji, Senior Energy Officer SADC Secretariat**

**Southern African Power Pool (SAPP)**  
**Dr. Lawrence Musaba, Coordination Centre Manager**  
Alison Chikova, Chief Engineer

## **GOVERNMENT MINISTRIES**

**Angola**  
Sandra Cristovao, Ministry of Energy

**Democratic Republic of the Congo (DRC)**  
**Mr. Etienne Nyembo Kitungwa, Secrétaire Général aux Ressources Hydrauliques et Electricité**  
**Ministère de l’Energie**

**Djibouti**  
**Ms. Saida Omar Abdillahi, Director of the Agency for Energy Conservation**  
**Mr. Mohamed Daher Aden, Division of Standard and Regulation, Ministry of Energy and Natural Resources**

**Egypt**  
**Mr. Shaaban Khalaf Ahmed, Executive Director, Egypt New and Renewable Energy Authority (NREA)**  
Amb. Magdy Rady, Assistant Minister of Foreign Affairs for Economic International Relations

**Ethiopia**  
Mr. Gossaye Mengistie, Director of Energy Development, Ministry of Water and Energy  
**Dereje Derbew Beyene, Senior Energy Analyst**

**Kenya**  
**Mr. Isaac Kiva, Acting Director of Renewable Energy, Ministry of Energy**



**Lesotho**

Matabello Khasipe, First Secretary, Ministry of Natural Resources

**Mozambique**

Mr. Antonio Saide, Director of Renewable Energy, Ministry of Energy

**Ms. Marcelina Mataveia, Deputy Director of Renewable Energy**

**South Africa**

**Ms. Mkgadi Modise, Chief Director of Renewable Energy, Department of Energy**

Mr Thina Mulalo, International Coordination Officer, Department of Energy

**Swaziland**

**Mr. Henry Shongwe, Director of Energy, Ministry of Natural Resources and Energy**

**Sudan**

**Mrs. Amal Babiku, Ministry of Water Resources and Electricity**

**Tanzania**

Mr. Eliakim C. Maswi, Permanent Secretary, Ministry of Energy and Minerals

**Mr. Paul Morris Kiwele, Energy Officer, Ministry of Energy and Minerals**

**Uganda**

**Dr. Benon Mutambi, Executive Director, Electricity Regulatory Authority**

**Zambia**

Mr. Charles Mulenga, Acting Director, Department of Energy

Ms. Harriet Zulu, Senior Energy Officer

Ministry of Mines, Energy and Water Development

**Zimbabwe**

**Raphael Tirivanhu, Director, Ministry of Energy and Power Development**

## UTILITIES

### Botswana

Jacob Rarelu, Managing Director  
Edward Rugoyi, Director of Transmission  
Botswana Power Company – BPC

### Ethiopia

Mr. Mekuria Lemma – Corporate Planning Chief Officer  
Mr. Daniel Mulatu – Project Manager, Planning  
Ethiopian Electric Power Corporation

### Kenya

Mr. Eddy Njoroge, Kenya Electricity Generation Company – Kengen  
Mr. Joseph Njoroge, Kenya Power and Lighting Company – Kenya Power  
**Mr. Justus G. Kageenu, Chairman, Kenya Electricity Transmission Company – KETRACO**  
**Mr. John Mativo, Head of Technical Services**

### Mozambique

Mr. Augusto De Sousa Fernando, Chairman  
Mr. Adraniano Jonas, Executive Administrator: Production, Transmission and Market Operator  
EDM – Electricidade de Moçambique

### Namibia

Mr. Paulinus Shilamba, CEO  
Mr Obrien Hekandjo, Chief Technical Officer  
NAMPOWER

### South Africa

Mr. Brian Dames, CEO  
**Ms. Ayanda Nakedi, Senior General Manager - Renewables**  
Mongezi Ntsokolo, Division Executive for Transmission  
ESKOM

### Tanzania

Mr. Felchesmi Mramba, Acting Managing Director  
Mr. John Kabadi, System Planning Engineer  
**Ms. Evalder Samuel Munisi**  
**Mr. Engelbert Makoye Ng'erere**  
**TANESCO – Tanzania Electric Supply Company**

**Zambia**

**Mr. Victor M. Mundende, Chief Operating Officer**

ZESCO Limited

**Zimbabwe**

Mr. Josh Chifamba, CEO, ZESA

Mr. Julian Chinembiri, Managing Director, Zimbabwe Transmission Company

**INDEPENDENT POWER PRODUCERS**

**Abengoa (Spain - South Africa)**

Dr. Louis van Heerden, General Manager, Abengoa Solar South Africa (IPP)

**Jorge Osborne Cologan, Abu Dhabi Office**

**Cennergi (South Africa)**

Mr. Gordon Walters, Manager – Mergers and Acquisitions

**Copperbelt Energy Corporation (Zambia)**

**Mr. Kelvin Nkole, Senior Manager – Business Development Projects**

**Mr. Manda Mwale, Senior Manager – Renewable Energy**

**ENEL Green Power (Italy)**

Mr. Francesco Starace, CEO

**Mr. Massimo Sciancalepore, Vice President Business Development**

**Vestas (Germany)**

**Mr. Malte Meyer, Director, Public Affairs and Business Development**

**MULTILATERAL FINANCIAL INSTITUTIONS**

**African Development Bank**

**Mr. Daniel Schroth (Ph.D.), Principal Energy Specialist, Coordinator for SE4All Energy, Environment and Climate Change Department**

Mr. Thierno Bah, Renewable Energy Division, Energy, Environment and Climate Change Department

**Development Bank of Southern Africa**  
Ms. Jean Madzongwe, Energy Specialist

**European Investment Bank (EIB)**  
Mr. Pat Walsh, Director General for Africa  
**Mr. Ioannis Kaltsas, Head of Policy and Trust Funds Division**  
Mr. Julien Serre, FEMIP Trust Fund Management Officer, Directorate for Operations Outside the EU

**Islamic Development Bank**  
**Mr. Gürbüz Gönül, Senior Energy Economist**

**World Bank**  
Mr. Lucio Monari, Energy Sector Manager, East and Southern Africa  
**Mr. Oliver Knight, Energy Sector Management Assistance Program (ESMAP)**  
Paivi Koljonen, Team Leader, Eastern Electricity Highway Project

## **DEVELOPMENT PARTNERS**

**Denmark**  
Mr. Hans-Joergen Koch, Deputy State Secretary, Danish Energy Agency  
Danish Ministry of Climate, Energy and Building  
**Ms. Therese Kofoed Jensen, Advisor**

**European Union**  
**Ambassador Adam Kulach**

**Finland**  
Mrs. Anne Tarvainen, Counsellor, Embassy of Finland in South Africa

**France**  
**Mr. Cyril Vial, Ministry of Energy**

**Germany**  
**Dr. Karsten Sach, Federal Ministry of Environment**  
**Ellen von Zitzewitz**  
Mr. Mike Enskat  
Senior Programme Manager, Energy for Sustainable Development, GIZ

**Mr. Florian Ziegler**  
**KfW German Development Bank**

**Italy**

**Mr. Wolfgang D’Innocenzo, Ministry of Economic Development**  
**Mr. Riccardo Toxiri, GSE – Gestore Servizi Energetici**

**Japan**

**Mr. Toshiaki Nagata, METI – Ministry of Economy Trade and Industry**  
**Keiichi Sugita, MAFF – Ministry of Agriculture, Forestry and Fisheries**

**New Zealand**

**Dr. Mike Allen, Special Envoy for Renewable Energy, Ministry of Foreign Affairs and Trade**

**Norway**

Mr. Håkon Smedsvig, First Secretary, Royal Norwegian Embassy Abu Dhabi  
Mrs. Mari Sofie Furu, Counsellor, Embassy of Norway in Maputo

**RECP (Africa-EU Renewable Energy Cooperation Programme)**

Mr. Peter Cattelaens

**United Arab Emirates (UAE)**

Mr. Rowda Al Otaiba, IRENA Manager

**Mr. Ali Ozair Alshafar**

Mr. Dane McQueen

Mr. Sausan Salem Aljaberi

Directorate of Energy and Climate Change

Ministry of Foreign Affairs

**Karl Brownson, Director, Production and Contracts, Regulation and Supervision Bureau**

**United Kingdom**

Mr. Nick Clements

Mr. Tom Wintle

Department of Energy and Climate Change

**United Nations Development Program – UNDP**

Mr. Marcel Alers, Head, Energy, Infrastructure, Transport and Technology

**Mr. Oliver Weissbein**

**United Nations Environment Program – UNEP**

Mr. Mounkaila Goumandakoye, Director and Regional Representative, Regional Office for Africa

Ms. Meseret Teklemariam Zemedkun, Program Manager, Regional Office for Africa

**United States**

**Mr. Tim Williamson, Deputy Director**

**Office of Alternative and Renewable Energy, U.S. Department of State**

**ENERGY ORGANISATIONS and NGOs**

**Geothermal Development Company - GDC**

Dr. Silas M. Simiyu, Managing Director and CEO

Mr. George Mwenda, Senior Officer, Business Development  
Corporate Planning, Projects and Strategy Department

**Global Wind Energy Association**

Steve Sawyer, Secretary General

Ms. Shruti Shukla, Associate

**Masdar**

**Mr. Rashed Al Dhaheri, Head of Special Projects**

**Mr. Basel Dahleh, Office of Special Projects**

**Masdar Institute of Science and Technology**

**Mr. Scott Kennedy, Associate Dean for Research**

**World Resources Institute (WRI)**

Ms. Athena Ballesteros, Senior Associate

International Financial Flows and Environment Program

**Mr. Alex Doukas, Associate**

**IRENA STAFF**

**Mr. Jeffrey Skeer, Senior Programme Officer – Technology Cooperation**

**Mr. Kudakwashe Ndhlukula, Programme Officer – Capacity Building**

**Ms. Safiatou Alzouma, Regional Programme Officer – Sub Saharan Africa**

**Ms. Asami Miketa, Programme Officer – Energy Planning**

**Mr. Nicolas Fichaux, Programme Officer – Resource Assessment**

**Mr. Mohamed Youba Sokona, Junior Professional Associate – Country Support and Partnerships**

**Ms. Tijana Radojicic, Intern – Country Support and Partnerships**

**IRENA CONSULTANTS**

**Eastern Africa Power Pool Study: Mr. Jasper Odour and Mr. Berhane Gebre**

**Southern Africa Power Pool Study: Mr. Simbarashe Mangwengwende**