sanedi
South African National Energy
Development Institute (SOC) Ltd.

South African's OES participation

South African National Energy Development Institution (SANEDI)

- SANERI was created by a Ministerial Directive in 2004 to assist government in developing an energy R&D agenda to promote innovation and support public interest energy R&D

- SANEDI has been created for the sole purpose of assisting the State to achieve its strategic objectives as set out in the National Energy Act, 2008 (No. 34 of 2008), i.e.
  - Promote diversification of energy supply
  - Ensure emerging energy technologies are incubated and commercialised
  - Ensure appropriate human capital is developed to support new industries
  - Stimulate innovation in energy R&D, introduce next wave of generation capacity in SA

- The National Energy Act, 2008 (Act No. 34 of 2008), Section 7 (2) provides for SANEDI to direct, monitor and conduct energy research and development as well as undertake measures to promote energy efficiency throughout the economy.

- SANEDI is the merger of SANERI and the National Energy Efficiency Agency (NEEA) and was was operationalised effective as of 1st April 2011

- SANEDI's role and goals have been defined in direct support of the energy policy and climate mitigation landscape

Objectives

- Support government goals of energy security of supply through identifying viable and sustainable diversified energy supply options
- Stimulate socio-economic upliftment through improved access to modern, clean and affordable energy services
- Support economic growth - accelerating applied research projects getting to market, ultimately resulting in commercial rollout.
- Create local and international partnership to leverage funding, research facilities and share knowledge to accelerate technology development and innovation (IEA, REEEP, NCP EU FP7)

Renewable Energy Sources

Biomass

Solar

Wind

Ocean

Natural resources
Naturally replenished

Renewable Energy Resources

- South Africa has a reasonable wind energy resource that is geographically dispersed to assist security of supply.
- SA has a world-class wave energy resource, predominantly along the south and west coasts.
- South Africa has one of the best solar regimes in the world, of all the renewable energy resources it is by far the most abundant available in the country.
- SA biomass and hydro energy resources are limited due to a lack of water.
- Energy from waste more readily available and should be exploited.

Renewable Energy Technology

- Wind energy is mature technology and can be rolled out immediately in SA. It has the potential to establish a local industry for tower and blade manufacturing in the short to medium term.

- Photovoltaic (PV) systems have improved efficiencies and there are in roads being made for 2nd and 3rd generation system.

- Concentrated solar power (CSP) is the most promising medium to long term technology for application in SA with significant advantages including the possibility to establish a manufacturing industry.

- Bioenergy (biogas and biofuels) technology is mature and commercial but in the medium to long term cellulosic and algal conversion will play a large role.

- Wave energy convertors are still not commercially viable but may have some role in SA in the medium to long term.

International Energy Agency (IEA)

is an intergovernmental organisation which acts as energy policy advisor to 28 member countries in their effort to ensure reliable, affordable and clean energy for their citizens.

Founded during the oil crisis of 1973-74, the IEA's initial role was to co-ordinate measures in times of oil supply emergencies. As energy markets have changed, so has the IEA.

Its mandate has broadened to incorporate the "Three E's" of balanced energy policy making: energy security, economic development and environmental protection.

Current work focuses on climate change policies, market reform, energy technology collaboration and outreach to the rest of the world, especially major consumers and producers of energy like China, India, Russia and the OPEC countries.

www.iea.org

Implementation Agreements

- are at the core of the IEA's International Energy Technology Co-operation Programme.
- focus on technologies for fossil fuels, renewable energies, efficient energy end-use and fusion power. Effective dissemination of results and findings is an essential part of the mandate of each Implementing Agreement.

http://www.etde.org

- Participants in Implementing Agreements fall into two categories: Contracting Parties and Sponsors
- Financing arrangements for international co-operation through Implementing Agreements fall into two broad categories:
  - Cost sharing, in which participants contribute to a common fund to finance the work.
  - Task sharing, in which participants assign specific resources and personnel to carrying out their share of the work.
  - Some Implementing Agreements use a combination of these two mechanism

http://www.iea.org/Textbase/techno/Framework_text.pdf

Benefits of participation

- Shared costs and pooled technical resources
- Avoided duplication of effort and repetition of errors
- Harmonised technical standards
- A network of researchers
- Stronger national R&D capabilities
- Accelerated technology development and deployment
- Better dissemination of information
- Easier technical consensus
- Boosted trade and exports

Ocean Energy Systems (OES-IA)

- aims to facilitate and co-ordinate ocean energy research, development and demonstration through international co-operation and information exchange

Strategic Objectives

- To actively encourage and support the development of networks of participants involved in R,D&D, prototype testing and deployment, policy development, and deployment, and facilitate networking opportunities.
- To become a trusted source of objective information and be effective in disseminating such information to ocean energy stakeholders, policymakers and the public.
- To promote and facilitate collaborative research, development, and demonstration to identify and address barriers to, and opportunities for, the development and deployment of ocean energy technologies.
- To promote policies and procedures consistent with sustainable development.
- To promote the harmonization of standards, methodologies, terminologies, and procedures where such harmonization will facilitate the development of ocean energy.

http://www.iea-oceans.org/index.asp

Ocean Energy

Ocean renewable energy resources can be broadly categorized into:

- Tides - Potential energy associated with tides can be harnessed by building barrage or other forms of construction across an estuary.
- Waves - Kinetic and potential energy associated with ocean waves can be harnessed using modular technologies.
- Marine Currents - Kinetic energy associated with tidal (marine) currents can be harnessed using modular systems.
- Temperature Gradients - Thermal energy due to the temperature gradient between the sea surface and deepwater can be harnessed using different Ocean Thermal Energy Conversion (OTEC) processes.
- Salinity Gradients - At the mouth of rivers where fresh water mixes with salt water, energy associated with the salinity gradient can be harnessed using pressure-retarded reverse osmosis process and associated conversion technologies.

Collaborative Annexes

- Annex I - Review, Exchange and Dissemination of Information on Ocean Energy Systems (newsletters, website, annual reports)
- Annex II - Development of Recommended Practices for Testing and Evaluating Ocean Energy System
- Annex III - Integration of Ocean Energy Plants into Distribution and Transmission Electrical Grids
- Annex IV - Assessment of Environmental Effects and Monitoring Efforts for Ocean Wave, Tidal, and Current Energy Systems
- Annex V - The Exchange and Assessment of Ocean Energy Device Project Information and Experience

Upcoming events

- Meeting October 2013 in South Africa
- Workshop and knowledge sharing

Other partnering initiatives

- EU-Ocean Energy Association supports a number of initiatives in various areas of interest to the association and its members (e.g. Legislation, Funding, Regulatory, Government Relations), ensuring that members are involved in key legislation concerning ocean energy technologies, and providing EU-OEA members with a voice in important discussions in which they are stakeholders. www.eu-oea.com

- INORE is made by, for and with PhD students and Post Docs who work with issues related to Offshore Renewable Energy (offshore wind, wave or tidal energy). http://inore.org

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THANK YOU

ENERGY INNOVATION FOR LIFE