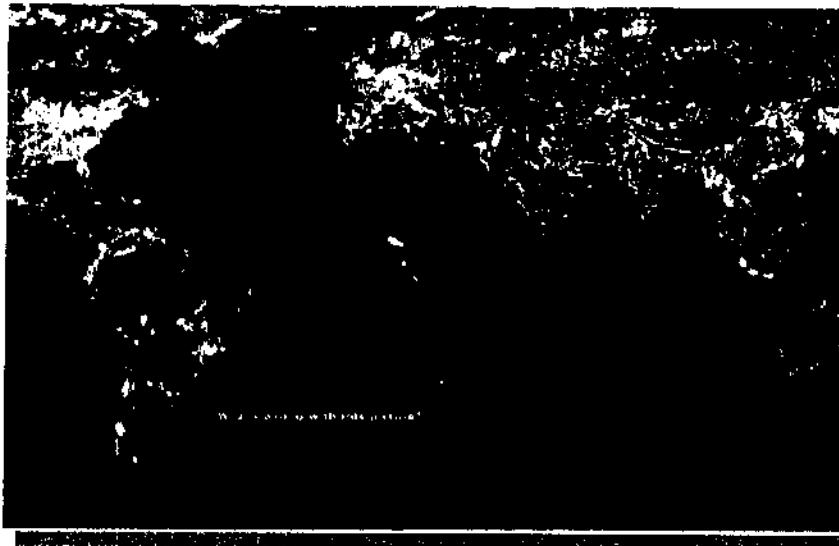




# Eskom Renewable Energy

Bringing green power to the people



Greg Tosen

*Eskom Research Manager*

*- To be the Pre-eminent African Energy and  
Related Services Provider of Global Stature*

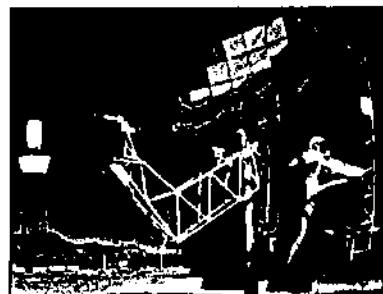
# Essential Components

- Bulk Supply of Electricity (SABRE-Gen Program) 
- South African Centre for Essential Community Services (SACECS) 
- Energisation





# SABRE-GEN HISTORY

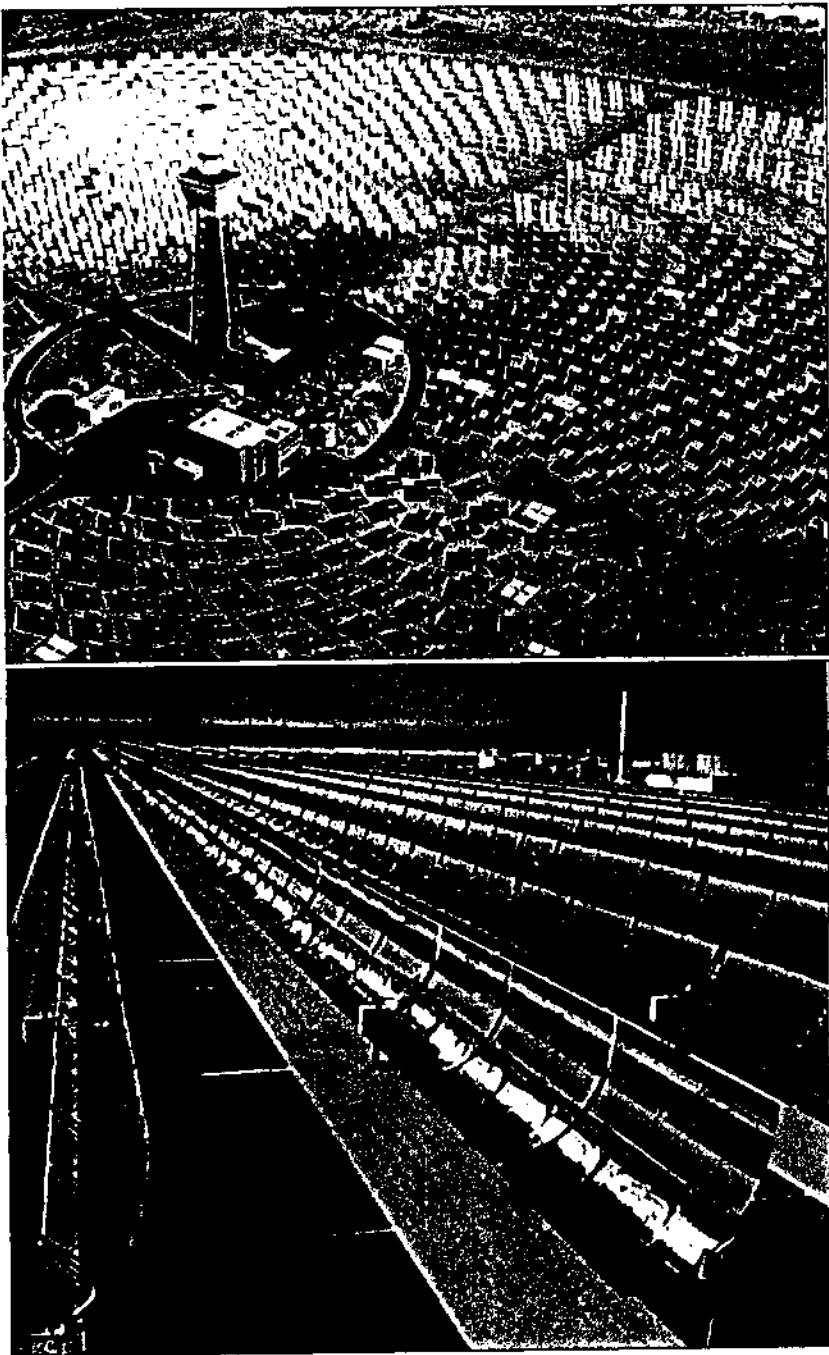


Formal launch in 1998

Initial focus on **wind energy and solar thermal electric technologies**

Scope expanded to include biopower and wave / tidal power

Program managed by Eskom Research, Development and Demonstration and project managed by TSI



# CSP-Africa Study

Evaluating the application of large-scale STE technologies in South and Southern Africa.

Pre-feasibility Study - Selection of a technology for a detailed feasibility analysis. To be completed - 05/03/2001. Co-funded by GEF.

Feasibility & EIA - Starts April 2001 - July 2002

Possible plant construction:

Date - 1st Quarter 2003

Size - 100MW, grid-connected

Site - NC Province

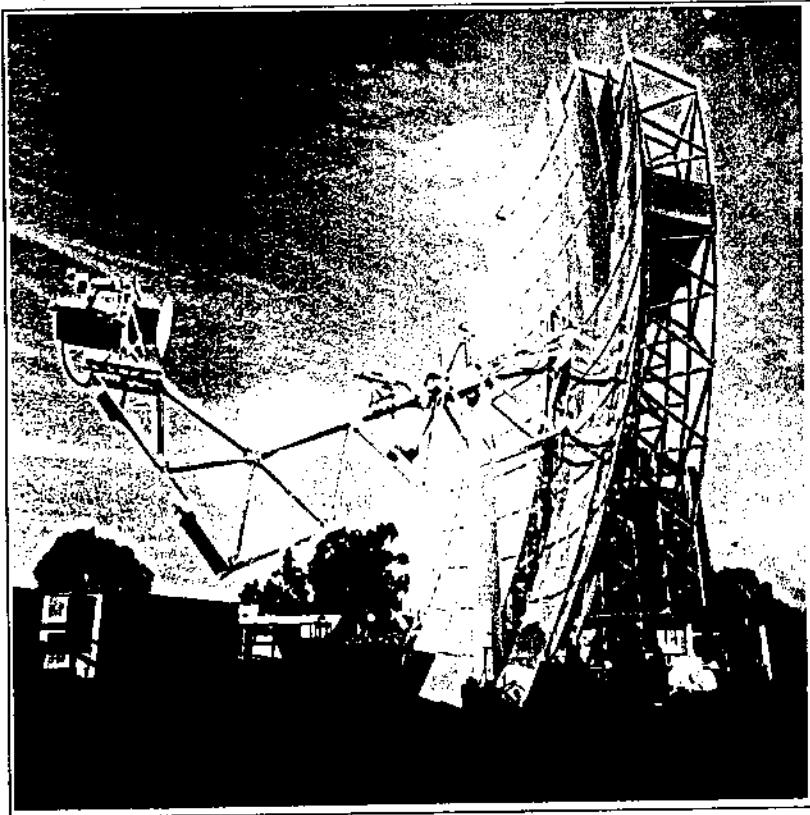


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# Dish/Stirling Demonstration Project

Evaluating and demonstrating the Dish/Stirling technology in the South African context as a DG option.



Installation of two systems through 2001.

• Sizes - 10kW, 25kW

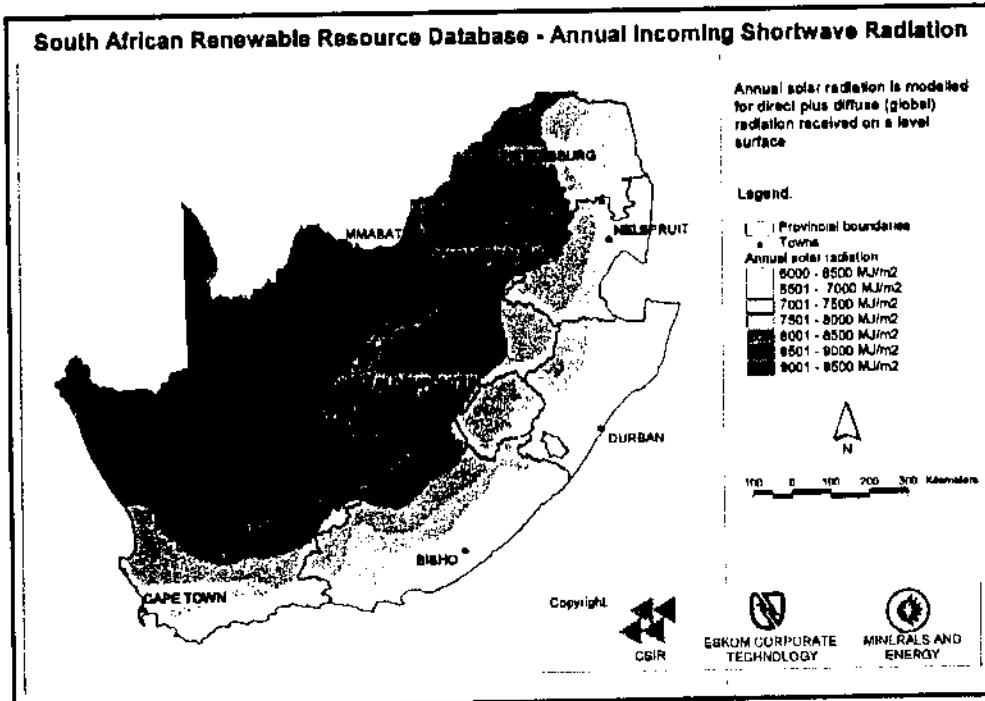
Objectives:

Obtain installation and O&M expertise, Evaluate performance, Assess final generating costs.



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# South African Renewable Resource Database & Electrification Planning Tool



Joint Eskom, CSIR, DME initiative.

GIS containing SA's renewable resource potential.

Planning tool will design and cost a hybrid system based on load and resource availability.

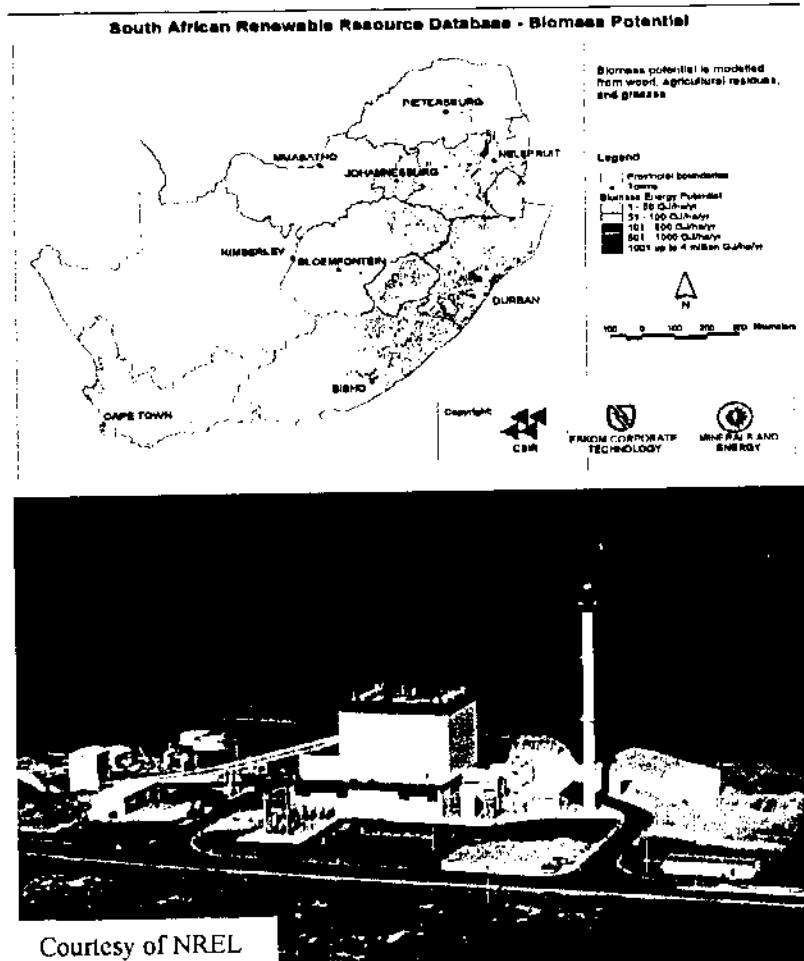
Important tool in future electrification planning in SA



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# Biopower Study- Evaluating the application of biomass technologies in South Africa



The study will investigate co-firing, direct firing, gasification and landfill applications.

## Process

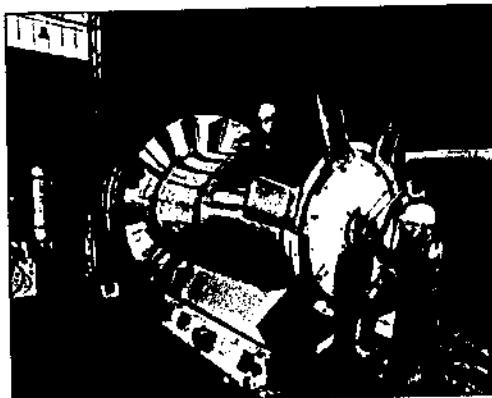
- ◆ Pre-feasibility study- linking the available resource with the biomass technologies. To be concluded by 30/11/2001.
- ◆ Feasibility study of the identified technologies. Starts January 2002 - December 2002.
- ◆ Possible pilot - dependent on the outcome of study.



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# Wave / Tidal Power

- Currently a scanning project to assess all viable technologies world-wide
- Focus is on:
  - ◆ Land-based systems  
e.g LIMPET (Wavegen)
  - ◆ Water-based systems  
e.g. Hotspur (US Myriad)

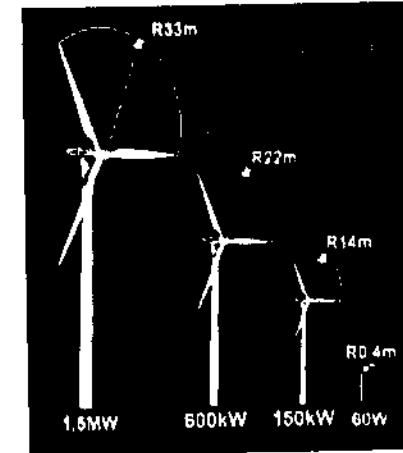


500 kW turbo-generator set  
for LIMPET (courtesy of  
Wavegen)

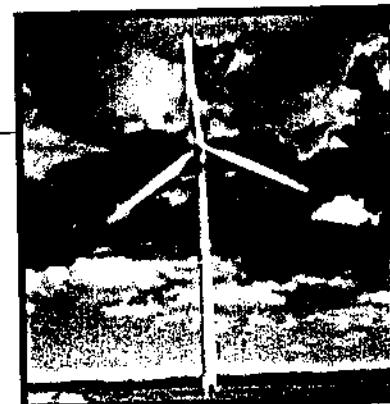
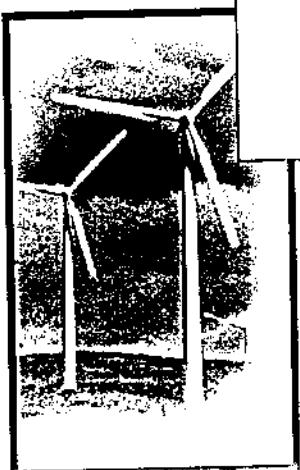


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# Application of Large Wind Turbines - Focus



- Demonstration of 5-10 MW plant in Western Cape
- Commissioning target is 31 March 2002
- Plant will be owned by Eskom Research and will form part of a 3-year research programme



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## The South African Centre for Essential Community Services

- Launched by Eskom and EPRI in 1996
- Mandate covers provision of essential services (electrotechnologies, mostly) to needy communities
- Seen by Eskom as a vehicle for IRD
- SACECS managed by Eskom
- Research and project managed by TSI



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## SACECS Focus

- Emphasis on providing sustainable (preferably electro-) technologies to needy communities
- Strong focus on cost recovery
- Traditional focus on water treatment and healthcare but new scope includes alternative energies
- Establish research and strategic alliances with parties such as EPRI, CSIR, MRC and WRC



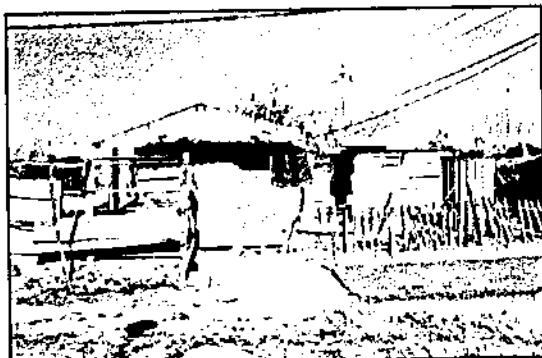
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# SACECS Health Thrust

Projects include:

- Microwave Medical Waste Steriliser
- Ultraviolet Germicidal Irradiation for TB Treatment
- Waste Sterilisation technology evaluation (EPRI)
- Evaluation of low-cost insulation for informal settlements



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# SACECS Water Thrust

Projects include:

- Reverse Osmosis Pilot Plant (Giyani)
- Biological Denitrification (EPRI)
- Heat Barrow (see picture)
- Electrolytic Water (Radical Waters)



Heat Barrow

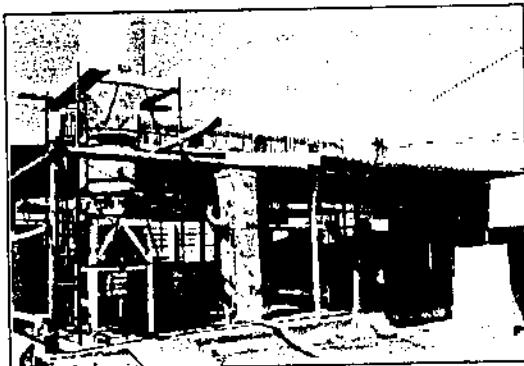


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# Energy Provision Thrust

## The System Johansson Gasifier

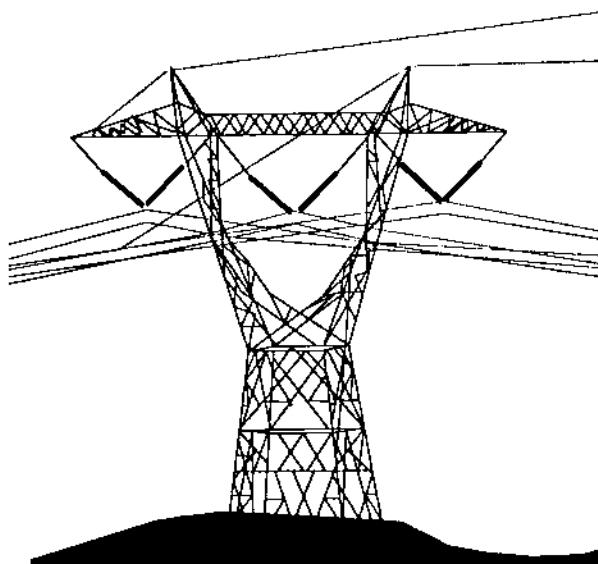
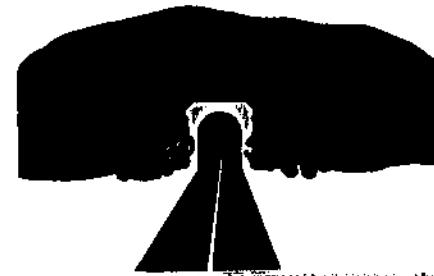


100 kW Prototype unit, Edenvale

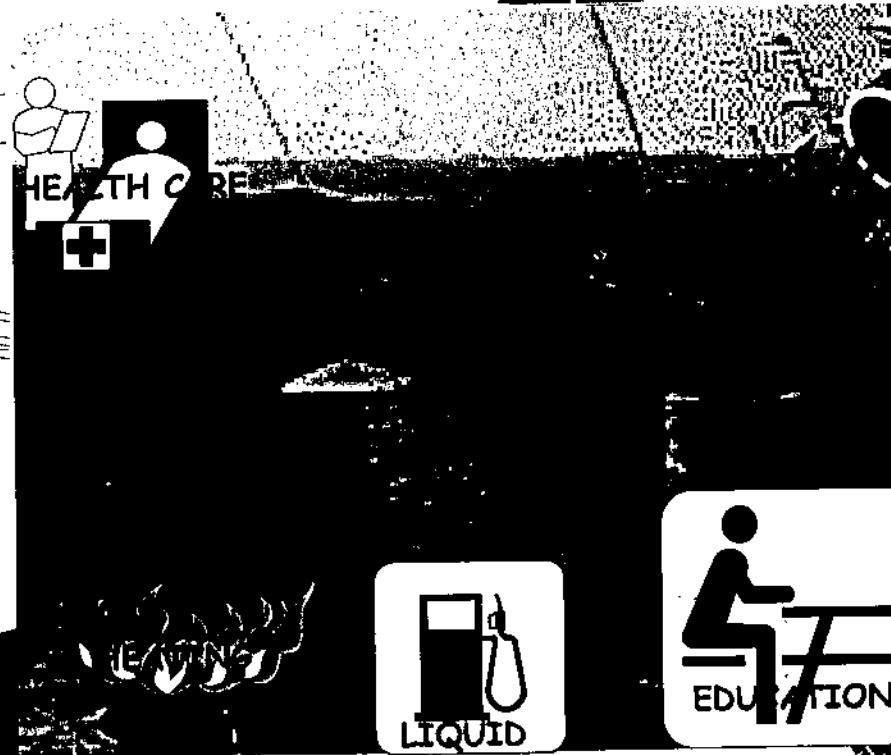
- Uses wood blocks and sawdust (briquette form) to produce a “tar-free” producer gas.
- Powers a Volvo Penta engine at present
- Due for piloting in E Cape in community near Qumbu (sawmill)
- Uses include space heating and power generation

# SERVICES FOR ENERGISATION

COMMUNICATIONS



ELECTRICITY/ENERGY



TELECOMMUNICATIONS



WASTE DISPOSAL



AGRICULTURE

