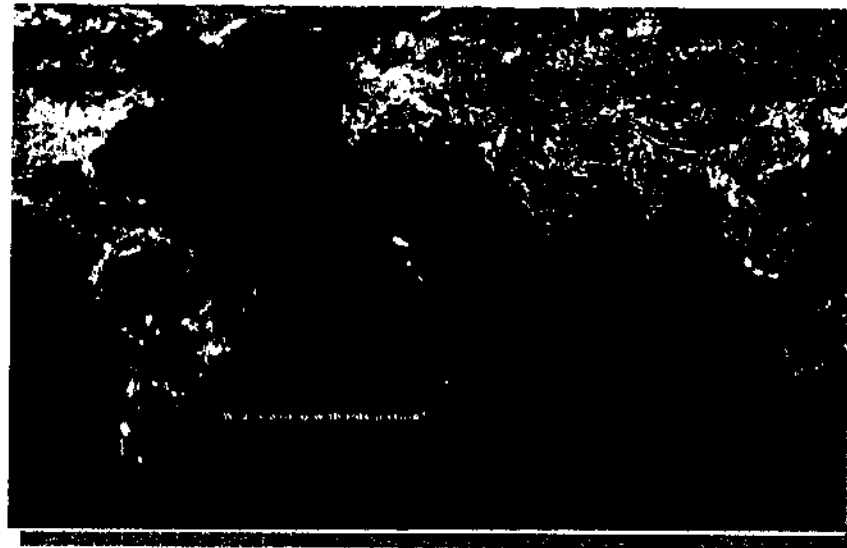




Eskom Renewable Energy

Bringing green power to the people





Greg Tosen

Eskom Research Manager

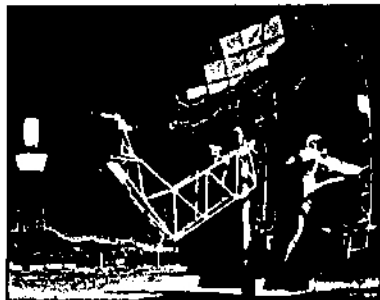
*- To be the Pre-eminent African Energy and
Related Services Provider of Global Stature*

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

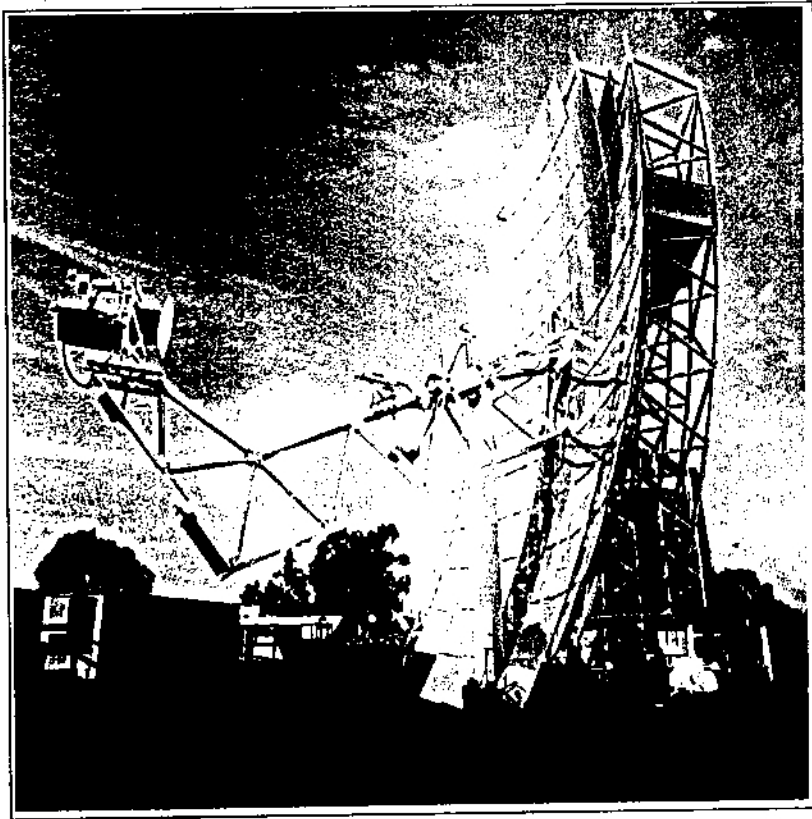
Site - NC Province



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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

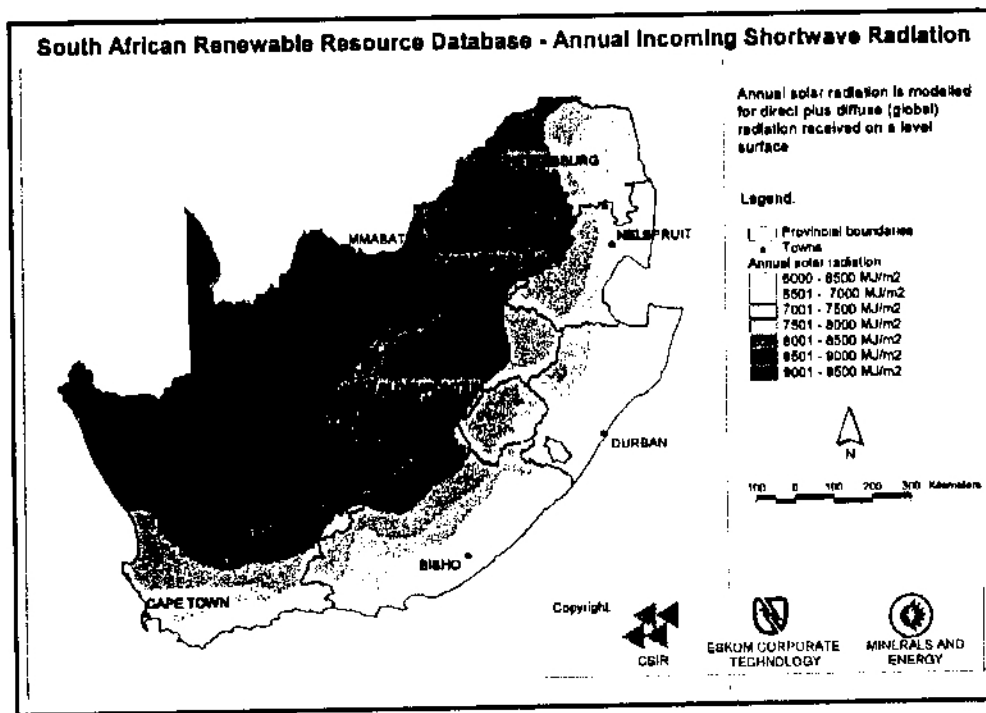
- Objectives:

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.

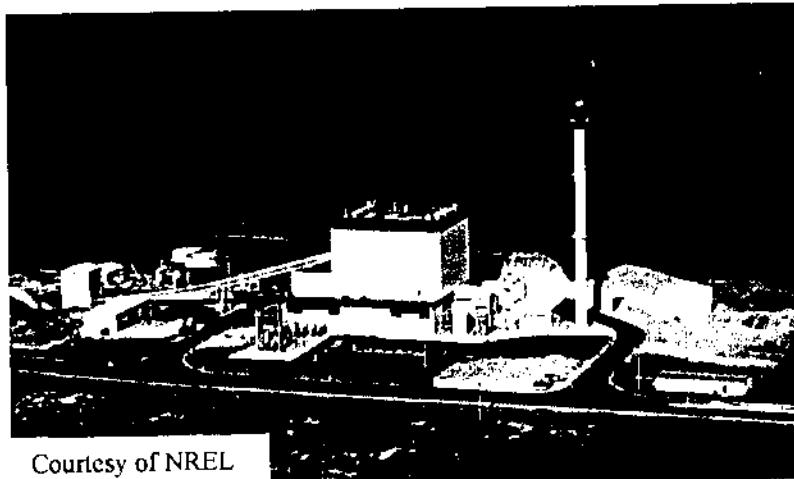
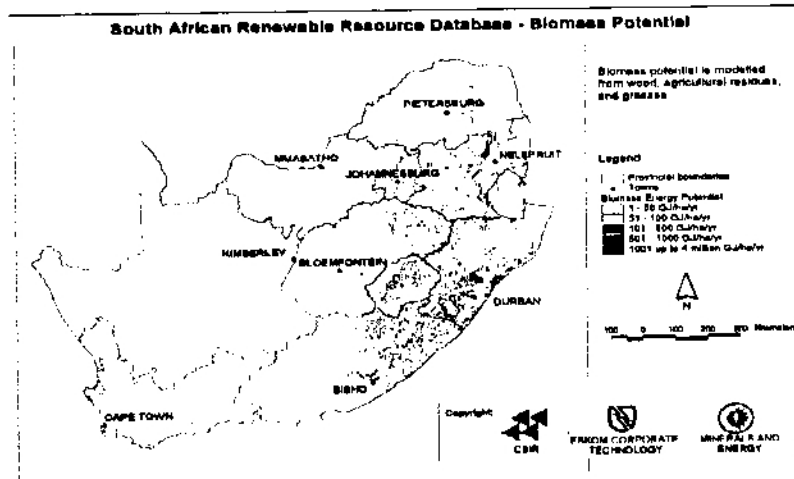
Planning tool will design and cost a hybrid system based on load and resource availability.

Important tool in future electrification planning in SA



Resources & Strategy Group

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



Courtesy of NREL

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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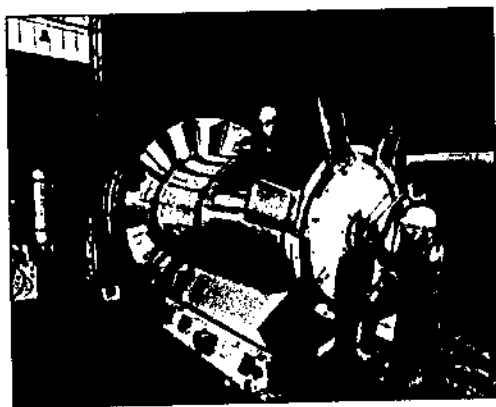
ESKOM

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)

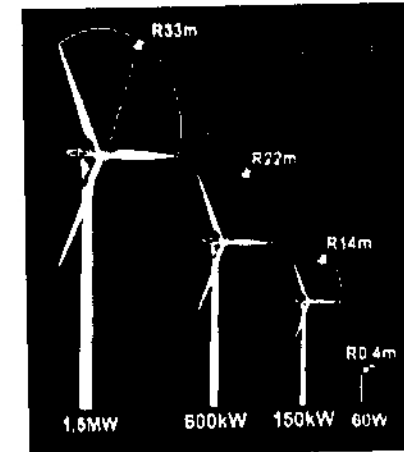


500 kW turbo-generator set
for LIMPET (courtesy of
Wavegen)

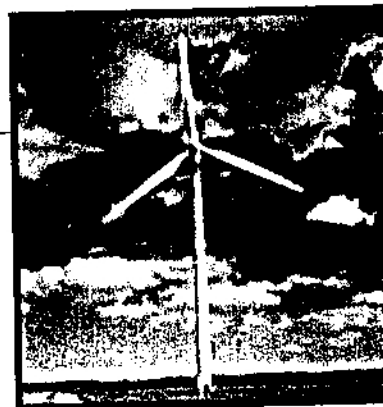
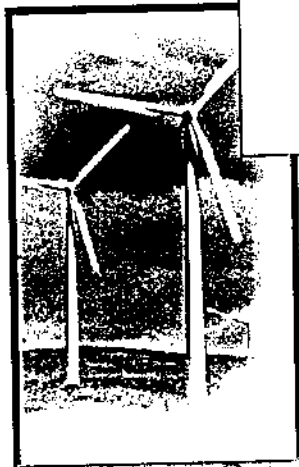


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Application of Large Wind Turbines - Focus



- 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



Resources & Strategy Group



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



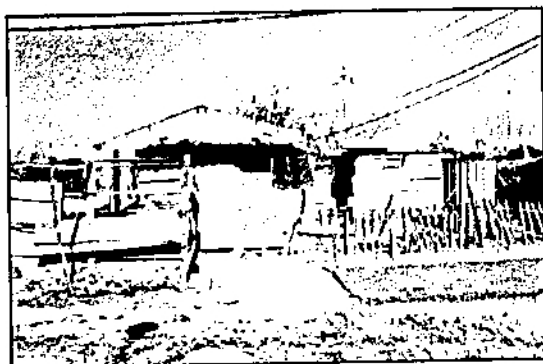
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SACECS Health Thrust

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



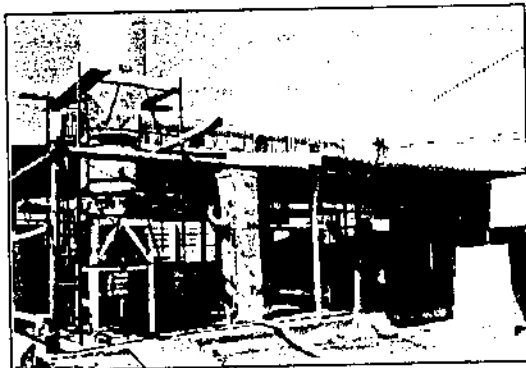
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Energy Provision Thrust

The System Johansson Gasifier

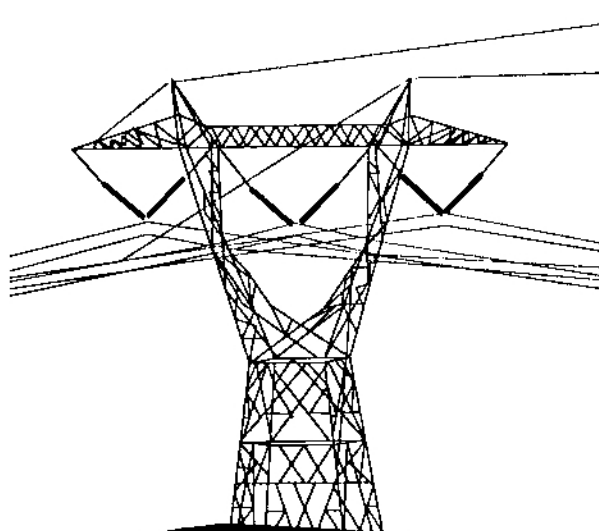
- Uses wood blocks and sawdust (briquette form) to produce a “tar-free” producer gas.
- Powers a Volvo Penta engine at present
- Due for piloting in E Cape in community near Qumbu (sawmill)
- Uses include space heating and power generation



100 kW Prototype unit, Edenvale

SERVICES FOR ENERGISATION

COMMUNICATIONS



ELECTRICITY/ENERGY



HEALTH CARE



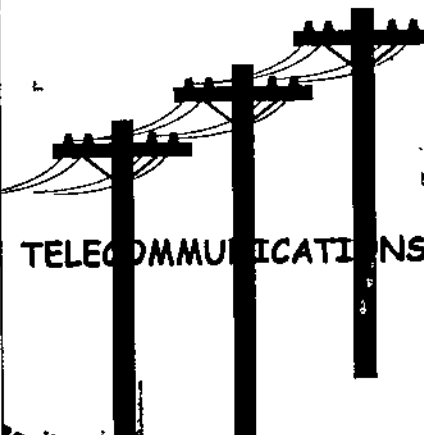
HEATING



LIQUID
FUEL



EDUCATION



TELECOMMUNICATIONS



WASTE DISPOSAL



AGRICULTURE

