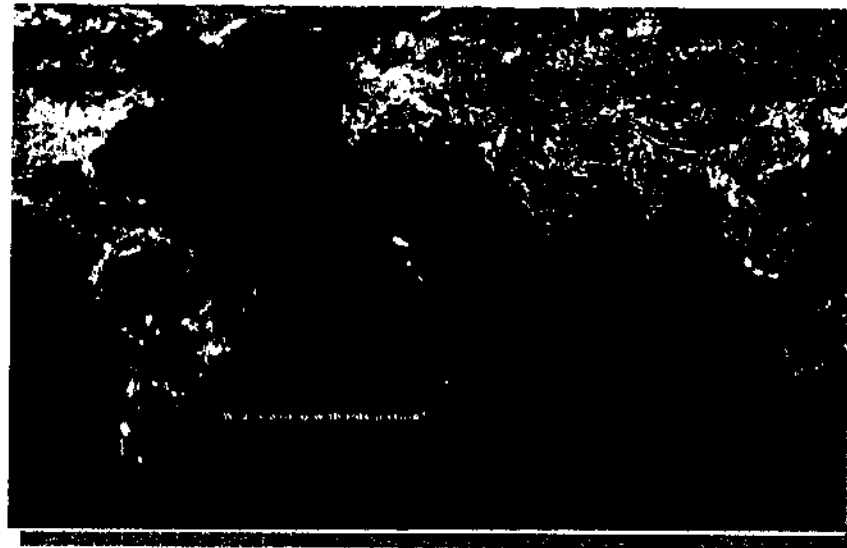




Eskom Renewable Energy

Bringing green power to the people





Greg Tosen

Eskom Research Manager

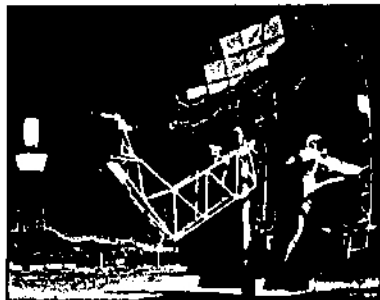
*- To be the Pre-eminent African Energy and
Related Services Provider of Global Stature*

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

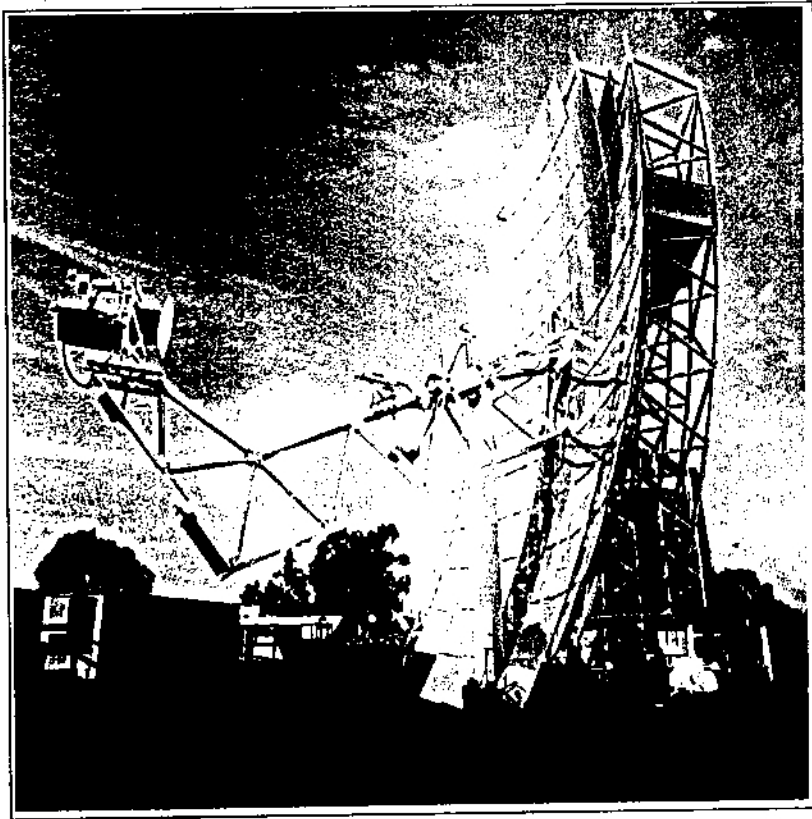
Site - NC Province



Resources & Strategy Group

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

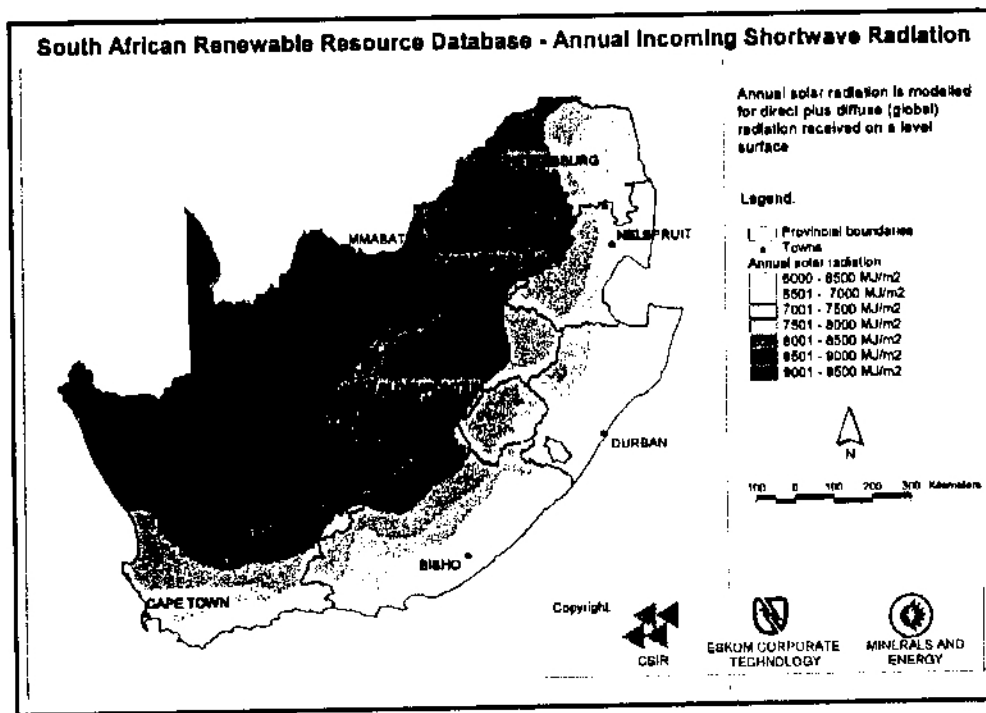
- Objectives:

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



Resources & Strategy Group

South African Renewable Resource Database & Electrification Planning Tool



Joint Eskom, CSIR, DME initiative.

GIS containing SA's renewable resource potential.

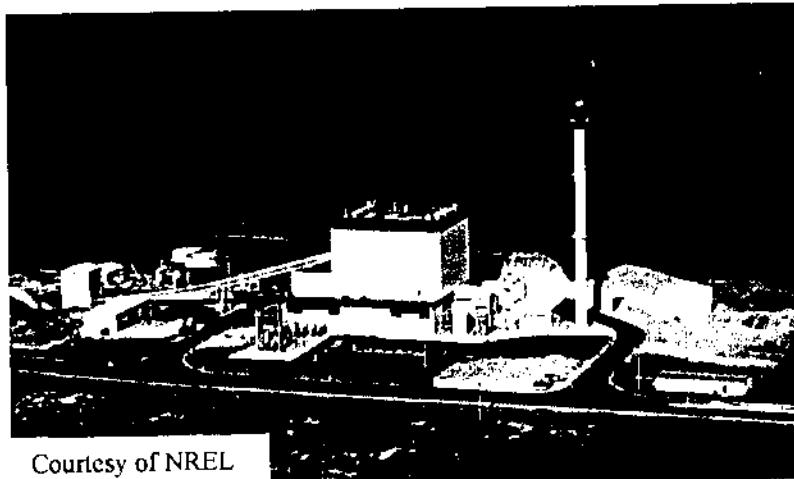
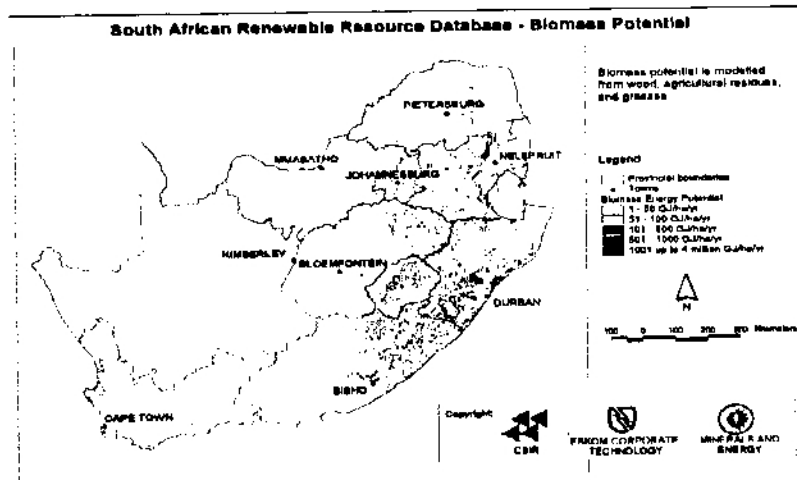
Planning tool will design and cost a hybrid system based on load and resource availability.

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.



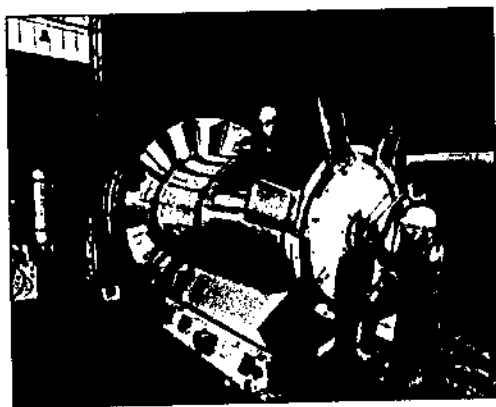
Resources & Strategy Group

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)

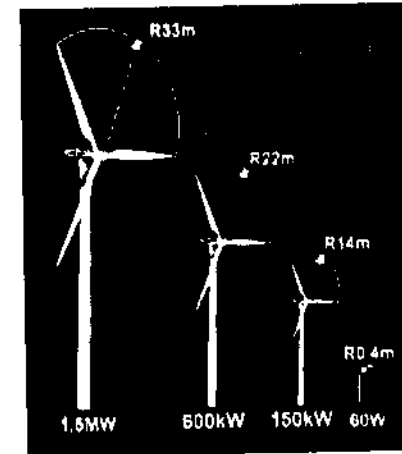


500 kW turbo-generator set
for LIMPET (courtesy of
Wavegen)

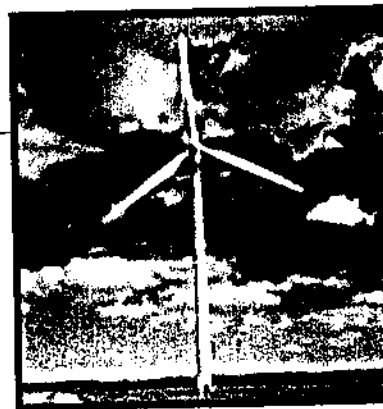
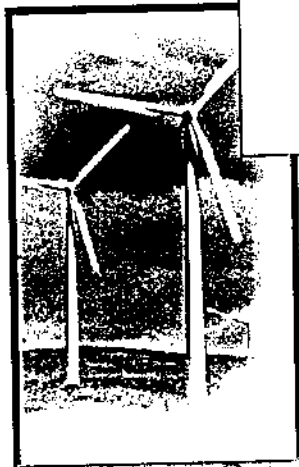


Resources & Strategy Group

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



Resources & Strategy Group



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

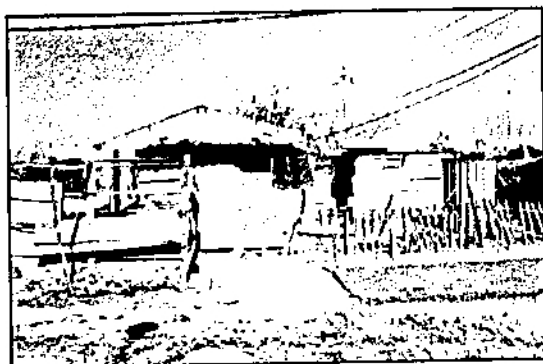
- Establish research and strategic alliances with parties such as EPRI, CSIR, MRC and WRC



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



Resources & Strategy Group



SACECS Water Thrust

Projects include:

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



Heat Barrow



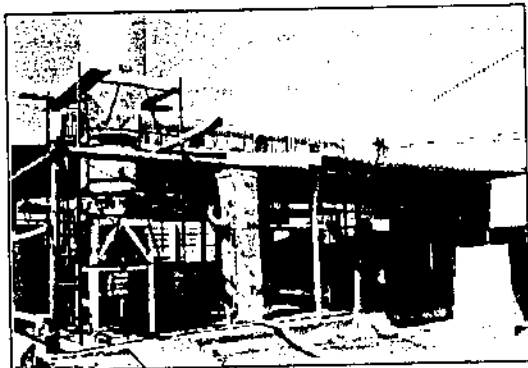
Resources & Strategy Group



Energy Provision Thrust

The System Johansson Gasifier

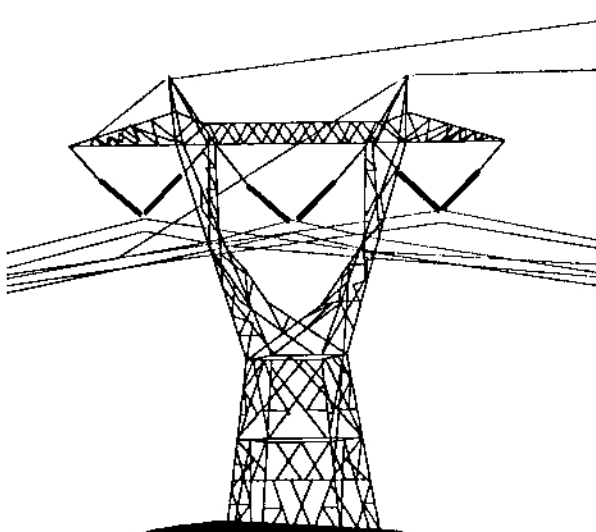
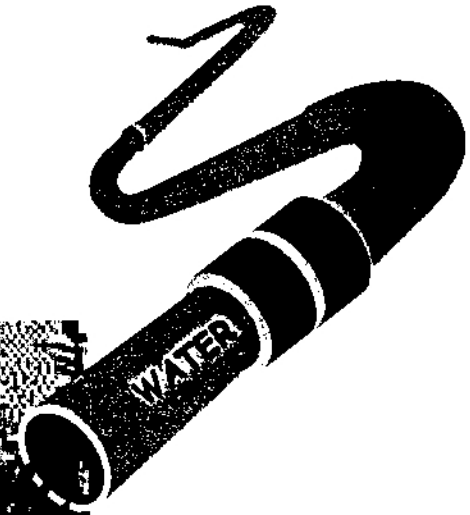
- Uses wood blocks and sawdust (briquette form) to produce a “tar-free” producer gas.
- Powers a Volvo Penta engine at present
- Due for piloting in E Cape in community near Qumbu (sawmill)
- Uses include space heating and power generation



100 kW Prototype unit, Edenvale

SERVICES FOR ENERGISATION

COMMUNICATIONS



ELECTRICITY/ENERGY



HEALTH CARE



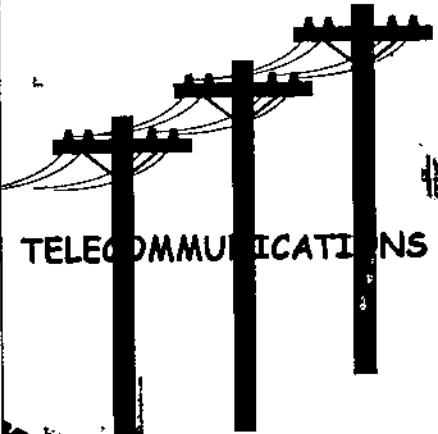
HEATING



LIQUID
FUEL



EDUCATION



TELECOMMUNICATIONS



WASTE DISPOSAL



AGRICULTURE

