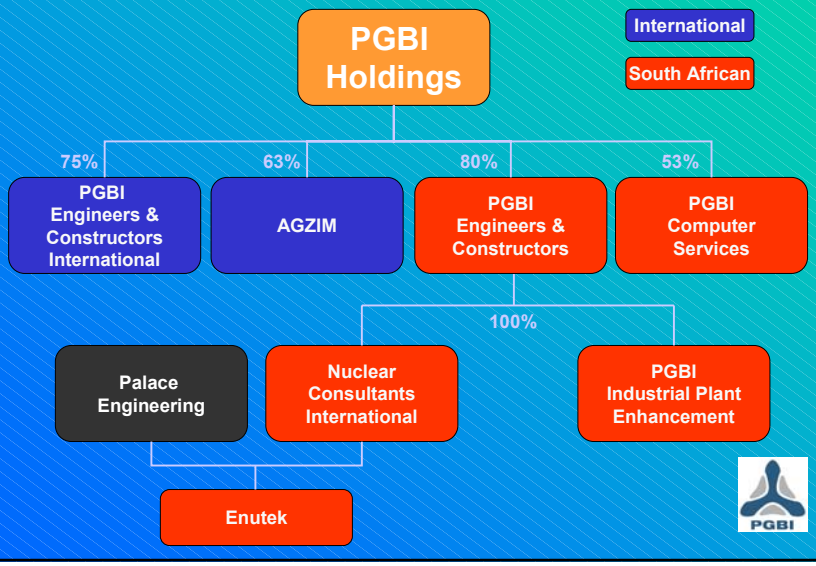
LAMNET

Joint Workshop – South Africa
Introduction to PGBI

19th-21st August 2002

PGBI Engineers and Constructors (Pty) Ltd
Engineering the Future

PGBI Group Structure



- Jo'burg
- Durban
- Cape Town
- Koeberg
- Nelspruit

PGBI

Recent Co-generation Experience

- **Manage the installation Komati Mill Co-generation plant system (2x10MW sets).**
- **Install Hippo Valley co-generation 20MW set.**
- **Tariff negotiations for first- co-generation with National Utilities.**
- **Upgrade Malelane power station (Coal consumption reduction 650t/a to 180t/a).**
- **Various sugar factory energy efficiency improvement programmes.**
- **Technical papers on Co-generation World Energy Forum and SA Sugar Technologists Association.**
- **National study Co-generation of Electricity from Biomass for Government of Swaziland.**
- **Largest (and first of a kind) backpressure cogeneration turbine in Africa's sugar industry (20MW)**
- **Complete boiler plant overhaul to improve efficiency and reduce coal usage (from 105 tons per day to 0)**

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HVE & Komati Mills Co-Generation TA's

New Boiler 6 at Malelane : First Steam Attemperation System in the Sugar Industry

- Coal / Bagasse fired boiler steam temperature varies
- Co-generation requires constant steam temperatures
- Installed steam attemperator to improve coal firing turn/down steam temperatures for power generation
- Extract maximum capacity from installed plant
- New technology in sugar mills (SA)

Boilers at Malelane Mill

Recent Studies and Papers

- Feeding Bagasse to Multiple Boilers with a *"Smart-feed™"* Bagasse Fuel Conveyance and Distribution System, Incorporating "Renton Ploughs"

  Authors: Edward Kaliika, the late Robin Renton, Johan Groenewald and Garry Wenham

- The Engineering, Installation, Integration and Operation of a 20MW Co-generating Turbine Alternator at Hippo Valley Estates

  Authors:: Steve Ndoro, Johan Groenewald and Garry Wenham

- The Economic Potential of Ethanol and Cogeneration Projects in Africa

  Author: Peter Bailey

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Swaziland

Feasibility Studies

- Evaluation of a national programme for the blending of ethanol derived from sugar cane as an octane enhancer on local blendstocks
- Value: USD 1 Million

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Swaziland

Feasibility Study

A study to evaluate the potential for co-generation of electric power with the Swazi Electricity Board's (SEB) network to reduce dependence on imported power. The study included recommendations on improving sugar mill energy efficiency to increase bagasse surpluses for this power generation.Client: Govt. of Swaziland / Ministry of Natural Resources and Energy (MNRE)
Value: USD 500 000 (USAID, USTDA)
Year Started: 1990
Date Submitted: 1992

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