



**RANCE TIMBER**  
"Ingrained Quality"



## Who is Rance Timber?

- Third generation family business
- 14,000 ha Pine plantations under management
- Amatola Region of the Eastern Cape
- 2 sawmills processing 140,000 m<sup>3</sup> of sawlogs/annum
- Generating ± 80,000 m<sup>3</sup> of sawn products
- By-products: sawdust, wood chips, wood shavings and bark



## Who is John Urban?

- Starting in Germany in 1970 now 44 years in the wood industry
- Sawmilling as primary focus
- Also experienced in secondary and tertiary manufacturing
- Originally in the Southern Cape and now in Eastern Cape
- Past Chairman of the SA Lumber Millers Association
- With Rance Timber for the past 9 years



## Available and possible residues

- Plantation residues from silvicultural practises and clear felling
- Sawmill residues and by-products
- Established woody biomass resources within local communities
- Possible establishment of renewable energy crops in the region





## Pruning's and thinning's

- Branches, tree-tops, and rejected tree trunks
- Currently no market for these
- Currently these are left to rot on the plantation floor
- This practice adds volume to the fuel loading in the plantation
- Risk of HOT fires is increased
- Fire fighting and insurance costs are increased



## Clear Felling Residues

- Branches, tree-tops, and rejected tree trunks
- Currently no market for these
- Currently these are burnt in the plantation
- This practice increases the risk of uncontrolled fire in the plantation
- Re-establishment costs are loaded with this expense



## Sawmill residues and by-products

- Bark, wet and dry sawdust, wood chips, wood shavings
- Bark: currently sold as nuggets or as compost
- Wet and dry sawdust: used for process steam generation
- Wood chips: sold to chipboard factory 300 km away
- Wood shavings: sold for use as chicken litter and horse bedding



## Where is wood in the hierarchy of energy

- Food (to feed the nation)
- Feed (to produce the food)
- Fibre (to give shelter to the feed) paper and fibreboard
- Power (to process the food) all the left overs





## Options considered for improved utilisation of residues

- Briquetting: to be sold as furnace fuel to industries in East London
- Pelletizing: for sale as fuel on the international markets
- Conversion to charcoal for domestic and industrial use
- Conversion to liquid fuels
- Power generation



## Tonnes available to the project

- Maximum 100,000 sustainable tonnes per annum
- Less 20,000 t/a for process heat generation
- Plus 20,000 t/a from local communities (but not bankable)
- Limited to 9.99 MWe<sub>el</sub> output by environmental bracketing
- Limited to 50 MW fuel input by environmental bracketing



## Technical solutions considered for power generation

- Gasification: for use in Internal Combustion Engines (ICE's)
- Steam: for driving modern type Reciprocating Expansion Steam Engine
- Steam: for driving a Turbo Expander Engine
- Steam: for driving Organic Rankine Cycle Engine (ORC's)
- Steam: for driving conventional Rankine Cycle Steam Turbine engine



## Technical Solutions Considered for the Rankine Cycle Steam Turbine solution

- Low Pressure ( $\pm 40$  bar) Lower Capital Cost but Inefficient
- Medium Pressure ( $\pm 80$  bar) Limited Availability in Small Sizes
- High Pressure (100 bar +) Not Available in Small Sizes
- Water Cooled vs Air Cooled
- European Technology Suppliers vs Others (China, India, Brazil)
- Island Generation vs Grid Connection
- Site selection: sawmill site vs town site



## Commercial considerations

- Ownership (sole owner, JV or no equity)
- Project Developer, Financiers, EPC, BEE, Operate and Maintain
- Project participation (fuel supplier ex plantation/sawmill or at plant)
- Environment
- Legal and Risk Management
- Local Community Participation (other fuel sources)
- Sales: PPA's and DOE Programs vs Wheeling
- Grid connection



## Where are we now?

- Project Developer
- EPC + O&M
- Equity stake
- BEE
- DOE Renewables (Biomass) 4<sup>th</sup> Round
- Fuel Supply Contract
- Site selection
- Grid connection





**THANK YOU**