

# PNG'S NEW LOW COST ENVIRO ENERGY PARKS - CO GENERATION POWER FACILITIES

Mayur Power Generation is pioneering the development of a environmentally sustainable power generation via a "Enviro Energy Park" concept using a combination of fuel sources to address PNG's chronic power shortages, the challenge of affordability and reliability

### **OPPORTUNITY SNAPSHOT**

Multi mode power generation from renewables and conventional high quality low ash domestic coal source - "Enviro Energy Parks"

Provision of affordable, reliable and environmentally sustainable power – to enable economic development for PNG

Mix of renewables and clean coal technology – no net increase in 'green house' gas and improvement in ambient air quality vs current generation footprint

Utilise domestic Fuel &
Power via vertical
integration – unique
first mover opportunity
to be rolled out across
PNG creating large scale
employment

Secured upstream and downstream fuel supply chain that insulates against Global Energy Market volatility

## **PNG POWER DEMAND AND SUPLY CENTRES**



**Above –** PNG's proposed economic corridors (blue) *PNG Development Strategic Plan 2010- 2030* 

# "Enviro Energy Parks" Up to 500 MW in total across PNG Power – owner of transmission infrastructure and retailer Pulverized Coal Roller Condenser Flectricity Flectricity

Supply via dual feed bio mass & low ash clean coal enabled with Carbon Capture Ready design .

A phased approach to provide capacity to meet demand (current and futue) from industry and urban centres:

- Port Moresby
- Lae/Madang and Ramu Grid
- Owen Stanley range (current / future mining projects)

### DOMESTIC FUEL SUPPLY FOR POWER GENERATION



# Sustainable Energy Mix

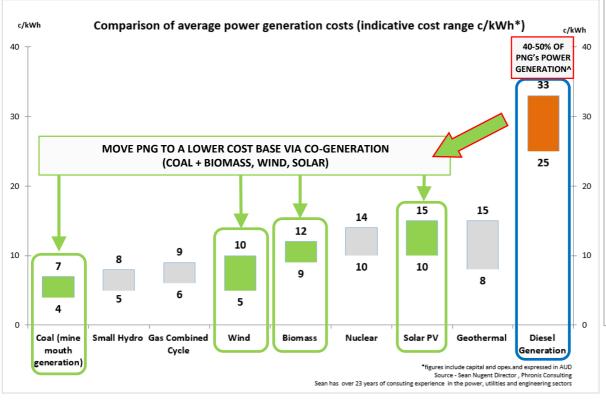
Improved ambient air quality No net increase in Green house gas emissions

Use of carbon capture ready coal technology for future CO2 reductions

### INTEGRATION OF CLEAN POWER TECHNOLOGIES - "ENVIRO ENERGY PARKS"

- · Strategically located Power Generating facilities developed as "Enviro Energy Parks" located in main industrial locations
- Use of low ash coal (approx. 3%) for power generation with reduced environmental impact compared to for example Australia that burns coal in power stations with ash of up to 30%
- Renewable Energy Incorporation of renewable energy facilities (biomass, solar and wind) that will provide 20% of power
- Objectives of "net improvement in ambient air quality and no net increase in Greenhouse Gas" achieved by integrating superior conventional energy and renewables (up to 20% of total fuel needs), displacing current and future diesel and heavy/light fuel oil for power generation
- Future proofed plan domestic fuel sources to insulate from global energy price volatility, "carbon capture ready" tech. to
  further reduce carbon footprint, renewable multi mode of generation and energy research institute to be established in PNG
- Co-generation facility Enviro Energy parks will provide steam for refrigeration for industrial warehousing, exit condenser
  cooling water for siltation management (Lae), support new resource projects and PNGs' domestic electrification initiative
- · Energy Park will use renewable energy to support auxiliaries for baseload power generation, site use of electric cars etc.
- New affordable, competitive by global standards and reliable power supply combined with low cost labour will help to
  open up PNG's manufacturing industry to compete throughout Asia, with a multiplier effect of economic growth and job
  creation in PNG's communities
- Unlocking access to energy only 13% of PNG currently has access to grid electricity due to unaffordable energy costs and unreliable base sources. The PNG government targeting 70% of population has access to electricity, (reliable affordable energy is the proven path to achieve this)

### REDUCING GENERATION COSTS - CO-GENERATION AS A CHEAPER ALTERNATIVE



# Advantages of 'Enviro Energy Parks':

- Provision of affordable, reliable power for PNGs growing population and economy
- ✓ Address PNG's energy demand shortfall – forecast to be ~700MW by 2030 due to 5 fold increase in power demand^
- Unlocking new domestic energy sources
- Vertically integrated keeping value in PNG
- Creation of major employment and economic opportunities

^PNG Development Strategic Plan 2010- 2030

# **COMMERCIAL OPPORTUNITY**

- 40-50% of all PNG power is diesel fired at a cost of over 40 cents a kWh
- Combined power will provide affordable energy between 10 15 cents kWh – starting at a 50 - 100 MW plant
- Combine cheap energy with competitive labour rate gives huge manufacturing opportunities

### **NEXT STEPS**

- Secure Power Purchase Agreement with PNG Power for coal fired power at 10-15 cents per kWh
- Establish energy research institute foundation with industry, universities and PNG Power to pioneer clean energy generation
- Provide PNG Power with reliable power to underpin sustainable PNG community industrial development