BIOMASS ENERGY
for Climate Change Mitigation & Adaptation in South Pacific
NABOU BIOMASS POWER PLANT
2. NABOU BIOMASS POWER PLANT

Project Overview

1. PROJECT TYPE: BIOMASS POWER PLANT (Renewable Energy)
2. LOCATION: NABOU, WESTERN DIVISION, FIJI
3. CAPACITY: 12MW (Covering 40,000 households)
4. FUEL: WOOD BIOMASS (Wood Chip)
5. CONSTRUCTION PERIOD: 28 Months (200 job creation)
6. OPERATING PERIOD: 25 Years (Operator 50 jobs, Forest 100 jobs)
7. OFFICIAL OPENING: July 27, 2017
2. NABOU BIOMASS POWER PLANT

Project Structure

**Consulting Group**
- Finance: Mirae Asset Daewoo
- Fuel: Indufor
- Tech: Jacobs (SKM)
- F/S: Korea Rating

**Shareholders**
- gimco
- GS 파워
- Tropik
- MIRAE ASSET

**Off-taker**
- fea

**Plant Operation**
- O&M

**Off-taker**
- Equity
- Dividend

**Finance**
- Interest
- Debt

**Construction**
- EPC

**Fuel Supplier**
- Eltech

**Off-taker**
- PPA(2)
2. NABOU BIOMASS POWER PLANT

Fuel Supply – Biomass Energy

- Stable fuel sourcing strategy and fuel handling “know-how” are the key factors to a successful biomass project.

<Biomass Value Chain>

- Forest Residue
  - Initial fuel source
  - Tops & branches that have fallen to the forest floor

- Logging / Sawmill

- Factory Residue
  - Leftovers from sawing and wood products

- Fuel Storage
  - Short Rotation
  - Energy crop for use as fuel for power plants

- Fuel Handling
  - Fuel chipping / resizing
  - Fuel drying
  - Removal of non-wood components

- Power Plant
BIOMASS ENERGY PROGRAMME
IN SOUTH PACIFIC
1. BIOMASS ENERGY PROGRAMME IN SOUTH PACIFIC

Programme Background

- **Energy** is a cornerstone of national advancement.
- **Greening energy system** contributes to directing national development towards a sustainable pathway.

- South Pacific Islands Countries (SPICs) are actively exploring viable alternative energy sources as their energy needs are met predominantly by diesel generation. Given the region’s heavy reliance on imported fossil fuels, we aim to help the SPICs increase the uptake of renewable energy (RE), and ensure energy security across the region.

- Hence, we propose a “Biomass Energy Programme in the South Pacific” with Korea Development Bank (KDB) and Green Climate Fund (GCF).
1. BIOMASS ENERGY PROGRAMME IN SOUTH PACIFIC

Programme Overview (Tentative)

1. HOST COUNTRIES: Fiji & Other PICs
2. FOCUS CATEGORIES: Mitigation (Power Generation) / Adaptation (Plantation)
3. FINANCING SIZE: U$ 432 mil (approx., funded by GCF, KDB, Mirae Asset Daewoo)
4. EXECUTIVE ENTITY: Korean Consortium SPC
5. BRIEF SUMMARY:
   - The proposed programme plans to build and distribute biomass power plants across SPICs.
   - Starting with a 12 MW power plant in Fiji Sabeto district.
   - Following the completion of the plant in Sabeto, we intend to leverage the biomass deployment model for scaling-up and replication to other parts of targeted area.
   - This RE initiative is to help SPICs make a desirable transition to the RE-based system, and further realize their full potential.
1. BIOMASS ENERGY PROGRAMME IN SOUTH PACIFIC

**Programme Components**

**COMPONENT 1: 4 BIOMASS POWER PLANTS (12MW each)**
- 3 Biomass Power Plants in Fiji / 1 Biomass Power Plants in PICs
- Expected total cost for Comp. 1 is around U$ 224 mil

**COMPONENT 2: WOOD PELLET PLANT**
- Wood Pellet Plant in Fiji for 500,000 ton/yr Production
- Expected total cost for Comp. 2 is around U$ 200 mil

**COMPONENT 3: TECHNICAL ASSISTANCE**
- Provide to create an enabling environment for a successful delivery of the other two components
1. BIOMASS ENERGY PROGRAMME IN SOUTH PACIFIC

Sabeto Biomass Power Plant - Overview

1. PROJECT TYPE: BIOMASS POWER PLANT (Renewable Energy)
2. LOCATION: SABETO, WESTERN DIVISION, FIJI
3. CAPACITY: 12MW (Covering 40,000 households)
4. FUEL: WOOD BIOMASS (Wood Chip)
5. CONSTRUCTION PERIOD: 28 Months (200 job creation)
6. OPERATING PERIOD: 25 Years (Operator 50 jobs, Forest 100 jobs)
7. OFFICIAL OPENING: Mid 2020 (Expected)
# 1. BIOMASS ENERGY PROGRAMME IN SOUTH PACIFIC

Climate Change - Mitigation

<table>
<thead>
<tr>
<th>COUNTRY</th>
<th>PROJECT</th>
<th>SIZE</th>
<th>EMISSION REDUCTION</th>
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<tbody>
<tr>
<td>FIJI</td>
<td>NABOU BIOMASS POWER PLANT (2017)</td>
<td>12 MW</td>
<td>37,424 tCO2eq/yr</td>
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<tr>
<td></td>
<td>SABETO BIOMASS POWER PLANT (2020)</td>
<td>12 MW</td>
<td>37,424 tCO2eq/yr</td>
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<tr>
<td></td>
<td>3RD BIOMASS POWER PLANT (2022)</td>
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<td>37,424 tCO2eq/yr</td>
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<tr>
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<td>4th BIOMASS POWER PLANT (2024)</td>
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<td>WOOD PELLET PLANT (2022)</td>
<td>24 MW</td>
<td>74,848 tCO2eq/yr</td>
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<td>SUBTOTAL</td>
<td>72 MW</td>
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<td>PICs</td>
<td>1ST BIOMASS POWER PLANT</td>
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<td></td>
<td>SUBTOTAL</td>
<td>12 MW</td>
<td>37,424 tCO2eq/yr</td>
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<tr>
<td></td>
<td>TOTAL</td>
<td>84 MW</td>
<td>261,968 tCO2eq/yr</td>
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</tbody>
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* by 2026, most of fossil fuel power generation in Fiji can be replaced with biomass power plants

* Emission Reduction = Baseline Emission – Project Emission
1. BIOMASS ENERGY PROGRAMME IN SOUTH PACIFIC

Conclusion

• With Biomass Energy,
  - SPICs National Renewable Energy Target Implementation
  - Climate Change Mitigation With Low Emission Development
  - Increase resilience on climate change with adaptation mechanism
  - National GDP improvement and other social benefits (Job, Energy Security, Technology)
  - RMI be the 1st Biomass Power Plant