

FULL ADVANTAGE PHILS INTERNATIONAL, INC.

BERNARDO D. TADEO, PhD

President & CEO

From Advocates to Active Developers!



Experience the Full Advantage of...

COMPETENT SERVICE AT ITS BEST



Your business partner and solutions provider in the field of sustainable energy and environment

✦ **A**dvisory and Consulting

✦ **B**usiness/Project Development

✦ **C**limate Change Activities

Sub-sectors:

- ✓ Renewable energy and rural electrification
- ✓ Cogeneration and decentralized energy systems
- ✓ Biogas production and energy recovery from wastewater, landfill and MSW
- ✓ Energy efficiency
- ✓ Biofuels
- ✓ Climate Change and Greenhouse Gas (GHG) mitigation activities

Our Service, Your Advantage.

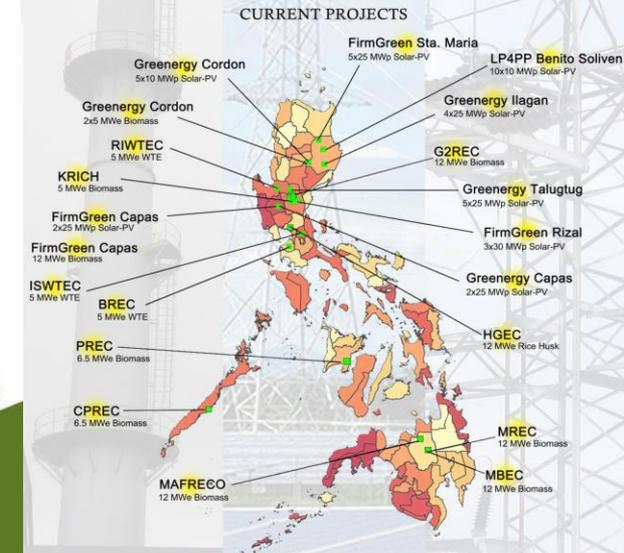
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**Renewable Energy
Project Development and Implementation**



Providing Integrated Solutions to Renewable Energy Project Development and Implementation in On-Grid and Off-Grid Areas

- Complete Package of Project Development
- Investment & Investment Facilitation
- Feasibility Studies & Conceptual Engineering
 - EPC & Commissioning
- Owner's Engineering & EPC Management
 - Operation and Maintenance



Operational Biomass Power Plants



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Examples of Successful Biomass to Energy Projects (on-grid) under the Renewable Energy Law (Republic Act No. 9513) *12 years after the EC-ASEAN Energy Facility Program with PhilRice...*

Operational Biomass Power Plants



However, RA 9513 and other laws, rules and regulations are biased against off-grid areas (no business case, unfavorable political conditions, logistics issues, etc.)

Barriers/Challenges Faced by Developers

Measures to Overcome Barriers/Challenges

Barriers/Challenges Faced by Investors/Banks

•Lack of guarantees/collaterals for loans

Security of payment of debt

- Acceptance of the following security arrangements in lieu of collaterals:
 - Mortgage of the project's assets to the investor/bank providing the equity/loan
 - Assignment of off-take agreements
 - Assignment of agreement on carbon credit revenues, e.g. Japan-JCM
- Provision of partial/full guarantee from entities such as IFC, PhilEXIM, LGUCC, Quedancor or small scale risk guarantees
- Partnering with a sponsor who:
 - has a strong reputation and creditworthiness
 - can provide partial or full collaterals/guarantee

•Reputation and participation of sponsors

•Inability of financing institutions to provide loans on project finance basis
•Lack of experience by financing institutions to evaluate biomass energy projects

Building capacity of Investors/Banks

- Development of their capacity to evaluate cash flow of projects (inflow-outflow)
- Building of in-house capacity to evaluate biomass energy projects
- Hiring of competent third-party consultants to assist in different aspects of evaluation

•Commercial and technical feasibility of the project

•Inability of financing institutions to provide loans on project finance basis

Building capacity of project developers

- Development of capacity of project developers to secure all key project elements of the project and address the risks, including:
 - fuel/feedstock supply
 - product (electricity) off-take
 - technology selection and supply
 - technical and commercial viability
 - permits and consents

•Security of fuel supply
•Security of electricity off-take
•Technology issues
•Permitting, legal and contractual issues
•Commercial and technical feasibility of the project

•Lack of successful examples of similar installations

Visits to successful installations

- Organization of site visits to reference sites
- Organization of study tours to relevant sites and entities

•Technology issues

•Long and tedious approval process

Credit documentation and procedures

- Preparation of a robust and good quality project documentation
- Disclosure by investors/banks of a transparent evaluation and approval process

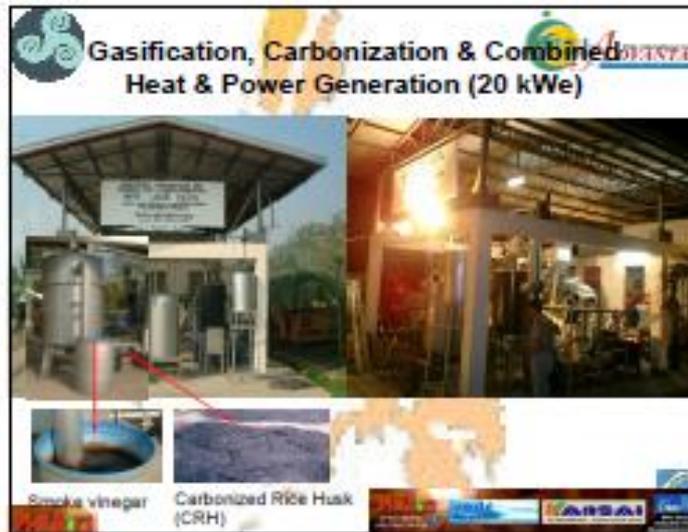
•Quality of documentation

Access to low-cost interest

- Support to buy down interest rate

Market for High Value Co-Products: Priority to increase the Economic CBA

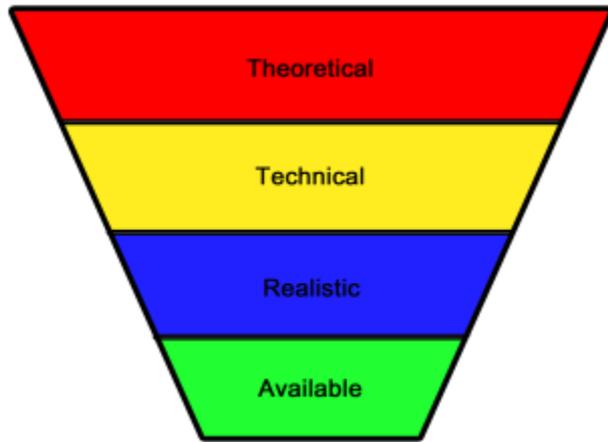
1. Silica – high value product industry & manufacturing
2. Biochar – organic fertilizer
3. Activated Carbon – water treatment



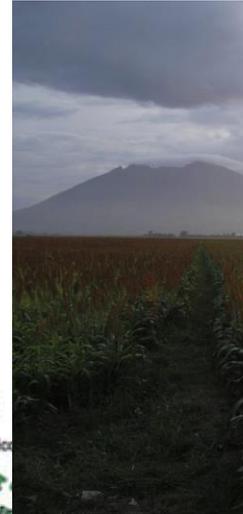
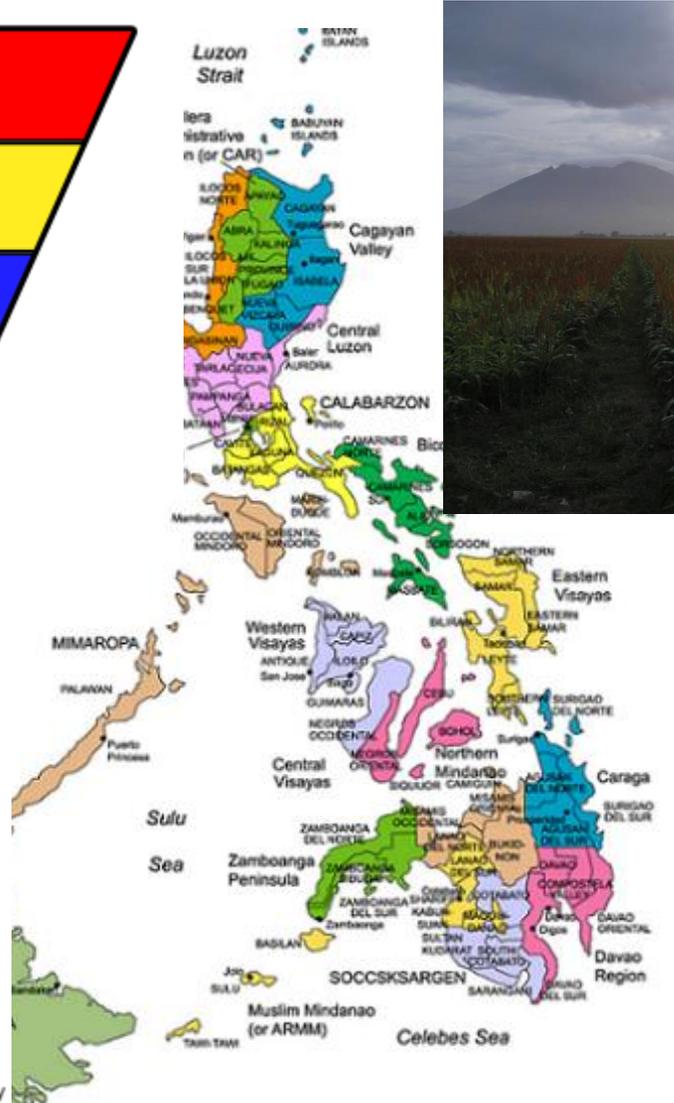
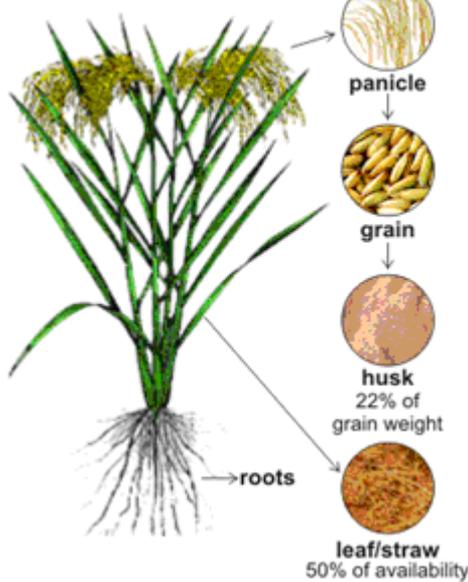
Gasification and Carbonization System:
≤100 kWe proof of concept

Main Challenge in connecting agriculture (biomass) to energy system:

Biomass Consolidation in Highly Dispersed Islands



??? kWe



Based on INVESTA

Specific Policy Recommendations:

1. Financial vs Economic Returns

- Trust and Confidence of Investors to Developers/Owners/Sponsors
- Viability of the project
- Demand driven technologies
- Integrated holistic analyses

2. Regulatory framework

- Ease of doing business: less permitting and licensing procedures,

3. Mechanisms to foster investments

- more transparent laws, rules and regulations (national and local)
- Ethical investors, Religious, NGO, civil societies
- Green climate fund (hard to access), - G2G recognition of non-monetary incentives, incentivize over punitive
- CSR when no business case

4. Gender equality

- descent green jobs accounting

5. Data Gaps

- common data sources: national, regional, provincial

Maraming Salamat po!