



# **A Social Business for Biomass Power Solutions**

# Mission



# Vision

- Set up small independent power plants in rural areas of Bangladesh using rice husk as fuel.

- Provide affordable, reliable and environmentally sustainable energy to rural areas in Bangladesh and in the process also generate more income for rice farmers.



# Business Objective

- Biomass Power Solutions aims to provide electricity to **15,000** energy deprived houses across the country to over 10 to 12 villages by installing 10 plants within **5 Years** from the start of **1<sup>st</sup> Plant**.
- To increase earnings of farmers by selling the rice husk, mustard Husk/Stem, Corn Cob etc to Biomass Power Solutions.
- Create employment **32** persons of 10 plants



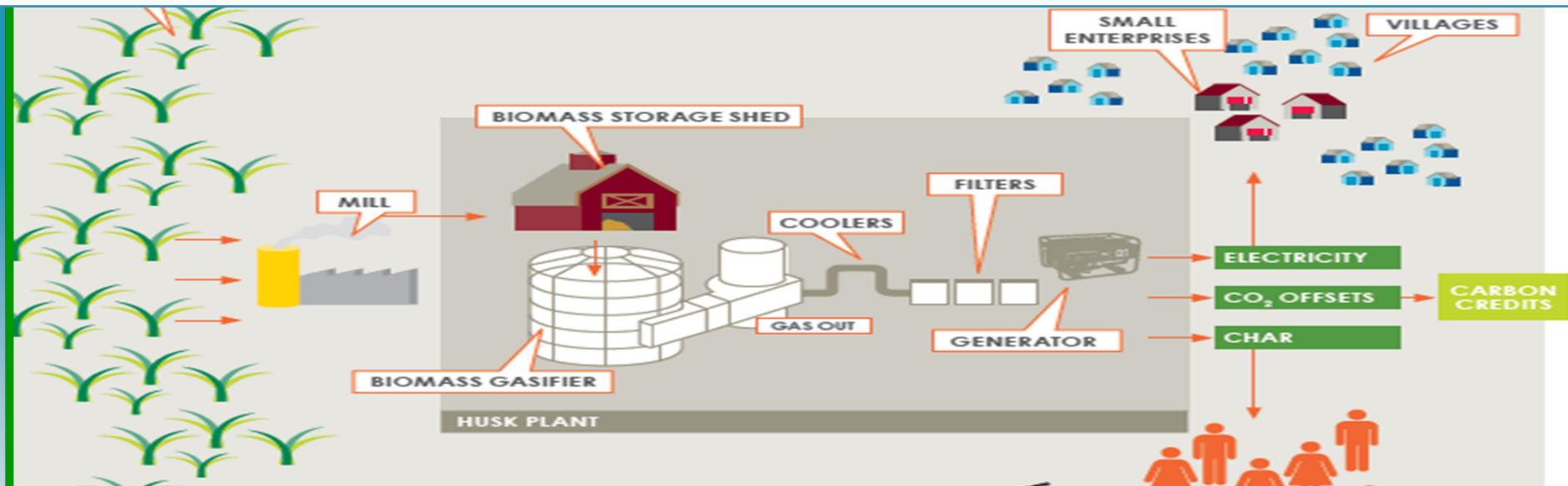
# What is the Social Problem?

- Sixty percent of rural households do not have access to electricity as distributed by the government.
- Shortage of electricity is affecting the development prospects of the country. The electricity crisis has been identified as the **Social Darkness** of rural Bangladesh!
- Most rural people are using diesel based generators to generate electricity for which the country is losing huge foreign currency due to the importing of fuel from abroad.
- Diesel generators create environmental pollution.

~~Social Problems~~

Social Solutions

# How can it be overcome?



To overcome **Social Darkness** of rural Bangladesh, Husk Power Solution has planned to set up environment friendly Biomass Power Plants--Using rice husk as fuel for small scale independent power plants in rural areas of Bangladesh.



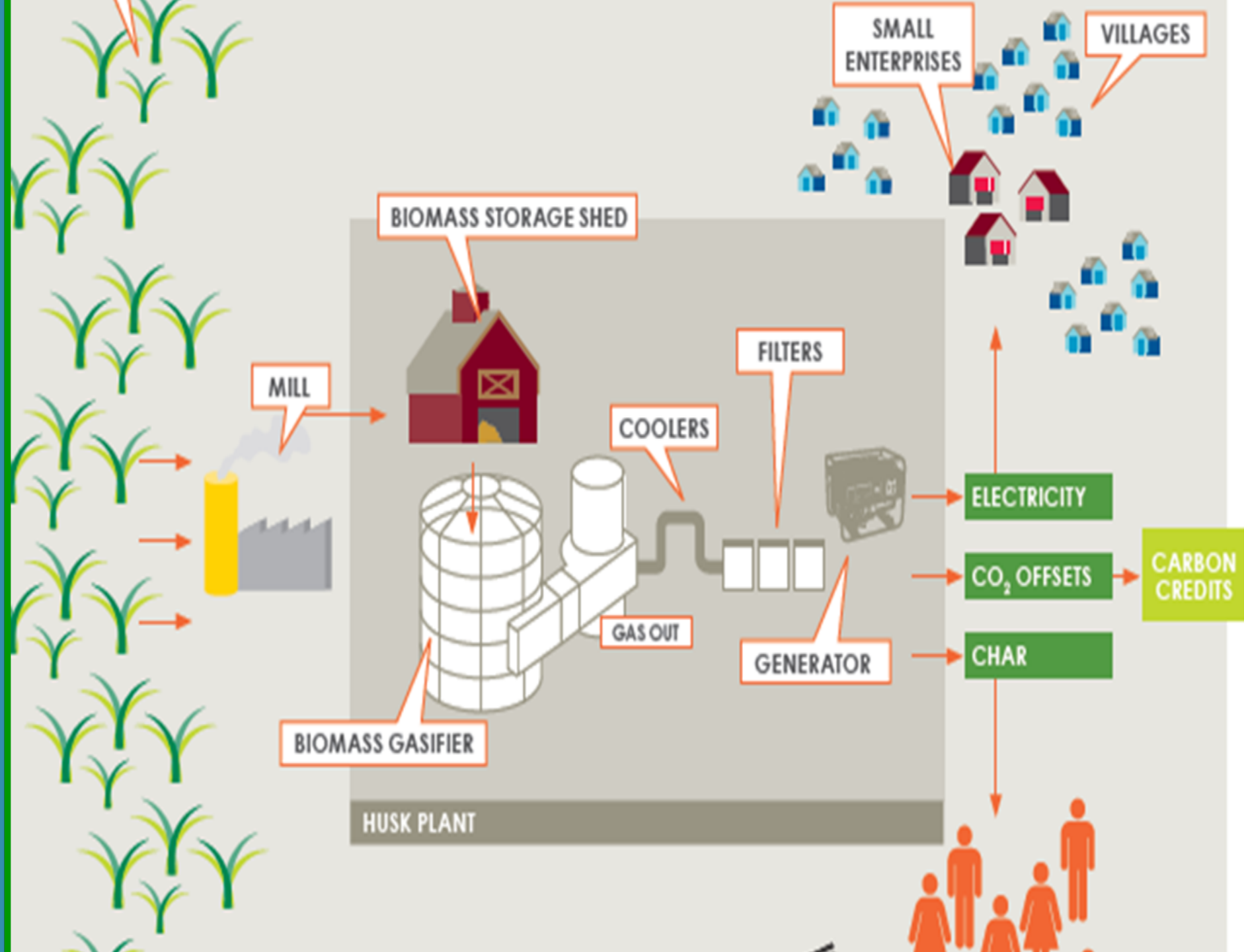
# Location

- ◆ Pilot Project Location will be in the Faridpur District of Bangladesh
- ◆ Other Villages/Rural Areas where electricity is not available



# How will the plant work?

- ◆ Power plants will be installed where there is a reliable source of rice husk within a distance of 10 (Ten) kilometers.
- ◆ Tonnes of rice husk will be poured into the gasifier hopper to convert rice husks into biomass which will be burned to produce energy rich gas.
- ◆ This gas will pass through a series of filters which will purify it.
- ◆ It will be used as fuel for engine to drive electricity generators.
- ◆ Electricity will be distributed to customers via insulated overhead cables attached to bamboo poles or any other cost effective poles.





# Services Provided

- ✓ Basic Supply Package will include electricity to light two 10 Watt LED Lights
- ✓ 2 Mobile Charger Connection (Additional Connections can be taken up on extra cost basis)



# Package & Service Charges

- ❖ **Domestic Rate:** Basic connection of 25 Watt i.e. 2 x 10 Watt LED Light & 2 Mobile Charging point- Household subscribers will be charged Tk. 250/- month.
- ❖ Additional connections can be taken up given at the rate of Tk. 6/- watt for household subscribers.
- ❖ **Commercial Rate:** Business subscribers will charged Tk. 275/- month for the duration of 8 Hrs from the evening and pay-for-use basis. Tk. 8/watt will be the additional usage rate of for business subscribers.
- ❖ **Connection Fees:** Primary connection fee (Non refundable) Tk. 500 & cost of LED Bulb, meter, Transformer and other accessories cost will be incurred from subscriber.

# Project Funding



- **Looking for potential social investors to invest in the project!**

# Project Costs:

## For 10 plant of Tk. 60.05 million

### Plant & Equipment:

- Land for Plant Location
- Gasifier and accessories
- 50 KW Generator and accessories,
- Double insulated cables \* (specs attached) up to 5.5 kms
- Remote monitoring equipment
- Programmable pre-paid meter for 300 connections
- Training of Entrepreneur (1-2 weeks), Operator (8 weeks) and Electrician (4 weeks)
- Installation and Commissioning
- Programmable pre-paid meters Transformer based theft proof systems
- Other accessories

# Target Customer:



Off-grid villages in Bangladesh where most inhabitants are dependent on agriculture for their subsistence.



# Market Competition

- **Rural Electrification Board:** there are 70 operating rural electric cooperatives called REB which brings service to approx. 93,31,204 new connections each year. But due to geographical mobility and shortage of Power Production, REB cannot reach many of rural areas.
- **Grameen Shakti:** It has provided 1,150,587 units of solar system since its inception. The price ranges from Tk. 7,500-45,000 depending on the system capacity. Although households can pay for the SHSs on an installment basis, many rural families are reluctant to buy them due to their high installment payments, hence high total costs of installation.

# Legal Aspects:

- Will be company under the companies Act, 1994

## • Example & Similar Business:

Similar electricity generating-rice husk plants exists in India.

# Financial Forecast

<b>PARTICULARS</b>	Year -2014	Year -2015	Year - 2016	Year - 2017	Year- 2018
A) Production & Allocation					
<u>Capacity</u>	100%	100%	100%	100%	100%
Target capacity	1250	1250	1250	1250	1250
Efficiency	80%	80%	80%	80%	80%
No. of Plant	2	2	2	2	2
No of unit sales each plant	1000	1000	1000	1000	1000

## **Allocation on Consumers:**

Domestic = 95% on p/village 300	285	285	285	285	285
Commercial =5% on p/village 300	15	15	15	15	15

## **Production and Sales:**

a) Supply to domestic area by 2 machine and 2 different village in 1 <sup>st</sup> year.	570	570	570	570	570
b) Supply to commercial area by 2 machine and 2 different village in 1 <sup>st</sup> year	30	30	30	30	30

## **c) Additional Unit sales**

Add. Domes. unit sold (1000x1-570)					
total= 1400 unit	1400	1400	1400	1400	1400



# Source of Income

- Sale of electricity to the villagers.
- Sale of Carbon Credits to Potential European buyers.
- Sale of Char/Waste Generated from Husk to the producer of manure, briquettes for home cooking, incense sticks, clay bricks, silicon carbide, precipitated silica, water filtration system and also substitutes fly ash in the cement manufacturing process and many other application.

# Source of Income:

## Sales Budget (A)

a) Domestic package rate = Tk.250	1,710,000	1,710,000	1,710,000	1,710,000	1,710,000
b) Commercial package rate =Tk. 275	99,000	99,000	99,000	99,000	99,000
c) Add. unit sales @Tk. 6 per watt)	3,066,000	3,066,000	3,066,000	3,066,000	3,066,000

**4,875,000 4,875,000 4,875,000 4,875,000 4,875,000**

## Others Income :

a) **Subscription Fees** (Per village 300 consumers @ Tk. )

**Tk.500 p/consumer)**

b) Waste char (4000 kg plant @Tk. 3.2

c) Crabon credit ( P/plant Tk.9,500/-)

300,000	300,000	300,000	300,000	300,000
51,200	51,200	51,200	51,200	51,200
228,000	228,000	228,000	228,000	228,000
<b>579,200</b>	<b>579,200</b>	<b>579,200</b>	<b>579,200</b>	<b>579,200</b>

**Others income (B)**

**Total income (A+B)**

<b>5,454,200</b>	<b>5,454,200</b>	<b>5,454,200</b>	<b>5,454,200</b>	<b>5,454,200</b>
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**Raw materials ©**

( 1 kg husk = 5 Tk.) Required : 1 hrs = 80 kg Working hrs 8 hrs =640 kg )	2,336,000	2,336,000	2,336,000	2,336,000	2,336,000
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**Expenditure (D):**

Salary & Remuneration	696,000	730,800	767,340	805,707	845,992
Festval bonus	58,000	60,900	63,945	67,142	70,500
Entertainment	30,000	30,000	30,000	30,000	30,000
Conveyance	20,000	20,000	20,000	20,000	20,000
Repairs & Maintenance	288,000	288,000	288,000	288,000	288,000
Printing Stationery	65,000	75,000	80,000	75,000	65,000
Depreciation	1,200,000	1,080,000	972,000	874,800	787,320
O/H	2,357,000	2,284,700	2,221,285	2,160,649	2,106,812
<b>Total O/H (C+D)</b>	<b>4,693,000</b>	<b>4,620,700</b>	<b>4,557,285</b>	<b>4,496,649</b>	<b>4,442,812</b>
<b>NET PROFIT</b>	<b>761,200</b>	<b>833,500</b>	<b>896,915</b>	<b>957,551</b>	<b>1,011,388</b>

**Break Even in Year = 1st Year**

**Pay back period = 6rs.**

# *Social* **IMPACT**

- Capacity building and economic development of rural areas and villages through expenditure reduction, employment generation and pollution reduction.
- Reduce environmental pollution. Kerosene savings will cut greenhouse gas emissions by an estimated 75 tonnes of carbon dioxide per year.
- Having a reliable electricity supply will make families feel more settled and connected to the wider world.
- Biomass Power Solutions aims to provide electricity to 15,000 people energy deprived houses across the country.
- Kerosene expense will be cut by 4 to 5 litres per month saving about Tk. 350 per month.



*Thank You!*