

# **EXECUTIVE SUMMARY**

**For**

**Expansion of Sugar up to 5000 TCD**  
**,Cogeneration Power Plant up to 28 MW**  
**and new Distillery Up to 45 KLPD**

**By**

**M/s. GREEN POWER SUGARS LTD.**

Post Gopuj, Tehsil Khatav,  
Dist. Satara, Maharashtra

## EXECUTIVE SUMMARY

**Contents of this Chapter shall be :**

*This chapter is intended to give overview of this report as introduction, justification, location details, resources required, process details, pollution control , and background study. It also underlines the benefits. (ToR A1, B1)*

### **1.0: Introduction**

M/s Green Power Sugars Ltd, Gopuj, Tehsil Khatav, District Satara, Maharashtra is a running sugar industry crushing 3500 tonnes per day, along with 15 MW electrical power co-generation.

The group of Directors are experienced in the field of agro-industry and they are now taking steps to increase the crushing capacity from 3500 TCD to 5000, co-generation from 15 MW to 28 and also to freshly erect a 45 KLPD distillery.

According to the MoEF Notification dated 14<sup>th</sup> September 2006, these projects respectively under B, A and A category. Therefore this industry has collectively submitted an application to Ministry of Environment and Forest, Government of India. Accordingly, their Environmental Appraisal Committee in their 29<sup>th</sup> meeting dated 30.09.2014. has considered the proposal and sanctioned the Terms of Reference.

In every season of this industry 270,000 tonnes of baggasse, 36000 tonnes molasses and 28,800 tonnes of Press Mud will get generated, and these substances have many useful properties.

As per Government laws, to get an Environmental Clearance this industry has submitted a proposal to increase the cane crushing capacity, power generation capacity and to establish a distillery. Thereafter, this Environmental Impact Assessment report is prepared.

The objective of making this Environmental Impact Assessment report is not merely to get the Environmental Clearance certificate, but to understand what impacts may happen and to plan the preventive measures.

### **2.0: PROJECT INFORMATION**

This sugar industry works under the board of directors, namely Mrs.

AparnaSamgramsinhDeshmukh, Mr. SangramsinhSampatraoDeshmukh, Mr. AmitPatil and Mr. YajuvendraNimbalkar.

### **2.1: LOCATION**

1	Project	Green Power Sugars Ltd, Gopuj, Tehsil Khatav, District Satara, Maharashtra.
2	Latitude	17 deg- 31 min-12 sec north
3	Longitude	74 deg-24 min East
4	Registration no.	CIN U 15421 PN 2006 PLC 022248
5	Nearest city	Satara 44.30 Km, Khatav 20 Km
6	Highway	Vaduj- Karad State highway, adjacent.
7	Airport	Karad 30 km
8	Railway Stn	Satara Road 39.70 km
9	Geography	This project is on level ground and about 767 m above MSL. The climate is moderate.
10	Surroundings	Project is 9.7 km from River Yerala and 15 km from

**2.2: TECHNICAL INFORMATION**

1	Production	Crushing 5000 TCD, power 28 MW, Alcohol 45 KLPD
2	Raw material MTD	Sugar cane 5000, Lime 8 to 9, Sulfur 2.5, Molasses 168, Baggase 1400.
3	Water	Daily requirement of 1376 cum brought from source Hingangaon dam, 15 Km away
4	Boiler capacity	160 TPH, pressure 87 Kg/cm <sup>2</sup> and 520 deg C temperature

**2.3: PROCESS:****(A) Sugar:**

Sugar-cane brought from fields is crushed in the mill. The juice is heated in a reactor with lime and sulfur-dioxide. From the clarifier impurities are separated. Clean juice is then subjected to evaporation and crystallization and molasses is separated. Finally white sugar is obtained.

**(B) Co-generation :**

In the Boiler of appropriate capacity high quality water is taken. By using bagasse as fuel high pressure steam is produced. By this turbine is rotated and electrical power gets produced. This power and waste steam is useful in processing in our industry.

**(C) Distillery**

There are carbohydrates in the sugar factory waste molasses. After diluting the molasses, with the help of yeast, fermentation is done in a tank. Necessary nutrients are supplied. Then we get alcohol by distillation and impure waste is separated.

These three processes can be visualized by simplified way as –

(A)

JUICE PREPARATION → EVAPORATION → CRYSTALLIZATION

(B)

WATER PREPARATION → STEAM GENERATION → POWER GENERATION

(C)

MOLASSES PREPARATION → FERMENTATION → DISTILLATION.

**2.4: WATER**

Collectively, for sugar unit we need 831 cubic meter water per day, for co-generation 600 and for distillery 545 that is 2041 cubic meter water per day for industrial purpose, 50 cubic meter water per day for human hygiene and 200 cubic meter for greening. However out of this 1976 cubic meter for industry fresh water will be 1311 per day and the remaining 665 cubic meters will be fulfilled by recycling the treated wastewater.

**2.4: FUEL**

For this project 252,000 tonnes of bagasse is used per season in the Boiler as fuel for steam generation. Fuel properties are =

1	Heat value, GCV,	2270 kcal/kg
2	S content,	NIL
3	Ash content	0.2%
4	Steam/fuel ratio	2.48

## 2.5: RAW MATERIALS

Item	Existing	Addition	Particulars
Sugarcane	104940	45360	Available in District
Lime	216	54	Used for keeping proper environment for process. Available from Pune & Mumbai market.
Sulphur	59.52	72	
Phosphoric acid	4.2	15.9	
Bagasse	36,000	7500	Self & vicinity.
Press mud	4960	1040	

(All figures are in MT/M)

## 2.6: PRODUCTS

#	Unit	Present	Addition	Total
1	Cane crushing MTD	3500	1500	5000
2	Electrical power MW	15	13	28
3	Alcohol KLPD	--	45	45

## 3.0 : ENVIRONMENTAL STATUS

In order to evaluate the environmental impact, we have assessed the status of water, air, soil, noise, land-use, flora-fauna, socio-economic position etc.

It is necessary to study the basis of present status of these aspects for environmental impact assessment, and hence we are advised to study this.

### 3.1 : MICRO-CLIMATE

For major part of the year, the climate of this district is pleasant and generally dry. Here winter is from December to mid February and summer upto the end of May. Rain arrives from June to September with south-west monsoon and October, November are known for retreating monsoon.

In this district, average rainy days are generally 50 (means the days when rainfall occurs between 25 and 100 mm), and average rainfall is about 600 mm. however in western part of the district the rains are much higher.

In this region Indian Meteorology Department station is located at Miraj. The temperature recoded here for winter is maximum 29.5 and minimum 14.3 deg C.

The sky in this region is generally clear from November to March. Cloudiness commences from April and it is found more in afternoon than in the morning. It is very cloudy in rainy season.

### 3.2 : AIR

In the area of 10 km radius from this site air samples are collected from villages Shiraswadi, Gursale, Bhushangad, Aundh, SiddheswarKuroli, Ganeshwadi and on site at Gopuj and are analysed in laboratory. Results are found for Sulfur-dioxide, nitrogen oxides and particulate matters 10 and 2.5. all these are found inside the prescribed satisfactory limits.

### **3.3: NOISE**

In this study area, primary investigation is made to find the noise media levels and for this selection is made of sensitive stations like work places, project area, traffic routes, schools and hospitals. The survey finds that the noise level in general is within the limit.

### **3.4: WATER**

In this study area of 10 km, study on groundwater is conducted. For this five villages are selected and samples collected. By using standard methods analysis is made. For this project, we are not extracting any groundwater. On the contrary we shall recharge the groundwater by rain water harvesting.

### **3.5 : LAND**

As directed by the Government we have studied the 'land-Use' by remote sensing satellites imagery. Eight types of land-uses are identified in the 10 km study area. Its summarized brief is – potentially suitable for vegetation 32.24%, presently open and barren 65.94%, under habitation 0.77 and under water-bodies 1.05%

### **3.6 BIO-DIVERSITY**

Plants, animals, birds are the main constituents of environment and ecology. While studying the impact on environment it is important to know about the life cycle, types and working of plants, animals, birds.

It is important to protect them from our human activities because if they are harmed, humans suffer.

Bio-diversity was surveyed in the 10 km study area and the observations on species of plants, animals, birds are included in this Environmental Impact Assessment Report.

### **3.7: SOCIAL**

Pleasant climate, good water availability, fertile soil, nearness of state highway makes it possible to enter and progress in developing in the sugar, co-generation and various fields. Development is also taking place in aspects like health services, educational complexes, post and telegraph facilities. As a result the standard of living of people and workers of this area can possibly be raised, and for this industrialization can help.

Nationalized and private Banks facilities are available in this area and hence people are taking up in hand new projects. People are thus stabilized.

## **4.0 : DETAILS OF ENVIRONMENTAL IMPACT:**

### **4.1: IMPACT DURING CONSTRUCTION AND OPERATION:**

During erection impact on environment takes place due to leveling of ground, removal of grass-trash, and construction. In operation phase polluted water and solid waste gets generated. For this after examining each constituent as below, remedies are suggested.

#### **a] Air:**

During construction vehicular traffic and erection machineries will affect air quality. During operation phase it so happens mainly due to mixing of gasses and particulate matters from the Boilers.

Measures:

The dust raised During construction can be suppressed by sprinkling of water mildly. The vehicles and machines we use can be kept well maintained and air emissions can be controlled. During operation phase, on the Boiler ESP of very high efficiency can arrest the emission and the tall stack can properly disperse the air.

**b] Noise**

During construction noise pollution gets generated due to vehicular traffic and construction machinery and it goes to the 80-85 Decible limits. During operation phase, the cause is production machineries, D G Sets and vehicular traffic.

Measures:

From now on wards the time required for erection is going to be short. During construction we provide safety head-gear and ear plugs and from time to time the utilities are repaired and maintained. Any work creating additional noise is done only during day time. During operation phase: due to sturdy foundations to the machineries there are no vibrations, all gadgets are well maintained with lubrications, the factory building is closed from all sides, there are ample number of trees that absorb noise and noisy activity is avoided in night.

**c] Water:**

If wastewater is not disposed at proper place and if rain water is not given if a proper direction, pollution aggravation can take place.

Measures:

For the work-force good quality of wash-room toilet facilities are provided. For the rain water carriage the nallas are trained properly. During operation phase, care is taken to segregate the wastewater as sober, moderately polluted and highly polluted. The sober and moderately polluted is treated in tertiary levels and recycled. The stream though highly polluted still can be converted into fertilizer and brought in good use. In this way the wastewater can be properly handled with zero discharge outside.

**d] Land:**

During construction and leveling, the land receives some impact due to temporary offices, godowns for storages.

In this case, the plot selected is nearly level. As nalla system is maintained there is no erosion. We have not disturbed the flow of natural nallas.

**e] Socio-economic environment:**

Due to this project, opportunities will be open to some people in this unit itself. In addition indirectly other vocations can also come as small shops, vehicle repairs, eateries. Due to purchase of more sugar-cane, cultivation will increase, due o the availability of organic fertilizer the yield of cane per acre also will increase. This benefit may increase the level of standard of living of local people.

**4.2: FACILITIES TO WORK-FORCE:**

[a] First Aid: In this project area arrangement is made for medical assistance and ambulance.

[b] Drinking Water: In this project area arrangement is made for clean and disinfected safe water.

[c] Canteen: In this project area arrangement is made for the workforce of a clean and comfortable eating place.

[d] Security: For the safety and security of the project adequate number of guards are appointed.

**4.3: ASH:**

The ash generated from the Boiler is used for leveling, but more by its properties it can be used for compost-making and brick-making.

#### **4.4: ECO-SYSTEM:**

As this project is away from forest and is neither on its upstream, up gradient or upwind no mal-effect will travel towards it. Barrier of 9000 trees will be the protection.

#### **4.5: GREEN-BELT:**

For this project, we are using 283421.04 sq m area and out of this we have reserved 40.4% i.e. 15052.81 sq. m for green-belt. We have selected native species for the same. Totally there will be 9000 trees with 34 species bio-diversity.

#### **4.6: HEALTH:**

Arrangements are made from health point like medical facilities, ambulance, safety measures and quality drinking water.

### **5.0 ENVIRONMENTAL PROTECTION:**

#### **5.1: POLLUTION CONTROL:**

Taking into consideration the rules laid by Government for dust limits, the stack height is provided. Effluent treatment plant will be erected and operated as per the conditions laid by Pollution Control Board. Monitoring will be regularly done to evaluate the quality and quantity of pollutant emissions. In future we intend to make a facility available to measure regularly the temperature, humidity, wind direction wind speed, rains and climate.

#### **5.2: RISK EVALUATION AND MANAGEMENT:**

Emergency Management is designed by predicting possible risks and hazards by using all available facilities.

Design is based on the study of all steps in the processes, storages, fuel handled and chemicals involved.

Precautions: Flammable material should be kept safe and secluded. Care shall be taken to see that it will not get spoilt, or mis-used. Such material shall not be kept in excessive quantity and the storage tanks shall be kept over-head and of good quality. These tanks should be air-tight, at safe location and warehouse should not have wooden roof. There shall be a wall around the tank, so that even it spills the chemicals will be arrested inside and will not flow out.

#### **6: PROJECT BENEFIT:**

By this project there will be physical and social development.

[a] Physical development as new roads, educational facilities, drinking water and health facilities.

[b] Social development as Bank facilities, Post and Communication facilities, trade and industry, renovated facilities, as also educational facilities and health facilities

#### **7: ENVIRONMENTAL MANAGEMENT:**

Taking into consideration the expansion of the project, it is necessary to think about the impacts on air, noise, water, land, eco-system, and socio-economy. Hence following directions will be obeyed.

[a] **Air Management:** It is necessary that the project be designed that the emissions should be minimum by using appropriate gadgets. The emissions while leaving the stack be less than 50 mg/Nm<sup>3</sup>, and at the same time the stack be tall as 82 m. The efficiency of ECE emission control equipment must be checked from time to time. Any leakages of the ash

produced in the project, from the stock or transfer must be checked often and preventive measures adopted.

[b] **NoiseManagement:** In the project such machinery be used that will produce minimum of noise. We should take care that from the machineries there will be minimum vibrations noise or else acoustic enclosures be provided. To minimize the noise level, green belt be developed by the appropriate design. The machineries be always kept in good condition by operation-maintenance and lubrication.

[c] **Wastewater Management:** From the project no effluent should leave without proper treatment. Well-designed ETP must be provided. The quality must be kept as desired by frequent monitoring.

[d] **Rainwater Management:** It is desired to collect the roof rainwater and rainwater from paved area and store it for use or groundwater recharging.

[e] **Safety & Health Management:** It is likely that during operation, the emitted particulate matters may badly affect the health. Also during cutting of metals, welding, joining may create sound. At the locations where the work environment is hot, heat too may affect. It is therefore necessary to take relevant care and reduce the possibility of mal-effect.

[f] **Green-belt Management:** It is necessary to provide green belt at least on 33% of the area used for the industry.

[g] **Dialogue Management:** It is always better to remove the difficulties quickly. From this point of view, through the good offices of the Pollution Control Board there will be a constant communication with all.

#### **CONCLUSION:**

After the complete study it is observed that by this project the impact on the environment can be kept minimal and in the project area social, economic, and educational development will be done in good manner. At the same time the standard of living of the people in the neighbourhood should increase.

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