

Henan Province Environment Assessment Center

Document No. 2015-207

Technical Review Report on

Gushi Biomass Power Project-Environment Impact Assessment Report

Henan Province Environment Protection Bureau:

The technical review meeting on the Gushi Biomass Power Project-Environment Impact Assessment Report (hereinafter: EIA) drafted by Beijing Wanzhe Environment Science and Engineering Co., Ltd (with assistance of Henan Lansen Environment Co., Ltd) was held by Henan Province Environment Assessment Center in Gushi county on April 9, 2015. The report was revised in accordance with the comments and recommendations of the experts panel and the final version was submitted on April 23, 2015. With review, we have the following comments:

1. Project Overview

Gushi Yangshan Mingyuan Industry Co., Ltd was restructured by the former Gushi Yangshan Power Plant. The company is with existing power plant located in Fangji Town of Gushi county and with biomass boiler of 35t/h (completed and accepted in 2009). The proposed project is located in Gushi county industry cluster zone which is 38km from the existing power plant mentioned above. It shall use the biomass material as crop stalks, rice husks, and leftover pieces of wood processing. The water for production shall be the treated wastewater from the local wastewater treatment plant (the industry zone). The designed capacity is power production of 1.8×10^8 kwh/year with heat production of 1.08×10^6 GJ/year. The main project components include: 1×150t/h high temperature high pressure biomass boiler, 1×25MW turbine generator set, 2×25t/h gas boiler (for standby), heat supply network of 18.2km, feed system, recycling water system, water treatment system, smoke treatment system, automatic ash removal system. The total investment is 456million yuan including 25.37million yuan for environment protection (taking 5.56% of the total investment).

2. Heat supply

The project Max. heat production capacity is 80t/h. According to the “Gushi county-special plan for district heating” (2013-2030) which has been approved by the county DRC (2013-82), this project shall replace the 9 coal boilers in the industry zone (for 7 industries as Henan

Lvyuan Oil Co., Ltd, Henna Kunyuan Jute Co.,Ltd, etc) with total heat load of 64t/h.

The investigation shows that another 5 industries located in the industry zone are currently running 8 coal boilers with total heat load of 11.5t/h and each of them is with capacity of less than 2t/h. according to the requirement of “Henan province blue sky project action plan” the 8 coal boilers (≤ 2 t/h) shall be decommissioned or renovated for clean production upon the completion of the proposed project. The proposed project shall be with the capacity to replace the existing coal boilers in the industry zone (75.5t/h).

3. The project under construction

Currently, the project company is with project on the existing power plant to decommission the 2×35t/h coal boilers and install the 2×35t/h biomass boilers to date, the 1# coal boiler has been dismantled and 1#35t/h biomass boiler has been installed and accepted (YUHUANBAOYAN-2009-56). The 2# coal boiler is to be dismantled and 2# biomass boiler to be installed.

Issues	Actions recommended	Time limit
Raw material: rice husks and wood pieces EIA recommendation: biomass particles	As EIA recommended	Before the commissioning of the project
Chimney of boiler is not installed with on-line smoke test device	Install smoke test device	
Boiler smoke is within limit but dust is not in compliance with the “pollutant discharge standard of power plant-GB13223-2011, Table1” -boiler dust within 30mg/m ³ (came into effect on July 1, 2014).	Install whirlwind dust remover before bag dust collector;	
Feed storage site not covered and stalk storage site without signs	Set up isolated feed storage and signs for stalk store site;	
Wet ash cleaning is used instead of dry ash cleaning recommended from the EIA.	Set up dry cleaning system;	

4. Industry policy

The proposed project belongs to the category of “Allowed” in the NDRC- “Industry Re-Structure Guiding Category-version 2011” . It is in compliance with the industry policy of the central government. The project has been listed in the EIB CCFL-II (NDRC-2012-495).

5. Project site

The project site is located in the Gushi county industry cluster zone. According to the “Mater plan of Gushi county industry cluster zone -2009-2020” , two heat source shall be set up in the northern area and southern area of the industry zone. The project shall be one of the heat sources for the industry zone. The project site is 7.3km to the water source of Gushi county (category two for water source protection). The environment sensitive points around the project include: 52meters northeast to Wanglaozhuang village (638persons), 285meters west to Chenmiao village (2980persons), 470meters north to Xiwan village (182persons), 620meters east to Wafang community (2754persons), 650meters southeast to Gushi county foreign language middle school (2030persons), 610meters southwest to Balimiao village (684persons). Based on the principle of random dust discharge, **The review found that the project sanitary protection distance is 50meters.** The plant boundary protection distance: north-44meters outside, west-44meters outside, east-40meters outside, south-inside the plant. Within this range, there is no environment sensitive point.

The project is outside the SO₂ control zone. The air quality is Class 2 according to the “air quality standards- GB3095-1996” regarding the contents of NO₂, SO₂, PM₁₀, TSP. The Guan River and Shi River, the regional wastewater receiving water body, are with Class III water quality in accordance to the “Surface water quality standards- GB3838-2002” except NH₃-N, TN and TP. The ground water in the area is Class III in accordance with the “Ground water quality standards- GB/T14848-93”. The noise level is Class II in accordance with the “Acoustic quality standards- GB3096-2008”.

6. Project waste treatment

6.1 Waste gas: It includes the smoke and dust from the biomass boiler, ash storage tank. The treatment measure includes: biomass boiler-“SCR+ swirl type dust removal+ bag dust collector + double alkali desulfurization ” with designed discharge of dust of 26.3mg/m³, SO₂ of 60.7 mg/m³, NO_x of 61.9 mg/m³. The height of the chimney is 80meters. The discharge shall be in compliance with the “Standard for air pollutants discharge of power plant-

GB13223-2011”- Table 1 (dust 30 mg/m³, SO₂ 100 mg/m³, NO_x 100 mg/m³); Ash tank: bag dust collector with 20meters discharge pipe; Lime column: bag dust collector and 15meters discharge pipe. With the measures mentioned above, the air quality should be in compliance with the “air pollutant discharge standard- GB16297-1996, Table 2, Class II” . For the feed site, it will be covered with ventilation for the controlling of dust.

6.2 Waste water: The project wastewater includes: water recycling cooling, boiler discharge, water softening, and domestic wastewater. The treatment includes: Recycling cooling water: softening and sent to boiler for replenishment; Water softening: 266.18 m³/d to be used for ash watering and the rest 355.64 m³/d to be sent to wastewater treatment plant together with the boiler discharge of 65.45 m³/d, other wastewater of 109.10 m³/d, and domestic wastewater from septic tank of 5.66 m³/d. The total wastewater discharge is **535.85 m³/d with effluent quality of COD 31.6mg/L, NH₃-N 0.18mg/L.** It is in compliance with the “Wastewater discharge standards-GB8978-1996, Table 4, Class III” and the influent quality of the wastewater treatment plant of the industry cluster zone.

6.3 Solid waste: The solid waste includes: ash and boiler waste residues. The treatment includes: ash-to be sold for organic fertilizer (31500t/a) ; Boiler waste (7900t/a)-to be sold for construction material; Waste from desulfurization (2030t/a)- to be sold for construction material. Temporary storage of solid waste in the plant shall be in compliance with the “Controlling standards for storage of industry solid waste- GB18599-2001”. The waste catalyst is to be collected by the supplier.

6.4 Noise: The noise source includes: equipment noise and ventilation noise from cooling column, blower, turbine, generator set, pumps and boilers. The equipments noise (80～90dB(A) shall be with insulation, noise absorber and vibration reducer, and etc. The noise level shall be in compliance with the “Industry Sanitary Design Standards- GBZ1-2010)85dB(A)” and the boiler exhaust noise level (occasionally with level of 90dB(A)) with muffler.

7. Project environment impact-conclusions

7.1 Air: The report shows that, under the normal operation conditions, the air pollutant discharge in terms of NO₂, SO₂, PM₁₀, TSP is in compliance with the “Air quality standards- GB3095-1996, Class II”. The air quality at the sensitive points shall be in compliance with the standards. The random dust discharge is in compliance with the “Air pollutant discharge standards- GB16297-1996, Table 2”.

7.2 Surface water: The wastewater from the project is to be sent to Guishi county wastewater treatment plant (construction completed with capacity of 35000t/d and expected to put into operation in June 2015). The project has minor impact for the quality of the receiving water body.

7.3 Noise: The noise level is to be in compliance with the “Industry Noise level standards-GB12348-2008, Class II” except the time when the boiler is discharging air. At Wanglaozhuang village, the noise level is predicted to be in compliance with the “Acoustic quality standards- GB3096-2008, Class II”. When the boiler is discharging air, it is in compliance with the “Industry noise level standards-GB12348-2008, Class II” in day time and in compliance with the “Industry noise level standard-GB12348-2008” at night time (within 10dB(A) above the limit for occasional noise).

8. Main pollutants- discharge and control

The report shows that the main pollutant discharge includes: SO₂ 72.71t/a, NO_x 74.16t/a, dust 31.49t/a, COD 5.59t/a, NH₃-N 0.03t/a.

9. Clean production

With the introduction of 150t/h high heat efficiency, high temperature, high pressure, circulating fluidization biomass boiler, most of the clean production indicators of the project is to be of the Class I (advanced level for clean production). With comparison with the existing biomass power plant in Shangcai county (China Power Co., Ltd) in terms of equipment and technology, resource utilization, pollution control, **the project is advanced in clean production.**

10. Public participation

Public participation was conducted with information disclosure (twice) and questionnaires to collection comments and recommendations from the public in accordance with the “Provisions for public participation on project environment impact assessment-2006-2” of Henan environment protection bureau (210 questionnaires were issued and 200 collected (95%) with all in favor of the project (**No objection**)).

11. Conclusions

This project is in line with the policy of the central government for clean production and pollution control. The conclusion is: With all the control measures proposed on pollution and risks implemented, the project environmental feasibility is verified.

12. Attentions

12.1 The proposed 150t/h biomass boiler, in theory, could use both biomass and coal for fuel. The networked on-line smoke/dust testing should be installed for monitoring. The company should not use coal for alternatives.

12.2 The 2# biomass boiler has not completed for installation which is more than five years after the approval of the EIA, it is recommended that the EIA should be reviewed by the approval authority in accordance to the regulations of the “law of EIA of PRC” .

12.3 The project shall be the heat source for the county district heating with capacity of 80t/h to meet the needs of heating in Gushi county industry cluster zone, replacing the existing coal boilers (total capacity of 75.5t/h) with extra capacity of 4.5t/h.

Annex: List of the expert panel for technical review

Henan Province Environment Assessment Center (official seal)

April 30, 2015



key words: EIA, biomass power generation, report, review report

drafted by: Wang Mengyuan Checked by: Song Bo
