Annex 2 –Project Document

Energetic and material exploitation of MSW, straw and other (agricultural) waste:

CUSTOMER provides waste streams such as MSW, waste straw and/or other agricultural waste to WABIO biogas plant as follows per day:

Please see attached separate generation sheet.

For any other input type WABIO will provide additional generation sheets for the gas yields.

WABIO has the ability to produce more energy compared to traditional systems and offers its system and technology in the following:

1. **Input:**

With the above mentioned inputs (separate attached generation sheet) at the above given parameters the plant will have apx. a process water need per year of apx. 17.000 m³ of any quality.

2. **Energy Data:**

Biogas: 17.228.000 m³ per year

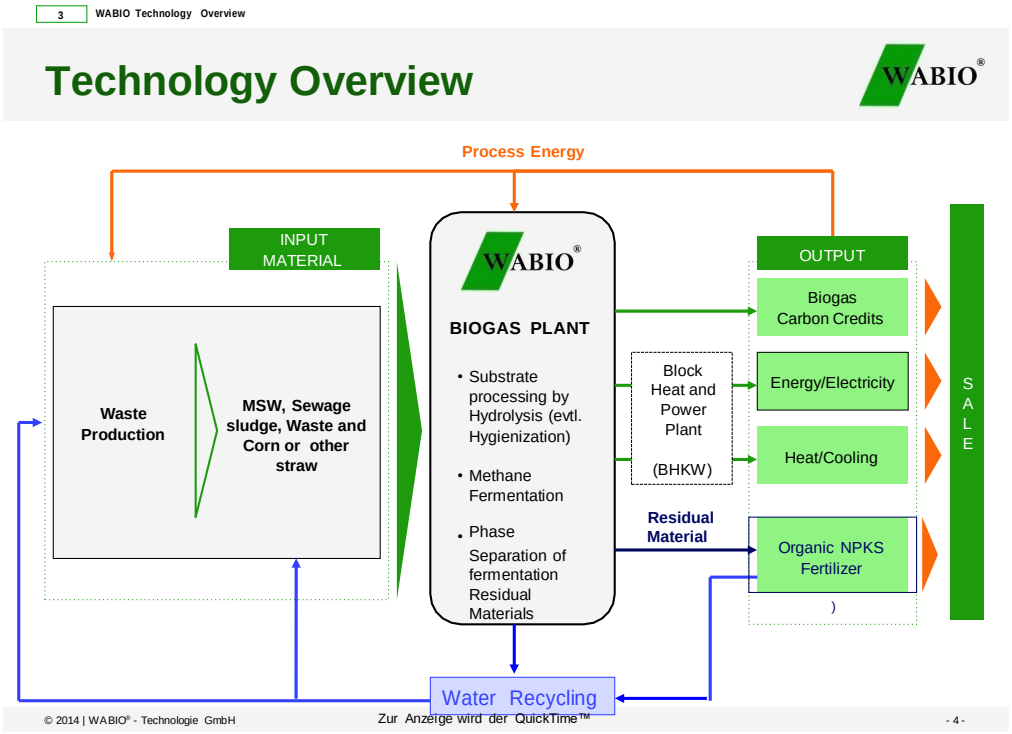
Biogas volume may vary but total calorific value of total production is to be reached. Depending on the type of gas engines it will produce on the basis of 8.064 h per year

Capacity and production rates may vary due to specific environment relating to temperature, humidity and other environmental and geographical influences of the plant location.

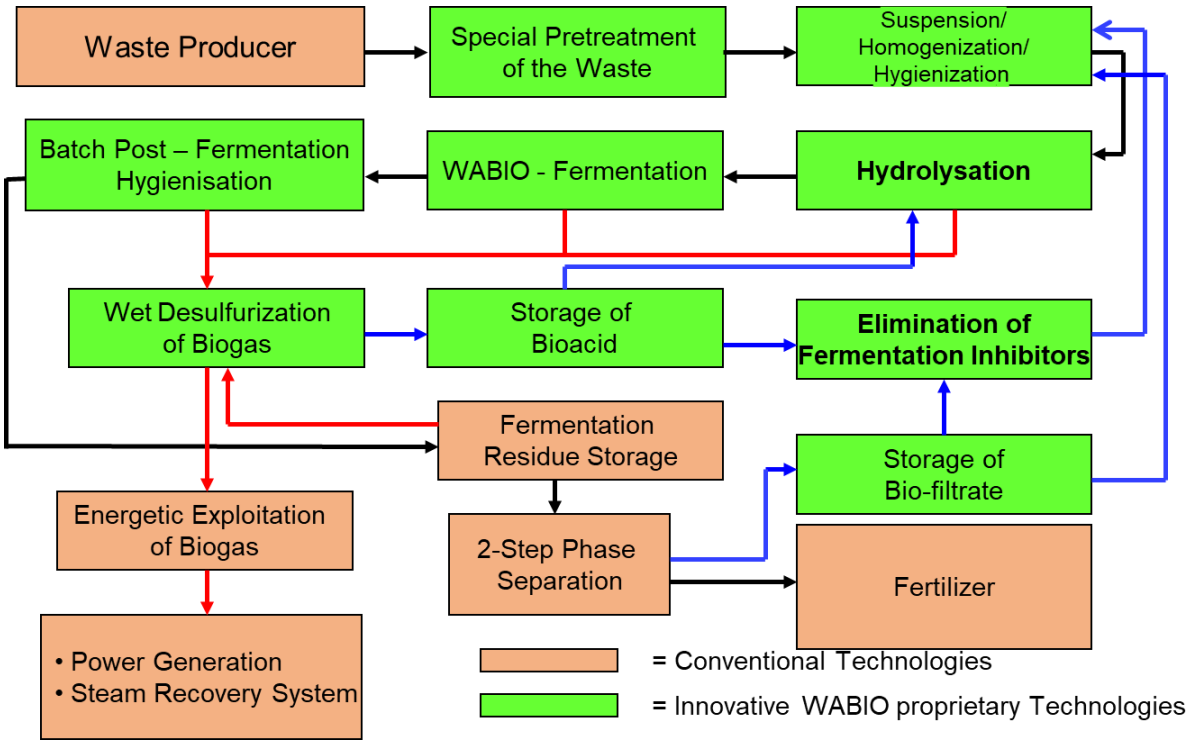
3. Principle functioning of a WABIO Biogas system:

From the mentioned waste stream according to the above generation sheet a biosuspension slurry is prepared, which is fed after a special WABIO hydrolytic treatment to the WABIO fermentation section, where the biogas is produced in different fermentation stages. The biogas is used for gasengines to produce power and heat, the remaining fermentation residue is treated and processed to a valuable organic fertilizer.

The schematic is as follows:



The different process steps are shown below:



3. General Process Description:

Waste separation station

Depending on type of input the waste will be segregated and separated into an organic fraction and other fractions for recycling and other use by separate separation and recycling systems, not included in this offer.

Shredding Station

The input material is mashed, shredded and downsized to suitable (fiber) length as process requires - to secure a homogenized slurry with consistent particle size and subsequent a good fermentation result in 4 stages.

Production of bio-suspension

With reference to the mass flow diagram a bio-suspension with a dry matter content of between 12 and 18% will be prepared from the waste products, from the withdrawn floating and sinking layers of the operating large scale fermenters and from inhibitors depleted biofiltrate. The waste, before the entry into the suspension tank, is being subject to a

mechanical reduction. Using special submerged pumps/stirrers there is a homogenization of the solid material contained in the bio-suspension components. In the suspension section the level is monitored, while the dry matter of the bio-suspension is adjusted by the machine operator by varying the components process water and biofiltrate, which can be intermediary stored and suspended according to subjective assessment and needs for moisture in the process.

Preparation of the hydrolyzate

The hydrolysis station consists of a stirred and heated tank withstanding the low pH values. Additionally to the biosuspension the hydrolysis tank may be fed with bioacid from the bioacid tank as well as with a monitored amount of air flow. The process temperature is being held between 50 and 60 ° C. The hydrolysis tank functions as a receptable for the pump station, which alternately feeds the main fermenters. The resulting reaction gases are sucked off the top and introduced pressure controlled with a pressure of 50 mbar into the central gas line.
The hydrolysis tank is equipped with sensors for temperature, level and pH monitoring. In addition, the quantity and quality of the process gases will be recorded continuously.

Primary (Main) fermentation

The main fermentation of the produced hydrolyzate happens in a large WABIO structural steel fermenter. The quality of the fermentation process is evaluated by analysis of the timing of the pressure increase. The Heating-/Cooling-System of the fermenter is designed for keeping the optimum temperature of the medium in the fermenter for mesophilic (38 ... 42 ° C) or thermophilic (52 ... 55 ° C) bacterial cultures stable.

Taking into account the results of preliminary studies for the sizing, which are made with mesophilic cultures, initially the mesophilic conditions will be used. Thereby also larger fluctuations in the composition of the hydrolyzate can be tolerated without significant impact on the fermentation. For internal monitoring the biogas production of each Fermenter before the entry into the central raw biogas piping is measured in terms of quantity and quality.

The each fermenter leaving gas flow is analysed at certain times regarding actual composition, which allows conclusions about the degree of utilization/exploitation of the biotechnological potential of each respective fermenter.

The connection of the fermenter to the central raw gas piping is also equipped with a pressure control/limitation valve equalizing the entry of this gas into the raw gas piping at a pressure of 50 mbar.

The fermenters are also connected to pipelines for the discharge of contaminants (sinking and floating sludge) and the digestate.

Postfermentation

The two Post fermenters are set in series to the Main Fermenter and are operated batch wise to enhance the fermentation time. They are already covered with raw gas storages to equalize the gas flow and to have gas storage for downtimes of the gas engine or desulfurization system. They are operated initially in the temperature range for mesophilic at 37-42°C cultures and can be changed later to thermophilic operation at 52-55°C.

The run-off of the post fermenters reaches the fermentation residue storage, while the drain lines for sinking- and groundslurries are also connected to the central run-off-pipe to the suspension station.

Digestate

The fermentation residue storage with its double membrane gas storage on top has two main functions: It is primarily the storage of the resulting digestate and its extensive residual gas production. The upcoming gas goes directly into the gas storage.

Furthermore, the fermentation residue is used as a storage reservoir upstream to the phase separation station and at the same time as a decoupling element for the process. If necessary, it is thus possible to conduct the phase separation in a different temporal rhythm as the continuous fermentation process.

Gas desulfurization

With the help of the gas desulfurization station it is ensured that the downstream gas storage and gas recovery technology can be operated largely by from sulfur compounds depleted biogas. The efficient binding of the hydrogen sulphide contained in the raw biogas requires that for the aerobic cultures in the Gas desulfurization at least 2 V-% oxygen (or apx. 8 V%-air) are supplied. Based on the recorded gas flow rates from the hydrolysis station and the main and post fermenters the resulting amount of air flow is determined and added controlled to the hydrolysis tank. The monitoring of oxygen and / or nitrogen content in the desulfurized biogas after the desulfurization serves the eventually needed correction of the air supply to the hydrolysis station. Due to the additional air supply the total gas volume stream will be higher and the CH4 content by % number diluted.

Beside the desulfurized biogas including the added air the loaded washing liquid will be discharged from the desulfurization station as sulfuric bio acid. The bioacid is piped to the bio acid storage tank. The extracted washing liquid is replaced by process water with added nutrient concentrates in accordance to operating instructions. The flow resistance of the desulfurization station is overcome from the pressure maintained in the raw gas line, which must also overcome the pressure of the air support within the double membrane gas storage.

Gas storage

The gas storage, designed as a double membrane storage serve both, the gas-tight cover of the post fermentation tanks and the fermentation residue storage and the decoupling of biogas production and biogas utilization. The integrated level monitoring is used to control the gas offtake by the gas drying and gas compressor station.

Gas drying station

In the gas drying station being already designed for the expected gas flow rate of up to 500 m³/h, a technical cooling of the desulfurized gas to temperatures of <10 ° C is done. The gas leaving the gas storage has a relative humidity of 100%.

The gas condensate produced during the gas cooling is piped to the biofiltrate storage. To the extent of the biofiltrates running through the inhibitor extraction station the nitrogen compounds contained in the gas condensate are saved for the fertilizer production. Other potential nitrogen from the gas condensate is transported via the flotation sludge resulting from the remaining biofiltrate treatment back into the process.

Gas compression station

The compression of the partially dehumidified biogas happens by means of centrifugal blowers. As the primary pressure of the gas storage at 8 mbar is reliably enough to overcome the resistance of the gas cooler, the entire compression work of the centrifugal blower at 200 mbar is available for the conveyance of the gas to the gas utilization. For billing and control purposes the gas stream after the compression is subjected to a quantity and quality measurement.

Phase separation station

The material coming from the fermentation residue storage is still containing fibrous material. It is utilized to produce a filter cake having a dry matter content of between apx. 25 and 30%. A Screw press separator is fed with the digestate, the produced and pressed off cake is discharged directly into the fertilizer storage or to any other recipient. This material, protected from weather, is stored using telescopic loaders or taken away just in time. Further equipment can be added to produce dryer fertilizer or even small packaged fertilizer for retail.

Inhibitor extraction station

From the to be recycled biofiltrate therein contained dissolved ammonium and hydrogen sulfide levels are extracted. Therefore in a first reactor fractions of ammonia and hydrogen sulfide are released under heat and air supply as water containing vapors, sucked off by the means of a jet pump and condensed in a subsequent technical cooled Raschig Ring apparatus using bioacid and, where appropriate, waste sulfuric acid.

The nutrient-rich bottom product is taken out from the Raschig Ring at regular intervals after reaching a threshold derived from the absorption and sprayed onto the press cake in the fertilizer warehouse at the expense of a slight increase in humidity. The lack of wash medium is replaced by fresh bioacid.

4. **Advantages of the WABIO technology:**

- Only Once Inoculum injection of adapted Mixed Bacteria Culture
- Protection against Loss of Bacteria Cultures by Fermenter Technology
- Combination of Aerobic and Anaerobic Process Steps
- Avoidance of Damaging the Bacteria Cultures
- Avoidance of Toxic Concentrations of NH_4 and H_2S in the Biofiltrate
- Recycling of Bacteria from the Fermentation Residue
- Double Shell security against leakage for the whole plant
- Modular expandable
- Minimum space requirement compared to traditional biogas plant
- Significant performance reserves
- Very high Gas Yields from lignocellulosic and other input materials due to multi stage extensive treatment

5. This offer is based on the use of the input as mentioned above and in "Annex 2a" of the "CONTRACT", in order to provide the output products being Biogas, Power, Heat and fertilizer. WABIO reserves the right to change a technical solution proposed in the "CONTRACT" and in its "Annex" documentation, if it is technically better or at same technical quality for the process and suits the plant at least the same as the exchanged technical solution.

6. Any supply or service item mentioned herein is being in the responsibility of the respective "Party" being marked in the Annex 3 as the responsible supply-"Party" for such item. Any obligations mentioned herein apply only to the respective supply-"Party" of such item.

7. The complete proposal (for total supply of WABIO and CUSTOMER) includes the electrical, automation and control system for the entire biogas plant including central switching and control equipment for the mainly automatic operation of the biogas system. The following data can be called up from a PC and visualized, but dependent on final orders and planning:

   Operating processes • Gas production • Pressure in the gas storage - signal in the event of limit value being exceeded • Remote access for different system information by appropriate system manufacturer • Processes

Gas Measurement/analysis Gas analysis methane, oxygen, hydrogen sulphide with transfer of the data of the visualisation system, alarm in the event of increased oxygen content in the biogas

CHP: Methane sensor; if the safety value was exceeded, the alarm and safety system are triggered Smoke detector Temperature measurement Safety temperature and pressure limiter - heating circuit CHP Leak-test device gas control system continuous monitoring of the room ventilation

Plant room (if any) CH4 sensor (Methane sensor, display indication), if the value is exceeded, the alarm and safety system are triggered Smoke detector continuous monitoring of the room ventilation

Switching room: Smoke detector continuous monitoring of the room ventilation emergency call dialling unit

Lightning protection and plant lighting is not included, the customer is required to check the requirement

The complete cabling for data transfer and electric power supply inside the biogas plant is included. Interface is the power supply in the switchboard.

With regard to the software required for the use of the Control systems/I&C Systems, source codes are not included. WABIO is not obliged to provide such codes.

8. Exclusions

As mentioned in the "Annex3" and the equipment list, especially

- Local statutory permissions
- all inputs others than mentioned in the offer
- soil works and ground preparation, evtl. piling.
- Control room
- Plant lighting
- Lightning protection
- Input storage
- Fencing
- Access roads outside catchment area and full ramp

Supplied items and material have to be stored protected against weather, theft and damage after reaching the construction site under responsibility of „CUSTOMER". Sensitive items like sensors have to be stored according to their respective storage needs. WABIO will instruct „CUSTOMER" of these storage conditions.

As estimate for the whole process plant in "Annex 3" with following exclusions: Supply prices are based on experience with suppliers offer unless otherwise mentioned, local prices are a reasonable cost estimate according to experience – may vary subject to contract.

9. CUSTOMER Scope of work esp.

(1) CONTROL ROOM

A separate control room is proposed by WABIO. This Control Room should be adjoining the main plant area and have enough space to accommodate also the switchboards. All Electrical and Automation Control Panels shall be located within the Control Room. The Control Room is not within the scope of WABIO. Upon request WABIO will provide the necessary specs and parameter for such control room.

(2) FEEDSTOCK STORAGE

The „CUSTOMER" shall arrange to store the feedstock in adequate amounts to facilitate continuous operation of the WABIO plant and to store the produced fertilizer for distribution. The plant design has included a buffer storage for input material and has included a buffer storage for the fertilizer. Other storage areas are not included. Upon request "WABIO" will propose and design such additional storage subject to additional contract.

(3) FIRE FIGHTING EQUIPMENT – Existing as far as necessary

"CUSTOMER" shall provide the necessary fire fighting equipment as per the local safety regulations applicable.

(4) LUBRICANTS

All First Fill of Lubricants except the bacteria culture shall be provided by the „CUSTOMER" or the respective suppliers.

(5) FINAL CLADDING & PAINTING

Final Cladding of all the WABIO Biogas and Bio-Fertilizer Plant and Site Buildings, in regulation colors will be provided by "WABIO", No fence around the plant site is included in the offer.

Additionally, all what is mentioned in Annex 3 as exclusion from WABIO supply.

10. Mechanical Guarantee

WABIO undertakes that the Machinery and equipment to be supplied under WABIO scope shall be of good quality, brand new, good material and sound workmanship and from good suppliers. WABIO will make sure that the respective supplier of any supply item is obliged to repair or replace defective parts thereof which may be necessary, within a period of twelve (12) months from the date of delivery or successful commissioning of the plant – depending what is achievable with supplier - if the case is of defective design, defective material or quality workmanship, unless otherwise agreed to with supplier. WABIO will – upon request of „CUSTOMER“ – assign any warranty or guaranty provided by any subsupplier to „CUSTOMER“ for direct claims settlement.

This free replacement or repair shall not form the subject of any claim or for any expenditure therein or with reference thereto.

This free replacement excludes wear and tear, and any damage or loss to the equipment due to the „CUSTOMER“'s fault or negligence, unsuitable storage, or any cause beyond WABIO's responsibility or control. Replaced parts, if any, become the property of WABIO.

WABIO shall not be liable for loss of anticipated profits by reason of plant shutdown or by reason of non-operation or by increase in operational expenses of the equipment supplied by WABIO, nor for any indirect or consequential damages of any nature.

11. Process Guarantee

WABIO guarantees that the PLANT will perform in accordance with the Performance Parameters stipulated under 'Annex 2a'.

These Performance Parameters are valid for the proper and correct operation (according to the plant operating manuals) of the PLANT, being built according to WABIO standards and design, at rated capacity, using the defined input materials and taking into account the relevant tolerances.

The Performance Parameters are valid on the condition that the pre-requisites laid down under 'Annex 2a' have been completely fulfilled.

WABIO shall have at least for the time of the warranty and guarantee periods full (also remote) direct access to the plant control and monitoring system and all PLC-data of the plant operation.

12. Commissioning

Upon Mechanical completion of the PLANT i.e. the date on which the equipment and materials have been installed at site, all pre-commissioning work has been completed and all other necessary work has been finished in such a manner that a safe commissioning of the PLANT may be carried out, then the PLANT may be started up for the first time with the specified and proper feed (COMMISSIONING START).
„CUSTOMER“ shall provide continuously, in the required quality and quantity, at his/her expense, the skilled personnel, materials and utilities necessary for the COMMISSIONING support of the PLANT according to the data to be submitted by WABIO at an appropriate time and in accordance with the envisaged Contract. The waste material to serve as plant input shall be fresh or intermediary stored as silage as per instruction of WABIO.

As proof of the correctness of the aforementioned Performance Data, a Performance Test Run of One Hundred and sixty eight (168) hours will be conducted within max. Ninety (90) days of start-up of the PLANT. The PLANT performance will be duly recorded and signed by both parties.

In case the Performance Guarantee Figures, as per ‘Annex 2a’, have been reached during the Performance Test Run, the PLANT will be taken over by the „CUSTOMER“. Thereupon, the „CUSTOMER“ shall issue the Taking Over Certificate (Acceptance Protocol) and WABIO’s performance obligations are fulfilled (Taking Over/ Acceptance of the PLANT).
In case WABIO fails to prove the above mentioned Performance Data for reasons imputable to WABIO, WABIO shall at their expense make, as soon as possible, the necessary modifications to the PLANT. „CUSTOMER“ shall provide suitable opportunities and all facilities necessary for carrying out such modifications.

After completion of the modifications, further Performance Test Run of One Hundred and sixty eight (168) hours will be carried out under the same conditions as stated above.

13. Standards & Codes

The design of the PLANT and the determination of the guaranteed Performance Parameters stated are based on the standards and codes such as DIN standards or others applicable in effect at the time of this proposed offer.

All weights, dimensions and measures shall be in the Metric System.

The English language shall be the language used in all correspondence, instructions, catalogues, brochures, pamphlets, documents, labels on supplies, and any other data to be given, unless not available from any third party supplier.

If for reasons beyond WABIO's control, it becomes necessary to carry out significant modifications to already completed work due to changes of standards and regulations, WABIO reserves the right to invoice the additional cost that may arise.

14. Insurance & Indemnification

The „CUSTOMER" shall arrange for an insurance to cover all risks connected with the execution of civil works, installation, and start up of the plant including the Performance Test. This insurance cover shall be held valid until the „CUSTOMER" has signed all acceptance certificates of the PLANT.

„CUSTOMER" shall hold WABIO harmless from all costs and expenses related to property damages occurred on site to the equipment and materials of the PLANT (whether already installed or not), first fillings, installation equipment, tools, and other temporary site facilities, which are not covered or not compensated under all such risk insurance.

„CUSTOMER" shall hold WABIO harmless from all costs and expenses related to damage or loss to property outside the PLANT or injury to persons.

„CUSTOMER" shall hold WABIO harmless from all cost and expenses related to damage or loss to supplies delivered to the site.

15. Liability

WABIO grants the „CUSTOMER" the rights explicitly mentioned in this Proposed Offer or CONTRACT and its Annexes(s). Any further rights and remedies under this Proposal or Contract, or on account of any relation between the parties existing prior to the Contract, in particular any compensation for consequential damages or other damages which have not occurred directly to the delivered goods themselves, are excluded.

16. Intellectual Property

WABIO agrees to grant a non-exclusive, non-transferable, non-divisible, non-licensable, non-sublicensable, one-time User License to the „CUSTOMER" for the WABIO Process and Hardware technology only under this proposal for the lifetime of the Project Plant. This shall be done in a separate contract. All future Re-use of WABIO design/technology is excluded or will be exclusively done through WABIO and only within a separate to be concluded new CONTRACT.

WABIO shall have the right to put its corporate design, name and logos onto the built process plant at prominent place at its choice for best possible visibility from outside.

17. Commercial Terms & Conditions

a. Payment Terms

Payment schedule according to "CONTRACT"

b. Supervision of Construction, Erection & Commissioning

Supervision of the Erection & Commissioning of the Plant and Travel by WABIO Engineers to the site is included for the full construction time and commissioning within the "CONTRACT" price. Extensions of supervision time or commissioning time due to events not being under WABIO control, unless force majeure, have to be compensated separately and additionally, as stipulated in the "CONTRACT".

First class accommodation and boarding at site (as reasonably available) , free local transportation ex airport, full office support and local interpreter, for all the WABIO Engineers/Representatives is to be provided by the „CUSTOMER".

c. Delivery

On the basis of current information, the time until completion for the scope of supply, shall be at the target 15 months from construction start on site based on the condition that the data to be furnished by the „CUSTOMER" are made available in due time as well as all other preconditions for WABIO to be able to supply and supervise the plant construction as per the WABIO fee schedule like aforegoing works finished in time.

The time of delivery starts with construction start of civil works, provided that the contract has come in to force i.e. the following items must have been completed

- Contract signing
- Receipt of any down payment, as per this Section 19 and the "CONTRACT", in WABIO's Bank Account

18. Offer Price

Total price for the above offer for WABIO scope (**CONTRACT plus Annex3** – WABIO items) is EUR 25.575.500,00 (i.w. EURO sixteen million five hundred eighty four thousand five hundred Euros) only.

Supply to site - Incoterms 2010

Note: Prices are net without Custom fees, taxes, duties, and/or other costs originating in „CUSTOMER'S" country.

Neukirchen, d. 02.01.2024

ANNEX 2a – PERFORMANCE & SPECIFICATION PARAMETERS

WABIO guarantees the performance of the process plant that is to be supplied and erected under this contract in accordance with the specifications summarized below. The Performance Guarantee is calculated and measured on the dry organic matter at 50% or above Operating Capacity, averaged over 168 hrs. of uninterrupted operation, of the WABIO Biogas Plant after the fermentation system has been fully stabilized, latest 6 months after commissioning. The waste inputs are based on the numbers provided by the „CUSTOMER" as per below mentioned inputs on a daily basis per year, and the Performance guarantee test has to show the pro rata result calculated from the mentioned figures for 8064 hours for the 168 hours test period.

Input Feedstock Specification

As per table above under ANNEX 2, #1. (attached generation sheet) as per „CUSTOMER'S" information or experience data.

WABIO Bacteria Culture

Required Dry Mass of the special WABIO Starter culture for the Plant Start-up will be provided by WABIO and is included as separate item in the Contract Price. This starter culture will be supplied as microorganism to the Plant as a starter culture for the Biogas plant to the „CUSTOMER". Eventually needed required statutory permissions will be obtained by the „CUSTOMER". All required documentary support will be provided by WABIO. WABIO will be required to grow the imported microorganisms at the Project Site to the final required quantities for its process. For this the required tanks and systems have to be erected first in a proven schedule.

Output Guarantees

Biogas Production

Based on the Input Quality and Quantities specified above WABIO guarantees that the calculated amount of Biogas generated will be Minimum 17.228.000 Million m^3 per Year at calculated average 65% CH4 or the respective higher/lower amount of biogas at lower/higher

CH4 value to reach the same total calorific value of minimum 112.000.000 kWh per year. Smaller adjustments of the input quantities of straw might be necessary due to the properties of the actual used straw material.

Customer should be aware that the biogas production could be higher, so that eventual additional gas using units may have to be installed – or feedstock amount to be reduced.

Bio-Fertilizer Production

Based on the Input Specifications above, WABIO guarantees that the Bio-Fertilizer generated will be directly dependent on the input nutrient content in the waste.

The final production figure of the nutrient quality and quantity in the output Bio-Fertilizer will be achieved once a complete cycle has been achieved at all plant stations being in full operation. This quantity total production figure of the NPKS Bio-Fertilizer as well as nutrient quality and quantity depend on input nutrient content and remaining water after phase separation. Principally no nutrients will be lost during biogas process within the biogas plant.

Based on the above, it is estimated that, when the recycling of the Bio-Filtrate has been fully stabilized, the amount of wet Bio-Fertilizer generated from the WABIO Plant from the agricultural inputs will be apx. 30.000 tons per year and from the other inputs it can be apx. 40.000 tons per year at apx. 25-30% dry matter content, according to input quantity and screw press quality. There is an option to produce dry fertilizer from the non agricultural input to get this fertilizer also for sale, but for that is has to be dried and depleted from all inorganic impurities. This has to be checked in the starting phase of the plant and is not included in this offer.

WATER EMISSIONS

Waste water emissions will be ZERO m³ per year; depending on input quantity and quality a water amount of apx. 17.000 m³ might be needed.