PROJECT EVALUATION FORM

Date: \_\_\_\_\_\_\_\_\_\_\_­­­­­­\_\_\_\_\_\_\_\_

ElectraTherm can estimate recoverable power output at your project location provided the information requested below. Your attention to detail while filling out this form is greatly appreciated. Missing or inaccurate information may prevent ElectraTherm from accurately responding to your request.

**Are you a:**

**ElectraTherm Distributor/Representative:** checkbox **Prospective End User:** checkbox

**Other:** checkbox ***Please explain:*** \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

**Representative Contact Info (If applicable):**

**Contact:** \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ **Phone:** \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ **Email:** \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

**Project Contact Info (required):**

**Contact:** \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ **Phone:** \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ **Email:** \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

**Contact Address:** \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

**City:** \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ **State or Province:** \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ **Postal Code:** \_\_\_\_\_\_\_\_\_\_\_

**Country:** \_\_\_\_\_\_\_\_\_\_\_\_\_

**Brief Project Name & Description:**\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

**Are there any Power Utility, Local, or National incentives available? \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_**

**Project Site Conditions**

Location of Project (City, State/Province, Country): \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Hours of available heat & condensing flow: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_hrs per year

End User Electrical Cost (required):\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ $ (USD) per average kWh from power bill

**HOT WATER APPLICATION:**

IF HOT WATER IS CURRENTLY AVAILABLE, PLEASE COMPLETE THIS SECTION. IF NOT, SKIP TO THE NEXT SECTION.

**HOT WATER Temp** \_\_\_\_\_\_\_\_\_\_°C; **Flow** \_\_\_\_\_\_\_\_\_\_L/s (Liters per Second) Glycol%\_\_\_\_\_\_\_\_\_\_\_\_\_

(Target Temperature Range: 77-150°C; Target Flow 6.4-22.1 L/s)

If hot water circulates back to the heat source after running through ElectraTherm equipment (Example: stationary engine, solar collector, boiler, etc.) please provide the amount of heat available.

Heat Available \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ checkbox kj/hr; or checkbox kW (select one)

Are there other current or planned heat users on this loop (Ex. Space heating, absorption chiller, domestic hot water, etc.)? Please describe and attach documentation: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

**Source of Hot Water:** Please check one and include any available spec/data sheets

checkbox Stationary Engine – If yes, what is your average engine load: \_\_\_% of nameplate.

checkbox Are Engine radiators already purchased/onsite?

checkbox Boiler – If yes, please provide description and attach spec sheet. Please attach specific boiler data sheet

checkbox Geothermal – If yes, is a water analysis available? checkbox Yes checkbox No. Please attach accordingly.

checkbox Solar

checkbox Process Heat

checkbox Other: \_\_\_\_\_\_\_\_\_\_\_\_\_\_

Please attach specific engine data sheet

**ENGINE OR STACK EXHAUST APPLICATION:**

IF HEAT IS CURRENTLY AVAILABLE FROM ENGINE OR STACK EXHAUST, PLEASE COMPLETE THIS SECTION. IF NOT, SKIP TO THE NEXT SECTION.

**ENGINE EXHAUST OR STACK GAS**  **Temp** \_\_\_\_\_\_\_° C; **Flow** \_\_\_\_\_\_\_\_ ⁯\* Sm3/h or Am3/h (Please check one)

\*It is ***critical*** that the above flow rate is accurately identified as being in Sm3/h or Am3/h. If both are unknown please provide the amount of stack heat in mass flow rate \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_kg/h.

Please attach specific engine data sheet for engine-based exhaust application

**BIOGAS FROM WASTEWATER PLANT OR LANDFILL APPLICATION:**

IF BIOGAS IS CURRENTLY AVAILABLE FROM ANAEROBIC DIGESTER(s), PLEASE COMPLETE THIS SECTION. IF NOT, SKIP TO THE NEXT SECTION.

**Is excess Biogas flared?** checkboxYes checkboxNo **If yes, how often is flare used**? \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

**Is flaring currently operating under permitted volume and emissions?** checkboxYes checkboxNo

If **NO**, what is the flaring limit?\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ What is current emissions permit?: (Please attach)

Emissions target or goal?\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

**BIOGAS Yearly Average Flow Rate** \_\_\_\_\_\_\_\_ Sm3/h

**BIOGAS Peak Flow & Duration** \_\_\_\_\_\_\_\_ Sm3/h, Occurring between (dates) \_\_\_/\_\_\_/\_\_\_ - \_\_\_/\_\_\_/\_\_\_

**BIOGAS Minimum Flow & Duration** \_\_\_\_\_\_\_\_ Sm3/h, Occurring between (dates) \_\_\_/\_\_\_/\_\_\_ - \_\_\_/\_\_\_/\_\_\_

Methane Content:\_\_\_\_\_% Mole Hydrogen Sulfide:\_\_\_\_% Mole

Gas Properties calculated @ STP: \_\_\_\_degrees C Measured Base Pressure @ STP:\_\_\_\_ bar

Gross, Ideal Gas \_\_\_\_kj/m3 Net, Ideal Gas \_\_\_\_kj/m3

**What space is available onsite? Please provide dimensions and or site drawing\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_**

**Is there power currently being produced onsite?:\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_**

**How much power does your plant currently produce if any:\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_**

**Are there future plans to increase Biogas production (food waste program, etc)?**\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Please attach applicable Biogas Analysis/Lab results

**GAS FROM OIL WELL APPLICATION:**

IF GAS IS CURRENTLY AVAILABLE FROM OIL WELL APPLICATION, PLEASE COMPLETE THIS SECTION. IF NOT, SKIP TO THE NEXT SECTION.

**Is Gas currently being flared?** ⁯Yes ⁯No **If yes, how often is flare used**?\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

**Is flaring currently operating under permitted volume and emissions?** ⁯Yes ⁯No

If **NO**, what is the flaring limit:\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ **What is current emissions permit**: (Please attach)

**Is this RAW Gas?:** ⁯Yes ⁯No If No, what process is the gas coming off of?:\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

**GAS Yearly Average Flow Rate** \_\_\_\_\_\_\_\_ Sm3/h **Does Gas Volume vary?** ⁯Yes ⁯No

**GAS Peak Flow & Duration** \_\_\_\_\_\_\_\_ Sm3/h, Occurring between (dates) \_\_\_/\_\_\_/\_\_\_ - \_\_\_/\_\_\_/\_\_\_

**GAS Minimum Flow & Duration** \_\_\_\_\_\_\_\_ Sm3/h, Occurring between (dates) \_\_\_/\_\_\_/\_\_\_ - \_\_\_/\_\_\_/\_\_\_

Carbon Dioxide:\_\_\_\_% Mole Nitrogen:\_\_\_\_% Mole Methane Content:\_\_\_\_\_% Propane:\_\_\_\_% Mole

I-butane:\_\_\_\_% Mole N-butane:\_\_\_\_% Mole I-pentane:\_\_\_\_% Mole N-pentane:\_\_\_\_% Mole Hexane:\_\_\_\_% Mole

Gas Properties calculated @ bar: \_\_\_\_degrees C Measured Base Pressure @ STP:\_\_\_\_ bar

Gross, Ideal Gas \_\_\_\_kj/m3 Net, Ideal Gas \_\_\_\_kj/m3

**How is the site provided power? Grid:** ⁯Yes ⁯No **Generator:** ⁯Yes ⁯No

**What space is available onsite? Please provide dimensions and or site drawing\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_**

**Are there future plans that will increase gas volume?**\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Please attach applicable GAS Analysis/Lab results

**POWER+ GENERATOR OUTPUT ASSESSMENTS INCLUDE LIQUID LOOP RADIATOR CONDENSING. CLIMATE CONDITIONS ARE CRITICAL TO ASSESSING POWER+ GENERATOR OUTPUT ESTIMATES. PLEASE COMPLETE THIS SECTION.**

Average Annual Temperature: \_\_\_\_\_\_\_\_°C

**IF WATER COOLING IS CURRENTLY AVAILABLE, PLEASE COMPLETE THIS SECTION. IF NOT, SKIP TO THE NEXT SECTION.**

WATER COOLED **Temp** \_\_\_\_\_\_\_\_\_ °C **Flow**\_\_\_\_\_\_\_\_\_ L/s (Liters per Second) Glycol%\_\_\_\_\_\_\_\_\_

(Target 4-65° C, Target Flow of <22.1 L/s)

**Source of cooling water:**

checkbox Boiler Feedwater checkbox Boiler makeup water checkbox Pond, Lake or River

checkbox Cooling Tower checkbox Process water checkbox Ground Water

checkbox Potable water checkbox Swimming pool water checkbox Tertiary Effluent (non-Chlorinated)

checkbox Secondary Effluent (non-Chlorinated) checkbox Other: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Please indicate if your source of cooling water is existing or proposed: checkbox Existing checkbox Proposed

Are there other current or planned users on this loop (Ex. Process cooling, Air Conditioning, etc.)? Please describe and attach documentation: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

* See attached - Water Quality Guidelines

**JUSTIFICATION FOR PURCHASE**

checkbox ROI checkbox Emission Credits / Reductions

checkbox Lower Fuel Costs checkbox LEED Certification

checkbox Qualifies for Incentives/funding checkbox Carbon Credits

checkbox NET Zero Goal checkbox CHP (Combined Heat & Power)

checkbox Other: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ checkbox Green Benefits

**Please Note:**

*Our review of your heat and cooling data provided above is the sole basis for our estimate of your potential power output.  Errors or variations in the data above, site conditions or choice of auxiliary equipment could result in changes to the anticipated power output as the project develops.*