



# Nuworld Research & Development

## Project, Fuel & Renewable Energy, Identification Questionnaire

### Corporate Information:

Company \_\_\_\_\_  
 City/Town \_\_\_\_\_ Prov. /State \_\_\_\_\_  
 Country \_\_\_\_\_  
 Contact \_\_\_\_\_  
 Email \_\_\_\_\_ phone \_\_\_\_\_

### Project Identification:

#### **1. General Project Data**

- a. *Project (s) Location*
- b. *Type of Industry (end use)*
- c. *Approximate size of the Project(s)*
- d. *Estimated start-up date*

### Fuel Identification:

#### **2. End-use (application) description**

- a. *Describe the use of power*
  - *Max capacity (kW):*-----
  - *Min capacity (kW)* -----
  - *Operating hours per day*-----
  - *Connected voltage*-----
  - *Frequency*-----
  - *What is the Power used for?*-----
  -

#### **b. Current source of Power:**

- *Grid yes. no .*
- *Stand-by generator yes. no .*
- *If yes to above, describe the stand-by generator*
- *Brand*-----
- *kW Rating*-----
- *Age*-----
- *Type of fuel used*-----

### 3. Other Fuels

#### a. Available sources of fuel

- **Natural Gas:**

- Is NG available at the site? yes . no .
- If yes, describe
- Pressure
- But content
- Price in Dollars per Millions of But(\$/mmBtu)

- **Diesel:**

- Is diesel fuel available at the site ? yes . no .
- If yes, describe:
- Price in Dollars per Gallons

### 4. Bio-Gas Fuel

- Describe the source of biogas fuel
- Is an anaerobic digester already installed? yes . no .
- Describe the basic design of the digester
- Provide the following information on the biogas fuel:
  - Quantity produced per hour (Cubic Meters)-----
  - Quantity produced per month(Cubic Meters)-----
  - Quantity produced per year(Cubic Meters)-----
  - Hydrogen sulfide (H<sub>2</sub>S) content (% or Parts Per Million)-----
  - CO content
  - Hydrogen content
  - Other contents (list)
  - Calorific value (mmBtu/MCF)
  - Moisture content

### 5. Other Information

- Size of the host
  - Number of employee
  - Revenues per year
  - Ranking of the host in vertical market
- Size of the market
  - Approximate size of the market related to application
- Government or other incentives
  - Are there subsidies or grants available? yes . no .
  - If yes, describe the source

## 6. Power Delivery System Requirement Questionnaire -2

In order that we may generate a proposal for you or your company that best reflects your requirements, we will need certain technical questions answered. Remember that our system is designed to be connected "in line" with your load, in other words all of the energy that used to be supplied to your (grid connected) load from the grid (or other source) will now be supplied by our very high reliability Power Electronic power delivery system, and supplemented by renewable energy, such as wind, solar and your existing energy source.

### Power Electronics

1. What is your incoming electrical service rated at in **Amps** \_\_\_\_\_
2. What is the **Voltage** of your incoming electrical service \_\_\_\_\_
3. What is the **frequency** (in Hz) of your incoming electrical service \_\_\_\_\_
4. Do you know what your **power factor** is (Power Factor is the relationship between apparent power and real power generally expressed as a decimal or percentage of 1) (e.g. .95) Pf = \_\_\_\_\_
5. What is or what do you anticipate to be the **Total peak load** anticipated on the Hybrid Energy system in \_\_\_\_\_ kW or in \_\_\_\_\_ Amps at \_\_\_\_\_ volts  
(Peak load is defined as all connected loads energized "on" that may ever be energized "on" at the same time or moment in time).

### 6. Type of load, (load profile):

- a) % of the total load or # of kw \_\_\_\_\_ of incandescent lights (regular light bulbs)
  - b) \_\_\_% of the total load or # of kw \_\_\_\_\_ of florescent or HID lighting (mercury /sodium vapor)
  - c) \_\_\_% of the total load or # of kw \_\_\_\_\_ of electric motors and fans (non-soft-start or "Across the line start" and not controlled by Variable frequency drives)
  - d) \_\_\_% of the total load or # of kw \_\_\_\_\_ of electric motors and fans (soft-start and those controlled by Variable frequency drives)
  - e) \_\_\_% of the total load or # of Kw \_\_\_\_\_ resistive heat (e.g. baseboard electric heat)
  - f) \_\_\_ % of the total load or # of Kw \_\_\_\_\_ computers or switching power supplies
  - g) \_\_\_ % of the total load or # of Kw \_\_\_\_\_ SCRs or power electronic equipment (IGBTs)
7. How many **transformers** above 500va are in the distribution system: please list size in VA, type delta/wye, delta/delta, wye/wye, and quantity:

1 _____	4 _____
2 _____	5 _____
3 _____	6 _____

**Renewable Energy (Wind + Solar) Requirement:**

8. How many **hours per day** would you like to be **off of the power grid** or not connected to your current source of electric power # of hours \_\_\_\_\_
9. What **percentage** of your system would you like to be supplied from **renewable energy** such as wind or solar energy (e.g. 30% renewable)  
\_\_\_\_\_
10. Do you know statistically what the average **annual wind velocity** is in your area in M/hr, Km/hr or m/sec? \_\_\_\_\_
11. Do you know what the weibull shape parameter is in your area at 20 and 30 meters (optional) \_\_\_\_\_ Y / N
12. If Yes to # 11, give the data on separate email to [mmcgroup@nuworldresearch.com](mailto:mmcgroup@nuworldresearch.com)
13. Do you have a surface on your structure that faces the sun for a predominant period of the day (e.g. a roof area inclined no more than 45 degrees facing south by southwest (in north America))
14. If yes to # 13, what is the square area of that surface in square meters or square yards \_\_\_\_\_ sqM or \_\_\_\_\_ sqYards
15. If yes to # 13, how many hours of direct (unobstructed by other buildings, trees etc.) sunlight would you receive in a given day winter \_\_\_\_\_ summer \_\_\_\_\_

**Tentative schedule to transform Step-by-Step Guide to meet local requirements:**