LIST OF ENERGY EFFICIENCY AND CONSERVATION RELATED PROJECTS FOR THE LAST THREE (3) YEARS

List all energy efficiency and conservation related projects in the last three (3) years (include on-going projects):

- ☐ **Attach copies of the following for each EE Project implemented in the last three (3) years:**
  - ☐ Executive Summary of the Investment Grade Audit per project contract
  - ☐ Project Contact Person

Project Contract No.	Project Title	Customer's Contact Person, Contact Numbers and Email Address	Contract Period (MM/YY to MM/YY)	Project Cost (in Million Pesos)	Energy Efficiency Technologies	*Actual Energy Savings	
						Energy Saving Values	%SEC Improvement

*** Actual Energy Savings can be arrived at using Approach 1 or Approach 2:**

1. **Approach 1: Energy Savings** = Energy Consumption Before the Project – New Energy Consumption After the Project

   Negative (-) value increase in Energy Consumption

   Positive (+) value indicate Energy Saving

2. **Approach 2: Linear Regression Analysis**

   Expected Energy Savings = Energy Consumption Before the Project – Expected Energy Consumption After the Project

   Regression Analysis

   Regression analysis is a set of statistical methods used for the estimation of relationships between a dependent variable and one or more independent variables. It can be utilized to assess the strength of the relationship between variables and for modeling the future relationship between them.

   Expected Energy Consumption using Regression Analysis

   $y = a + bx$ (slope is positive when the dependent variable and the independent variable in increasing)
   $y = a - bx$ (slope is negative when the dependent variable is decreasing while independent variable is increasing)

   where:

   y : dependent variable, the outcome [e.g. energy consumption (kWh), energy savings per year (kWh), Specific Energy Consumption per unit product or activity (SEC), cooling degree days]
   x : independent variable, can be controlled and manipulated [e.g. electricity consumption per year, Investment cost (Php)]
   a : Y-intercept of the regression line
   b : slope of the regression line

   Pearson Correlation Coefficient (r)

   A measure of the strength of the association between the two variables.

   The **R-squared** value, denoted by R^2, is the square of the correlation. It measures the proportion of variation in the dependent variable that can be attributed to the independent variable.

   The **R-squared** value R^2 is always between 0 and 1 inclusive. This number denotes the distance between the actual and the estimated value or the deviations of the

actual from the estimated value. The closer the distance the more accurate the actual value is to the estimated value.

$$r = \frac{\sum(x - \bar{x})(y - \bar{y})}{\sqrt{\sum(x - \bar{x})2}\sqrt{\sum(y - \bar{y})2}}$$

where:

r : coefficient of correlation
x : independent variable, can be controlled and manipulated [e.g. cooling degree day, electricity consumption per year, (kWh)]
y : dependent variable, the outcome [e.g. energy consumption (kWh), energy savings per year (kWh)]
$\bar{x}$: mean of the x sample
$\bar{y}$: mean of the y sample

3. **Specific Energy Consumption (SEC) Improvement**

SEC – defined as the ratio of Energy Consumption divided by a certain level of Activity or an Area

A. For the Industrial/Manufacturing

SEC = Total Energy Consumption ÷ Total Production Activity or Volume of Products

Ex. SEC units in Kwh/MT Product;

B. For Building = Total Energy Consumption ÷ Total Gross Floor Area of the building

Ex. SEC units in Kwh/M^2

C. SEC Change = $SEC_2 - SEC_1$

D. Percentage SEC Productivity Improvement = $[(SEC_2 - SEC_1) \div SEC_1] \times 100\%$

Note: Negative (-) SEC indicate Productivity Improvement

Positive (+) SEC indicate increase in Energy Consumption

SEC_1 – refers to before the EE project starts (baseline energy and activity data of at least 1 year)

SEC_2 – refers to installed EE projects and in operation for at least 6 months to 1 year

Prepared by : _____

Date : _____