Energy Assessment Report

**Energy Assessment Report**

***<Template>***

Prepared by: Name of Employee

Department

Company Name

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### Purpose

The Energy Assessment Report is to be prepared by an LDC Key Account Manager (“KAM”) for and/or with a customer. The Report can be used for a variety of purposes including: 1) help the KAM and the customer identify energy management opportunities, 2) support an application for an Energy Manager, M&T system etc; or 3) be used as the basis for an Energy Management Plan.

### Executive Summary:

*<Provide an overview of the Assessment in a few paragraphs.>*

*<Ideas to include:*

1. *The baseline energy usage and energy intensity of the plant compared to industry norms, energy flows of the facility energy use identifying major energy using equipment*
2. *Top 3 to 5 high-potential energy conservation capital projects with estimated savings, incentives, capital costs and timelines,*

*Include summary table(s) of relevant numbers for current energy performance, targets, projects etc.>*

### Energy Assessment Report Information:

1. date of report
2. author
3. acknowledgement of key staff involved
4. facility name and location

### Background:

*<Describe the plant operations and factors that affect energy use. Some ideas for inclusion here are:*

1. *Business overview*
   1. *Description of business history and current structure (at parent and local level, ownership, etc)*
   2. *Review of the industrial sector the business operates in with reference to the NAICS coding system and a summary of key business concerns facing the business and sector.*
2. *Process descriptions,*
3. *Hours of operation and number of shifts (identify any recent changes or anticipated changes to hours of operation and shifts)*
4. *Physical location and access to resources,*
5. *List specifics of past conservation projects and successes.*
6. *Describe any existing Metering/monitoring systems,*
7. *List past energy and feasibility studies,*
8. Key challenges and constraints to achieving energy reduction goals (resources, capital, expertise, corporate commitment, data, etc.>

### Energy Baseline:

*<This section requires some basic data gathering and thought about the best way to show how and where energy is used in the plant. The more detail that is presented in this section, the easier it will be to identify energy management opportunities.>*

*Fuel source usage and productivity breakdown can be shown in a table such as this:*

|  |  |  |  |
| --- | --- | --- | --- |
| ***Fuel, Resource, Productivity*** | ***Total Annual Consumption/Production*** | ***Total Annual Cost/value*** | ***Percentage of Total Plant Energy Cost/production units*** |
| *Electricity* |  |  |  |
| *Natural Gas* |  |  |  |
| *Fuel Oil* |  |  |  |
| *Other fuel* |  |  |  |
| *Water* |  |  |  |
| *Units of Production #1* |  |  |  |
| *Units of Production #2* |  |  |  |

*<It is best to slice the energy pie for each fuel source in as many ways as possible that are meaningful to the customer in order to identify the best approach to improving energy intensity. Two example tables are shown below to illustrate different ways to show the breakdown of electrical energy consumption. Other energy disaggregation methods may be more applicable to your specific situation.>*

*<It is important to identify the uncertainty associated with this activity and link back to energy information references listed in the Background section above.>*

*<It may be necessary to construct a table that shows the annual energy use profile by month if the plant operations vary greatly over the course of a year.>*

*One way of showing electrical energy use breakdown by system type:*

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| ***Types of End-Uses*** | ***Number of Machines*** | ***MWh/yr*** | ***Operating Peak MW*** | ***% of Total*** | ***Uncertainty +/-%*** | ***Source of Energy Information*** |
| *Fans* |  |  |  |  |  |  |
| *Pumps* |  |  |  |  |  |  |
| *Compressed Air* |  |  |  |  |  |  |
| *Material Handling* |  |  |  |  |  |  |
| *Heating* |  |  |  |  |  |  |
| *Lighting* |  |  |  |  |  |  |
| *Process Equipment* |  |  |  |  |  |  |
| *Other* |  |  |  |  |  |  |
| ***Total:*** |  |  |  |  |  |  |

*Another way of showing electrical energy use breakdown by process:*

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| ***Unit Process*** | ***MWh/yr*** | ***Operating Peak MW*** | ***% of Total*** | ***Uncertainty +/-%*** | ***Source of Energy Information*** |
| *Saw Mill* |  |  |  |  |  |
| *Planer Mill* |  |  |  |  |  |
| *Lumber Drying* |  |  |  |  |  |
| *Plywood Mill* |  |  |  |  |  |
| *Chipper Mill* |  |  |  |  |  |
| *Offices* |  |  |  |  |  |
| ***Total:*** |  |  |  |  |  |

*<Now pick a meaningful measure of plant throughput, or process throughput, and calculate energy intensity per unit of production by dividing total annual energy use of each fuel source by unit of production. This will be the most important number for tracking and reporting energy management success. If possible, calculate energy intensity for 5 or more past years and show the trend.>*

*<Research typical energy intensity for the industry and compare to your findings.>*

### Identified Conservation Capital Projects:

*<Create a table of known opportunities for energy savings projects involving capital investment. List the systems with identified savings along with their energy consumption, potential for savings, and next steps to achieving the savings. State the source of information for the energy savings potential. Use a separate table for each energy source.>*

**Electricity Savings Capital Projects:**

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| ***System Name*** | ***Annual Energy Consumption*** | ***Operating Peak MW*** | ***Conservation Measure*** | ***Estimated Savings*** | ***Estimated Operating Peak MW reduction*** | ***Source of Information*** | ***Date of Information*** |
| *Big Fan #1* | *40,000 MWh* |  | *VFD* | *5,000 MWh* |  | *Consultant Study* | *Oct. 2009* |
| *Air Compressor* | *20,000 MWh* |  | *Replace comp.* | *2,000 MWh* |  | *Internal Study* | *Jan. 2010* |
| *Melter #1* | *90,000 MWh* |  | *Heat recovery* | *10,000 MWh* |  | *Rough Estimate* | *Mar. 2010* |

*<List all known opportunities in the table above even if they are presently considered to be uneconomical or otherwise not currently feasible.>*

### Energy Conservation Targets:

<*Using the potential energy savings identified for each fuel source in the previous sections, set annual conservation targets for five years. Include stretch targets in high/medium/low scenarios for estimated savings>.*

**Electricity Savings Targets:**

|  |  |  |  |
| --- | --- | --- | --- |
| ***Year*** | ***Savings High (MWh)*** | ***Savings Medium (MWh)*** | ***Savings Low (MWh)*** |
| *1* |  |  |  |
| *2* |  |  |  |
| *3* |  |  |  |
| *4* |  |  |  |
| *5* |  |  |  |

### Opportunity Identification & Analysis:

*<Potential projects identified by the Energy Manager/Key Account Manager in conducting a general energy assessment of a facility. >*

**Project Economics, Benefits & Risks for Identified Projects:**

**(complete on a best efforts basis)**

| ***Conservation Measure*** | ***Feasibility Study Complete?*** | ***Estimated Energy Savings (MWh)*** | ***Estimated Operating Peak MW reduction*** | ***Estimated Cost ($)*** | ***Available Incentives ($)*** | ***Project Payback (years)*** | ***Productivity, quality, or yield savings*** | ***Ease of implementation (easy, medium, hard)*** | ***Risk*** |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| *VFD on BF#1* | *Yes* | *5,000 MWh* |  | *1,000,000* | *625,000* | *1* |  |  |  |
| *Replace Air Compressor* | *Yes* | *2,000 MWh* |  | *800,000* | *460,000* | *2.3* |  |  |  |
| *Heat Recovery on Melter #1* | *No* | *10,000 MWh* |  | *5,000,000* | *2,300,000* | *3.6* |  |  |  |
| *Total:* | *N/A* | *17.00 GWh* |  | *6.80 M* | *3.385 M* | *2.0* |  |  |  |