



UNITED PULP AND PAPER COMPANY, Inc

COMPANY DESCRIPTION

United Pulp and Paper Company, Inc (UPPC) is the Philippines' leading manufacturer of high quality industrial grade paper, including corrugated medium paper and liner board that are used in carton packaging products. The company is located in Bulacan in the Philippines, has about 400 employees and has a rated annual production capacity of 200,000 tons. UPPC was incorporated in December 1969 and started its operations in August 1975. UPPC is practically fully owned by the Siam Cement Group of Thailand and is jointly managed by Filipinos and Thais.

PROCESS DESCRIPTION

The production process at UPPC consists of several steps:

- **Re-pulping** – Dispersion of secondary fibers using a hydropulper
- **Screening** – Removal of undispersed particles
- **Cleaning** – Removal of contaminants from the stock
- **Refining** – Cutting or brushing of the pulp fibers for specific paper grades
- **Blending** – Mixing of different types of fibers and chemical additives
- **Sheet Formation** – Forming of sheets of paper from the mixture
- **Pressing** – Compression of the paper sheets to remove water and consolidate the fibers.
- **Drying** – Further drying of the paper sheets by passing them through a series of steam-heated dryer cylinders
- **Calendering** – Paper sheets are passed through a series of calendar rolls to achieve the desired smoothness and thickness
- **Reeling** – Winding or wrapping of paper around a reel drum to form the “jumbo roll” .
- **Rewinding and Finishing** - Reduction of the “jumbo roll” into desired sizes according to customers' specifications. The finished roll is labeled and strapped and transferred to the Finished Goods Warehouse.

METHODOLOGY APPLICATION

The draft Company Energy Efficiency Methodology was used as a basis for the plant assessment to identify and implement options to reduce energy and other materials and wastes. Some of the interesting experiences are:

- **Task 1b – Form a team and inform staff**

The company has a dedicated Environmental and Safety Engineer (ESE) and he was an obvious choice as Team Leader. Other selected Team members were already involved in the implementation of the energy efficiency programs of the company
Lesson learnt: If the company already has an environment or energy manager it is easier to form a Team.

- **Task 5a – Implement options and monitor results**

During the monitoring phase of the project, it was found out that most of the recommended options had not been implemented. The reason was that the company decided to build a new cogeneration facility that would replace the existing boiler to which the recommended options applied.

Lesson learnt: Sometimes a larger scale project will also cover the focus areas and make options for the focus areas no longer applicable.

▪ **Step 6 – Continuous improvement**

The company established savings targets for water, steam, chemicals and other materials for all sections of the company. In order to meet these targets, several departments have initiated new energy and resource efficiency projects since the GERIAP project.

Lesson learnt: Target setting by top management can be an effective incentive for departments to continue to look for energy efficiency opportunities.

OPTIONS

- The focus areas selected for the project were (1) Boiler and Paper Machine (PM 2) Dryer, (2) Boiler Plant and PM 2 boiler motors, and (3) Lighting System.
- Nine feasible options were identified for the first two focus areas, but none of the recommended options were implemented due to the decision of the management to put up a new co-generation facility, which made the recommended options obsolete. The options for the lighting system are still to be implemented.
- The table below shows the potential savings.

Table 1: EXAMPLES OF FEASIBLE OPTIONS

FOCUS AREA/ OPTION	CP TECHNIQUE	FINANCIAL FEASIBILITY	ENVIRON MENTAL BENEFITS	COMMENTS
Boiler/ Improvement of insulation of the boiler shell/wall <i>(see case study)</i>	Good Housekeeping	<ul style="list-style-type: none"> ▪ Investment: US\$ 5,672 ▪ Cost savings: 3,839/yr ▪ Payback period: 1.5 yr 	<ul style="list-style-type: none"> ▪ Bunker fuel oil savings: 17,197 l/yr ▪ GHG emission reduction: 52 tCO₂/yr 	Projected savings only. Option will not be implemented because existing boiler will be replaced
Motors/ Installation of variable speed drive (VSD) for deaerator pump, heavy fuel oil pump and mill water pump <i>(see case study)</i>	Production process/ equipment modification	<ul style="list-style-type: none"> ▪ Investment: US\$ 79,342 ▪ Cost savings: US\$ 60,177/yr ▪ Payback period: 1.3 yr 	<ul style="list-style-type: none"> ▪ Electricity savings: 1,123,312 kWh ▪ GHG emission reduction: 225 tCO₂/yr 	Projected savings only. Option will not be implemented because existing boiler will be replaced
Lighting/ Replacement of 40-watt fluorescent lamps with 36-watt fluorescent lamps <i>(see case study)</i>	Production process/ equipment modification	<ul style="list-style-type: none"> ▪ Investment required: US\$ 982 ▪ Cost savings: 1,172/yr ▪ Payback period: 0.84 yr 	<ul style="list-style-type: none"> ▪ Electricity savings: 21,874 ▪ GHG emission reduction: 5 tCO₂/yr 	Option still to be implemented



FOR MORE INFORMATION

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