



CLEARWATER CONSULTING PARTNERS

PAPERMILL ENERGY SAVING OPPORTUNITIES USING INTELLIGENT TECHNOLOGIES

Energy audits serve a useful function in identifying opportunities to save energy. Unfortunately, they rarely provide the insight into the fundamental process and equipment characteristics that would enable informed decision making and low-risk investments with excellent paybacks.

Using intelligent programming and unit operation dynamic simulation, high IRR / fast payback (less than 2 years) energy and water savings can be readily achieved in most mills.

The scope is wide. Some examples of areas that often yield easy benefits are suggested below.

System Savings:

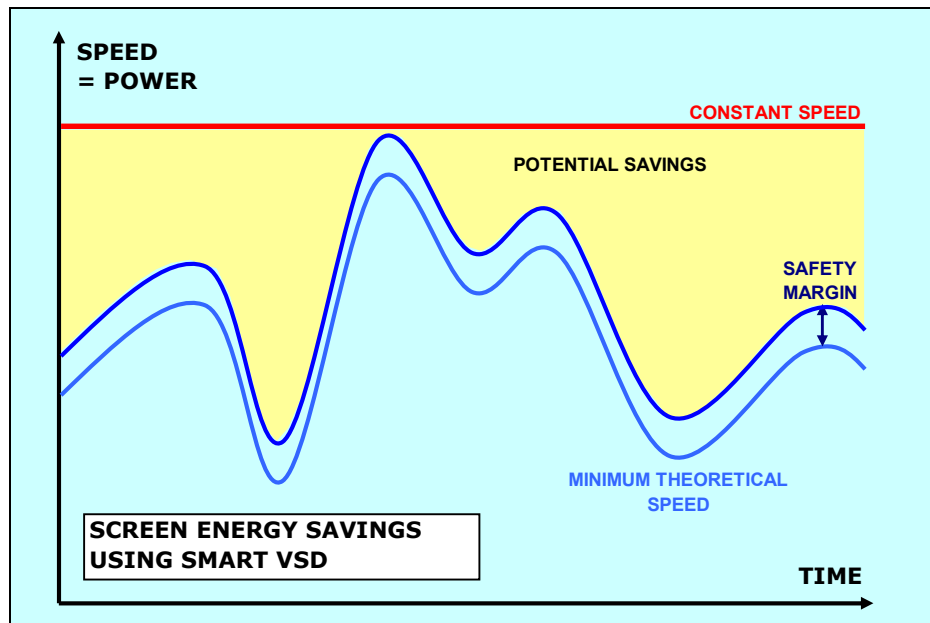
1. Dynamic process simulation identifies AND quantifies:
 - a. Waste
 - b. Bottlenecks
 - c. Yield losses
 - d. True energy consumption
 - e. Recovery opportunities
 - f. Water use reduction opportunities
 - g. Specific energy control opportunities

Specific Savings:

1. Heat recovery
 2. Steam savings
 3. Electrical energy reduction:
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a. Pressure screen conversion to VSD (using intelligent controls)



b. Pump conversion to VSD (with fewer control valves)

c. Fan conversion to VSD (using intelligent controls)

d. Continuous pulper conversion to VSD (for turndown applications)

Process Modifications:

- System closure (partial or full, depending on grade requirements)
- Rejects scalping
- Waste water re-use
- Biogas production
- Enhanced process controls
- Reduction in cleaner system energy consumption
- Equipment upgrades and enhancements
- Reduction in multi-stage operations without loss of quality