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HOW TO SUCCESSFULLY INCREASE THE REVENUE OF WASTE-TO-ENERGY FOR THE LONG TERM

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Abstract

The objective of the paper is to outline a new business-oriented methodology based on the principle of diagnosing before improving and with the aim to produce long-term results that mutually benefit the owner and the operator of a Waste-to-Energy or biomass plant.

The scope covers (1) the determination of correction curves and coefficients for various operating conditions to compare actual equipment performance with design one (with illustration for a steam turbine); (2) the mapping of the yearly plant operation schedule into different operating modes, for a better evaluation of dollar benefits of improvement solutions; (3) the use of a computerized plant simulator model that performs heat and mass balances and translates available monitoring data into dollar value.

When benchmarking the illustrated plant case study with industry standards, we found out that reducing the Deaerator pressure by 40 psi (by 2.7 bar) would translate into an expected additional $850k of total benefits a year.

1. Introduction

This paper presents a result oriented methodology aimed at improving the performance of waste-to-energy and biomass power plants. Despite being a top performer in its industry (see Fig. 1), SERRF (South East Resource Recovery Facility, the city of Long Beach-owned waste-to-energy facility) chose to launch in late 2003 a performance improvement program based on this new methodology. For information, an historical review of key performance data of the SERRF plant is given in Table 1.

The goal of this program is to generate long-term benefits. So far, the methodology has proven to be very efficient and has led to the identification of numerous performance improvement solutions for SERRF. Illustrations from the SERRF case will be used throughout the article.

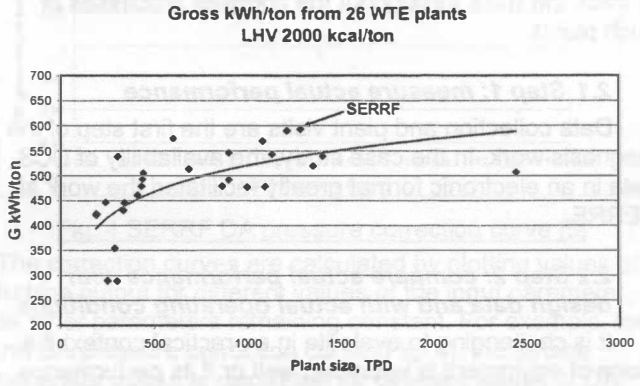

Fig. 1 Energy Performance vs. WTE Facility Size
Source: Deltaway Energy Best Practices [1]

	2,000	2001	2002	2003
Refuse received (Metric tons)	433,819	450,845	456,441	451,917
Exported Power (Mwh)	230,994	229,795	236,081	233,568
Plant availability	89%	89%	89%	89%
Ash (Metric tons)	156,402	166,718	159,733	157,992

Table 1 Historical review of SERRF Performance Data