

## THE MAINE ENERGY RECOVERY COMPANY AN RDF SUCCESS STORY

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### ABSTRACT

This paper describes the continuing design and operational changes to the Maine Energy Recovery Company and the resulting beneficial impact on plant performance, environmental compliance, and host community relations. The 600 ton/day (TPD) municipal waste combustion (MWC) facility is located in the center of downtown Biddeford, Maine and began operations in 1987 utilizing a refuse-derived (RDF) technology in the production of steam for electric power generation.

In August 1988, KTI Operations, Inc. assumed operations responsibility at the Maine Energy Recovery Company facility after the plant experienced a multitude of design and operational problems resulting in low municipal solid waste (MSW) processing and electrical availability, nuisance impacts to the host communities of Biddeford and Saco, and a Consent Agreement for environmentally related problems. During the ensuing three year period, a major retrofit/modification program for the facility was undertaken and numerous changes in operations were made which dramatically improved the MSW processing capability and reliability, significantly increased electrical generation, minimized nuisance impacts, and reduced the emissions of pollutants. Relative to environmental compliance, the facility's most recent stack test demonstrated the lowest mercury emissions, and the third lowest dioxin/furan emissions of any MWC in the EPA database.

### INTRODUCTION

To solve a regional solid waste problem in Southern Maine during 1984, the Cities of Biddeford and Saco contracted with Kuhr Technologies, Inc. (KTI) a New Jersey corporation for it to develop, construct, own and operate the Maine Energy Recovery Company (Maine Energy) waste-to-energy facility. Because of the favorable electric power rates available at that time and given the large seasonal variations in MSW volume in Southern Maine and neighboring New Hampshire, KTI selected the refuse derived fuel (RDF) technology as the most appropriate choice. Specifically, RDF technology provided the

facility with the capability to burn alternative fuels, such as woodchips derived from whole trees and urban woodwaste in conjunction with RDF, thus allowing the plant to be sized to meet the peak waste volume generated during the summer and to maximize power generation during any seasonal shortfalls in MSW deliveries.

In December 1984, KTI awarded the turnkey design and construction contract to the General Electric Company (GE) in conjunction with a five year operating contract. The 22 MW, 600 TPD facility was built in the center of downtown Biddeford, Maine and began operating in June 1987. Soon after commercial operation, deficiencies in the design and construction of the facility became apparent. As a result, the facility was incapable of; a) consistently processing enough RDF to feed the boilers; b) suffered from poor boiler availability; c) was unable to produce the expected levels of power generation; and, d) was plagued by numerous environmental problems. The on-going environmental problems ultimately resulted in a stiff fine from the State of Maine coupled with a Consent Agreement that required Maine Energy to implement agreed upon specific modifications to the facility's design and operation.

Since GE had not cured the design and operational deficiencies to the satisfaction of Maine Energy, GE was subsequently removed as operator of the facility in August 1988 and replaced by KTI Operations, Inc., a subsidiary of KTI Energy, Inc.

In response to the continuing design and operational problems experienced by the facility and the resulting financial losses suffered by Maine Energy, KTI with the financial support of its limited partners: CNA Realty, Energy National, Inc. and Project Capital, embarked on a comprehensive retrofit program to correct the facility deficiencies and to improve the plant operation.

Having established the backdrop, the balance of this paper will focus on each of three major systems integrated