*NAWTEC 12 Speaker Abstract*

# Accrediting Greenhouse Gas Credits for Marketing – The Saugus Experience

Francis Ferraro
Wheelabrator Technologies Inc.

The potential for global climate change due to the release of greenhouse gas (GHG) emissions is being debated both nationally and internationally. While many options for reducing GHG emissions are being evaluated, MSW management presents potential options for reductions and has links to other sectors (e.g., energy, industrial processes, forestry, transportation) with further GHG reduction opportunities.

According to the latest U.S. Environmental Protection Agency (EPA) inventory of GHG emissions, the waste management sector represents about 4% of total U.S. anthropogenic GHG emissions (i.e., 260 out of 6,750 teragrams of CO2 equivalents). Landfills are the largest anthropogenic source of methane (CH4) in the U.S. and represent approximately 90% of GHGs from the waste sector. Methane emissions result from the decomposition of biodegradable components in the waste stream such as paper, food scraps, and yard trimmings and, as a GHG, are 21 times as potent as Carbon dioxide.

GHG emissions can be reduced or avoided by adopting various MSW management practices. For example, diverting recycling materials from the waste stream displaces virgin materials production and thus avoids GHG emissions from virgin material production. Similarly, recovering energy from waste displaces electrical energy production in the utility sector and thus avoids GHG emissions associated with electrical energy production.

This study evaluated the potential for waste-to-energy to provide real, meaningful reductions in GHG emissions. The study was conducted for Wheelabrator Technologies Inc., in conjunction with EPA's Office of Research and Development (ORD) and the Integrated Waste Services Association. The technical analysis for this study was conducted by RTI International using data provided by EPA and Wheelabrator, and a computer-based decision support tool developed through a cooperative agreement between EPA/ORD and RTI.

The study examined the effect of local MSW management decisions on GHG emissions in an area of Massachusetts served by the Wheelabrator Saugus waste-to-energy facility. The scope of the study included all activities that play a role in MSW management from the point at which the waste is collected to its ultimate disposition. These activities include MSW collection, transport, recycling, composting, combustion with energy recovery and landfilling. The life-cycle environmental aspects of fuel and electricity consumption were also included, as well as the displacement of virgin raw materials through recycling and the displacement of fossil fuel-based electrical energy through energy recovery from MSW. The GHG emissions studied in this analysis were carbon dioxide (CO2) and CH4.

The results of the study demonstrated that the Saugus WTE facility is responsible for indirect reductions of over 250,000 metric tonnes per year of $CO_2$ equivalents due to avoided landfill emissions, ferrous metals recycling, and displacement of fossil-fuel electricity generation.