

Publications:

“A Mobile Pyrolytic System – Agricultural and Forestry Waste Into Clean Fuels” in *Energy, Agriculture, and Waste Management*, ed. William J. Jewell (Ann Arbor, MI: Ann Arbor Science Publishers), 271-288.

“Parametric Study for a Pyrolytic System for Production of Fuels from Agricultural and Forestry Wastes,” presented at Tenth Intersociety Energy Conversion Engineering Conference, Newark, DE.

“Energy Conservation in Burners, Boilers, and Other Combustion Systems,” booklet sponsored by the Israeli Ministry of Energy.

“Clean Fuels from Agricultural and Forestry Wastes: The Mobile Pyrolysis Concept,” presented at Winter Annual Meeting of American Society of Mechanical Engineers, Houston, TX.

“Study on the Technology and Potential of Methane Gas Recovery from Municipal Solid Waste,” Report for Israeli Ministry of Energy and Infrastructure.

Project Résumé:

1. “System to Generate Steam from Cottonseed Hulls for Miluot Inc.”
 - Use of a fluidized bed system that produces 60,000 lbs/hr of steam at 200 psi by incinerating cottonseed hulls, the primary process waste generated by the facility.
2. “Heat-Recovery Cotton Waste System for Raw Cotton Drying.” (for Shan Cotton Gin)
 - Development of an incinerator into which cotton waste is fed. The heat produced by the incinerator is recovered and heats the incoming air which is used for drying. The system saves 50% to 80% of the energy used for drying in the cotton gin.
3. “Pyrolysis Systems to Convert Wastes to Char and Oil.” For Engineering Experiment Station (Georgia Tech, Atlanta, GA) and American Can Co.
 - Design, construction, and operation of systems for the conversion of solid wastes into char and oil by partial oxidation pyrolysis process, involving the use of various pyrolytic converters to convert wood wastes, cotton gin trash, peanut hulls, and municipal waste.
4. “Energy Conservation Audit.” (for Miluot Inc.)
 - Investigating and implementing methods of efficiently using energy at this cottonseed oil facility, significantly reducing energy expenses.
5. “Energy Conservation Audit.” (for Siu Shan Cotton Gin)
 - Analyzing facility processes to lower energy use and increase savings at the cotton gin.

6. “Technical and Feasibility Comparison Analysis of Technologies for the Conversion of Cotton Stalks to Energy (Steam).” (for Emek Industries)
 - Designing a system for the conversion of cotton stalk waste into steam, providing energy to be used by multiple facilities, including a poultry processing plant, cotton gin, and rendering plant.
7. “Energy Conservation Audit.” (for Glil Shan Cotton Gin)
 - Study and design conducted for the Israeli Ministry of Energy, determining a methodology for reducing energy use and creating a closed-cycle approach in which wastes are converted to energy for the facility. This project designed a strategy intended to be implemented at similar facilities across the nation.
8. “Hospital Waste Heat-Recovery Incinerator.” (for Hadassah Medical Organization)
 - Designing an incinerator to combust solid waste from the hospital, generating heat and 150 psi steam for the hospital to use, reducing conventional fuel expenses.
9. “Energy Conservation Audit.” (for Milos Industries)
 - Performing a comprehensive energy audit at the food processing plant, leading to noteworthy reductions in energy expenses
10. “Feasibility Study and Preliminary Design of a System for Steam Generation from a Mixture of Cotton Stalks and Coal.” (for Milos Industries)
 - Creating a closed-cycle system through the use of an incinerator with a circular fluidized bed system. Using facility waste streams of cotton stalks, as well as coal, as fuel for the incinerator, 60,000 lbs/hr of steam at 200 psi are generated.
11. “Energy Conservation.” (for Paca Industries)
 - Analysis of industrial processes at a food manufacturer, streamlining processes, and increasing energy efficiency to cut expenses at the facility.
12. “Energy Conservation.” (for Elians Corporation)
 - Audit resulting in the redesign of some industrial processes in order to better conserve energy at the tire manufacturing plant, saving the facility on energy expenditures.
13. “Feasibility Study and Preliminary Design for a System to Produce Methane from the Facility Wastewater.” (for Paca Industries)
 - Design of a system to convert the facility wastewater stream into a source of energy. The effluent wastewater, high in BOD, undergoes fermentation in a Bio-Gas System, producing methane which is then used as fuel for generating steam in a boiler. The steam is used for power generation and processes in the plant, reducing dependence on conventional fuels.

14. “Energy Conservation in Milout Industries.”
 - Streamlining the manufacturing process at a co-op, allowing the facility to reduce its overall production costs by reducing energy expenses.

15. “Energy Conservation in Shimshon Inc.”
 - Analysis of facility manufacturing processes in order to reduce energy loss and create financial savings for the plant.

16. “Project for the Conversion and Utilization of Organic Wastes.” (for Granot Organic Fertilizers Ltd.)
 - Technical and Economic Analysis – methods of collecting raw materials, processing materials, and transporting products were analyzed and improved, and a new energy center was designed which reduced energy loss by up to 50% for all processes at the facility.
 - Within 4 years, all implemented changes had paid for themselves, and within 10 years produced net profits in the millions of dollars.