Power Client

Facility to Recycle Solid Waste into Sellable Chemicals

When the client acquired a rural site to take in municipal waste, railroad ties, and used tires, it sought SSOE's process engineering expertise in transforming the brownfield site into an alternative energy facility. The client needed to ascertain if these elements could generate sellable chemicals and result in a commercially viable business. As one of the top ranked chemical plant and green industrial and manufacturing design firms, SSOE was uniquely qualified to tackle the complexities of front-end process design while planning a fully functioning, energy-efficient facility.

SSOE performed preliminary and detailed chemical process engineering involving putting the waste products through a plasma gasification system, producing syngas, and generating methanol and DiMethyl Ether with future capacity to produce mixed alcohols (butanol, ethanol). In developing the process, SSOE discovered a means of recovering hydrogen from the purge gas stream that increased the client's overall product yield by 10% with a six-month payback. Overall, the plan generated $2 million per year in additional production without an increase in feed stock quantities.

SSOE performed process studies for capacity improvement and evaluations of alternative technologies, including alternative refrigerants. Its process engineering services included developing the process alternatives, process modeling once the Process Flow Diagram (PFD) was finalized, and identifying manufacturing solutions for all of the unit operations. It also provided input for environmental filings and responses to due diligence queries from the financing engineer.

value promise

Process developed had six-month payback and increased the overall product yield by 10%, generating $2 million per year in extra production without an increase in feed stock quantities.

size 20 acres

location West USA

highlights

Feasibility study, front-end process design and planning of fully operational facility

Energy-efficient procedure

Used Plasma Enhanced Melter (PEM) technology in developing the process