

Municipal Solid Waste Project

University of Oklahoma- CBME- ChE 4253 (Fall 2018)

Part 2- Economic Assessment: Study Estimate

The object of this study is to determine the feasibility of changing the processing of municipal solid waste in the city of Norman, or in the area if that is more convenient, from the current combination of recycling and landfilling to the production of chemicals.

This Task Statement

You are requested to consider 4 options of taking the MSW and converting it to:

- Ammonia - Hydrogen - Urea - Power (IGCC plants and from Incineration)
- 1) (< ONE PAGE) For each alternative, **review** the plant size chosen in the previous report for the scenario you selected (Norman only, or Norman and other cities, or regional). Summarize the results and the reasons. Use tables, preferably.
- 2) (~ ONE PAGE) Using the feedback provided, **revise** the order of magnitude estimate and comparisons with Incineration and Landfilling of
 - TCI - Product Cost -Raw Material and Product selling prices
 - Potential customers and Demand.We prefer tables, graphs, etc.
- 3) (~ TWO PAGES) Provide an improved estimate of the TCI the 4 alternatives using the Percentage of Delivered-Equipment Cost. Obtain Product Cost. *We expect the use of common engineering sense when picking values of adjustment factors (those related to equipment cost, and those referred to time).* We provide supplemental material with equipment sizes, separately. You can use equipment cost estimation from different sources (Peters & Timmerhaus, <http://www.matche.com> or any other.) We prefer tables, not long narratives. This does not help Executive and Managerial readers. Submit spreadsheets with the detailed calculations and sources of data.
- 4) (< THREE PAGES) Choose the best alternative from the pure economic point of view (profitability) and **compare** it with the previous choices using order of magnitude estimates. Make sure you have arguments to back your assertions. Tables, graphs, help quick understanding.

Grading Rubric: 1): 10%, 2) 15%, 3) 50%, 4) Economics (25%). Should you think about money only? Should Environmental considerations be added, like reducing C footprint? We encourage you to investigate possible cap and trade issues.

Final Thought: A good Engineer is one that makes a critical revision of his/her own work, identifies his/her own mistakes and reassess previous work in view of new material and constructive feedback. Technicians are not normally expected to do this (they process new data using new instructions only). We want you to become the former!!!