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1. Introduction

Motivations

Globally, Municipal Solid Waste (MSW) is expected to reach 3.4 billion tons by 2054, with the U.S. ranking number 1 in per-capita waste. Current MSW management methods have negative human and environmental impacts. Gasification is a green alternative for MSW management by converting MSW into syngas. This syngas can be turned into value-added products, including energy, methanol, and synthetic fuels.

Goals

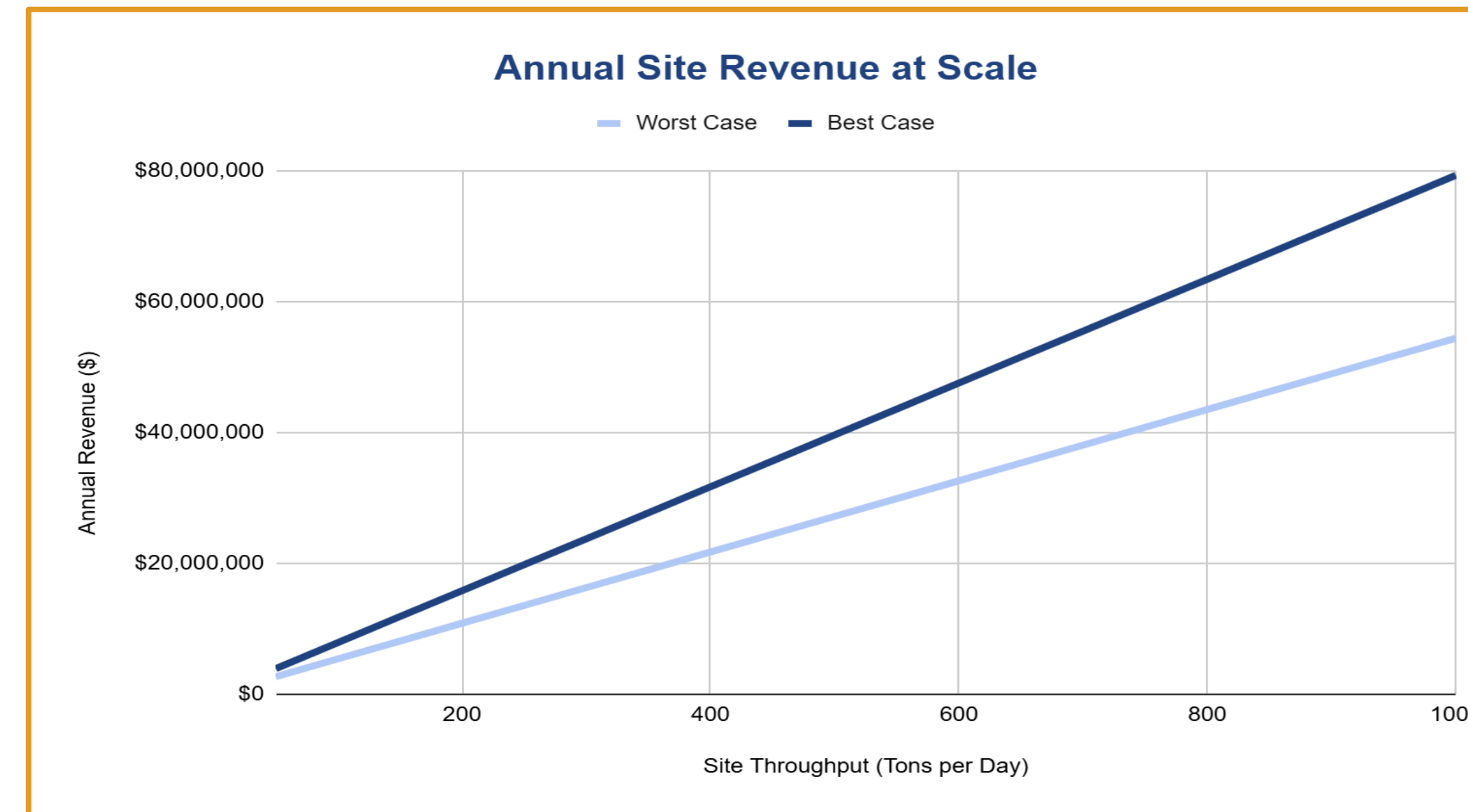
1. Identifying potential alternative uses of produced syngas and char
2. Generating five working models on ASPEN Plus
3. Creating a techno-economic analysis

4. Conclusions

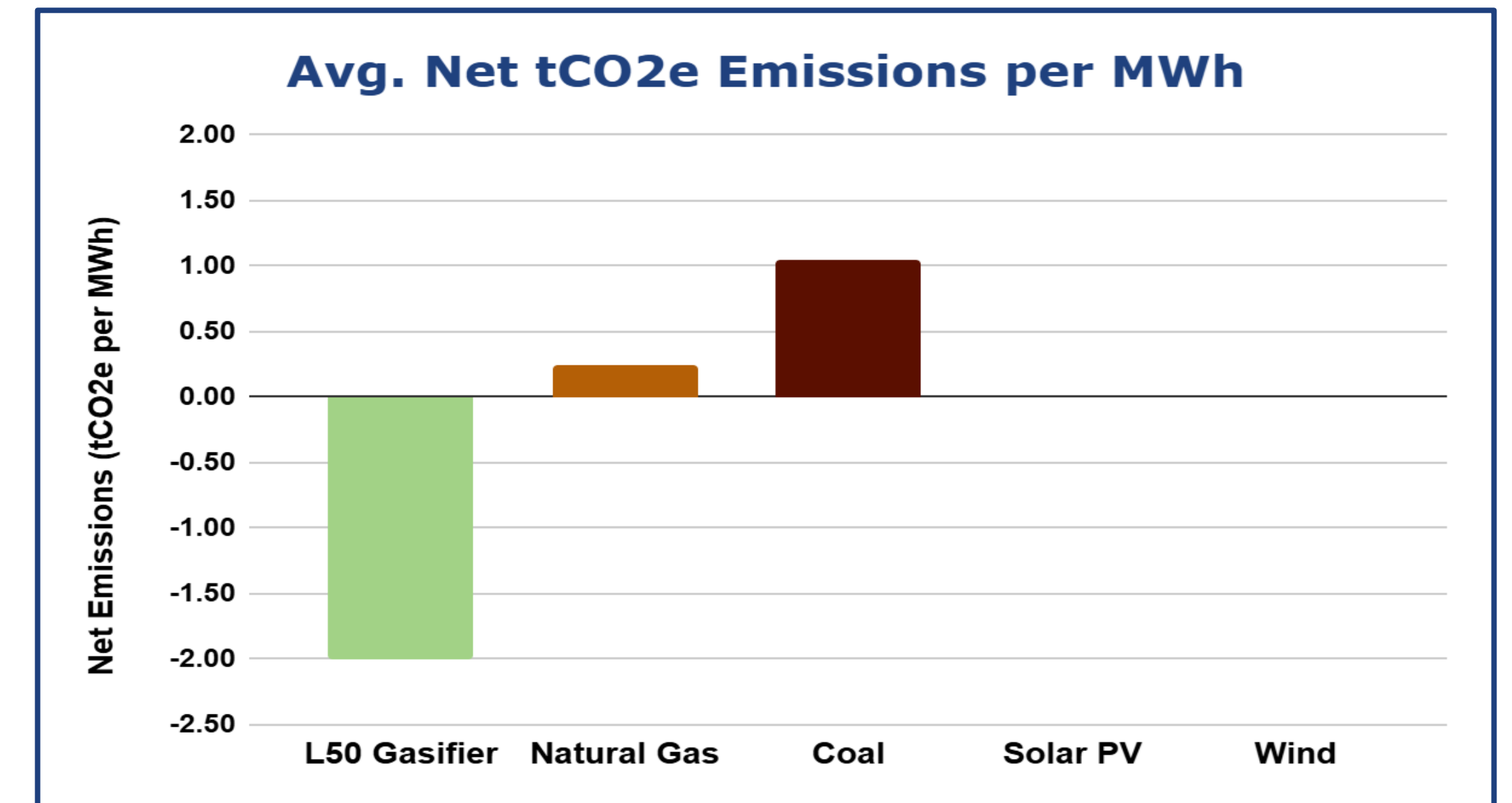
Reformed Energy's gasification system is a gateway towards sustainable energy, reduced waste, as well as expansion into other ventures via the process of converting MSW to syngas and char. This system demonstrates several economic benefits of modular scalability and is competitive from a financial and environmental standpoint within the current MSW management market. Our process models demonstrated how Reformed Energy can use this system to create desired products such as energy and methanol from MSW.

2. Techno-Economic Analysis: Key Takeaways

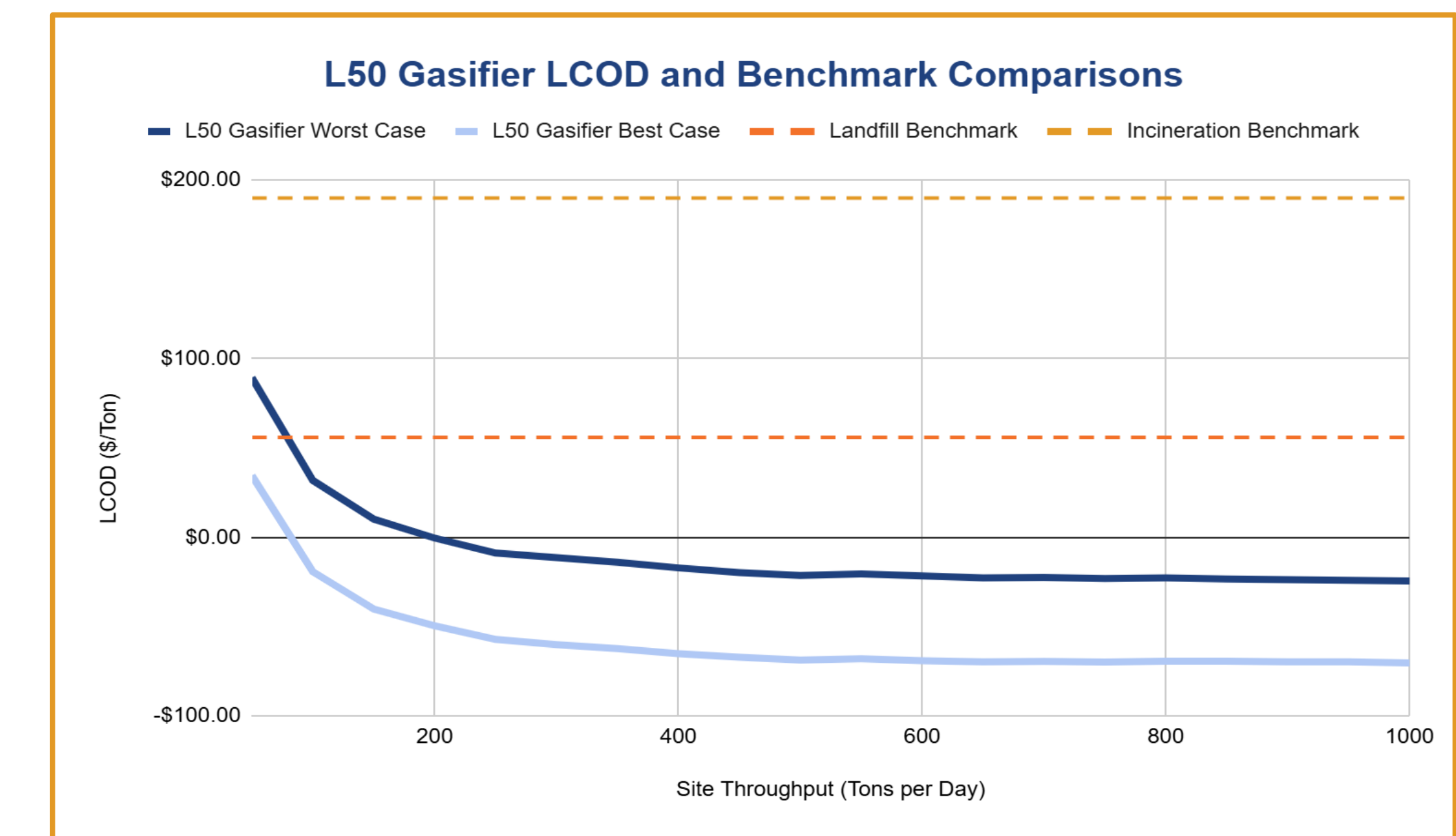
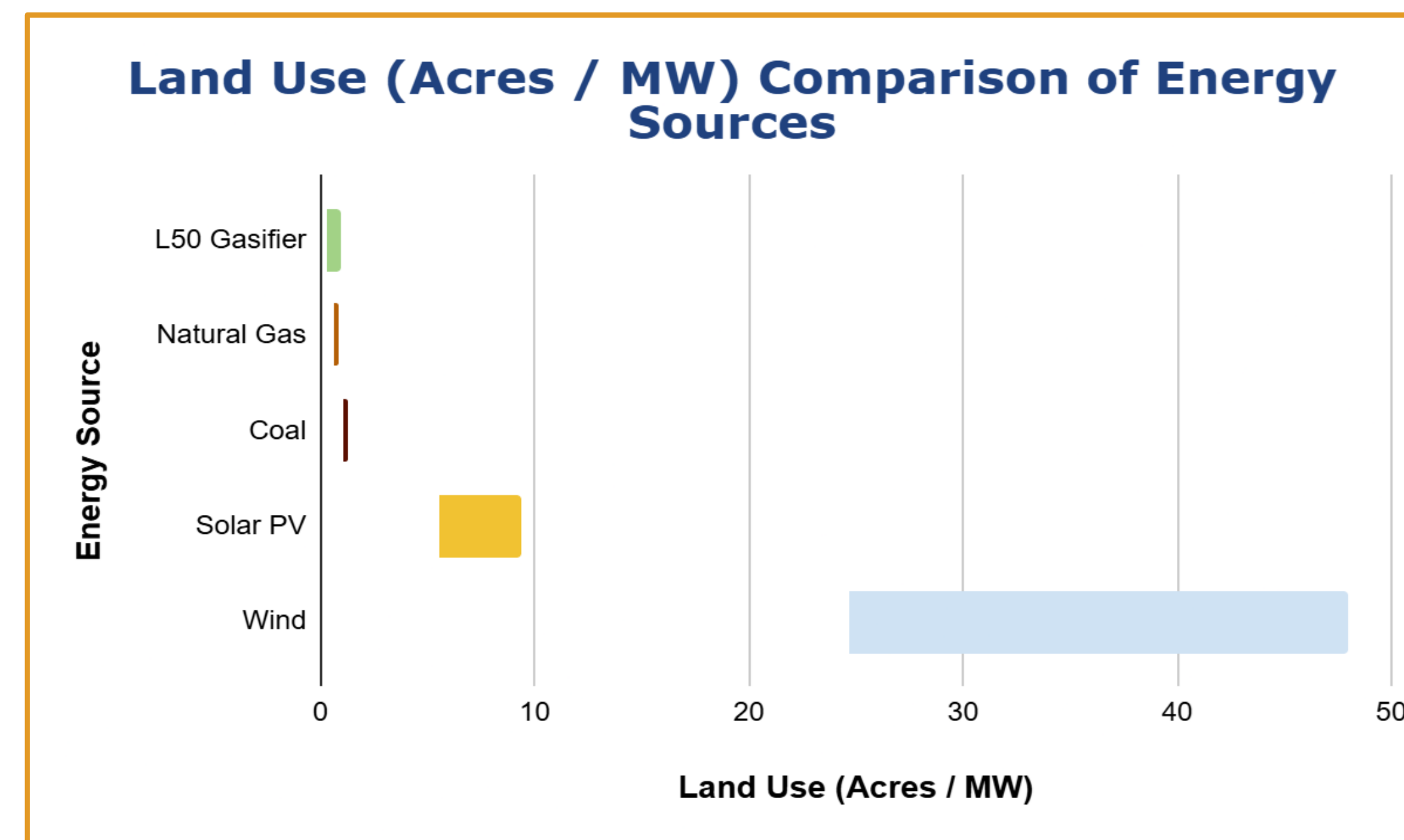
I. Economics of Size



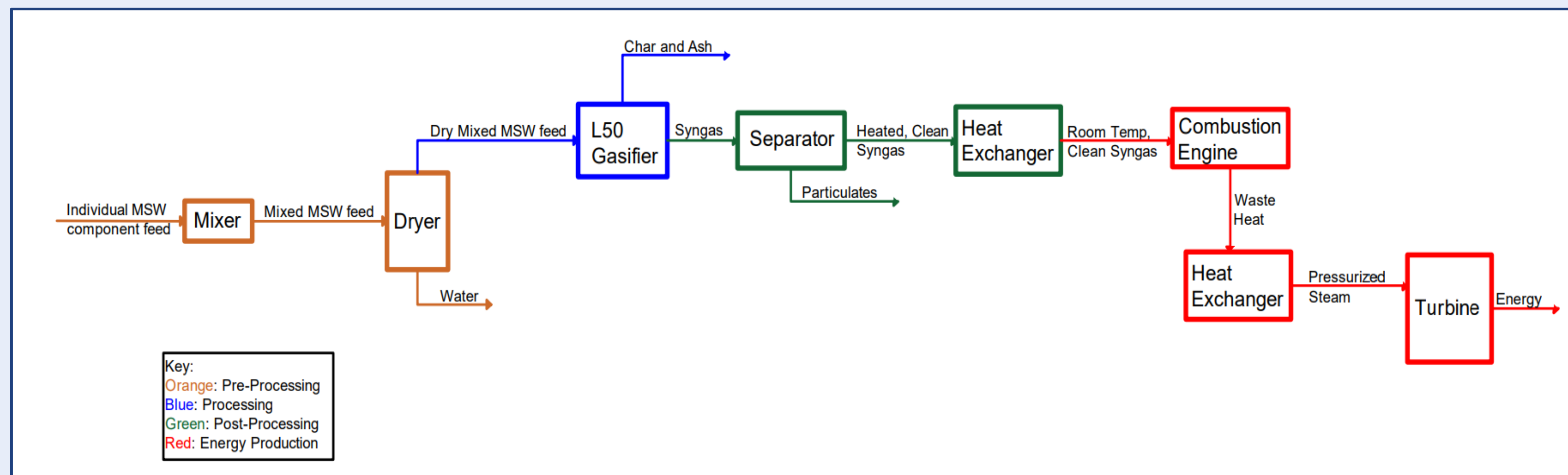
II. Greener Alternative



III. Market Comparison



3. Process Modeling: ASPEN PFD



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