

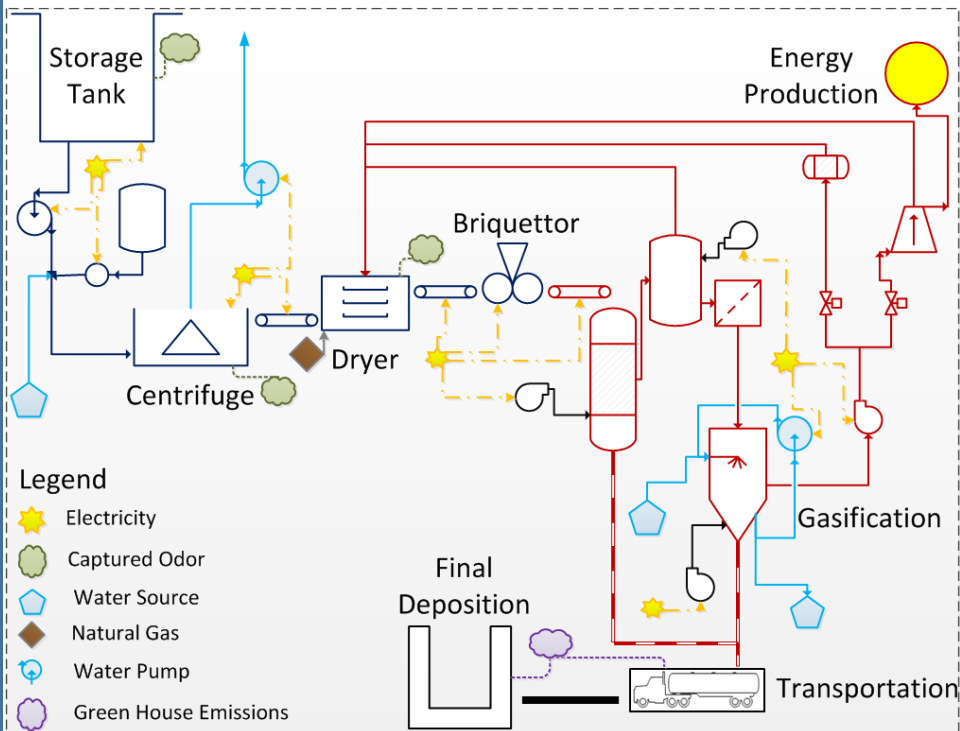
Life Cycle Assessment (LCA) of Thermal Chemical Sludge Treatment Technologies

Objective: Compare the total energy requirements, energy savings, and Greenhouse Emissions that Gasification would have when compared to Thermal Stabilization.

Scope: Use an LCA to compare the total operational impacts of both these solids treatment in a hypothetical 5.4 dry short tons/day wastewater treatment plant.

Methodology: Using a combination of Excel spreadsheets and the WWEST program, calculate the individual components of each system and merge the results together in an all encompassing LCA comparison.

System Boundaries:



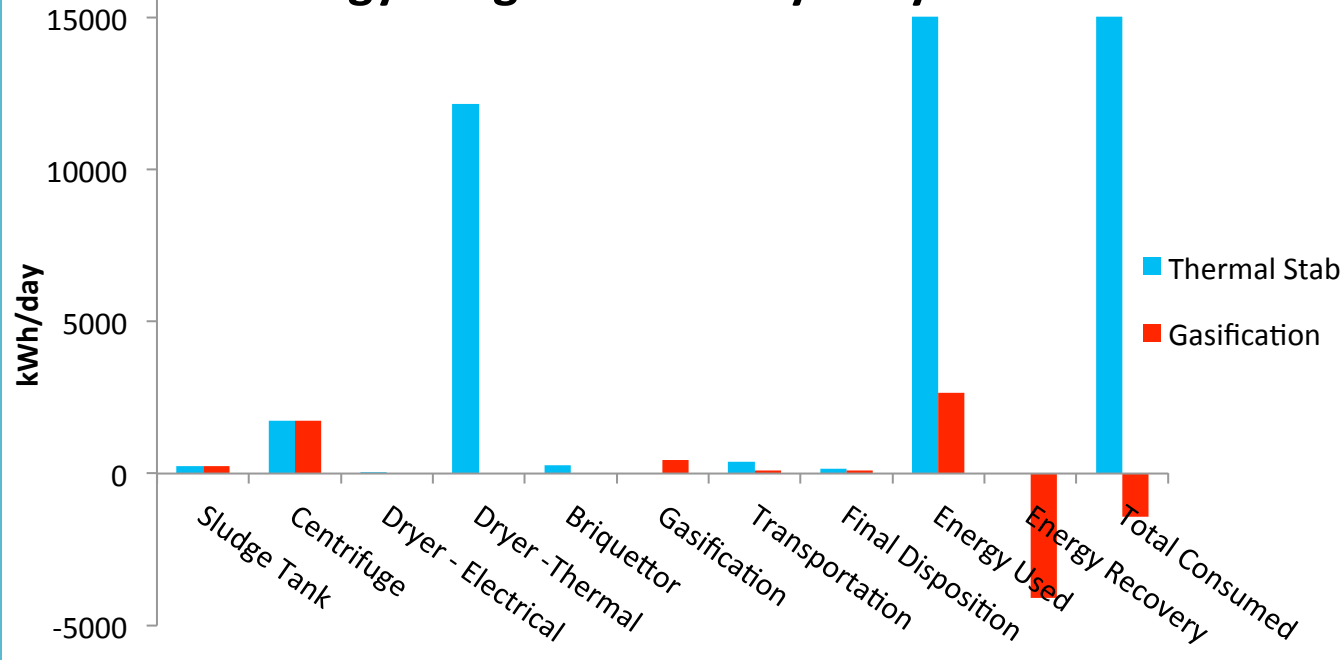
ReNUWit: The Urban Water ERC

Re-Inventing the Nation's Urban Water Infrastructure

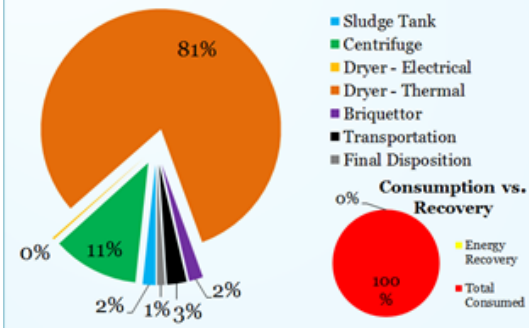


Results:

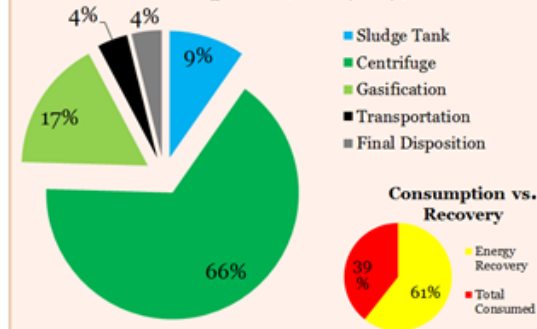
Energy Usage & Recovery of Systems



Thermal Stablization Electrical Energy Consumption (KWh/day)



Gasification Electrical Energy Consumption (kWh/day)



Conclusion: Gasification possesses a significant energy recovery system and also significantly reduces the overall energy requirements when compared to Thermal Stabilization. Further work in final deposition is still needed, but it is hypothesized that Thermal Stabilization will have an approximate 20 to 40 % energy recovery while Gasification will still remain as the optimum sludge treatment technology with 61% energy recovery.

