Creating a Circular Economy with Energy and Waste
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Project Statement
The goal of this project is to improve upon the current Aruban waste management system by introducing widespread recycling and proposing the concept of a circular economy based on the gasification of combustible waste products.

Traditionally, the residents and industries of Aruba deposited all of their trash at the Parkietenbos Landfill. However, it has been discovered that the ecosystem around the landfill appears to be suffering damages due to the releasing of destructive chemicals from spontaneous fires on landfill property. Along with this, plastic bags and other pieces of loose trash are spreading into the mangroves surrounding the landfill, preventing growth and damaging local wildlife habitats. One solution to this problem comes in the form of energy recovery, which allows for the creation of Synthesis Gas for electricity production from combustible waste. The below figure displays the potential technical-financial value chain that can be created through Waste-to-Energy conversion.

Conclusion/Next Steps
The above technical-financial value chain demonstrates the framework for a circular economic system based on processing of municipal solid waste. This framework has applications in Aruba as a case study, as the system has the potential to create jobs, reduce cost of electricity for businesses, stabilize local agriculture, and increase the production of renewable energies. At the same time, it also reduces the amount of waste entering the landfill and allows the possibility of reducing the dangers created by the landfill.

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