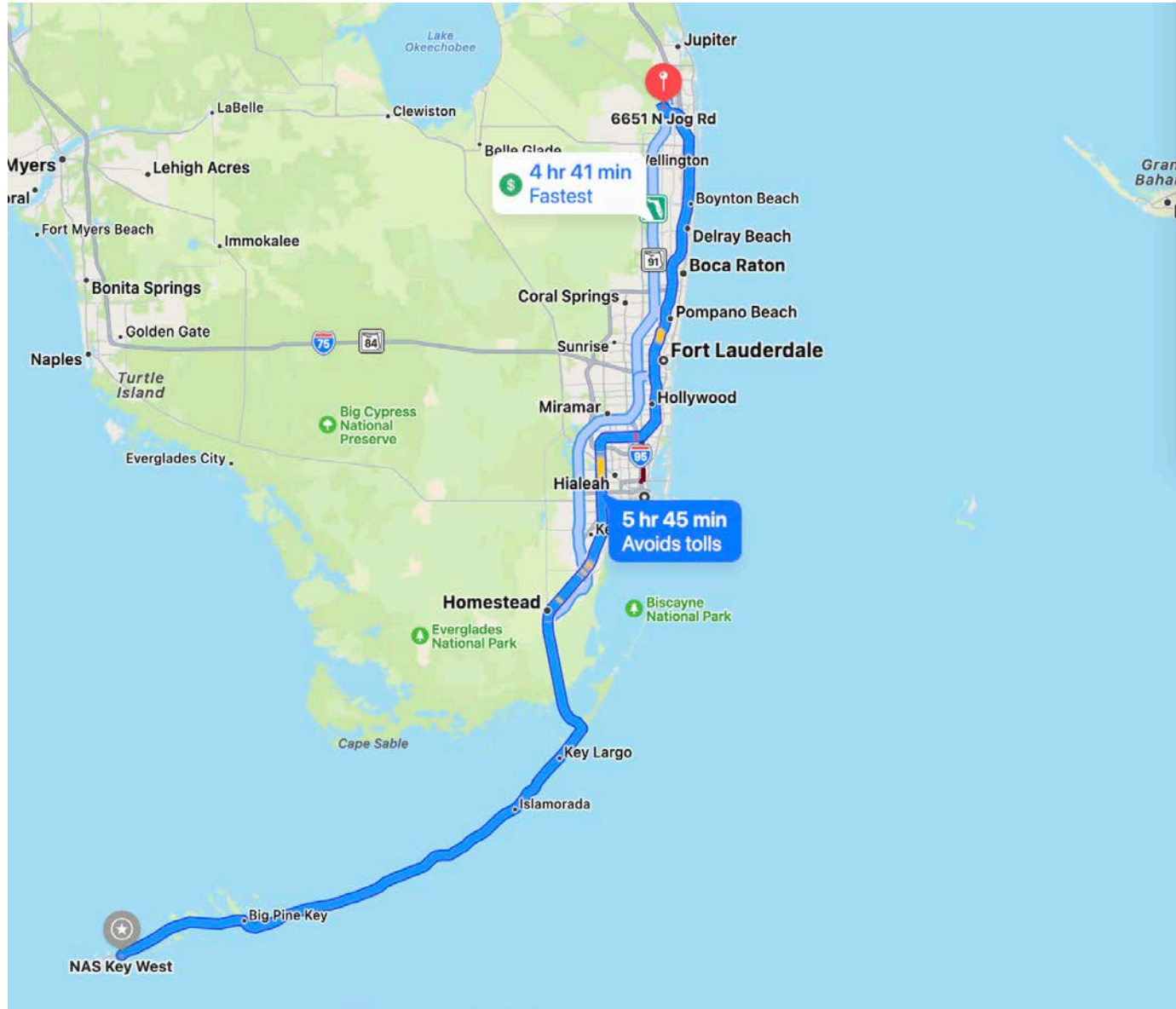


Problem Statement

Due to its remote location, the City of Key West and NAS Key West experience frequent power quality and reliability issues. A single power transmission line that traverses all the Florida Keys (over 100 miles) provides power to both entities. Volatile weather events and infrastructure degradation are the leading cause of power disruption and mission downtime. In addition, the remote location also contributes to significant operational expenses for municipal solid waste and sewage waste management. Currently, solid waste travel over 400 miles round trip to permitted facilities in mainland Florida.

National Energy is proposing to evaluate a *Waste-Powered Energy Microgrid* solution, where a variety of waste feedstocks can be safely converted into an Engineered Fuel from the organic fraction of the waste stream. This innovative process utilizes machine-learning robots powered by artificial intelligence to classify and extract valuable materials from the waste stream and return critical minerals back into the domestic supply chain. The Engineered Fuel can then go into an anaerobic digester to produce biomethane, used in a Combined Heat and Power (CHP) to generate electricity, or processed into renewable hydrogen, while decreasing the waste volume by 87% and reducing greenhouse gas emissions.

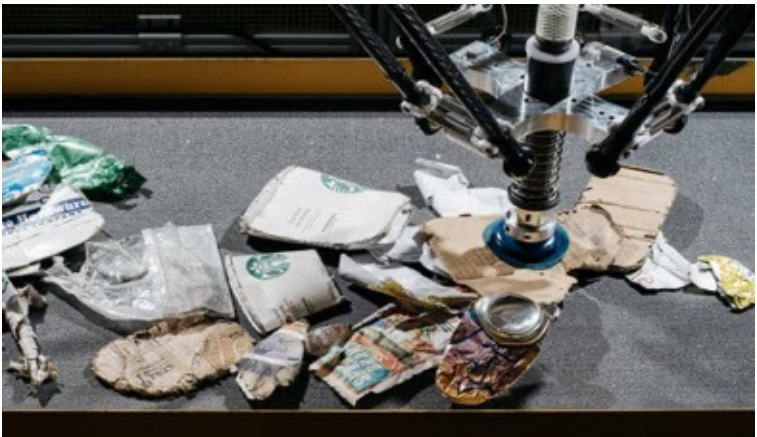
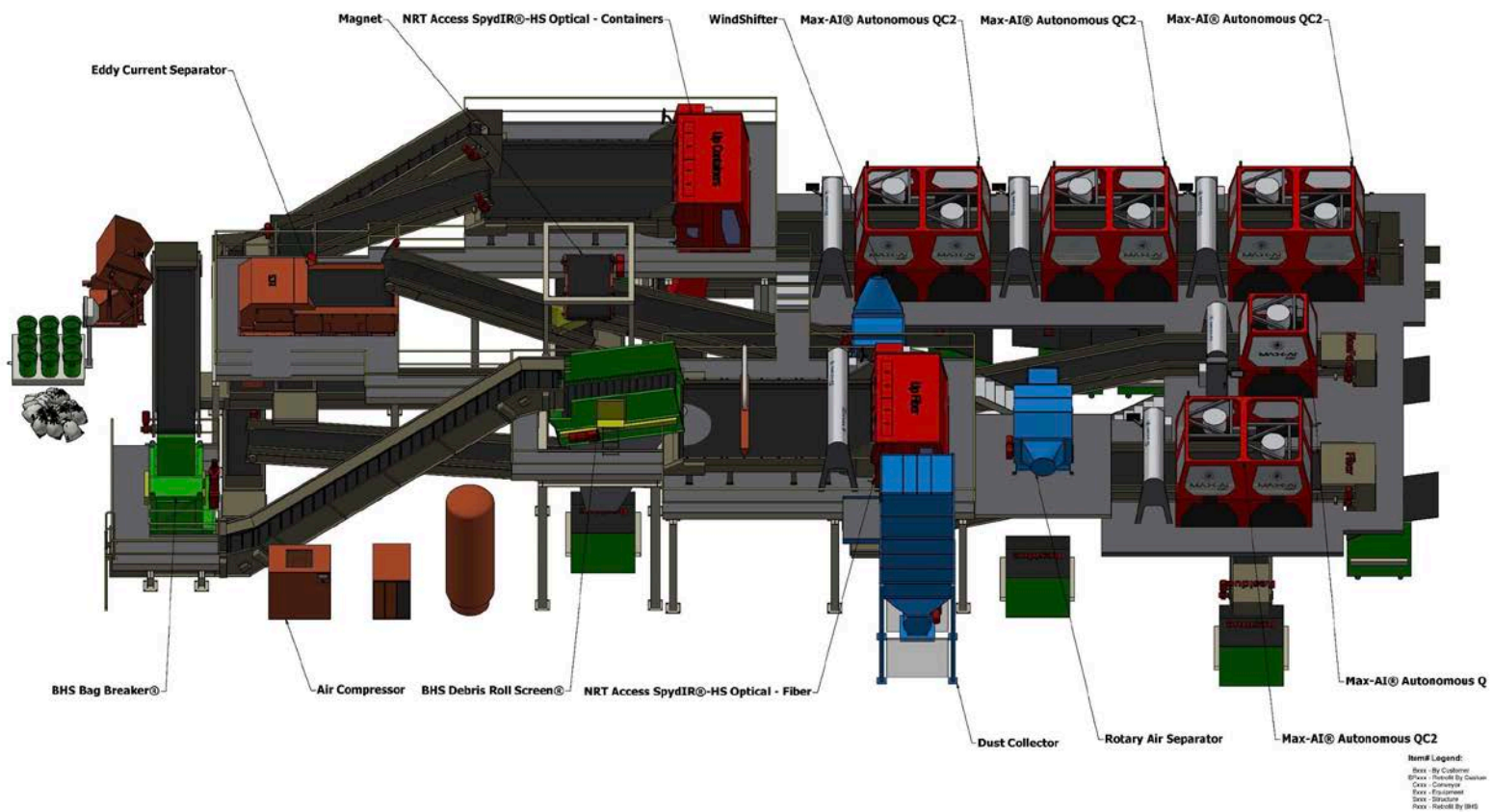
High Cost of Solid Waste Disposal



- Waste travels hundreds of miles for final disposal.
- As labor & fuel costs increase, costs continue to escalate for the City.
- Recycling rates remain below State of Florida averages.
- Waste disposal contributes significantly to GHG emissions.
- Truck traffic causes congestion and damages road infrastructure.

Leveraging Innovative Recycling Technology

Using advanced Artificial Intelligence and Machine-Learning robots, National Energy will extract valuable commodities such as plastics, glass, ferrous- and non-ferrous metals. This process isolates the organic fraction (food/yard waste, paper/cardboard) from the incoming waste stream to generate clean, renewable energy.



Past Performance

National Energy completed an 18-month SBIR Phase II contract with the U.S. Air Force.

Purpose: To determine project feasibility by evaluating available volumes (feedstock) of non-hazardous waste, assess infrastructure requirements, review grid resiliency goals, determine potential locations, review regulatory requirements, conduct a full cost analysis, and provide a business case study to the installation.

Analysis: Through extensive research, National Energy discovered that the majority of DoD installations generate a sufficient volume of municipal and organic waste to make a project viable. Based on the findings, National Energy concluded that the community produced a sufficient volume of waste to deploy the company's solution and produce up to 5MWe of clean, renewable electricity inside of a compact 4-acre site.

Benefits: This solution significantly increases landfill diversion, reduces greenhouse gas emissions, but more importantly, provides energy security and baseload power in the event of an outage.