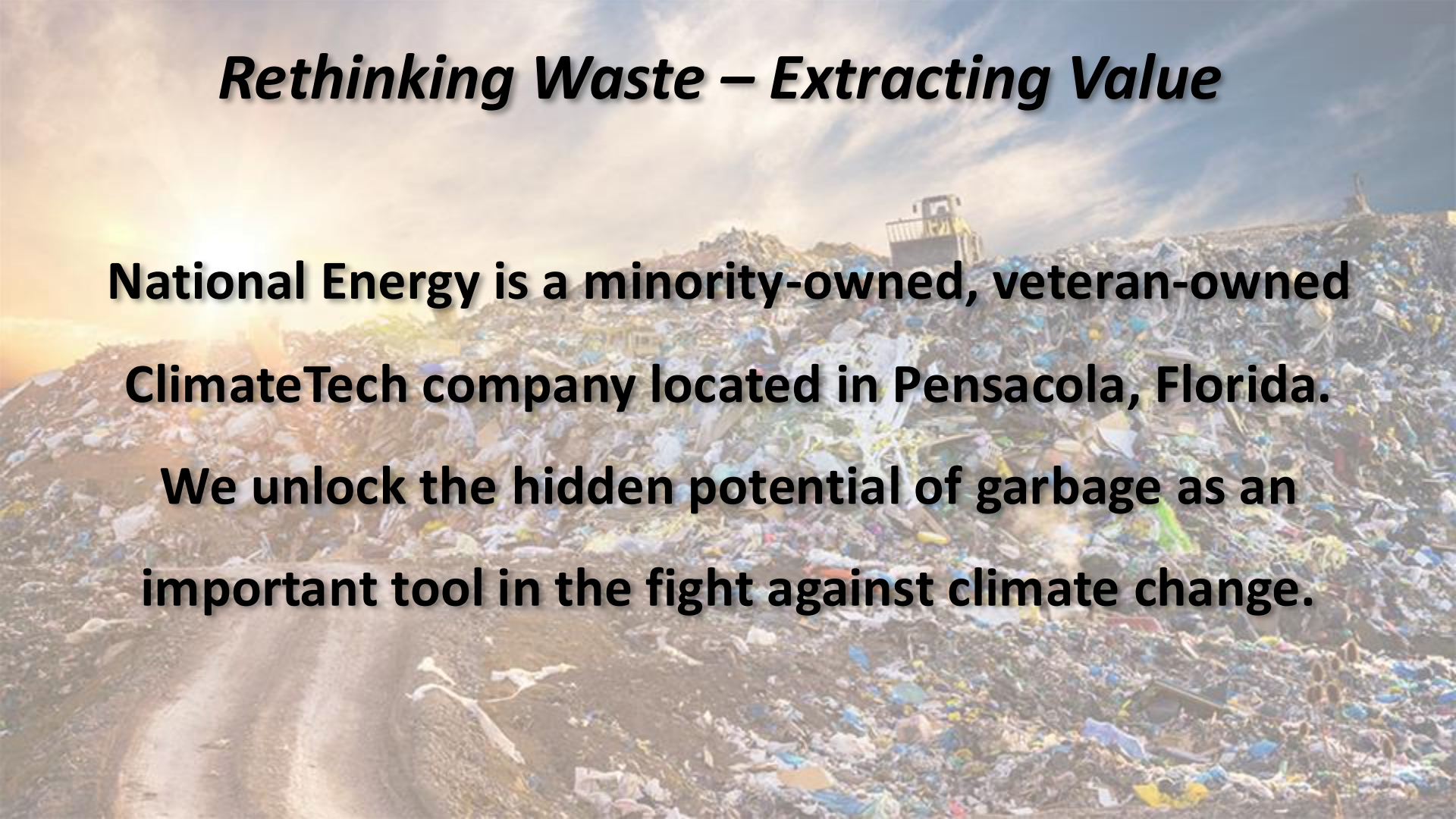
Rethinking Waste – Extracting Value

Emily Carlisle
Environmental Scientist

October 22, 2024

www.NationalEnergyUSA.com

A minority-owned, veteran-owned company



Rethinking Waste – Extracting Value

National Energy is a minority-owned, veteran-owned ClimateTech company located in Pensacola, Florida. We unlock the hidden potential of garbage as an important tool in the fight against climate change.

Garbage is the Most Underutilized Resource on Earth

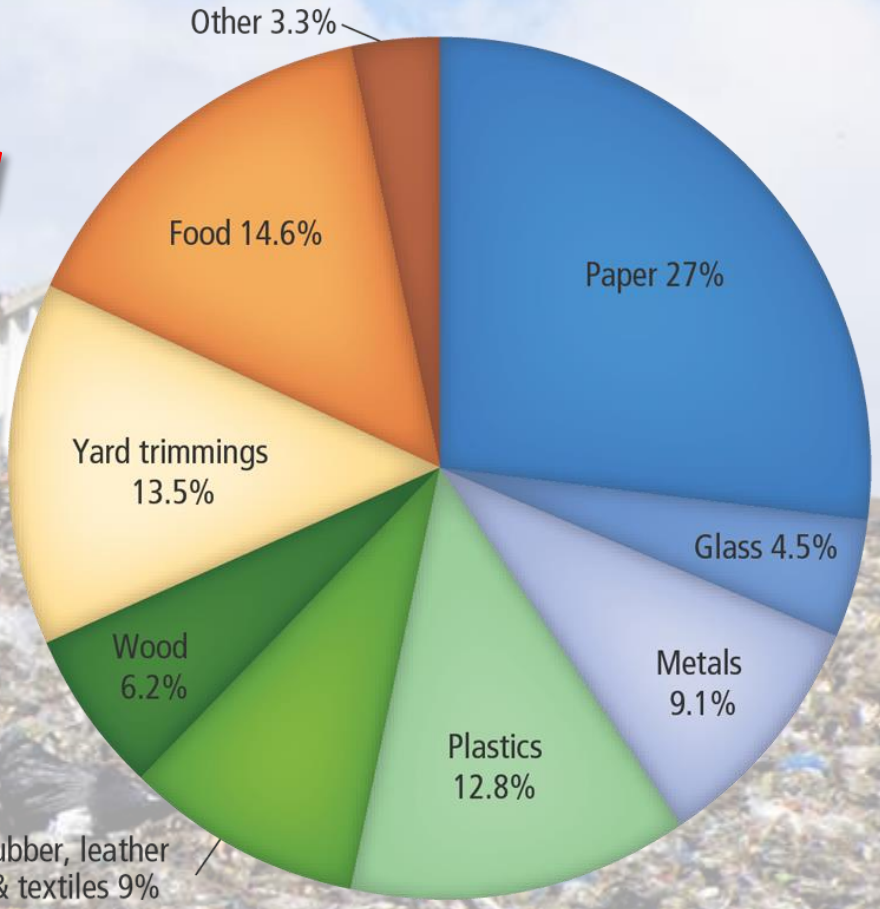
- **Global waste generation is expected to increase by 70% according to the United Nations**
- **USEPA estimates reaching landfill capacity by 2040 and 2030 in the Northeast U.S.**
- **Municipal solid waste landfills are the third largest contributor to climate change**
- **Traditional recycling is labor intensive, cost prohibitive, and ineffective**
- **Executive Order 14057 calls for 50% landfill diversion by 2025 and 75% by 2030**

Garbage Has Created Human Health & Environmental Challenges for the Department of Defense

What if Garbage Could be Reimagined as a Force Multiplier?

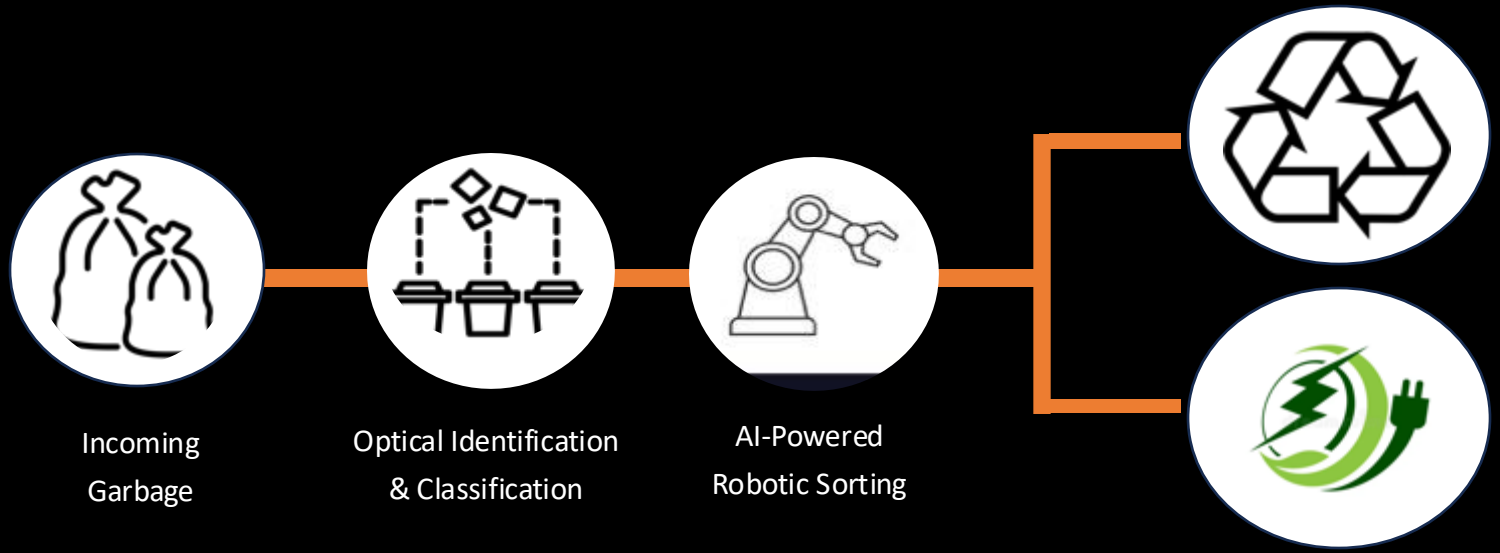
From Garbage to Renewable Source of Energy

Over 60% of Incoming Waste Can Be Converted into Clean Renewable Energy and Hydrogen



How Does It Work?

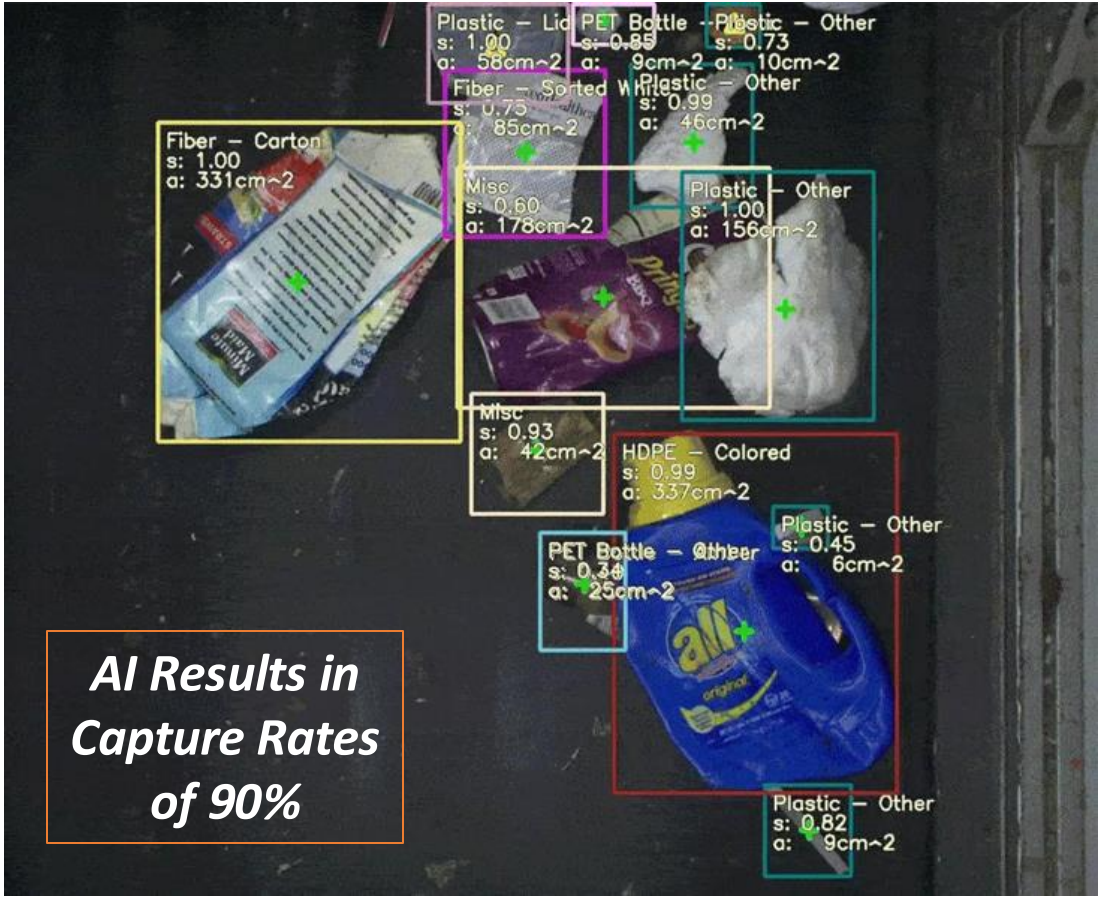
Using Artificial Intelligence, National Energy deploys machine-learning robots to identify and separate valuable recyclables from the organic portion of the waste stream. Organics are used to generate clean, renewable energy or hydrogen.



Recycling the Old Way …

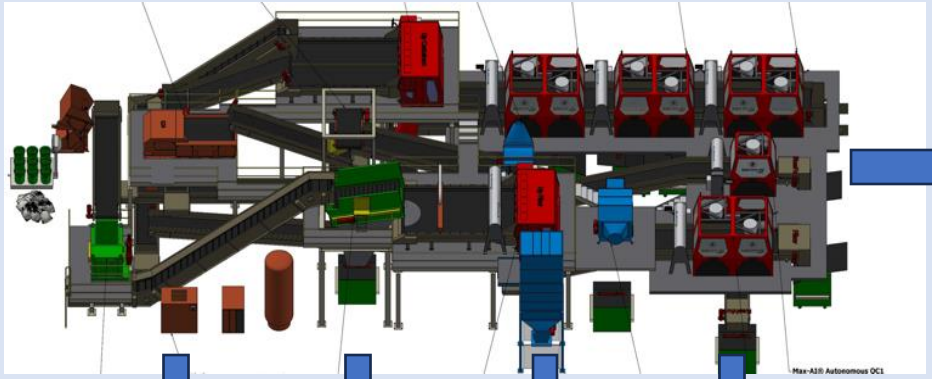
Traditional recycling relies heavily on labor and results in significant contamination, which yields very little value in the marketplace.

… Recycling with National Energy



Solving Critical Challenges for the DOD

We reduce operational costs and generate new revenue streams, while promoting energy resiliency, reducing greenhouse gas emissions, and meeting sustainability mandates.



Savings from Landfill Disposal

Revenue from Recyclables

Promotes Energy Resilience

CO^2

Reduces GHG Emissions

Flexible Fuel Generator for Military Applications

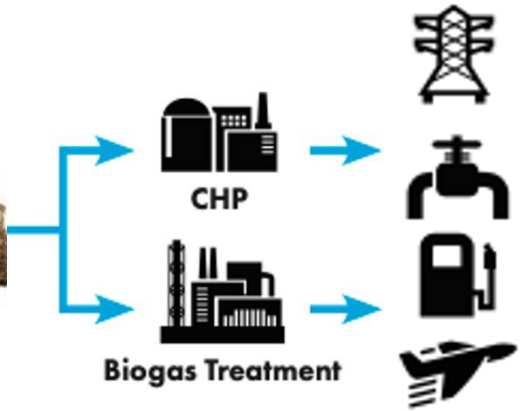
National Energy takes in a variety of waste feedstocks and safely converts the organic fraction into an Engineered Fuel to produce carbon free electricity, hydrogen, or even a sustainable aviation fuel.

Municipal Solid Waste

Storm Debris

Construction Debris

Sewage Waste



Strengthening Community Partnerships with IGSAs

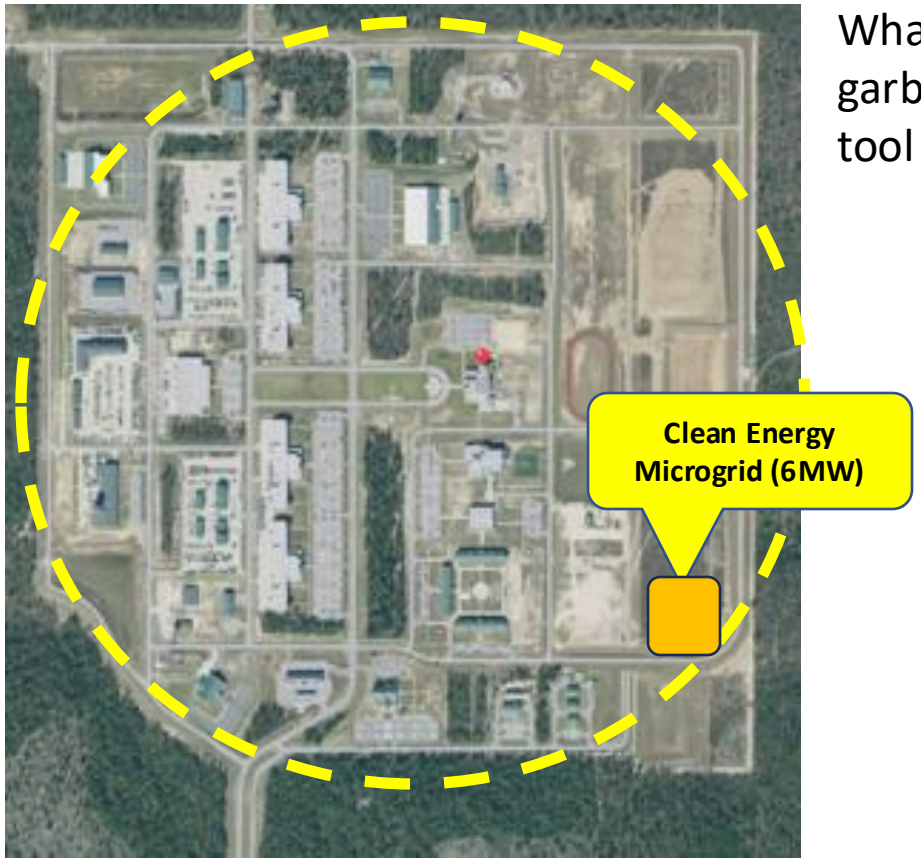
The term "installation-support services" for an IGSA means…

"those services, supplies, resources, and support typically provided by a local government for its own needs and without regard to whether such services, supplies, resources, and support are provided to its residents generally, except that the term does not include security guard or fire-fighting functions"

Examples of Installation Support Services Include:

- Refuse/Recycling Collection and Disposal
- Utilities Operation and Maintenance
- Grounds Maintenance and Landscaping
- Maintenance of Highways, Streets, Roads
- Pavement Clearance
- Custodial Services
- Pest Control

Waste-Powered Energy Microgrid Solution



What was once an environmental liability, garbage can be transformed into an important tool to promote energy security.

Resilient Efficient Affordable

Waste Powered Energy Microgrids can solve major operational challenges for the DoD:

- ✓ Generates clean, renewable, **baseload power** providing energy resiliency to critical infrastructure for mission assurance
- ✓ Requires just 5 acres to generate 6MWe
- ✓ Reduces environmental impacts
- ✓ Reduces operational costs
- ✓ Reduces Greenhouse Gas (GHG) emissions
- ✓ Meets/Exceeds E.O.s and sustainability mandates

Awarded Two SBIR Contracts to Date (Phase I and II)

SBIR • STTR
U.S. AIR FORCE ★ U.S. SPACE FORCE

AFWERX

On a Mission to Decarbonize the Economy

Emily Carlisle
Environmental Scientist
Emily@NationalEnergyUSA.com

www.NationalEnergyUSA.com

A minority-owned, veteran-owned company