



TRANSFORMING THE WORLD AND WASTED ORGANIC MATERIALS

Samuel W Grossman, PE

Vice President of Energy for the World Federation of Engineering Organizations

June 19, 2017



World Federation of Engineering Organizations
Fédération Mondiale des Organisations d'Ingénieurs



CARBONCYCLE
ENERGY

Why transform the World

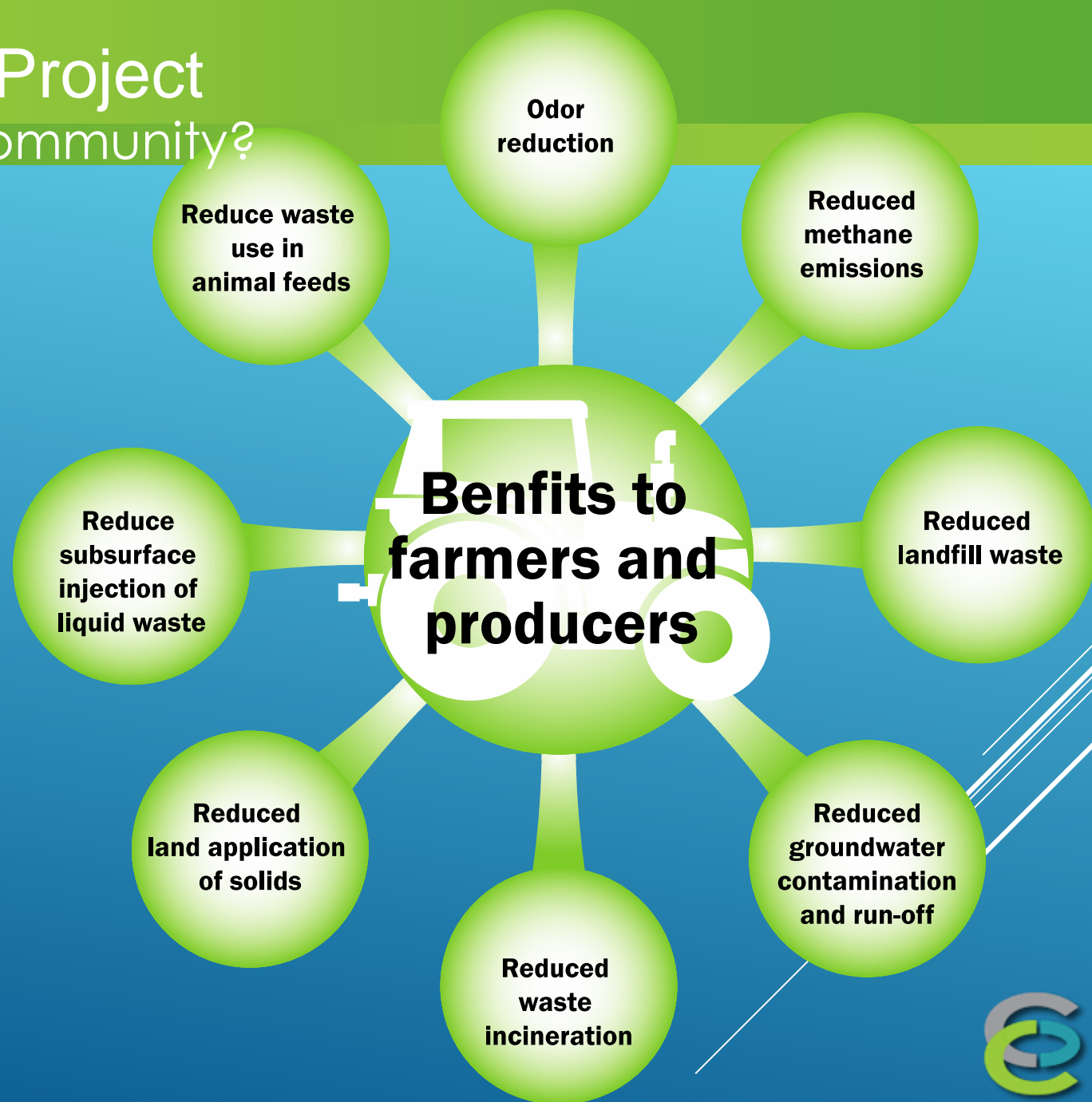
Make beneficial use of resources considered to be waste products, lessen harmful greenhouse gas emissions due to landfilling of organics and reduce the need for fossil fuels. Creating a carbon-neutral fuel that has a long-term future.



Building facilities that **convert organic materials into pipeline-grade biogas** and other sustainable energy products. Feedstock varies from manure, industrial and food processing byproducts, and other agricultural waste.

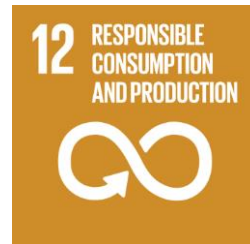
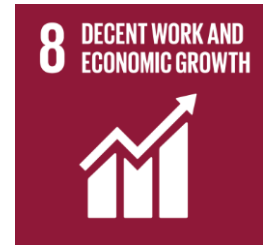


How Can a Project benefit your community?



Why Build Projects?

Projects will meet **12 of 17 Sustainable Development Goals** set by United Nations



Our projects:

- Produce sustainable fuel, providing a broad set of benefits **and** direct climate change impact
- Match key sustainability objectives of customers (we're not viewed as just a fuel producer)
- Provide long-term positive impacts to regions around projects, ensuring longevity



Why Build Projects?

Projects create **Meaningful Positive Environmental Impact**

Viable Alternative to Landfills: Americans wasted 130 billion pounds of food in 2015, most of which sits in landfills. Food companies and their stakeholders want to do something beneficial with their waste and do not want exposure to future liabilities that landfills create.

Meaningful Impact: Will make a meaningful environmental impact by displacing petroleum-based fuels from the supply each and every year.



Opportunity

This is the leading edge of a **Changing Landscape** in renewables

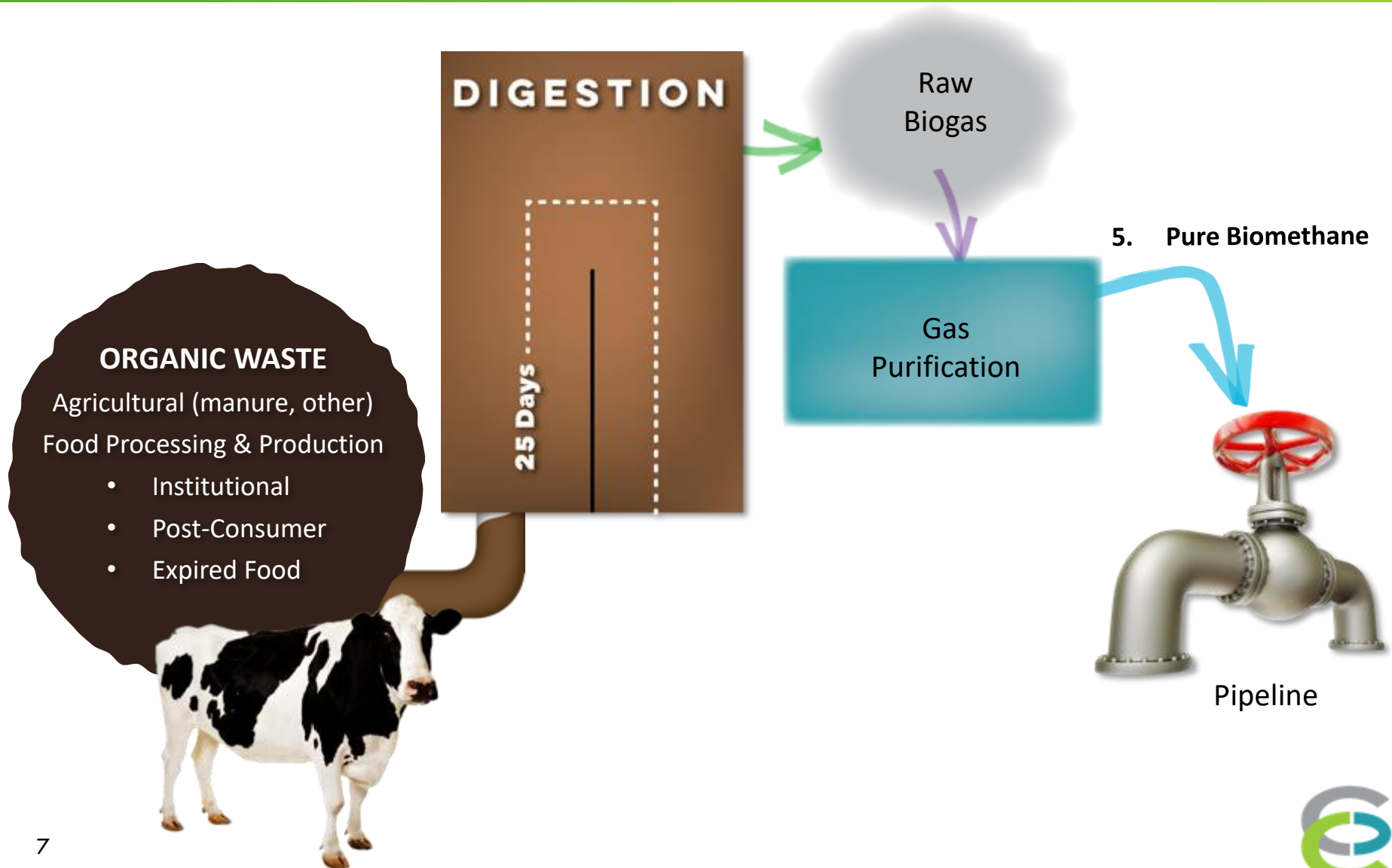
- Shift underway to **make beneficial use of organics**
- Pressure to divert organics away from **ineffective disposal in landfills**

Build state-of-the art anaerobic digestion facilities to provide **economically sustainable pathways** for responsible conversion of organic waste into **renewable energy**.

Convert organic waste (biomass) into several renewable energy products



The Bio-refinery



What can be Processed?

- Animal manure/waste
- Food Production waste
- Post-Consumer waste
- Nearly anything organic



Benefits to Local Suppliers

Facilities that send their recyclable organics to a Plant will realize:

- Steady and reliable processing service
- Competitive alternative to landfills, rendering, composting and land application
- Access to sustainable co-products
- Local sustainable green jobs
- Elimination of legacy remediation exposure



Proven Digestion Technologies

- To **eliminate technology risk** choose a proven, best-of-breed, market-leading vendors
- Choosing the proper platform that offers the most **flexibility** in feedstock recipe management, process optimization, and general operation
- Two-stage Continuous Stir Tank Reactor (CSTR) anaerobic digester
- Two-stage Mixed Plug Flow digester



Gas Purification Technologies



- Use a proven gas purification technology
- Increase pressure from ambient to gas pipeline transmission requirements



Questions

Contact Information:

Sam.Grossman@C2-energy.com

+1 925-354-6590

www.C2-energy.com

