

Newtown Creek Digester Gas Recovery Project

CT Power & Energy Society – April 11, 2012



Anthony LaRusso

Program Manager
Operations, Codes & Compliance

What is Renewable Gas?

- ◆ Pipeline quality gas derived from biomass resources that is injected into the gas distribution network
- ◆ Produced from anaerobic digestion (AD) or thermal gasification (TG) of biomass
- ◆ Sources of biomass include waste water treatment plants, landfills, wood residues, livestock manure, municipal solid waste, agricultural residues and energy crops

Feedstock



Anaerobic Digestion / Gasification



Upgrading, clean-up, methanation



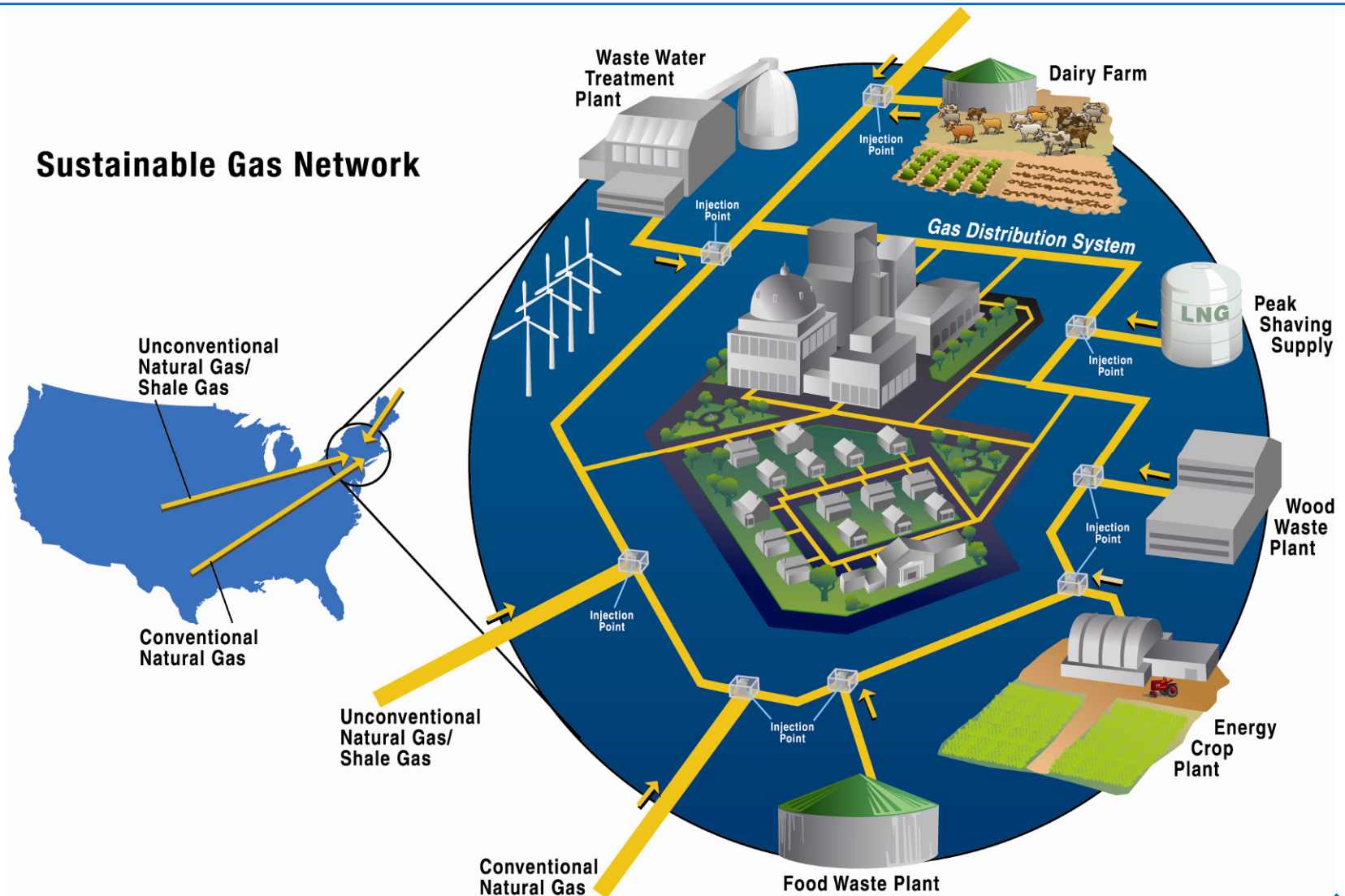
Injection of pipeline quality gas



Why Should Renewable Gas be Considered?

- ◆ Main driver: lowers greenhouse gas (GHG) emissions. It also creates other sources of value:
 - ◆ Enhances diversity of supply - local renewable source of energy
 - ◆ Stimulates local economy and creates jobs
 - ◆ Provides a real solution for using local waste resources to produce renewable energy
 - ◆ More efficient than using the gas for power generation
 - ◆ Leverages the existing gas network to deliver a renewable fuel

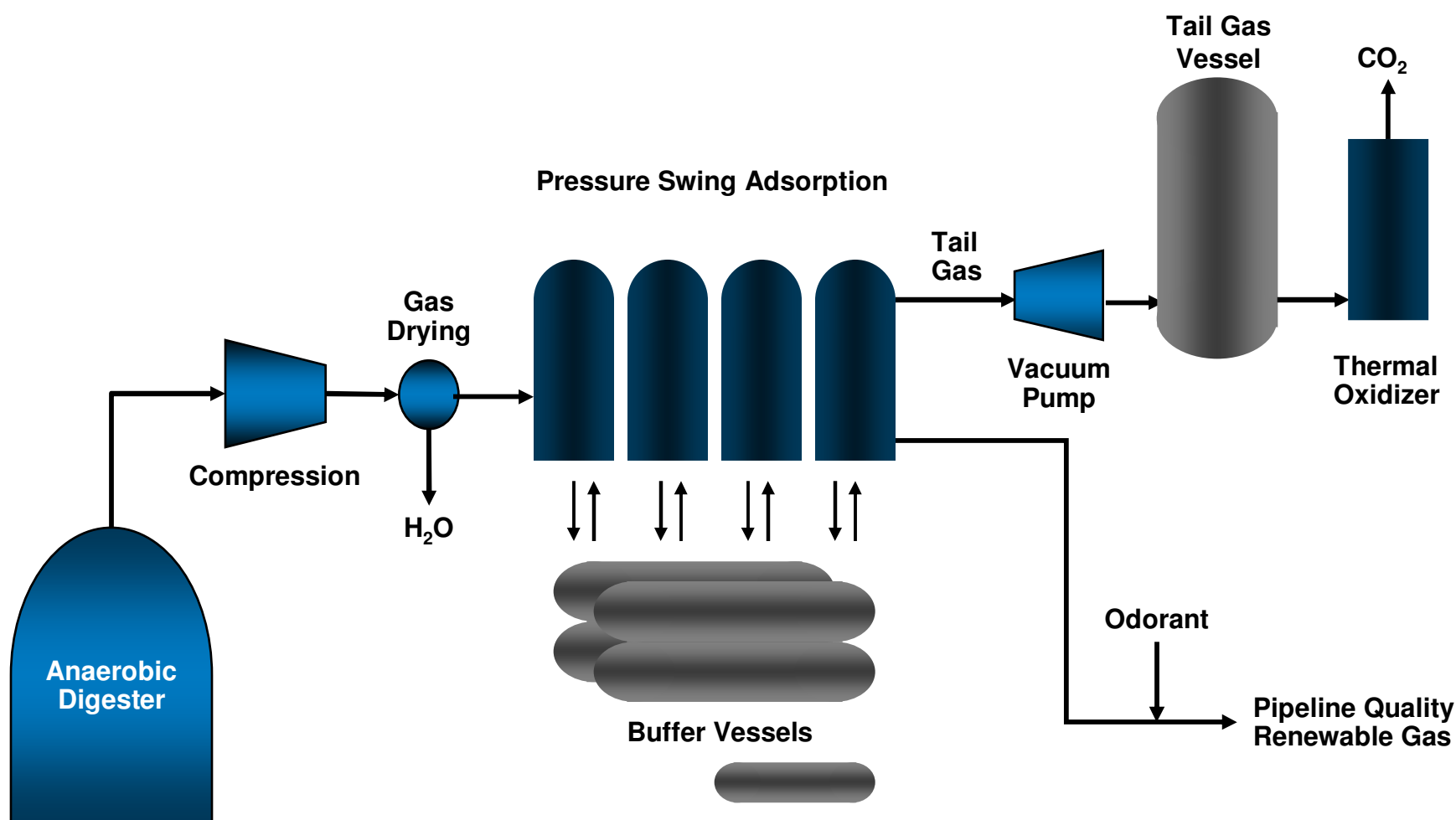
Vision for a Sustainable Gas Network



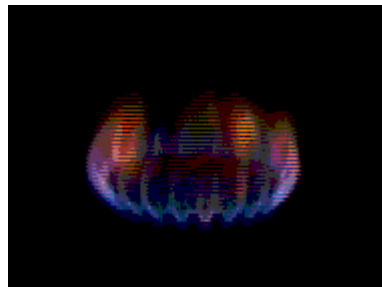
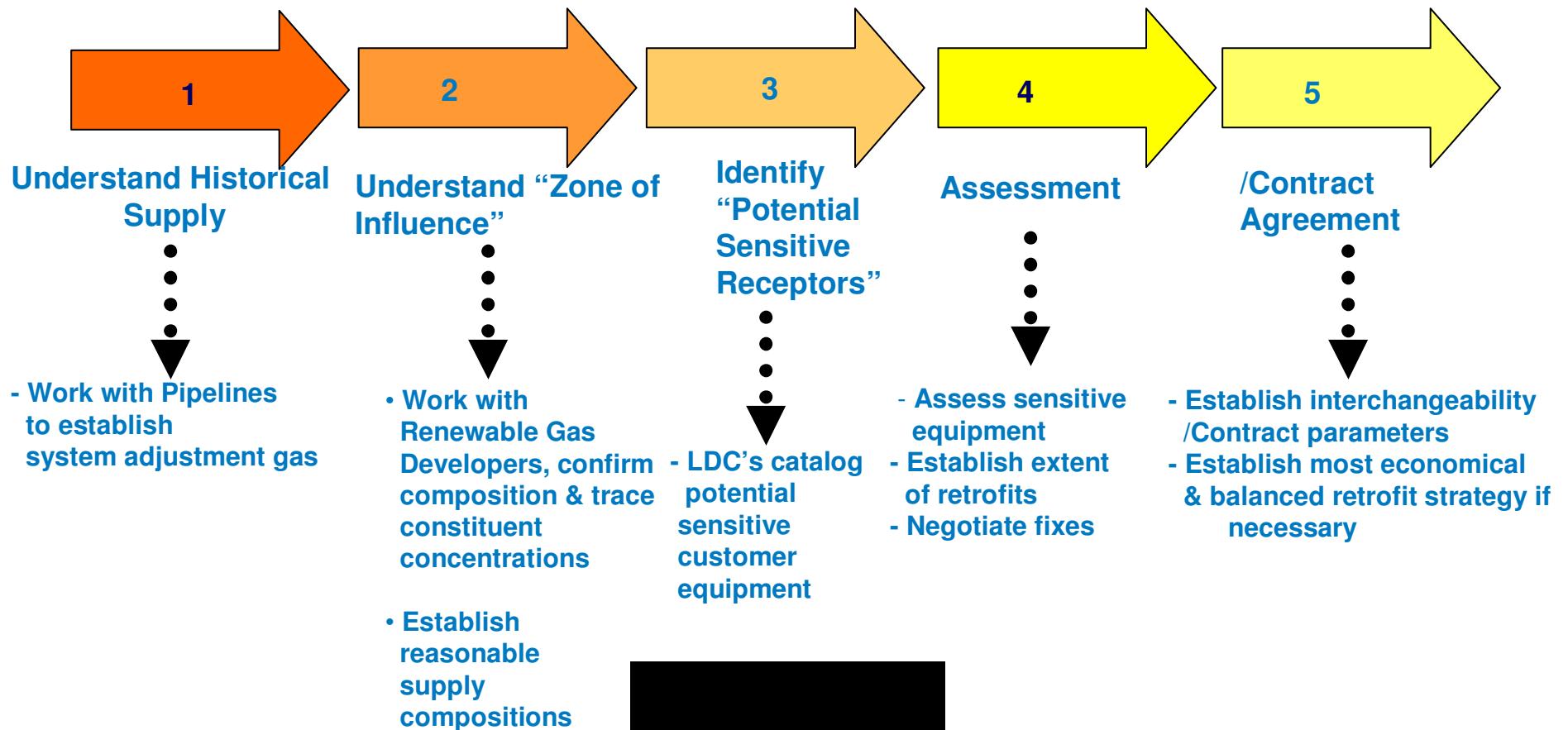
National Grid Operations – Project Description

- ◆ Design, build, & operate gas conditioning system
- ◆ Inject renewable gas directly into National Grid's local distribution system for use by natural gas customers
- ◆ Maintain & monitor system with technicians & operators historically knowledgeable with similar equipment
- ◆ 30 years of experience integrating Staten Island Landfill renewable gas into a high pressure system
- ◆ Enhances internal knowledge in emerging field
- ◆ Collaborative design effort utilized
 - ◆ Included National Grid operations in the system selection process & design activities
 - ◆ Design reviews & Process Hazard Analysis with NYC DEP

Simplified Process Flow



Renewable Gas Interchangeability Implementation Process



Practical Guidelines To Embrace Renewable Gas

- ◆ Understand trace constituents of concern
- ◆ Model and determine aggregation compositions based on “bookend” flows and assumed end state cleanup criteria
- ◆ Evaluate possibility of gas system operations to minimize impacts of anomalies
- ◆ Optimize design and cleanup strategy based on above
- ◆ Establish remote monitoring and shutdown capability
- ◆ Ensure you meet all local regulatory requirements for accepting this gas..... May vary by state.

Renewable Gas is Interchangeable with Natural Gas for everyday uses in our homes and businesses



Policy Changes Needed to Realize the Potential of Renewable Gas

Federal & State policy support will be a critical factor in delivering the potential of renewable gas. Concepts should include:

Parity

The playing field needs to be leveled so that Renewable Gas is valued, supported and incentivized in ways equal to renewable electricity or liquid transportation fuel.

Accessibility & Integration

Our nation's pipeline infrastructure should facilitate the purchase and transfer of Renewable Gas in order to more easily meet local, state, or federal goals for renewable fuels.