

nationalgrid

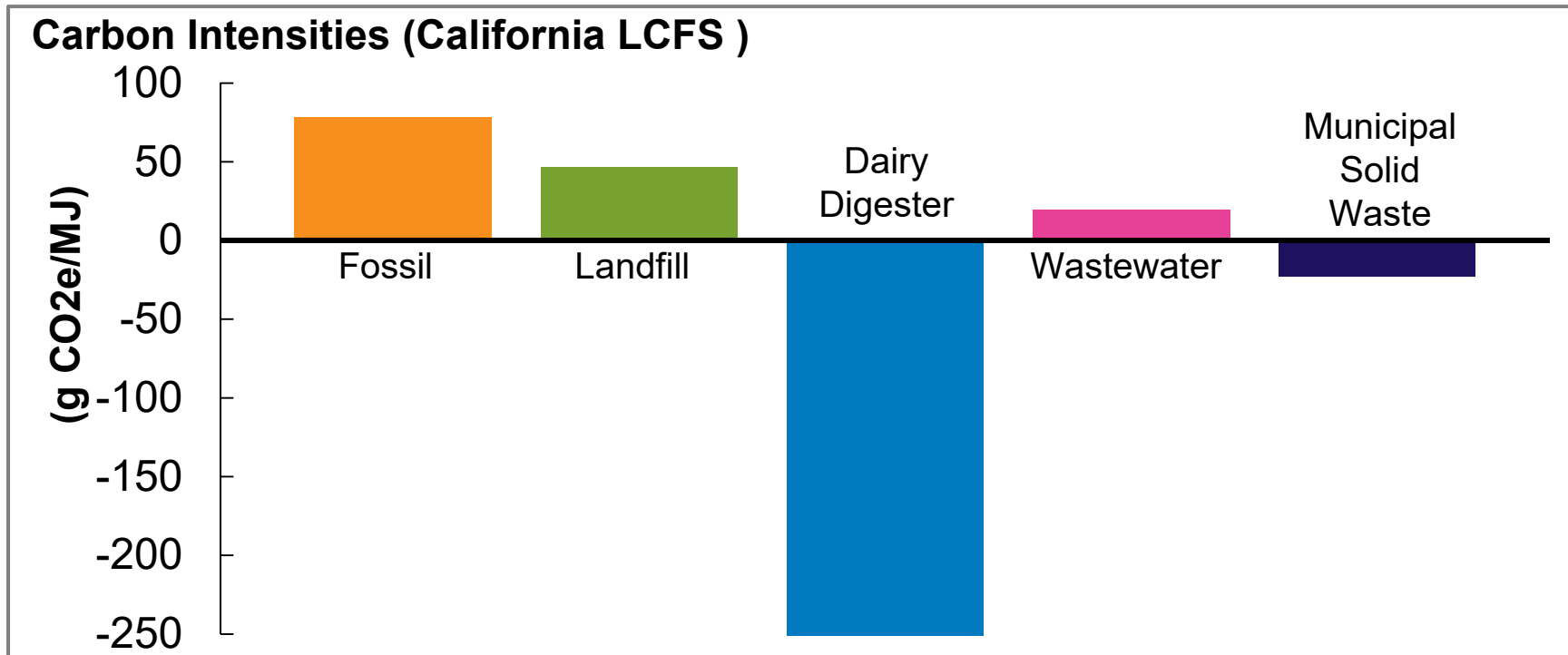
HERE WITH YOU. HERE FOR YOU.

# Renewable Natural Gas Utility Opportunity and Challenges



Northeast Gas Association  
September 11, 2018



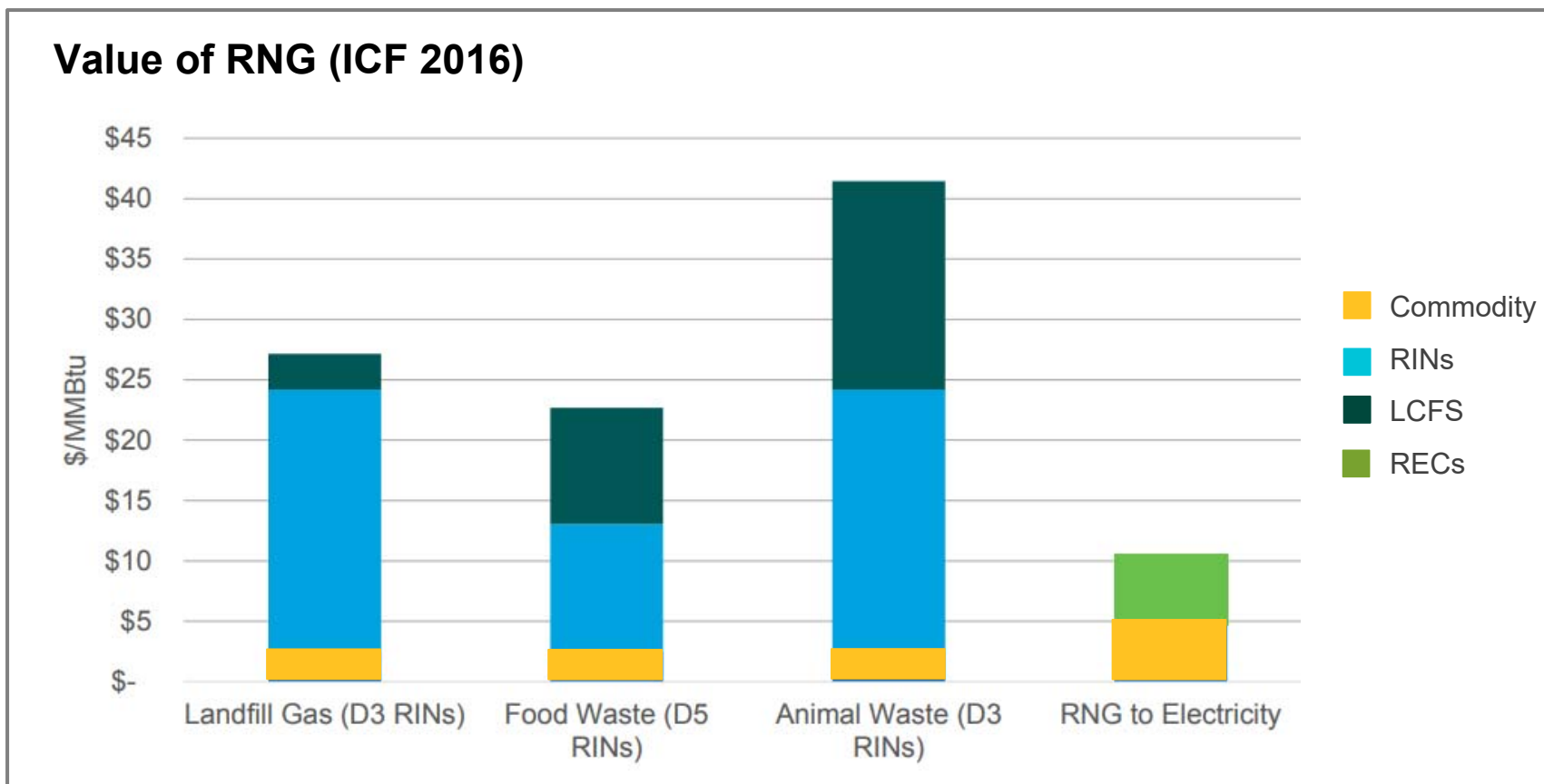


- **Potential**– a 2011 AGA study found RNG could meet the natural gas needs 50% American homes or 10% of overall demand
- **Current development** – today the industry experiencing significant growth, primarily driven by federal and state policies
  - ◆ 78 sites in North America +12 more sites online by end of 2018
  - ◆ From 2013 to 2018 production increased 10X (28.9 million to 288 million EGE)



# Policies Valuing Environmental Attributes **nationalgrid**

- **Heat:** No state or federal policies
- **Electricity:** Renewable Portfolio Standard (RECs)
- **Transportation:** Federal Renewable Fuel Standard (RINs), California Low Carbon Fuel Standard (LCFS)



## 1. INTERCONNECTION

“Utilities are the biggest barrier for RNG projects”

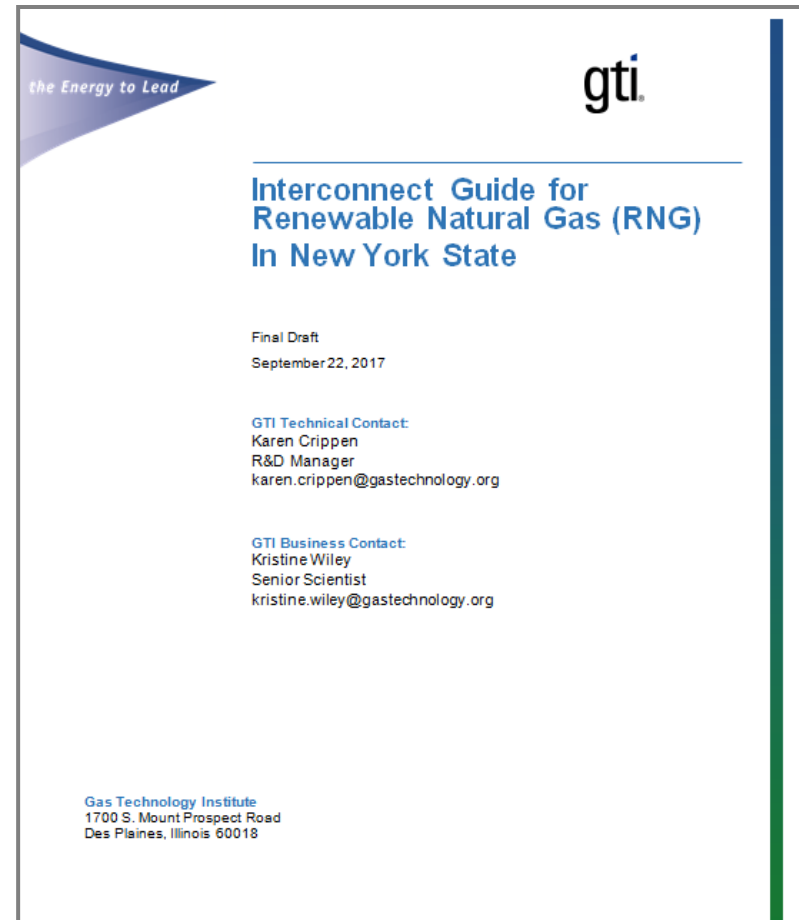
## 2. POLICY SUPPORT

Regulation only values RNG in transportation and power generation

## 3. COMMUNICATION

Educating stakeholders on opportunity for gas system to decarbonize

- One of largest hurdles facing RNG developers is challenge of interconnecting with the natural gas network
  - ◆ A lack of technical understanding how to integrate this resource into the gas network
  - ◆ A lack of consistency and certainty in the interconnection process
- National Grid in collaboration with NY utilities and other stakeholders is developing a standard interconnection guideline
- Will be released in 2018



- Converting NYC's largest wastewater treatment plant into a source of clean energy
  - ◆ Partnership with NYC Department of Environmental Protection
  - ◆ Processes 250 million gallons/day of wastewater
- Operational August 2019
- Project will inject enough RNG to
  - ◆ Heat ~2,500 homes and
  - ◆ Reduce CO<sub>2</sub> emissions by ~16,000 metric tons
  - ◆ Equal to emissions of 3,000 cars
- Significant potential to increase RNG production if NYC food waste pilot project becomes permanent



Newtown Creek waste water treatment plant in Brooklyn, NY

Source: New York City Department of Environmental Protection

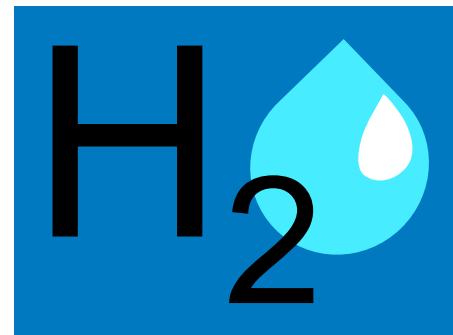
1. Develop a Green Gas Offering to allowing gas customers to decarbonize
2. Open up new business opportunities while supporting RNG development
  - ◆ additional capital investment
  - ◆ facilitate RNG marketplace
  - ◆ transportation service for producers
  - ◆ performance based mechanisms
  - ◆ electric grid support services
3. Grow potential for RNG through research and demonstration projects



Renewable Natural Gas



Power-to-Gas

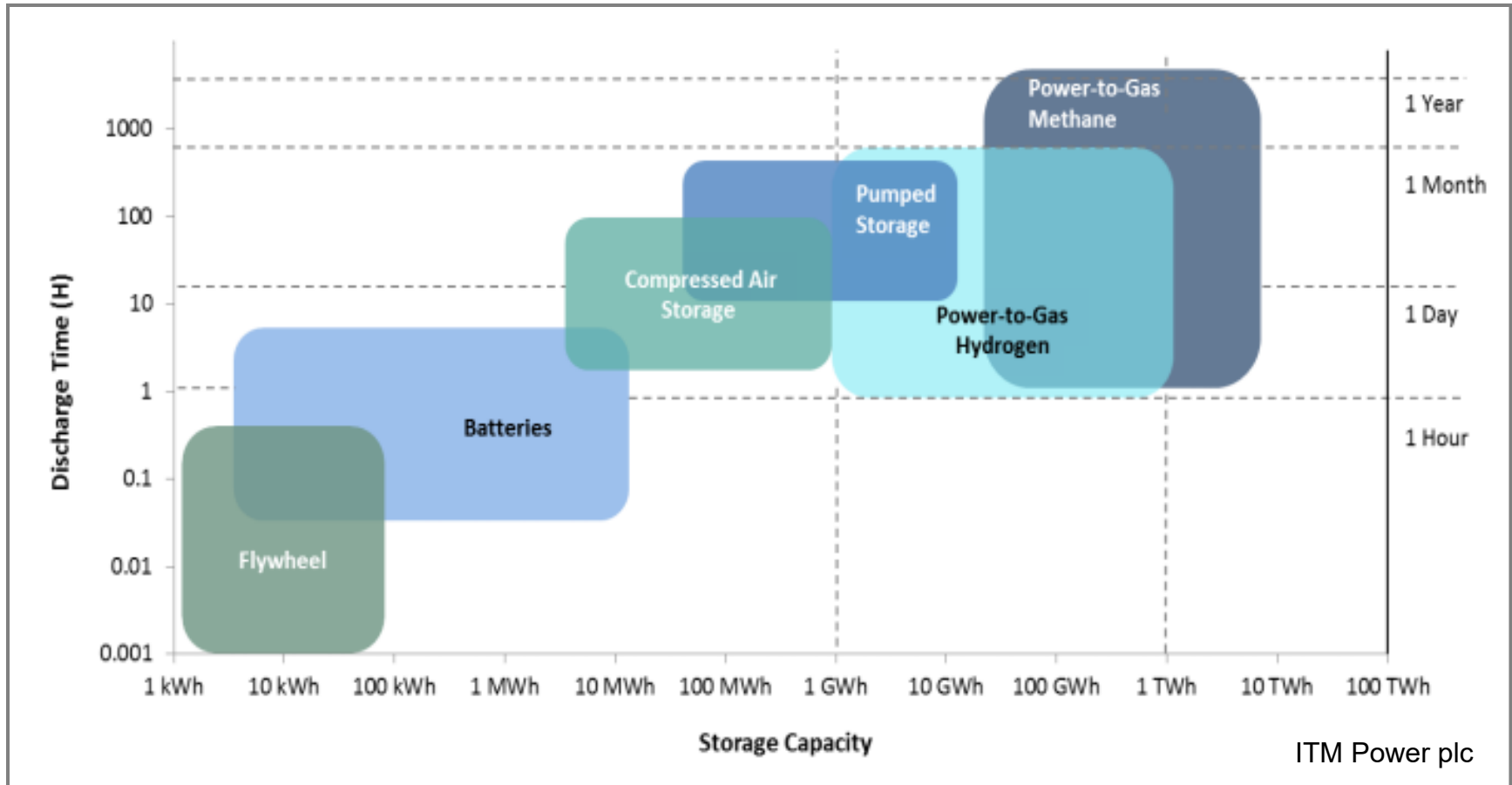


Hydrogen Blending



# Power-to-Gas a Form of Chemical Storage nationalgrid

Storage capacity of power-to-gas compared to other storage methods: **longest duration, highest capacity**





# Communicating Holistic Energy System Decarbonization

Message: a deeply decarbonized gas & electric system is integrated & complimentary

