



# RNG as a Transformative Force in the Ag Sector

Global Methane Forum

April 17, 2018 in Toronto



Building the Biogas Sector With You



# Overview

- Canadian Biogas Association Introduction
- What is Agricultural RNG?
- Landscape in Canada
- RNG Applications in Agriculture
- Potential for Growth
- Closing



# Canadian Biogas Association

- **Mandate**
  - The collective voice of the biogas industry promoting development of biogas to its fullest by capturing and processing organic materials through anaerobic digestion to maximize the utility and value inherent within that material
- **Roles**
  - Education and outreach
  - Advocacy and policy
  - Research



# What is Agricultural RNG?



**Feedstock** is organic matter that can include on-farm and off-farm sources:

- Manure
- Crop residues
- Food processing

**Biogas** is a renewable source of methane gas created through anaerobic digestion (AD) of feedstock

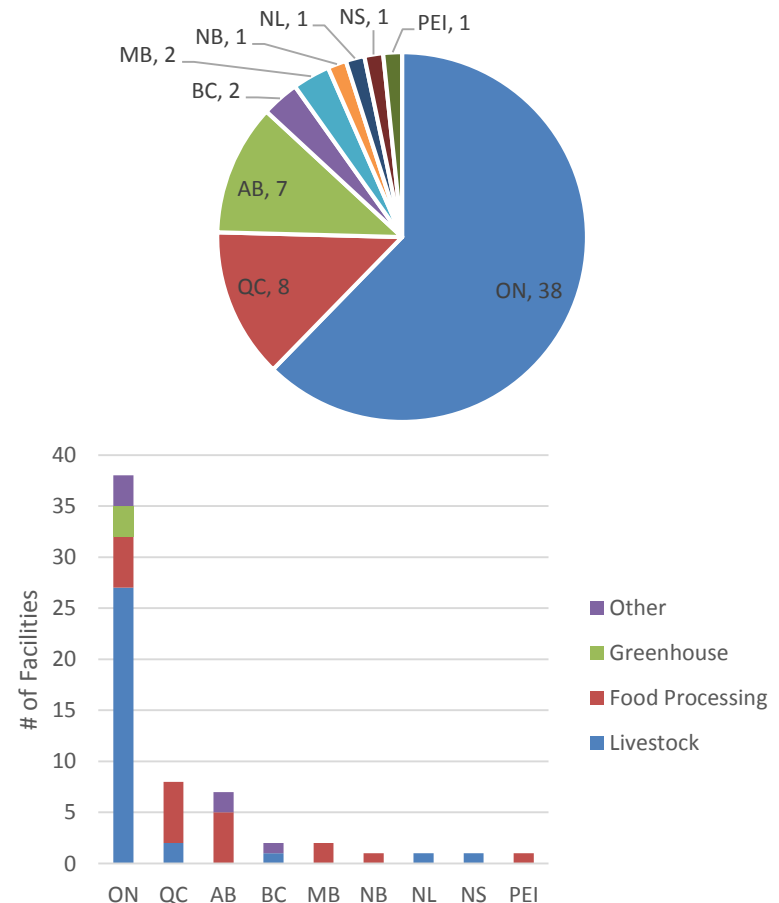
**Renewable Natural Gas** is a carbon neutral, upgraded form of biogas

**Digestate** is a nutrient rich bi-product resulting from the anaerobic digestion process

# Agricultural AD Landscape in Canada

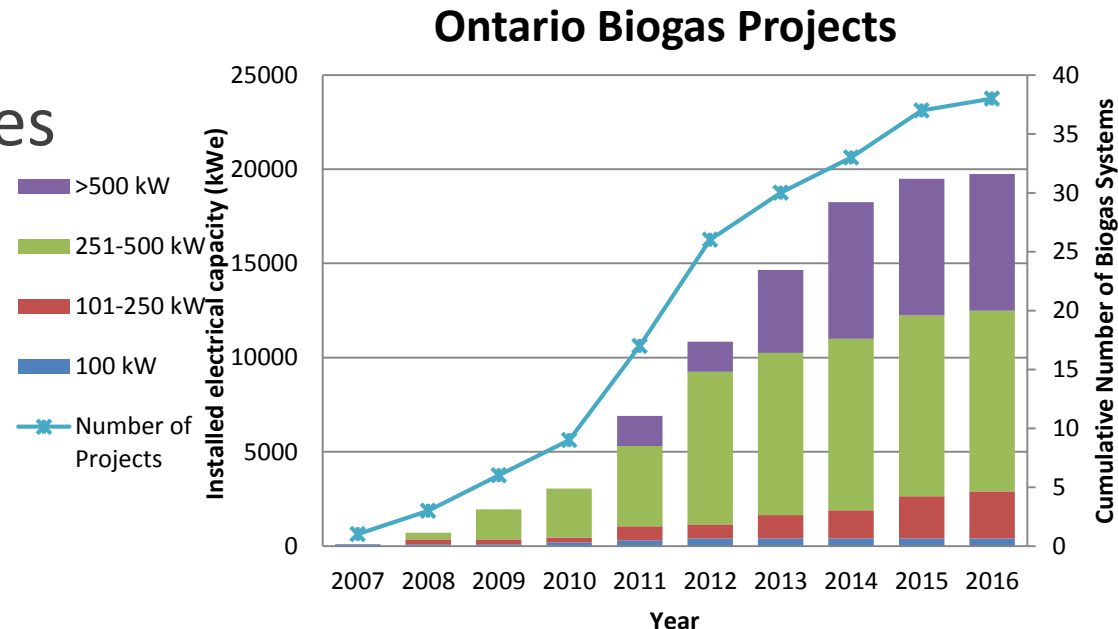
- Canada currently has over 60 operational AD facilities in the agriculture and agri-food sector
- 70% of facilities generate electricity for sale to the grid
- Two facilities generate RNG for sale

Agriculture and Agri-Food Biogas Facilities in Canada



# Agricultural AD Growth

- Momentum and interest in biogas is growing in Canada in response to:
  - Climate change
  - Supportive policies
  - Carbon pricing
  - New RNG targets



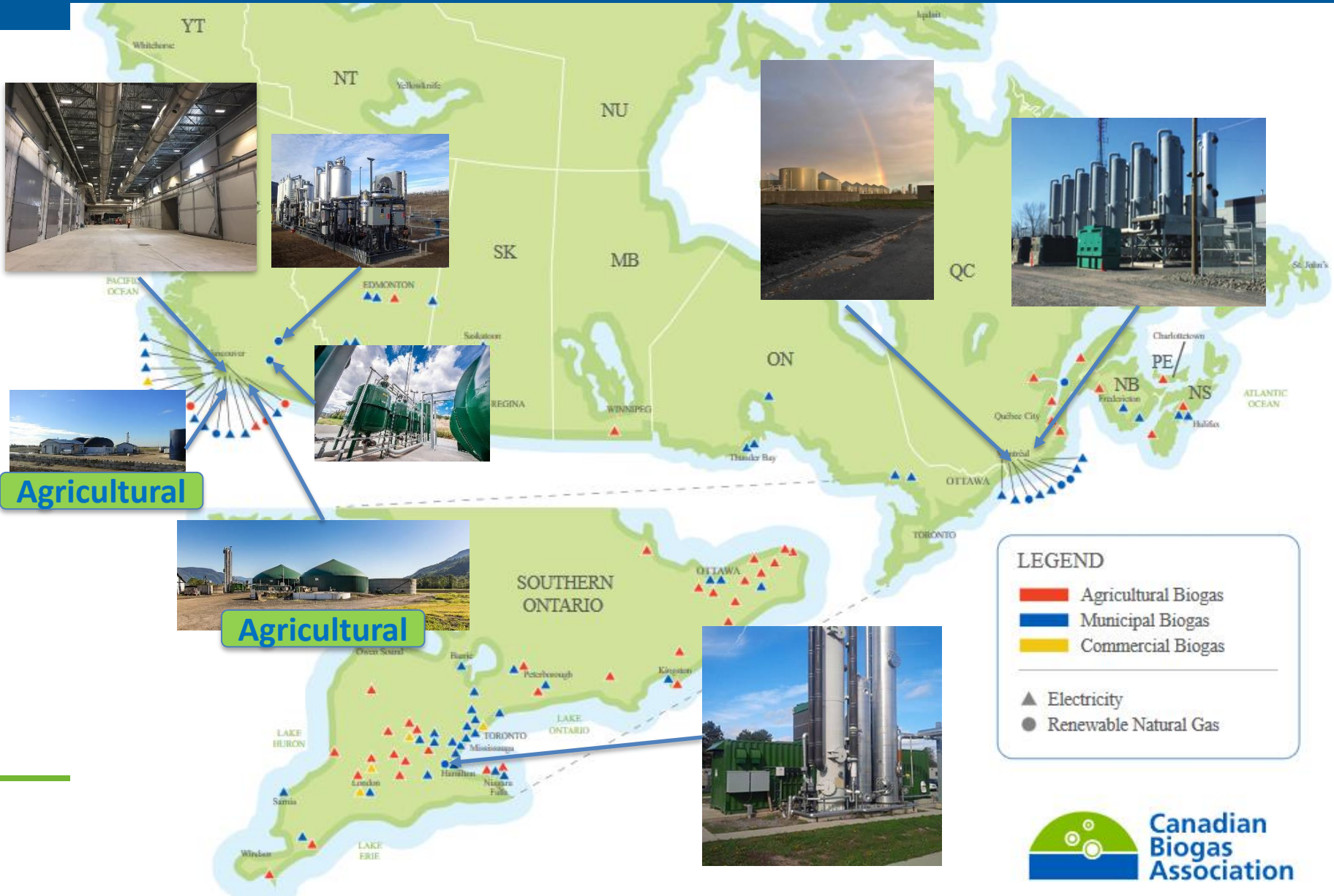
# RNG Programs in Canada

- British Columbia, Quebec, Ontario are leading the way with RNG policy and programs.

| Province         | Date of RNG Program | Cost per GJ | Number of Projects       |
|------------------|---------------------|-------------|--------------------------|
| British Columbia | 2007                | Up to \$30  | 5 (2 more approved)      |
| Quebec           | 2017                | \$7-22      | 4 (others expected soon) |
| Ontario          | TBD                 | TBD         | 1 (others expected soon) |



# RNG Projects Across Canada





# RNG Applications in Agriculture

RNG is a renewable, low-carbon alternative that can be utilized to:

Inject directly into the grid

Produce transportation fuel



# Agricultural RNG Grid-Injection

- Significant potential for long-term financial gain where farmers can sell their RNG to utilities or customers willing to pay a premium over natural gas
- Seabreeze Farms in BC injects 45,000 GJ annually into the FortisBC distribution network



# Potential for Vehicle Fuel

- Biogas is currently being successfully converted to vehicle fuel on farms
- A 2017 CBA study estimated annual fuel savings of \$14,300 from converting a vehicle that consumed 150L diesel/day, 5 days/week before conversion

Fuelling Farm Vehicles  
with Compressed Biogas



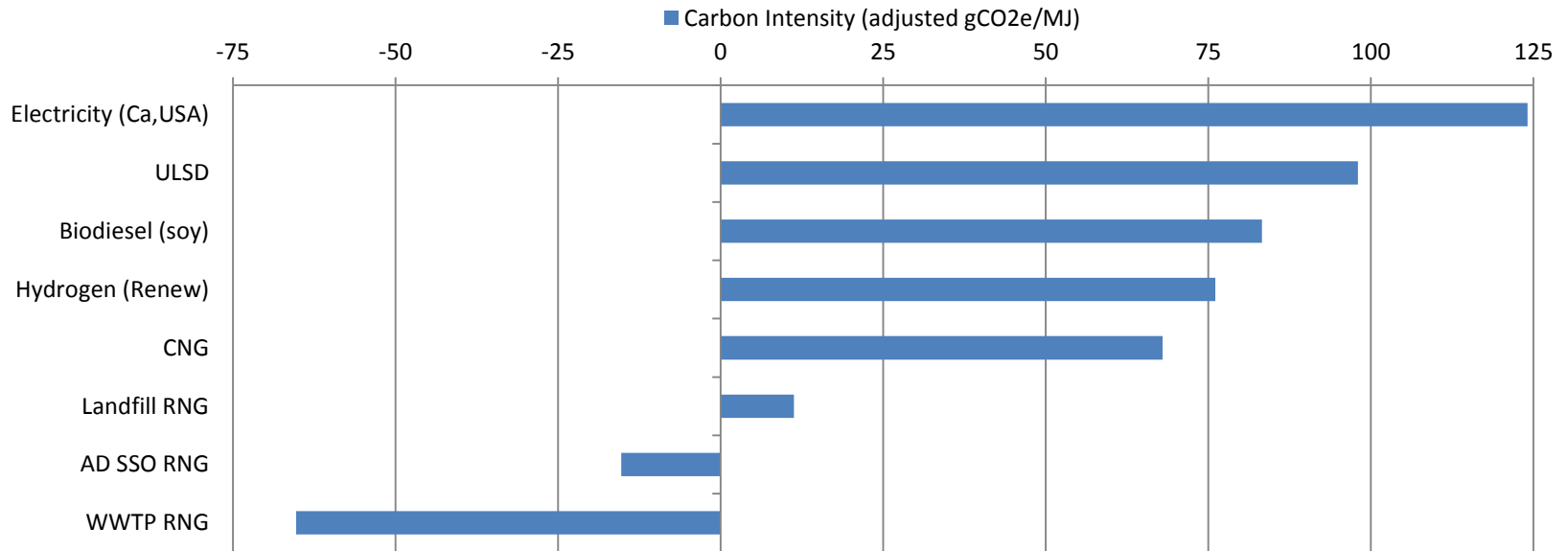
 Natural Resources Canada / Ressources naturelles Canada

 Canadian Biogas Association

JUNE 2017

# Environmental Benefits

## Carbon Intensity of Alternative Fuels in California Heavy-Duty Vehicles



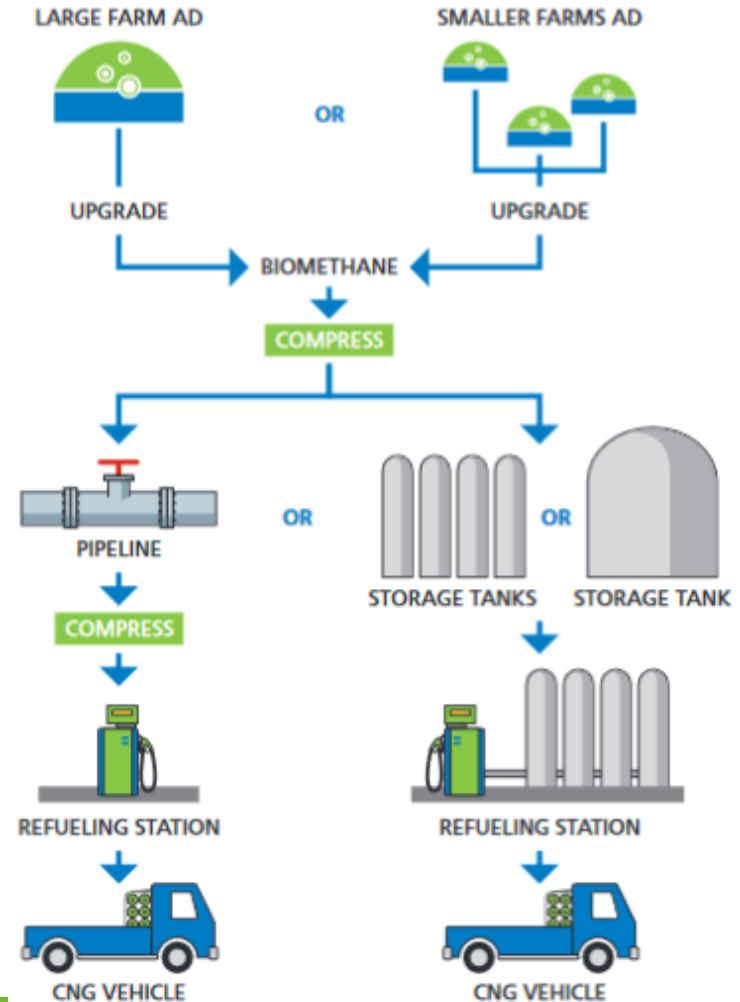
(Data Source: Carbon Intensity Lookup Table for Diesel and Fuels that Substitute for Diesel, California Air Resources Board)

# Additional Benefits of RNG

- Reduce GHG emission from livestock
- Enhanced fertilizer for crops
- Greater on-farm innovation and job creation
- Reduced odour and pathogens

# Which Farms are a Good Fit for RNG?

- Tailored to larger farm operations that have access to feedstock as well as financial capability
- Smaller farms could consider combining resources to pursue a project

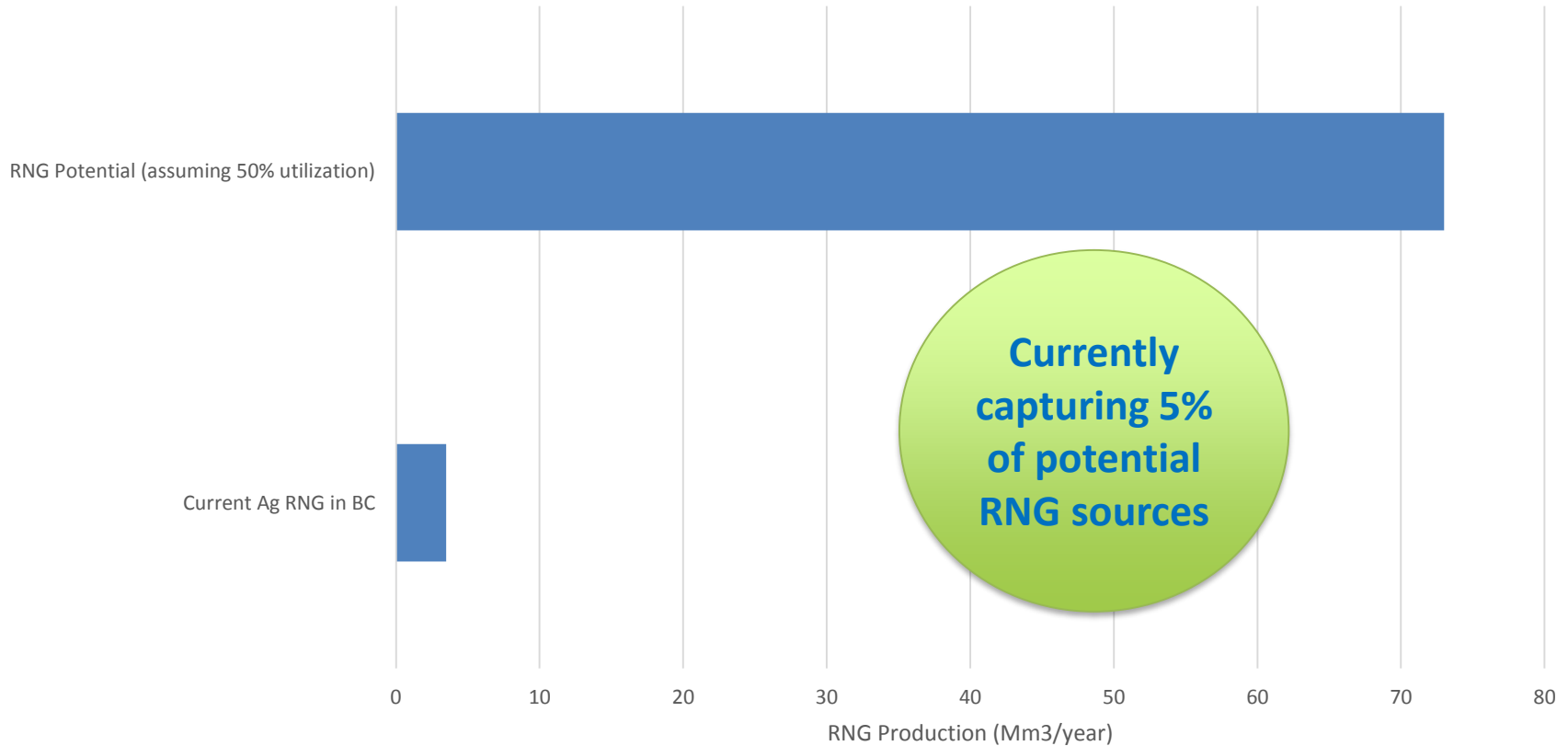


# Potential RNG Growth

- Studies show there is significant potential to capture more feedstocks to generate RNG
- New technologies, design optimization and operation adjustments can increase RNG production and reduce cost

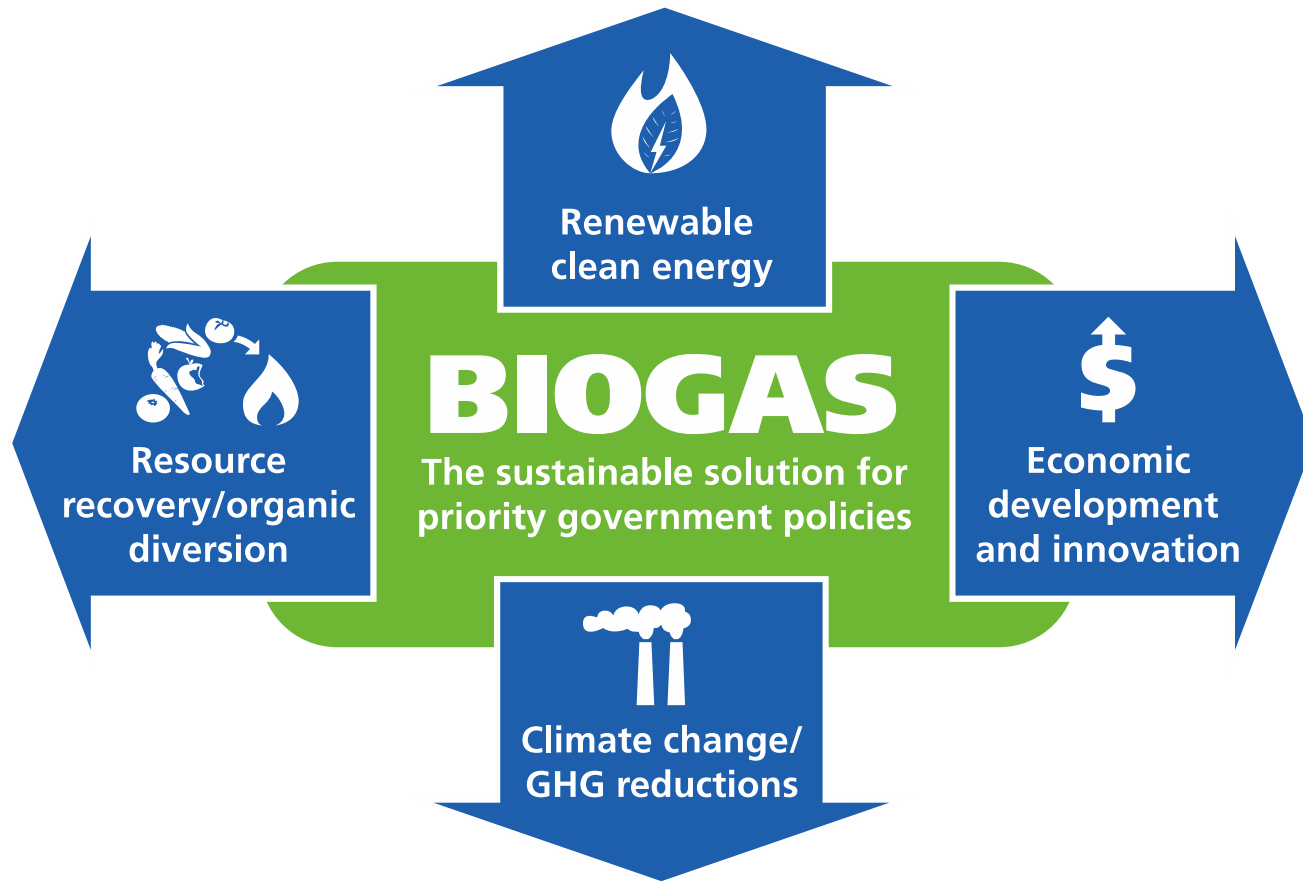
# Example: Potential in BC

## Agricultural RNG Potential in BC





# RNG: The Sustainable Solution



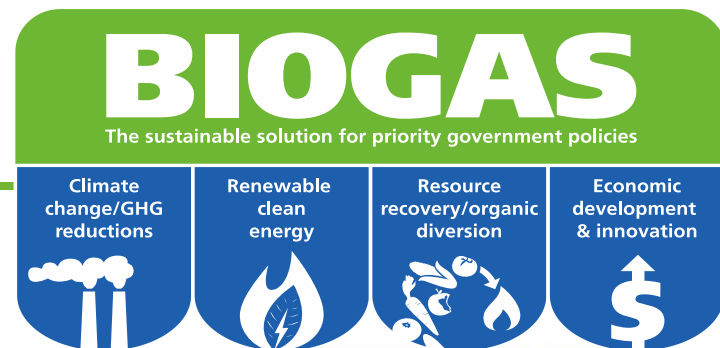
# Agricultural RNG Challenges

- Challenges limiting future development
  - Approvals & Connection
    - Siting, grid access, public consultation, studies, NIMBY
  - Market competition
    - Provincial and state incentives upwards of \$30/GJ
  - Limits on feedstock
    - Cheaper disposal options
  - Cost
    - Low commodity pricing of natural gas and high capital investments in technology

# Unlocking the Value of RNG

- What elements are needed to advance the RNG market:
  - Tangible Target/Goal → A renewable content requirement
  - Strong Market Pull → Reasonable and stable gov't policy and programs to support sustainable, long-term product demand
  - Clear Market Mechanisms → Well-defined approach that sends strong signal and enables broad participation by industry

Building the Biogas Sector With You



# Biogas/RNG: A Winning Solution

- Offers a multi-faceted solution to:
  - Mitigating methane emissions
  - Effectively utilizing carbon sources and recycling nutrients
  - Generating renewable energy
  - Protecting our air, water and soil resources
  - Creating new and expanded economic opportunities
- Support a low carbon, circular economy offering a waste management and energy solution with proven, cost-effective technology

# CONTACT

Jennifer Green

[jgreen@biogasassociation.ca](mailto:jgreen@biogasassociation.ca)

613-822-4630

[www.BiogasAssociation.ca](http://www.BiogasAssociation.ca)



**Canadian  
Biogas  
Association**