



Enhancing Transparency and Recognition of RNG Projects

2019 Natural Gas STAR & Methane Challenge Workshop

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M.J. Bradley & Associates

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Downstream Natural Gas Initiative

A group of leading natural gas utilities collaborating to address the role of natural gas in a low-carbon future

Key Issues

- Decarbonization pathway analysis
- Policy, regulatory, and market barriers to renewable natural gas (RNG) and hydrogen
- Engagement with large industrials to develop low carbon solutions
- Best practices to reduce methane emissions
- Ongoing leak detection technology research, development, and deployment
- EPA's Methane Challenge Program

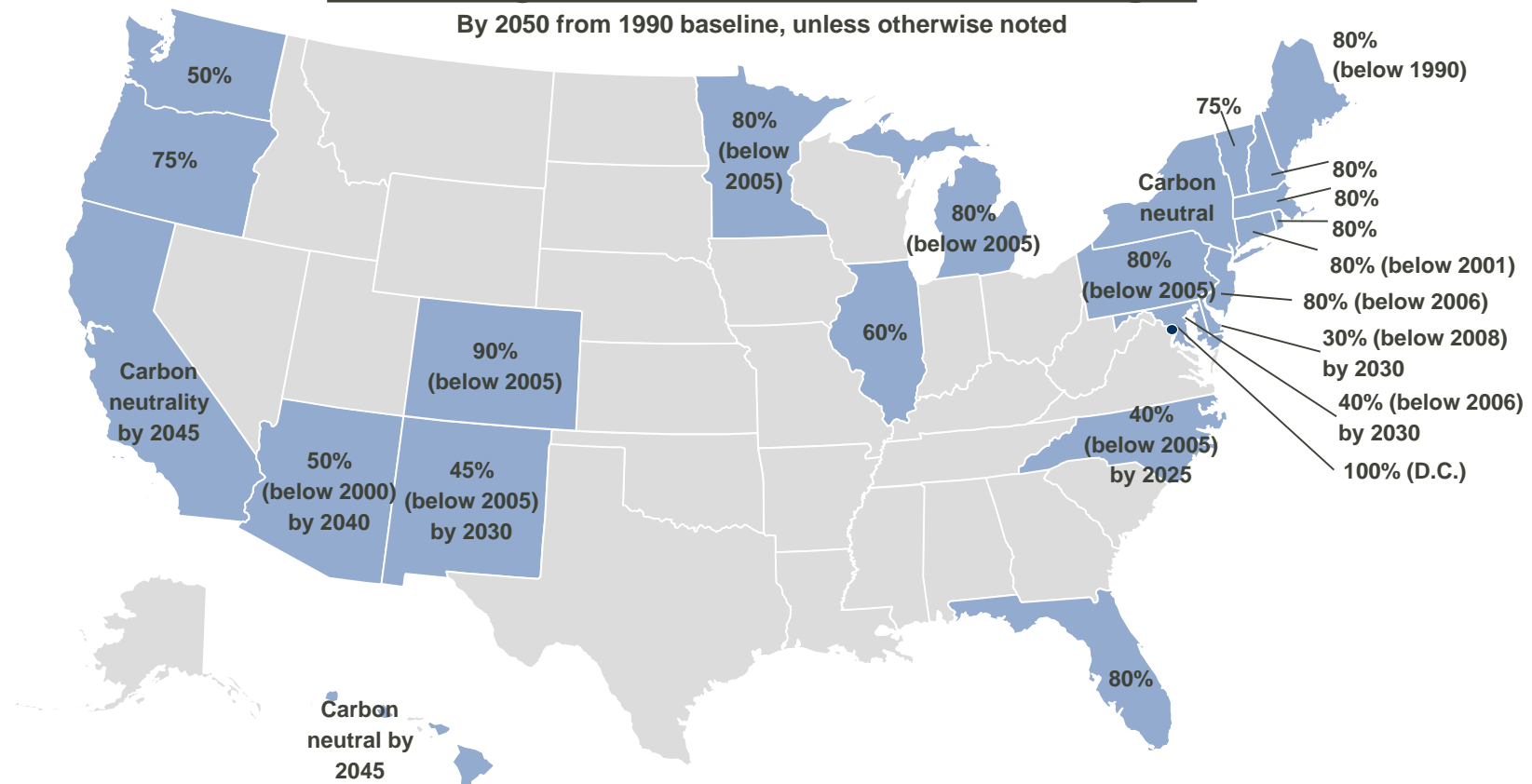


Role of Gas in a Low-Carbon Future

- **Climate Alliance:** 25 governors have pledged to meet Paris Agreement goals.
- **We Are Still In:** More than 2,800 entities, including businesses, investors, cities, counties, universities, and cultural institutions, have committed to the Paris Agreement.
- **GHG Reduction Goals:** 22 states and D.C. have long-term, economy-wide GHG reduction goals.

States' Long-term GHG Reduction Goals and Targets

By 2050 from 1990 baseline, unless otherwise noted



Supply-Side Initiatives

Natural gas utilities are taking several actions to support supply-side methane emission reductions from the producers that supply their gas.



**Responsible Gas
Procurement**

**Renewable
Natural Gas**

**New Technology
Investments**

MJB&A RNG Issue Briefs

Overview of RNG benefits and supply, policies to support RNG use beyond the transportation and electric sectors, utility business models, and the economics of RNG projects.

Policy Options to Facilitate Renewable Natural Gas Use and Development

Renewable Natural Gas Issue Brief • Part I of IV • July 2019

Natural Gas Utility Business Models for Facilitating Renewable Natural Gas Development and Use

Renewable Natural Gas Issue Brief • Part II of IV • July 2019

Renewable Natural Gas: Potential Supply and Benefits

Renewable Natural Gas Issue Brief • Part III of IV • July 2019

Renewable Natural Gas Project Economics

Renewable Natural Gas Issue Brief • Part IV of IV • July 2019



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MJB&A Releases a Series of Issue Briefs on Renewable Natural Gas



On July 15, 2019, M.J. Bradley & Associates released a series of Issue Briefs on renewable natural gas (RNG). The Issue Briefs are intended to provide policymakers, regulators and other stakeholders with a better understanding of the current RNG market, key policy drivers, potential natural gas utility business models, and the economics of RNG. Renewable natural gas is pipeline quality natural gas derived from renewable energy resources. Today, the most common sources of RNG include landfills, animal manure, and wastewater. Additional sources include food waste, agricultural waste, woody biomass, and renewable electricity (power to gas). This four-part series includes the following topics:

1. Policy Options to Facilitate Renewable Natural Gas Use and Development
2. Natural Gas Utility Business Models for Facilitating RNG Development and Use
3. Renewable Natural Gas: Potential Supply and Benefits
4. Renewable Natural Gas Project Economics

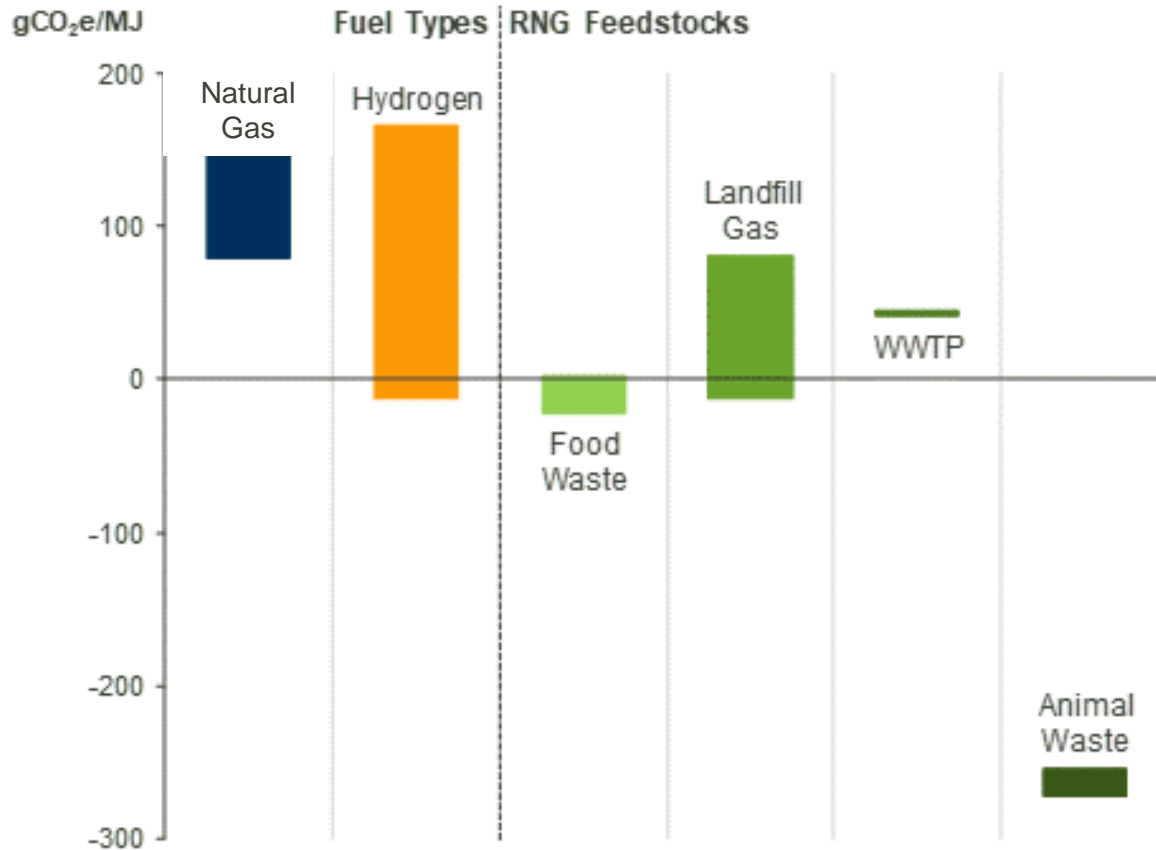
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<https://www.mjbradley.com/news-events/mjba-releases-series-issue-briefs-renewable-natural-gas>

GHG Benefits of Renewable Natural Gas (RNG)

Range of Certified LCFS Pathway Carbon Intensities



Source: California LCFS Approved Pathways , MJB&A analysis

Other RNG Benefits

- Local economic activity and job creation
- Enhanced fuel diversity
- Local air quality improvements
- Uses existing infrastructure
- Beneficial use of waste streams
- More efficient use of energy (compared to onsite electric generation)

Actions Promoting RNG

Renewable Natural Gas Standards

(California, Nevada, Oregon, and Washington)

Gas Quality Standards and Interconnection Guidelines

(Guide for RNG in New York)

Biogas Conditioning / Interconnection Tariffs

(SoCalGas, TECO Peoples, Southwest Gas Company)

Market Infrastructure

(Center for Resource Solutions, Midwest Renewable Energy Tracking System)

Voluntary RNG Offerings



Vermont Gas

- Approved in Fall 2017, program offers customers RNG blends of 10%, 25%, 50%, or 100%.
- Developed in response to customer demand – survey found 85% of customers willing to pay 10% more for a renewable product.

nationalgrid

- Proposed in April 2019 for National Grid's Brooklyn Union Gas and Keyspan Gas East customers.
- Decision Pending
- Program would provide tiered offerings for customers: flat rates for residential and flat rates or % of monthly consumption for non-residential



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