

PATHWAY TO DECARBONIZATION: UNDERSTANDING THE ROLE OF EMERGING FUELS

PUBLIC MEETING


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Director

November 30, 2021



Using Hydrogen and RNG to Decarbonize



An aerial photograph showing a winding asphalt road that curves through a dense, lush green forest. To the left of the road is a body of water with a light blue-green hue. The road has white lane markings and a yellow center line. The forest is composed of many tall, thin trees, likely evergreens. The lighting suggests a bright, sunny day.

The American Gas Association, founded in 1918, represents more than 200 local energy companies that deliver clean natural gas throughout the United States.

There are more than 76 million residential, commercial and industrial natural gas customers in the U.S., of which 95 percent — more than 72 million customers — receive their gas from AGA members.

Today, natural gas meets more than 30 percent of the United States' energy needs.

www.aga.org



Fast Facts

- In 2019, United States greenhouse gas emissions totaled 6,558 million metric tons of carbon dioxide equivalent, down 12 percent from 2005.
- Methane emissions from natural gas distribution systems have declined 69 percent from 1990 levels. This drop occurred even as the industry added approximately 788,000 miles total to serve 21 million more customers.
- Carbon emissions from the average natural gas home **decline 1.2 percent** per year.
- Increased use of natural gas is the single largest factor in power sector emissions reductions reaching **27-year lows**.
- Natural gas industry and utilities invest **\$3.9 million everyday** to help customers reduce their carbon footprints.

AGA's Climate Change

POSITION STATEMENT

The American Gas Association is committed to reducing greenhouse gas emissions through smart innovation, new and modernized infrastructure, and advanced technologies that maintain reliable, resilient and affordable energy service choices for consumers.





10 commitments
for reducing emissions.

Eight principles
for an effective national
policy approach to
addressing climate change.

aga.org/climate

INDUSTRY INITIATIVES

- Industry efforts to reduce emissions:
 - EPA Natural Gas STAR: 37 Members
 - EPA Methane Challenge: 48 Members
- Participation in studies to improve the accuracy of methane detection, measurement, and/or emission factors.
 - WSU-EDF Lamb Gas Distribution Methane Study
 - CSU-NOAA-DOE Basin Methane Top- Down/Bottom-Up Reconciliation Study
 - NYSEARCH-EDF Study of Methane Detection Technologies
 - GTI-DOE Study of Plastic and HDPE Pipe, GTI-DOE Studies of Residential, Industrial & Commercial Customer Meters
- Publications
 -  AGA Blowdown Emissions Reduction White Paper
 -  Considerations for Eliminating Hazardous Leaks and Minimizing Releases of Natural Gas

Pending Paper: Impact of Hydrogen on Pipeline Materials

AGA Actively Tracks Member Company Emissions Goals

April 2020

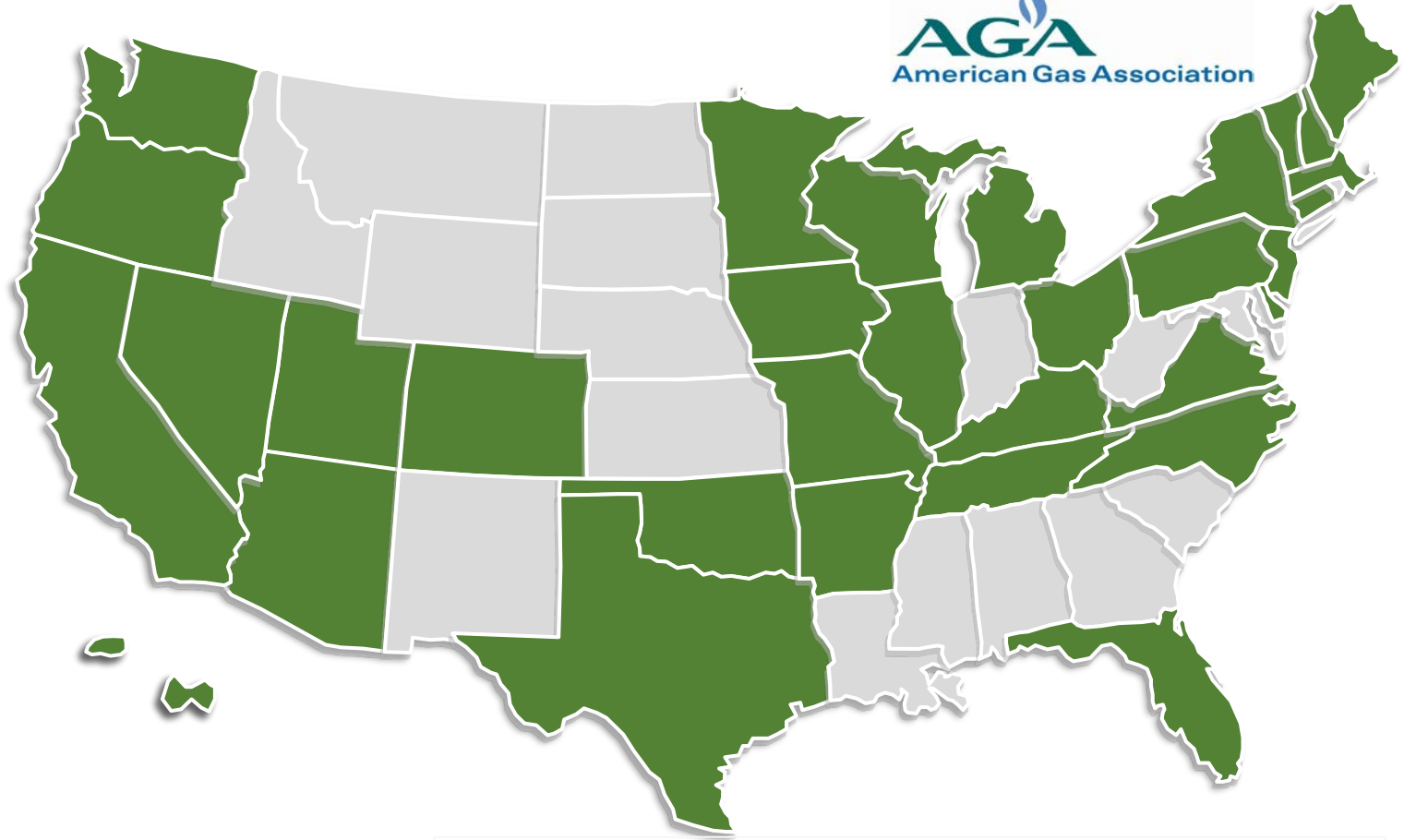
- **16** AGA member companies have a net-zero, carbon neutral, or 100% clean energy goal
- **45 percent** of AGA member companies' gas throughput comes from a utility with a carbon-neutral, net-zero commitment or clean energy goal



November 2021

- **30** AGA member companies have a net-zero, carbon neutral, or 100% clean energy goal
- **65 percent** of AGA member companies' gas throughput comes from a utility with a carbon-neutral, net-zero commitment or 100% clean energy goal

Renewable Natural Gas State Activity



Activity in 32 states to promote the use of RNG in the residential or commercial sector through either legislative, regulatory, or utility led action.

*this data does not include RNG interconnection activity

50 Bills have been introduced

State Legislative Proposals

27 Bills have become law

15 Natural Gas Utilities

have begun developing or have implemented Voluntary Green Tariffs

Voluntary Programs

20 Natural Gas Utilities

are engaged in RNG production projects

Utility Led RNG Projects

SELECT EARLY-STAGE

Hydrogen Initiatives at U.S. Gas Utilities

Natural gas pipelines can serve as the necessary and widespread delivery infrastructure for hydrogen



NW Natural
Oregon

Developing a project to produce green hydrogen and pair the locally produced supplies with carbon dioxide to create synthetic natural gas.



CenterPoint Energy Inc.
Minnesota

Preparing to launch a pilot project to produce green hydrogen and flow a less than 1 percent blend to customers through its gas distribution system.



New Jersey Resources Corp.
New Jersey

Developing a renewable hydrogen demonstration project to study natural gas blending and raise awareness among policy-makers and regulators.



Sempra Energy
California

Announced plans to introduce a 1 percent blend of green hydrogen into its natural gas stream, with aspirations to reach a 20 percent blend at its two California utilities.



Dominion Energy Inc.
Utah

Conducting a demonstration project to test hydrogen blends in pipeline systems, with plans to distribute synthetic natural gas made from green hydrogen.



Southern California Gas Co., One Gas Inc.
Texas

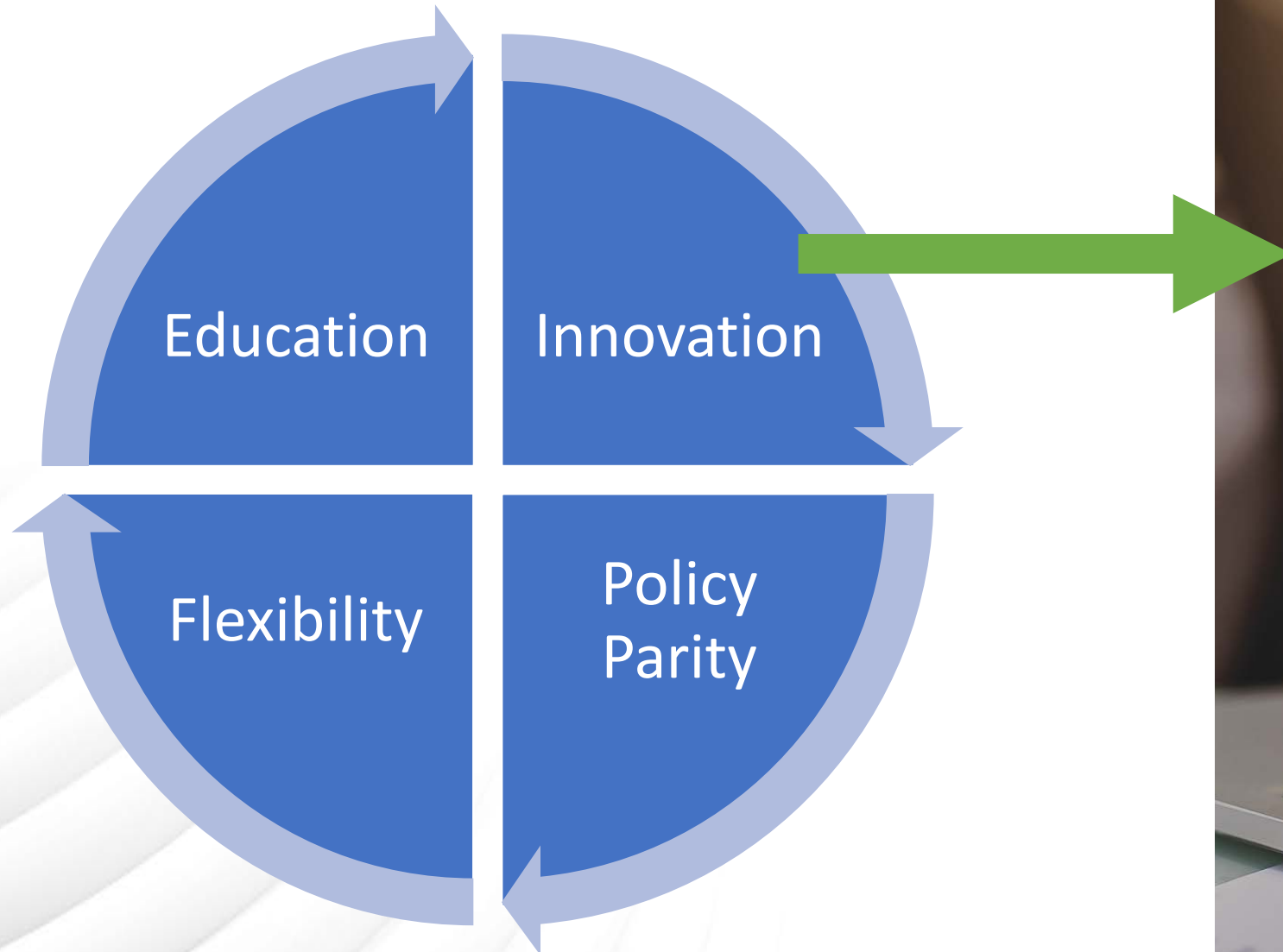
Participating in the U.S. Energy Department H2@Scale project to demonstrate commercial hydrogen production, distribution, storage and consumption.



National Grid PLC
New York

Participating in a hydrogen blending study with Stony Brook University and the New York State Energy Research and Development Authority.

Supporting Decarbonization



TECHNOLOGY

Advancing Research, Development and Deployment of Next-Generation Natural Gas Technologies

More research and development is necessary for continued improvement in next-generation natural gas technologies and to make them widely available to the natural gas industry for greater efficiency, affordability and emission reduction.

PROVEN STRATEGIES

REDUCING RELEASES REDUCES EMISSIONS

Investing in innovation to further enhance pipeline safety efforts allows for the safe and reliable delivery of natural gas to 180 million customers.

PHMSA data shows cast iron and bare steel pipelines are prone to leak. Replacement supports:

- Pipeline Safety
- Rehabilitation
- Reliability and
- Reduction in emissions

Excavation damage continues to be a leading cause of pipeline incidents.

2020 data: 46% of all hazardous leaks on were on distribution mains and released 245,000 mcf of gas

245k mcf = 34 MM miles driven, 15 MM lbs. coal burned, or enough electricity to power over 2400 homes for year

R&D can support rehabilitation of vintage pipes and find ways to leverage technology to prevent excavation damage

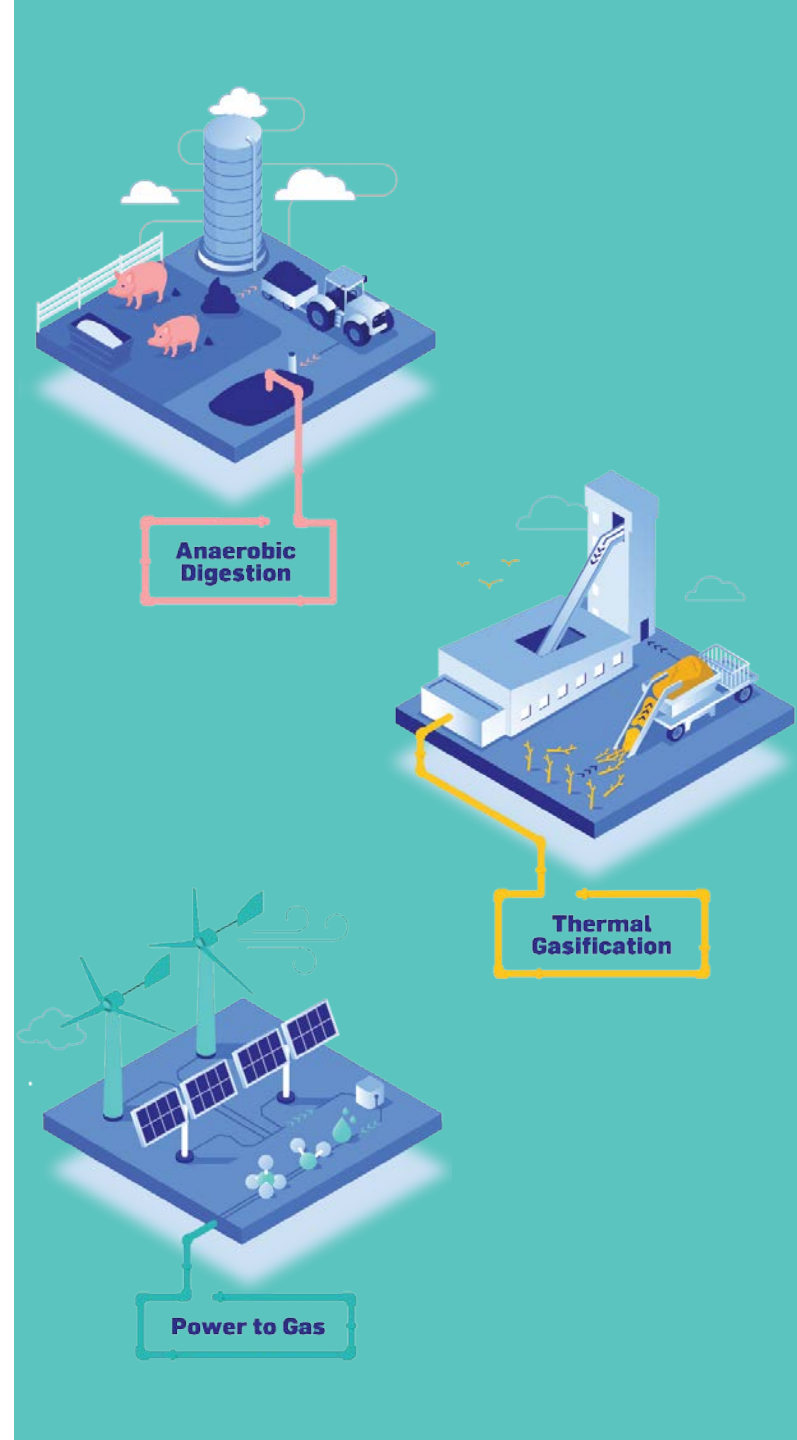
Role of Innovation

R&D to Reduce and Understand System Emissions

- R&D to Update Emission Factors
- Understanding and addressing large leaks


Displacing Conventional Natural Gas

- Continued focus on integrity of energy infrastructure
 - Pipelines, underground storage, compression, LNG
- Efficiency of technologies
 - Digester, on-site gas quality, P2G
- Leak Detection
- Working with Operators to Understand gas quality requirements
- Odor Fade
- Impact to Inline Inspection Technologies
- Extract Hydrogen






 TrueBlueNaturalGas.org

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