America's New Energy Foundation

JANUARY 21, 2015

AGA
American Gas Association

Proactive Efforts to **Reduce Emissions**

In 2014, AGA's Board of Directors approved a set of voluntary guidelines that may lead to further emissions reductions.

AGA has been a strong supporter of EPA's Natural Gas STAR program, a voluntary partnership that encourages natural gas companies to adopt cost-effective technologies and practices that improve operational efficiency and reduce natural gas emissions, since its inception in 1993.

According to the EPA, the 49 AGA member companies participating in the Natural Gas STAR program reduced natural emissions by 1.0 Bcf in 2012 and a total of 45.4 Bcf since 1993.

NaturalGas
EPA POLLUTION PREVENTER

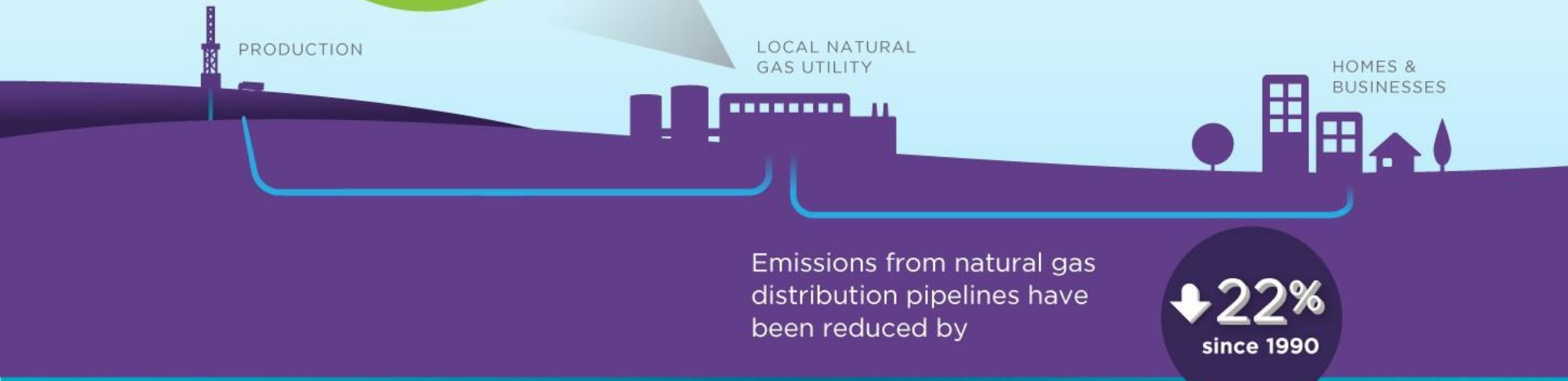
AGA has been a strong supporter of EPA's Natural Gas STAR program since its inception in 1993.

The natural gas industry is actively engaged in science-based analyses to help improve the quality of data publically available regarding natural gas emissions to help ensure an understanding of the valuable role this fuel will play in our nation's clean and secure energy future.

Only

0.24%

of produced natural gas is emitted from the delivery systems operated by local natural gas utilities



Emissions from natural gas distribution pipelines have been reduced by

22% since 1990

Throughout the country, natural gas utilities are upgrading pipeline systems to make them safer and are driving down emissions in the process.

INFORMATION FROM: Environmental Protection Agency Inventory of U.S. Greenhouse Gas Emissions and Sinks 1990-2011 and the E

Full Fuel Cycle Emissions

Production
130 Bcf
0.41%

Processing
122 Bcf
0.38%

Transmission & Storage
84 Bcf
0.27%

Distribution
66 Bcf
0.24%

Approximately 31 Tcf or **1.3%** of gross natural gas production is estimated to be emitted throughout the supply chain.

Source: U.S. Department of Energy and U.S. Environmental Protection Agency

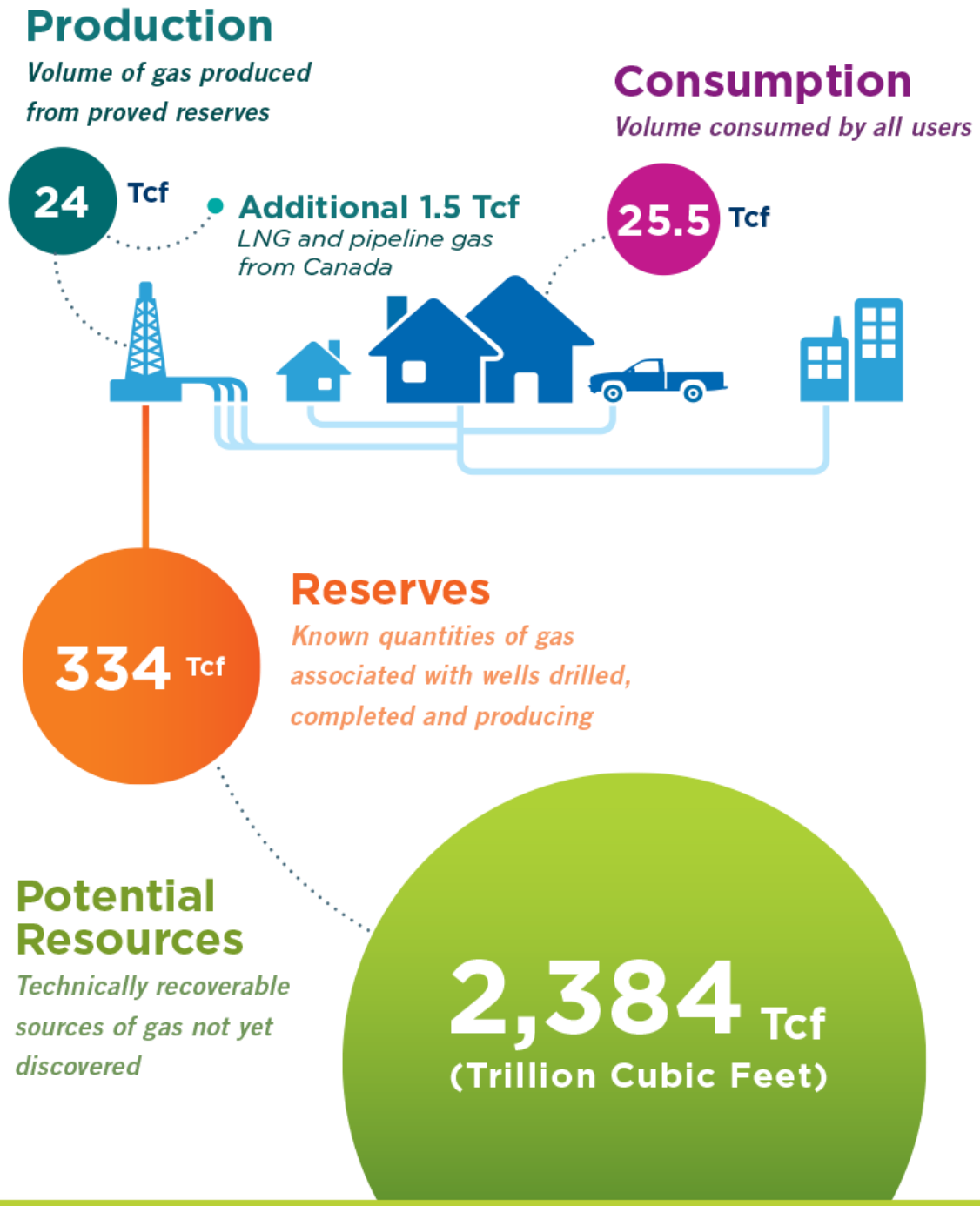
Safety: A Core Value

- Recently announced the first-ever peer-to-peer safety and operational practices review program.
- The Downstream Natural Gas Information Sharing and Analysis Center (DNG ISAC) is a platform for sharing cyber and physical threat intelligence, incident information, analytics and tools.
- AGA Chairs the Oil & Natural Gas Sector Coordinating Council Cybersecurity Working Group.

Upgrading *and* Expanding

- Pipes that may no longer be fit for service are being replaced with ones made from more modern materials.
- 17.5 million additional customers in the past decade.
- Working with state regulators, legislators and other key stakeholders to enhance system integrity and support increase access to natural gas.

25 STATES *have adopted or considered innovative expansion proposals, and that number continues to grow.*



AGA expects that for the next decade and beyond, domestic natural gas supplies will be sufficiently robust to meet growth in demand across all sectors.

Promise Delivered

RECORD PERFORMANCE

The United States faced sustained cold and record-setting natural gas consumption during the winter of 2013-2014.

THE RESULT

Natural gas reliability was tested and across the country local utility customers continued to receive dependable service at affordable prices.

Supply Meeting *Record* Demand

Increased Demand

- 129 Bcf consumed on January 7, 2015
- 131 Bcf consumed on January 8, 2015
- Averaging 2.4 Bcf per day more than we did in January 2014

Working Gas in Underground Storage

- 3,089 Bcf total
- 250 Bcf ahead of last year

Production

- Between 70 and 72 Bcf per day
- 6.3 Bcf per day higher than in January 2014

Natural gas prices have remained under

Natural Gas

Market Indicators


Natural Gas Market Indicators

AGA
American Gas Association

December 31, 2014

Reported Prices – as we finish the calendar year 2014, prompt month Henry Hub natural gas prices plunged to below $3.20 per MMBtu and the January-February-March trading band has narrowed to about $3.15-3.20 per MMBtu. At the same time, West Texas Intermediate crude is below $54 per barrel. Specifically for world oil prices, the final quarter of 2014 has broken through the doldrums of recent years that saw high prices but relatively modest changes from day to day to a virtual downward spiral to close the year.

Weather – for the country as a whole warmer than normal temperatures have dominated for the month of December. Cumulatively since October 1, 2014, that warmth has been primarily focused in the Pacific and Mountain regions but, in fact, only the east south central (as of December 27, 2014) had been cumulatively colder than normal and only 2 percent colder. The country has been cumulatively 7.0 percent warmer than normal as measured by fewer heating degree days, since early October 2014.

Working Gas in Underground Storage – there is now a year-to-year surplus of natural gas in storage. In April, storage stocks were at a decadal low following a record pull on gas supplies after last winter's polar vortex. What followed was a relatively mild summer, which curbed gas flows to power generation and along with rising production contributed to a record pace for storage rebuild. Then warmer weather for late November and December slowed gas withdrawals, which at this time last year were as much as 200 Bcf and more pulled from working gas. Instead, for the weeks ending December 12 and 19, more modest withdrawals of 64 and 49 Bcf, respectively, were delivered, leaving natural gas stocks at 3.246 Bcf – 150 Bcf ahead of this time last year.

Natural Gas Production – the new norm for domestic dry natural gas production is 72-73 Bcf per day (and still growing) according to Bentek Energy. This year dry gas production has set an incredible 57 all-time daily records, having hit another on Saturday December 20 at 73.5 Bcf. Driving this growth in large part is production for the Marcellus. The Northeast and Midwest has grown from about 3 Bcf per day in October 2010 to over 20 Bcf per day. That's right, from just over 1 Tcf annually in 2010 to 7 Tcf annually – and growing. Today, total US gross production reaches 83 Bcf per day equivalent and is up more than 8.5 Bcf per day from just one year ago.

Shale Gas – in a recent statement released by Range Resources the company pointed to a 24-hour test of a Utica Shale well located in Washington County, PA that flowed at 59 MMcf per day (million cubic feet) – a record initial flow for a horizontal well in the Appalachian basin. The importance of this test is reflected in the fact that the Utica Shale lies beneath the Marcellus Shale in this portion of Pennsylvania and thus becomes a producing target for leases held by Marcellus production adding to the longevity and ultimate recoverable natural gas from the region. On the flip side of that news, falling oil prices seem to be negatively impacting Utica shale development in Ohio. In addition, the New York State Health Department is recommending that hydraulic fracturing (high pressure underground injection) not be permitted in the state citing evidence that the process cannot be done

Page 1

AGA Natural Gas Market Indicators
December 31, 2014

sdictions. The judgment will almost

hile oil-directed activity has dropped
cember 26, 2014, according to Baker-
last year.

n Canada have generally firmed to a
erage at 5.2 Bcf per day – the same as
cf per day higher in December 2014
higher, 2.0 Bcf compared to 1.8 Bcf
pacity growth to Mexico may raise

terests in Australia (13 percent of
t stake in the Kitimat LNG project in
ed during the first quarter of 2015 by
n plus additional expenses incurred
billion. At the same time, the Federal
Cheniere Sabine Pass export facility
tal study of environmental impacts
rejected a request by the Sierra Club
pacity addition.

ustained lower price environment for
ow growth in natural gas and liquids
mes to markets. Lower oil prices also
antage in areas of the world expected
even further, slowdowns in investment
s as world markets adjust to a slower
hip between naphtha (petroleum based
lays in industrial projects scheduled to
d of 4.5 Bcf per day with no project
natural gas prices means savings to
sers, which can stimulate consumer

rofessional or other services for or on behalf of
on or entity to someone else. Anyone using this
seek the advice of a competent professional in
statements in this publication are for general
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Page 2

AGA Natural Gas Market Indicators
December 31, 2014

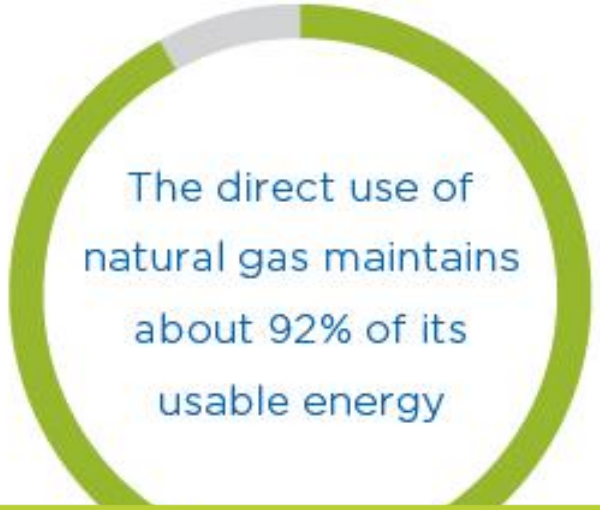
Published twice a month, it summarizes recent developments in:

- pricing
- heating and cooling degree days
- storage
- production
- rig counts
- imports and exports
- international LNG issues

Direct Use of Natural Gas

Households that use natural gas for heating, water heating, cooking and clothes drying:

- Save an average of $693 per year.
- Produce 37% lower greenhouse gas emissions.



Consumers can immediately save on their monthly utility bills through converting their households to natural gas.

Combined Heat and Power Technologies

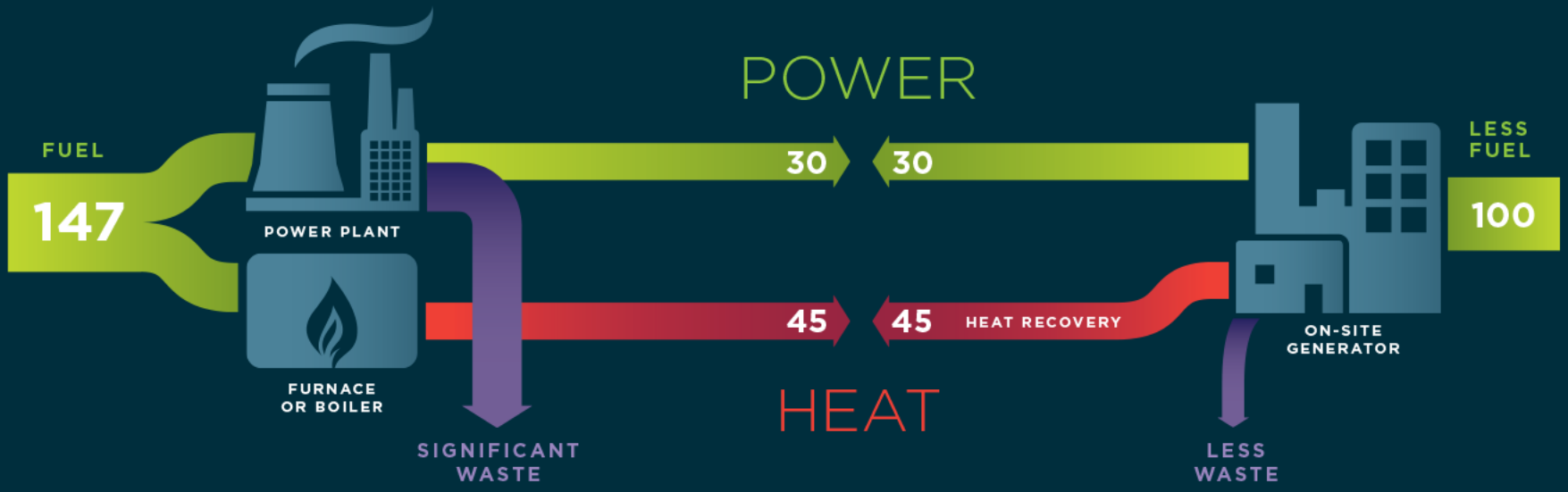
The use of natural gas, the preferred fuel choice for CHP applications, allows for new electricity generation to meet current and future demand at costs up to 50% less than traditional forms of delivered new baseload electricity.

Separate Production of Electricity and Heat

TOTAL EFFICIENCY: **51%**

Combined Heat and Power Systems (CHP)

TOTAL EFFICIENCY: **75%**



On the *Go*

- Number of CNG stations in the U.S. has grown by over 11% each year since 2008.
- 153% growth in the nation's LNG refueling infrastructure since 2009.
- Several major automobile manufacturers will offer natural gas powered vehicles in the U.S. consumer market in the next few years.

NGVs produce 20 to 30% fewer tailpipe emissions than today's gasoline vehicles.

American Gas Association

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