2022 ANNUAL REPORT ON CALENDAR YEAR 2021 METHANE INTENSITIES

FIFTH ANNUAL PROGRESS REPORT

ONE
OUR NATION'S ENERGY FUTURE

ONE FUTURE MEMBER COMPANIES

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A MESSAGE FROM JIM KIBLER EXECUTIVE DIRECTOR, ONE FUTURE

ONE Future is pleased to present its fifth Annual Methane Intensity Report, chronicling our members' success in driving methane emissions reductions and our collaborative approach to continuous improvement. The data demonstrate that our science-based, performance-focused, standard approach is successful in helping our members prevent, find, and fix methane emissions in a cost-effective manner, proving that energy can be affordable, reliable, and clean.

As the events of 2022 have shown, perhaps no fuel is more important to the world's twin aspirations of energy and climate security than American natural gas.

Our commitment to continuous improvement is demonstrated in this report as well as in the activities of the Coalition and its members. We have long advocated for, and invested in, research to advance emissions management technology and practice. We advocate for better science all the time.

A case in point is the substantial investment by the Coalition and its members in GTI Energy's Veritas initiative, which is deploying developing technology in field studies across all segments of the value chain to understand how we can more accurately measure, reconcile, and validate emissions. We believe that work will yield a pathway to better informed decisions about resource allocation and provide more transparency and improved stakeholder confidence in the terrific work that our members and others are doing to reduce emissions.

Our members also decided to adopt a more robust emission calculation methodology for combustion exhaust emissions which, as our Report illustrates, resulted in a slight increase in emissions for 2021, though we continue to beat our 1% methane intensity target. Better accuracy yields better science, which enables better decisions.

Finally, coinciding with the release of this year's report, we will announce the inaugural ONE Future Awards and award five $10,000 scholarships to future leaders. The awards will recognize the natural gas industry's leading innovators and step-changes in technology that will make a lasting impact on lowering methane emissions. The scholarships will be awarded to five students in key fields with a focus in the natural gas industry, and who are passionate about the role natural gas can play in our future.

It is a privilege to serve an organization that remains committed to its founding premise and seeks to build upon it year over year.

Sincerely,

Jim Kibler
Executive Director

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ONE OUR NATION'S ENERGY FUTURE

Committed to reducing methane intensity to less than 1% across all 5 segments of the natural gas value chain

PRODUCTION | GATHERING & BOOSTING | PROCESSING | TRANSMISSION &STORAGE | DISTRIBUTION

ENSURING U.S. NATURAL GAS IS ABUNDANT, AFFORDABLE, RELIABLE, ACCESSIBLE AND CLEAN

Production increase
29%
year-over-year

Deliveries up
15%
year-over-year

Sustained Success
5 consecutive years of beating our goal!

2021 Methane Intensity

0.462%

1% Intensity Goal Beat by 54%!

Segment Scorecards

PRODUCTION
25% US Natural Gas Produced

2021 Methane Intensity

Goal	Actual
0.283%	0.152%

Beat Goal by 46%

GATHERING & BOOSTING
42% US Natural Gas Collected and/or Treated

2021 Methane Intensity

Goal	Actual
0.080%	0.080%

Goal Met!

PROCESSING
27% US Natural Gas Processed

2021 Methane Intensity

Goal	Actual
0.111%	0.027%

Beat Goal by 76%

TRANSMISSION & STORAGE
63% Transmission Pipeline Mileage

2021 Methane Intensity

Goal	Actual
0.301%	0.089%

Beat Goal by 70%

DISTRIBUTION
47% US Natural Gas Delivered

2021 Methane Intensity

Goal	Actual
0.225%	0.113%

Beat Goal by 50%

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REPORT HIGHLIGHTS

- ONE Future milestone report: Fifth annual report issued by ONE Future (2017 to 2021).
- ONE Future surpasses goal for the fifth year in a row; 2021 methane intensity of member companies recorded at 0.462%, versus 2025 goal of 1.0%.
- After more than doubling membership since 2019, the overall ONE Future methane intensity continues to remain less than one half of the 1.0% goal, while production increased by 29% and deliveries to customers increased by 15% over the past year.
    - In 2019, 24 ONE Future members reported their methane intensities,
    - in 2020, 45 members reported their methane intensities, and
    - in 2021, 53 member companies reported their methane intensities.
- After the discovery of a discrepancy that resulted in over-reporting of methane emissions for the Transmission and Storage (T&S) segment in calendar year 2020 (CY2020), the ONE Future methane intensity for the T&S segment for CY2020 decreased from 0.142% to 0.117% and overall, the ONE Future methane intensity for CY2020 also decreased from 0.424% to 0.400%. These updated values for CY2020 are reflected in this year's annual report.
- ONE Future updated the calculation methodology for the combustion exhaust methane emissions. This update was incorporated to more closely estimate the methane emissions associated with the uncombusted portion of natural gas that is emitted from the exhaust stack of natural gas-fired combustion engines and turbines. Uncombusted methane emissions from exhaust stacks are sometimes referred to as methane slip associated with natural gas combustion. For this report, these emissions will be referred to as combustion exhaust methane emissions.
- The updated calculation methodology for the combustion exhaust methane emissions resulted in an approximate 22% increase in the value chain methane intensity for CY2021 associated with the individual combustion source category. However, the overall value chain methane intensity that includes all emission source categories only increased by approximately 16% from CY2020 to CY2021. Even though the individual combustion methane emission intensity for the value chain increased due to this updated methodology, this increase was offset by methane emission reductions in other emission source categories in the value chain.
- ONE Future worked with an independent third-party company (ERM-CVS) in 2021 to validate its data collection, calculation, and quality assurance and quality control processes and that validation report was issued in June 2022. The report concluded: "The validation did not identify any material weaknesses or gaps in the processes for producing the Annual Methane Emission Intensities Report."

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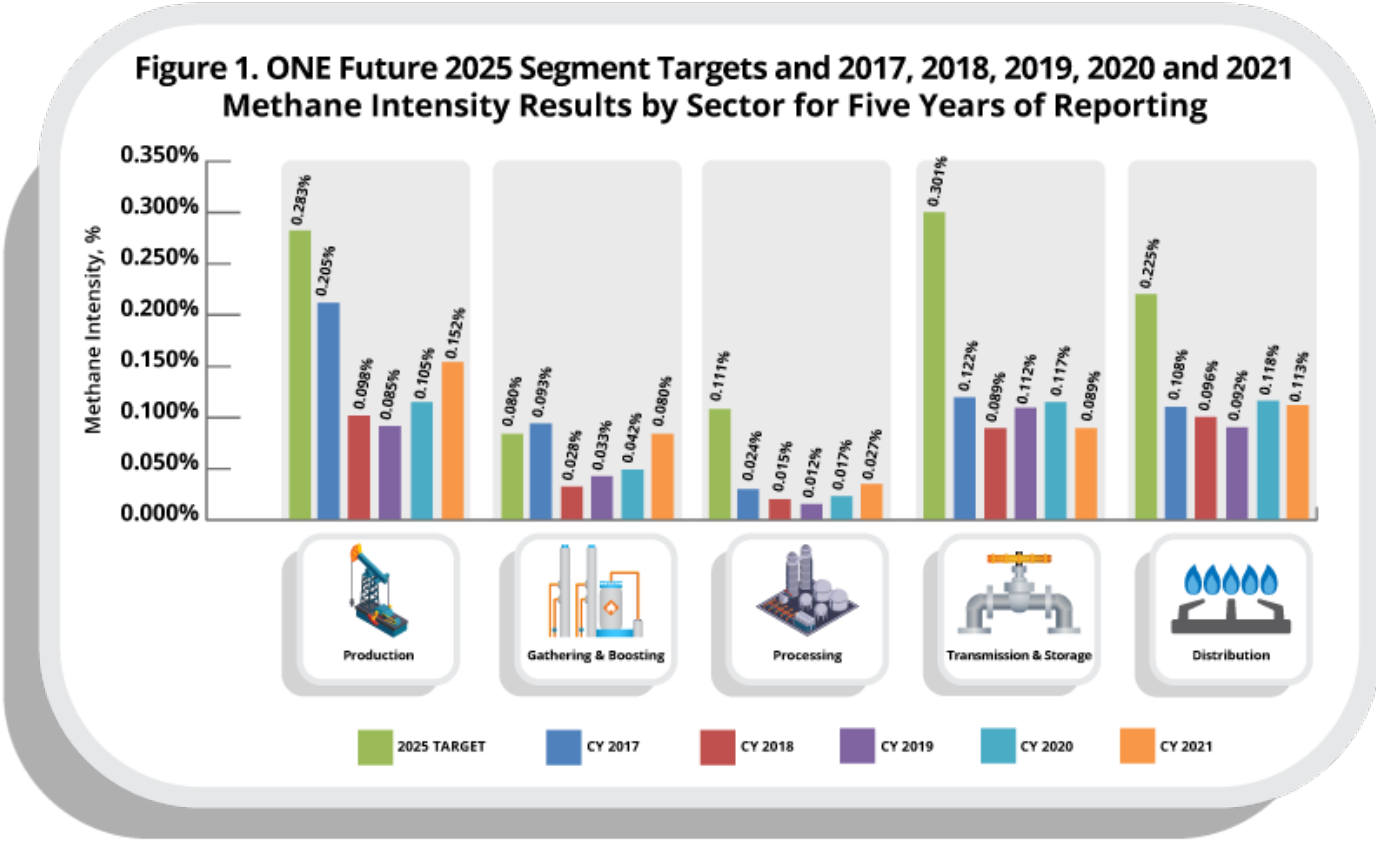
EXECUTIVE SUMMARY

Our Nation's Energy Future (ONE Future) is a coalition of 56 natural gas companies representing the natural gas value chain focused on implementing an innovative, performance-based approach to the management of methane emissions. ONE Future's target is an overall methane intensity of 1.0% (or less) of total produced natural gas by 2025 in the United States. This is ONE Future's fifth year to report methane intensity, and based on 2021 methane emissions and throughput, ONE Future's methane intensity is 0.462%. The 2021 ONE Future methane intensity remained relatively flat year over year despite a significant growth in member companies reporting from 45 to 53 member companies. The overall 2020 methane intensity was 0.400%[1] and the overall 2021 methane intensity was 0.462%. The results from 2017 through 2021 demonstrate that ONE Future continues to be significantly below the 2025 target of a 1.0% methane intensity, and that natural gas continues to be a vital and viable resource as we move towards a cleaner energy future.

The following figure shows each segment's[2] methane intensity results for participating companies for 2017, 2018, 2019, 2020, and 2021 while comparing each segment's results to 2025 segment methane intensity targets.

Figure 1. ONE Future 2025 Segment Targets and 2017, 2018, 2019, 2020 and 2021 Methane Intensity Results by Sector for Five Years of Reporting



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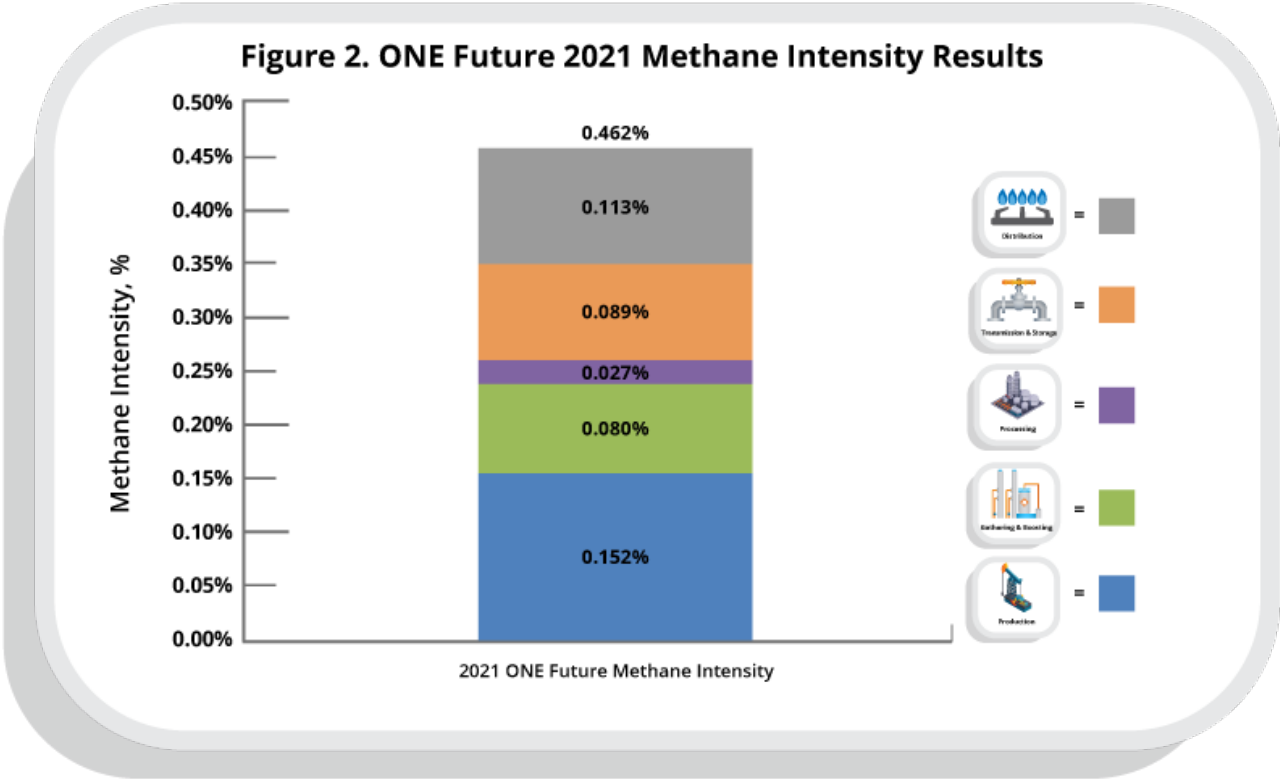
The next figure shows the 2021 industry total methane intensity results for ONE Future member companies. There were increases in intensities for three segments and decreases in intensities for the remaining two segments between 2020 and 2021; overall intensity was 0.462%, less than one half of the 1% goal.

Figure 2. ONE Future 2021 Methane Intensity Results



HIGH-LEVEL SUMMARY

A more detailed description of how the methane intensities changed is discussed in each segment report, but a high-level summary of the changes shown in the figures above is listed here:

- In each segment, there are new members who have been included in the methane intensity calculations for the 2021 report. Despite adding many new members, the 2021 methane intensity increased only slightly from the 2020 methane intensity due to the work that most new member companies have accomplished in the years prior to joining ONE Future. In addition, some existing members' intensities have varied due to acquiring and divesting assets as well as implementing operational modifications.
- Each of the segments show the following 2021 methane intensity results vs. the ONE Future segment-specific 2025 goals: methane emission factors and stack test data for natural gas-fired compressor engines and turbines were used to estimate methane emissions more closely from exhaust stacks. This updated calculation methodology resulted in a change in methane emissions and methane intensity for all segments except distribution.

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TABLE 1: CY2021 SEGMENT METHANE INTENSITIES VS. 2025 SEGMENT METHANE INTENSITY TARGETS

SEGMENT	CY2021 METHANE INTENSITY	2025 SEGMENT METHANE INTENSITY TARGET	PERCENT BELOW TARGET
Production	0.152%	0.283%	46%
Gathering & Boosting	0.080%	0.080%	0%*
Gas Processing	0.027%	0.111%	76%
Transmission & Storage	0.089%	0.301%	70%
Distribution	0.113%	0.225%	50%

*THE CY2021 GATHERING & BOOSTING SEGMENT METHANE INTENSITY WAS EQUAL TO (OR MET) THE G&B SEGMENT TARGET.

- Overall production and deliveries to customers increased from 2020 to 2021 for member companies by 29% and 15%, respectively.
- Updated combustion exhaust methane emission factors and stack test data for natural gas-fired compressor engines and turbines were used to estimate methane emissions more closely from exhaust stacks. This updated calculation methodology resulted in a change in methane emissions and methane intensity for all segments except distribution.

Due to the year-to-year changes in each segment, the net methane intensity from ONE Future has remained relatively flat, but still is less than one half of our 1.0% goal despite an 18% growth in reporting members from CY2020 to CY2021. ONE Future's overarching goal is to ensure the future of natural gas as a long-term, low carbon, sustainable fuel. We understand that methane emission reductions, when implemented on a flexible performance-based approach selected by each company, are not just good for the environment, but are also good for the natural gas industry, its employees, customers, communities, and investors.

We strive for continuous improvement to ensure that natural gas remains the environmentally responsible fuel of choice for all end-use segments at all times: power – including natural gas delivered by local distribution companies for power generation; residential, commercial, and industrial demand; and critical emerging markets like transportation. Natural gas also serves a crucial role in generating on-demand backup power that can ramp up when intermittent renewable resources ramp down, thus enabling the expansion of renewable energy while maintaining reliability on which customers depend.

We believe that ONE Future's results demonstrate that the natural gas industry can consistently and cost-effectively achieve an average emissions intensity of 1.0% or less. ONE Future believes that targeted investment in abatement technologies today can yield both significant improvements in environmental performance and value chain efficiency.

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INTRODUCTION TO ONE FUTURE

Leading companies with operations spanning five segments of the natural gas value chain

ONE Future is a unique group of leading companies with operations spanning five segments of the natural gas value chain: (1) oil and natural gas production; (2) natural gas gathering and boosting (G&B); (3) natural gas processing; (4) natural gas transmission and storage (T&S); and (5) natural gas distribution. Since its formation in 2014, ONE Future has grown to 56 companies, accounting for some of the largest natural gas producers, gathering and boosting, processing, transmission and storage, and distribution companies in the United States (U.S.).

ONE Future members operate in 16 out of the 38 production basins[4] and have distribution operations in 39 out of the 50 states; other segments of the value chain operate in multiple regions of the country as well. Therefore, ONE Future's data represent a geographically diverse and material share of the U.S. natural gas value chain.

ONE Future's members are listed in Table 2.

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ONE FUTURE MEMBERS

TABLE 2: ONE FUTURE MEMBER COMPANIES

COMPANY	INDUSTRYS SEGMENTS REPORTED FOR CALENDAR YEAR 2021	YEAR JOINED
ANTERO RESOURCES	PRODUCTION, G&B	2018
APACHE CORPORATION	PRODUCTION, G&B	2014
ARSENAL RESOURCES	PRODUCTION, G&B	2022
ASCENT RESOURCES	PRODUCTION	2019
ATMOS ENERGY	T&S, DISTRIBUTION	2020
BHE PIPELINE GROUP	PRODUCTION, G&B, PROCESSING, T&S	2018
BKV CORPORATION	PRODUCTION, G&B	2021
BLACK BEAR	T&S	2022
BLACK HILLS ENERGY	DISTRIBUTION	2021
BLUE RACER MIDSTREAM	G&B, PROCESSING	2021
BOARDWALK PIPELINES	T&S	2019
CAERUS OIL AND GAS	PRODUCTION, G&B	2020
CONEDISON	DISTRIBUTION	2021
CRESTWOOD	G&B, PROCESSING	2020
DOMINION ENERGY	PRODUCTION, G&B, PROCESSING, T&S, DISTRIBUTION	2018
DTE ENERGY	T&S, DISTRIBUTION	2021
DT MIDSTREAM	G&B, T&S	2021
DUKE ENERGY	T&S, DISTRIBUTION	2020
ENBRIDGE	T&S	2020
ENCINO ENERGY	PRODUCTION	2020
ENSTOR	T&S	2021
EQT CORPORATION	PRODUCTION, G&B	2018
EQUITRANS MIDSTREAM	G&B, T&S	2019
FLYWHEEL ENERGY	PRODUCTION, G&B	2021
FORGE ENERGY	*	2022
HESS CORPORATION	PRODUCTION, G&B, PROCESSING	2014

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JONAH ENERGY	PRODUCTION	2021
KINDER MORGAN	PRODUCTION, PROCESSING, T&S	2014
KINETIK	G&B, PROCESSING	2020
NATIONAL FUEL	PRODUCTION, G&B, PROCESSING, T&S, DISTRIBUTION	2021
NATIONAL GRID	DISTRIBUTION	2014
NEW JERSEY NATURAL GAS	DISTRIBUTION	2018
NISOURCE	DISTRIBUTION	2022
NORTHEAST NATURAL ENERGY	PRODUCTION	2021
NW NATURAL	T&S, DISTRIBUTION	2020
ONE GAS	T&S, DISTRIBUTION	2020
ONEOK	T&S	2020
ROANOKE GAS	T&S, DISTRIBUTION	2021
SEMPRA	T&S, DISTRIBUTION	2021
SHERIDAN PRODUCTION	PRODUCTION	2021
SOUTHERN COMPANY GAS	DISTRIBUTION	2014
SOUTHERN STAR	T&S	2020
SOUTHWESTERN ENERGY	PRODUCTION	2014
SPIRE	T&S, DISTRIBUTION	2021
SUMMIT UTILITIES	T&S, DISTRIBUTION	2016
TARGA	G&B, PROCESSING	2021
TC ENERGY	T&S	2016
TERRA ENERGY PARTNERS	PRODUCTION, G&B	2021
THQ APPALACHIA	PRODUCTION	2021
UGI	DISTRIBUTION	2021
WBI ENERGY	*	2022
WESTERN MIDSTREAM	G&B, PROCESSING	2021
WEST TEXAS GAS	G&B, PROCESSING, T&S, DISTRIBUTION	2022
WHITEWATER MIDSTREAM	*	2022
WILLIAMS	G&B, PROCESSING, T&S	2019
XCEL ENERGY	PROCESSING, T&S, DISTRIBUTION	2020

NOTE: *FORGE ENERGY, WBI ENERGY, AND WHITEWATER MIDSTREAM JOINED ONE FUTURE AFTER METHANE INTENSITY DATA COLLECTION AND CALCULATIONS TOOK PLACE FOR THIS CY2021 REPORT. THEIR METHANE EMISSIONS AND METHANE INTENSITY DATA ARE NOT REFLECTED IN THIS CURRENT REPORT BUT WILL BE INCLUDED IN FUTURE YEARS.

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MISSION STATEMENT

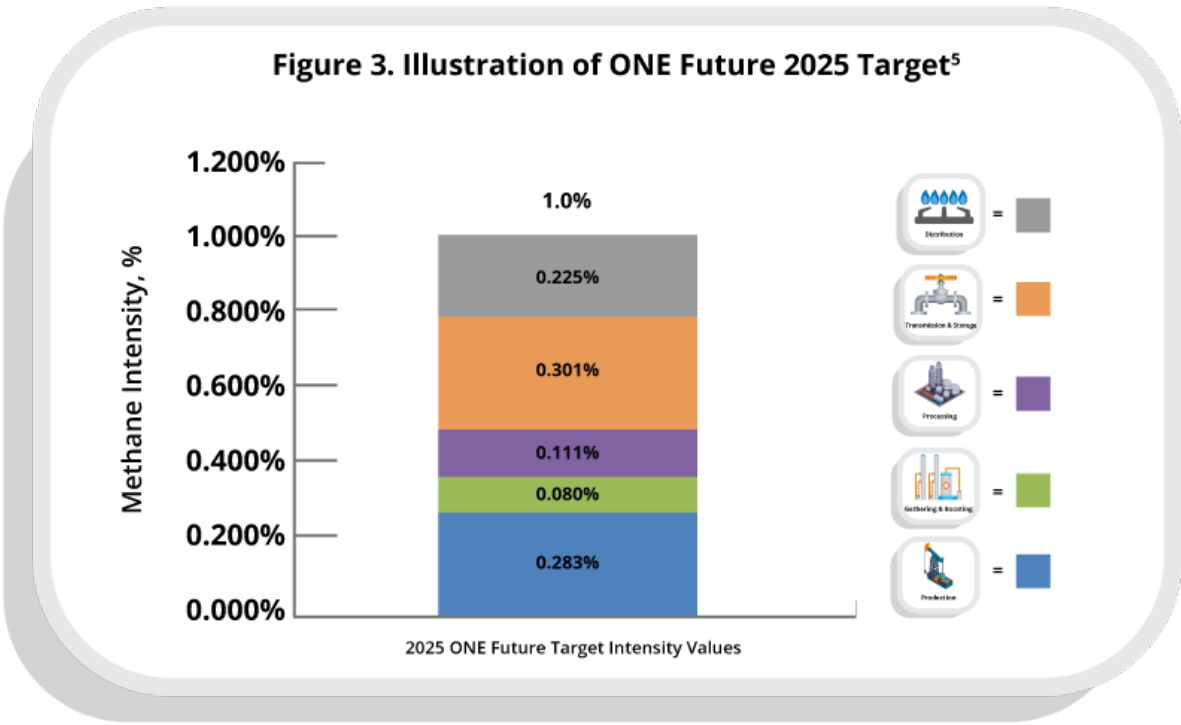
Established as a non-profit 501(c)(6) trade group, ONE Future's mission is to reduce methane emissions across each segment of the natural gas value chain by means of innovative, cost-effective, and performance-based actions.

ONE Future's approach is science-based and goal-oriented, but flexible in that member companies can choose how they cost-effectively and efficiently achieve their methane intensity goal for their particular assets – whether that is by deploying an innovative technology, modifying a work practice, implementing best practices, or in some cases replacing or retrofitting methane emitting pipe or equipment. What is important is that each company demonstrates progress toward the target, which in turn allows the members, as a collective, to achieve ONE Future's overall methane intensity target (total methane emissions divided by gross gas production on a mass of methane basis[5]) of 1.0% or less by 2025[6] .

The original goal of 1.0%, established in 2014, was partially based on EPA's 2012 National Greenhouse Gas Inventory (hereinafter referred to as "GHGI") and its national methane intensity of 1.44%. ONE Future's 1.0% goal was ambitious, but the members believed that it was feasible using existing technology and practices. When comparing end use applications of fossil fuels and the benefits of greenhouse gas (GHG) reductions, peer-reviewed analyses suggested that natural gas needed to achieve a methane intensity of 1.0% or less across the natural gas value chain . Finally, by orienting mitigation activities toward a specific and measurable outcome (a sustained low rate of methane emissions consistent with efficient operations), the most cost-effective abatement opportunities are identified and this approach ultimately benefits the end-users of the product.

Figure 3 shows the methane intensity targets broken down by industry segment. ONE Future's target is to cumulatively achieve the 1.0% methane intensity goal for the natural gas value chain.

Figure 3. Illustration of ONE Future 2025 Target[5]



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ONE Future reviews its target periodically as the coalition gains a better understanding of the methane intensity data collected each year and the areas that need continued improvement. During ONE Future's most recent review of the target, it was decided to retain the existing intensity targets for the CY2021 report. There were two key reasons for retaining the existing intensity targets for the CY2021 report.

1. The existing 1.0% target by 2025 for the collective methane intensity for the ONE Future member companies was originally established in 2014. At that time, the 1.0% methane intensity target was estimated to be approximately a 45% reduction in methane intensity based on the calculated methane intensity for the nationwide oil and natural gas industry in 2014. The 45% reduction goal by 2025 is still considered an "aggressive goal or high bar" for methane intensity for the nationwide oil and natural gas industry even with technological advancements in measurements and improved estimates of methane emissions being used across the industry value chain.

2. The nationwide oil and natural gas industry has experienced numerous changes and disruptions over the last few years making it even more important for ONE Future to remain committed to its 1.0% target. By remaining with this same target, it provides certainty for its members on a year over year basis so that they can consistently compare to the same target giving the members the ability to place greater emphasis and more resources on reducing methane emissions and improving their methane intensity.

No matter the actual base level national methane intensity for the entire U.S., ONE Future members aim to continuously evaluate and implement voluntary actions to achieve a collective methane intensity that is below the 1.0% target.

To further demonstrate ONE Future's commitment to transparency, accuracy, and continuous improvement, ONE Future worked with an independent third-party company (ERM-CVS) in 2021 to validate its data collection, calculation, and quality assurance/quality control (QA/QC) processes. In June 2022[9], the ERM-CVS validation report was issued and included the following key findings:

1. *"The validation did not identify any material weaknesses or gaps in the processes for producing the Annual Methane Emission Intensities Report."*

2. *"The calculations of the methane intensities are based principally on data reported by member companies under the GHGRP, using established data measurement, calculation and reporting protocols. This allows for consistency in the basis for the data collected from member companies in each value chain segment, as well as minimizing the reporting burden on member companies."*

3. *"The methane intensity calculations are prepared by ONE Future, rather than by individual member companies themselves, ensuring a consistent approach is applied across all member companies in producing the calculations for the Annual Methane Emission Intensities Report."*

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4. *"Year on year changes in methane intensity by segment are attributed in the Methane Emission Intensities Report to various factors, including changes in the constituents of segments, changes in production by member companies, and methane reduction initiatives by member companies. This aspect of the Report could be enhanced by describing which of these factors is contributing most to the year on year changes, to enable users of the Report to understand whether these changes are being driven primarily by member companies' actions to reduce methane emissions or are due more to other factors."*

5. *"Limited opportunities were identified to shorten the Methane Emission Intensities Report production schedule, given the time required for member companies to compile and submit data to ONE Future, to prepare the intensity calculations and carry out related QA/QC procedures, and to draft the Report, as well as the requirement to wait for EIA Segment throughput data to be published, which is required for the final methane intensity calculations."*

ONE Future identified findings 4 and 5 as opportunities to improve certain areas. Item 4, year on year changes in methane intensity, has been addressed in this year's report by adding more details on the specific reasons for the year-over-year increases (or decreases) in each of the segment summaries and the conclusions section. ONE Future has limited ability to address item 5, the report schedule, due to the reasons described in that item, but the streamlining of the process will be considered going forward.

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ONE FUTURE EMISSIONS INTENSITY APPROACH

BY REDUCING METHANE EMISSIONS ACROSS THE NATURAL GAS VALUE CHAIN, ONE FUTURE MEMBERS DELIVER MORE VALUE TO CUSTOMERS AND SHAREHOLDERS, INCREASE SAFETY, AND MEANINGFULLY REDUCE GREENHOUSE GAS EMISSIONS.

Natural gas is primarily composed of methane, and is a clean, low carbon fuel that emits few air pollutants when burned (for example, in stove tops, in power plants to generate electricity, and in vehicles). However, when methane is emitted directly into the atmosphere (and not combusted), it is a potent greenhouse gas.

Although the organization was formed in 2014, most ONE Future member companies have invested and implemented methane mitigation technologies and work-practices for several decades. This report explains ONE Future's approach through 2021 for calculating the methane intensity for each of the natural gas value chain segments and the collective of these segments and presents the resulting methane intensity values based on 2021 data.

To enable multiple companies across different segments of the natural gas value chain to report methane emissions in a manner that is both consistent and transparent, ONE Future has developed a Methane Emissions Estimation Protocol (ONE Future Protocol). The ONE Future Protocol defines both the annual methane intensity calculation techniques, as well as the method by which annual results will be compared to the ONE Future segment and overall (collective) goals. By using a written protocol, ONE Future members aim to benchmark performance according to a common and uniform set of methane emission calculations so that the results are transparent and verifiable.

ONE Future tracks company and program progress by calculating methane intensities at the national, segment, and member levels. Methane intensities are calculated based on methane emissions per "throughput" for each segment. The initial segment intensity values are not additive across different segments because they are referenced to different segment-specific throughput quantities in the denominator. However, individual segment methane intensities can be normalized to total national production rates, allowing the normalized segment methane intensities to become additive. This normalization, using national production rates, is described in the protocol. ONE Future uses national gas production rates that are published annually by the U.S. Department of Energy's Energy Information Administration (DOE EIA) .

The ONE Future Protocol also provides the procedures that member companies will use to calculate and report their methane emissions and track their progress against methane intensity goals. The detailed procedures that are used to compute companies' methane emissions largely follow the EPA's Greenhouse Gas Reporting Program (hereinafter referred to as "GHGRP") and the national GHGI prepared annually by EPA . ONE Future has included additional methane emission sources not required for reporting under the GHGRP, and these additional emission sources use representative methane emission calculation methodologies in its reports.

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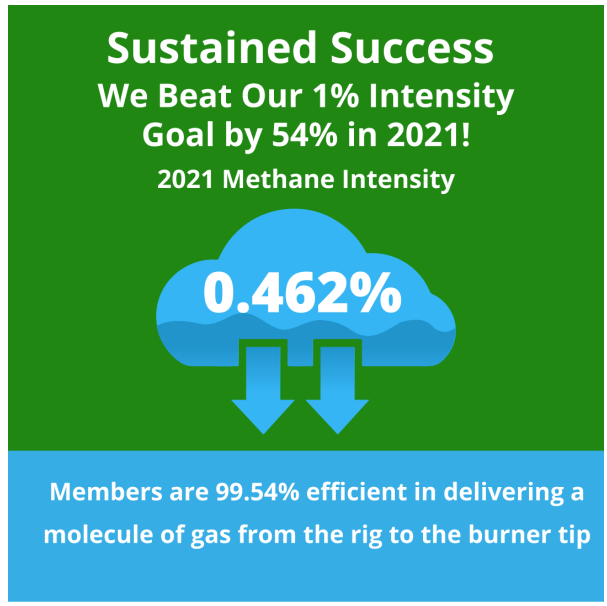
ONE Future has identified segment-specific methane intensity targets to allow participating companies to benchmark progress toward their methane intensity goals, as well as to facilitate comparisons among the ONE Future member companies. The segment methane intensity values are based on segment methane emissions divided by segment methane throughput. Segment methane intensity targets will be used to track the progress of the participant companies and member methane emissions will be scaled to the national level in order to track progress toward ONE Future's overall methane intensity goal.

COMBUSTION EXHAUST METHANE EMISSIONS

CY2021 UPDATES



ONE Future member companies across the Production, Gathering & Boosting, Processing, and Transmission & Storage segments have been using the GHGRP combustion exhaust methane emission factor[15] for natural gas-fired combustion engines and turbines to estimate combustion exhaust methane emissions for all prior reporting years (CY2017 to CY2020). During those years, ONE Future was following the GHGRP methodology and methane emission factor even though that factor may not have been the value that most closely estimates combustion exhaust methane emissions from all types of natural gas-fired combustion sources. There were two key reasons ONE Future continued to use the GHGRP methane emission factor for determining combustion exhaust methane emissions.

1. As stated earlier in this report, a common and uniform set of methane emission calculations is needed for transparency and verifiability purposes. This uniform set of methane calculation methodologies is established within the ONE Future Protocol and all member companies follow the methodology outlined in the Protocol, including the use of the GHGRP methane emission factor for combustion exhaust methane emissions.

2. ONE Future is committed to remaining aligned with our partners at EPA and their Natural Gas STAR Methane Challenge program – ONE Future option and other similar methane intensity programs such as the Natural Gas Sustainability Initiative (NGSI)[16]. ONE Future collaborated with the EPA during the 2015 and 2016 timeframe to develop an equivalent ONE program option under their Methane Challenge program[17]. ONE

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Future also collaborated with the American Gas Association (AGA) and the Edison Electric Institute (EEI) in 2019 and 2020 to provide input in development of the NGSI Methane Intensity Protocol. ONE Future and the above two programs follow the same methane emission calculation methodologies including the use of the GHGRP combustion exhaust methane emission factor.

Over the last several years, it has become increasingly evident based on empirical data published as part of peer reviewed scientific studies[18,19], that the existing GHGRP methane emission factor should be updated, specifically to account for the different classes of reciprocating internal combustion engines. Furthermore, a January 2022 memo issued by EPA[20] also documented the need for updating the GHGRP factor for similar reasons. As a result, in February 2022, ONE Future decided that it was appropriate to update the combustion exhaust methane emission calculation methodology. The new methodology is based on AP-42 methane emission factors[21] and company stack test data rather than the GHGRP emission factor. This decision took into consideration the need for ONE Future to demonstrate a commitment to its scientific and continuous improvement foundational principles.

As it turned out, the ONE Future decision to update the combustion exhaust methane emission factor was a providential decision. On June 21, 2022, EPA proposed revisions to the GHGRP[23] that included the use of similar emission factors for combustion exhaust methane emissions that ONE Future decided to use.

Consistent with the studies and EPA's January 2022 memo referenced above, ONE Future decided to use the more representative AP-42 combustion exhaust methane emission factors and company stack test data to perform the calculations instead of a single emission factor for all natural gas-fired combustion engines and turbines. The AP-42 methane emission factors account for uncombusted methane which is present in the engine and turbine exhaust emissions. Alternatively, member companies had the option of providing company specific direct stack test measurements for uncombusted methane from combustion exhaust stacks from engines and turbines.

It should be noted that this change in methodology results in a change in reported methane emissions and methane intensity for each of the affected segments. To highlight the impact, the summary paragraph at the end of this section includes a segment by segment comparison of the methane emission intensities calculated when using these two methodologies.

As of publication of this report, the 2022 proposed GHGRP rule has not been finalized. Once final, ONE Future will review and compare the changes with the ONE Future Protocol and update as needed. In a similar fashion, ONE Future will also collaborate with the organizations that administer and maintain EPA's Methane Challenge Program and the NGSI Methane Intensity Protocol to ensure that there continues to be a common and uniform set of methane emission calculation methodologies across these various programs.

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COMBUSTION EXHAUST METHANE EMISSIONS – INTENSITY COMPARISON

Table 3 includes a methane intensity comparison for each of the industry segments impacted by the change in the combustion exhaust methane emissions methodology as described in the earlier paragraphs of this section. As expected, the methane intensities for each of the affected segments increases with the use of the AP-42 factors and company stack testing data compared to the original GHGRP factor. However, each segment has a different percent increase when updating from the GHGRP factor to the AP-42 factors/company stack test data.

These different percentages can be explained for each of the segments and the overall natural gas value chain because each member company in Production, Gathering & Boosting, Gas Processing, and Transmission & Storage has different fleet mixes of natural gas-fired engines and turbines impacting the total amount of combustion exhaust methane emissions generated and reported by each member company. In addition, the higher methane intensities associated with the updated combustion exhaust methane emissions methodology is partially offset by methane emission reductions in other emission source categories that each member company includes in their reporting. Those methane emission reductions are indirectly accounted for in the segment and value chain methane intensity rollup totals.

TABLE 3: COMPARISON OF METHANE INTENSITIES FOR COMBUSTION EXHAUST METHANE EMISSION METHODOLOGIES

SEGMENT	GHGRP FACTOR BASIS METHANE INTENSITY	AP-42 OR COMPANY STACK TESTING METHANE INTENSITY	PERCENT INCREASE IN METHANE INTENSITY*
Production	0.135%	0.152%	13%
Gathering & Boosting	0.037%	0.080%	116%
Gas Processing	0.016%	0.027%	69%
Transmission & Storage	0.077%	0.089%	16%
Distribution	0.113%	0.113%	0%
Total ONE Future Value Chain	**0.379%**	**0.462%**	**22%**

*THE PERCENT INCREASE IN METHANE INTENSITY BETWEEN THE METHANE INTENSITY CALCULATED USING THE CURRENT GHGRP FACTOR FOR COMBUSTION EXHAUST METHANE EMISSIONS AND THE UPDATED ONE FUTURE METHODOLOGY USING AP-42 OR COMPANY STACK TESTING DATA FOR COMBUSTION EXHAUST METHANE.

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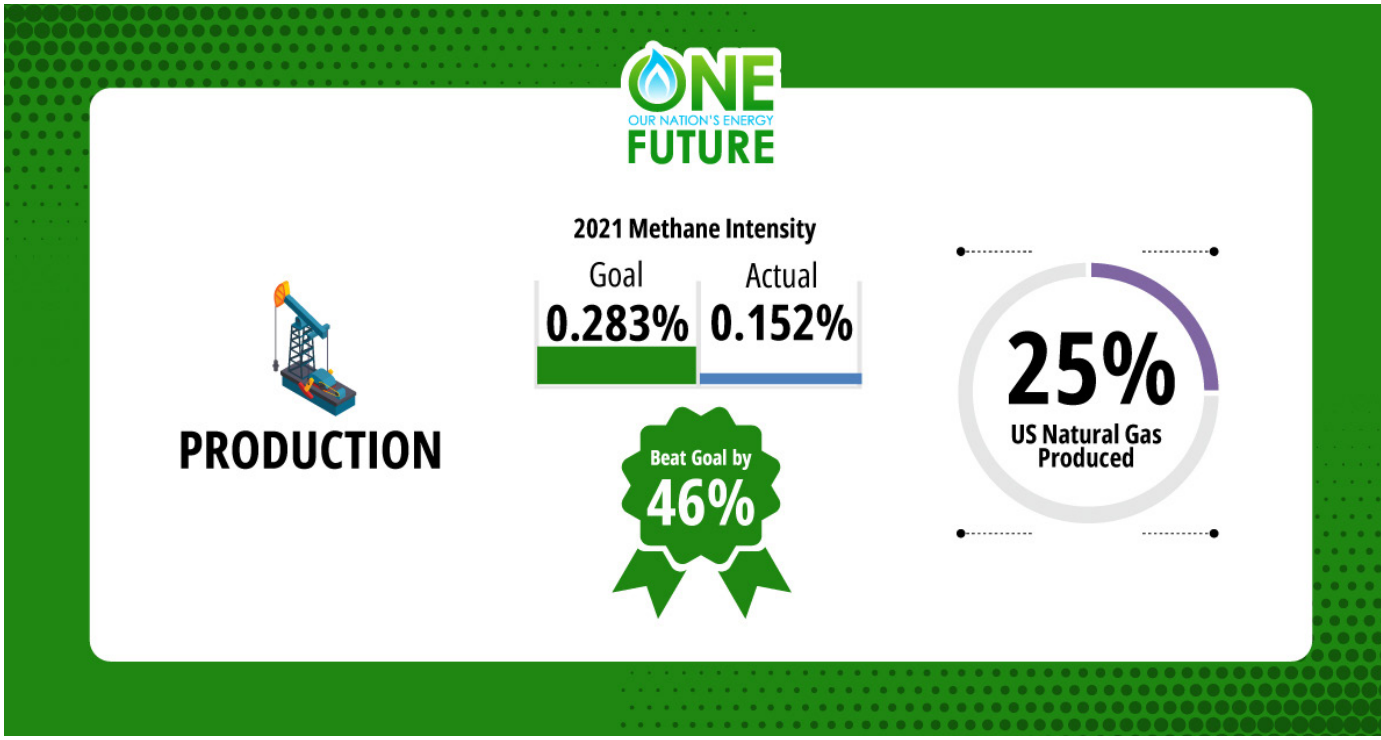
SEGMENT SUMMARY

PRODUCTION



Antero Resources
Apache
ARSENAL RESOURCES
ASCENT RESOURCES
BHE PIPELINE GROUP
BKV
CAERUS OPERATING LLC
Dominion Energy
ENCINO Acquisition Partners
EQT
FLYWHEEL ENERGY
HESS
JONAH ENERGY LLC
KINDER MORGAN
National Fuel
northeast NATURAL ENERGY
SHERIDAN PRODUCTION
SWN Southwestern Energy
TERRA ENERGY PARTNERS
TUG HILL OPERATING

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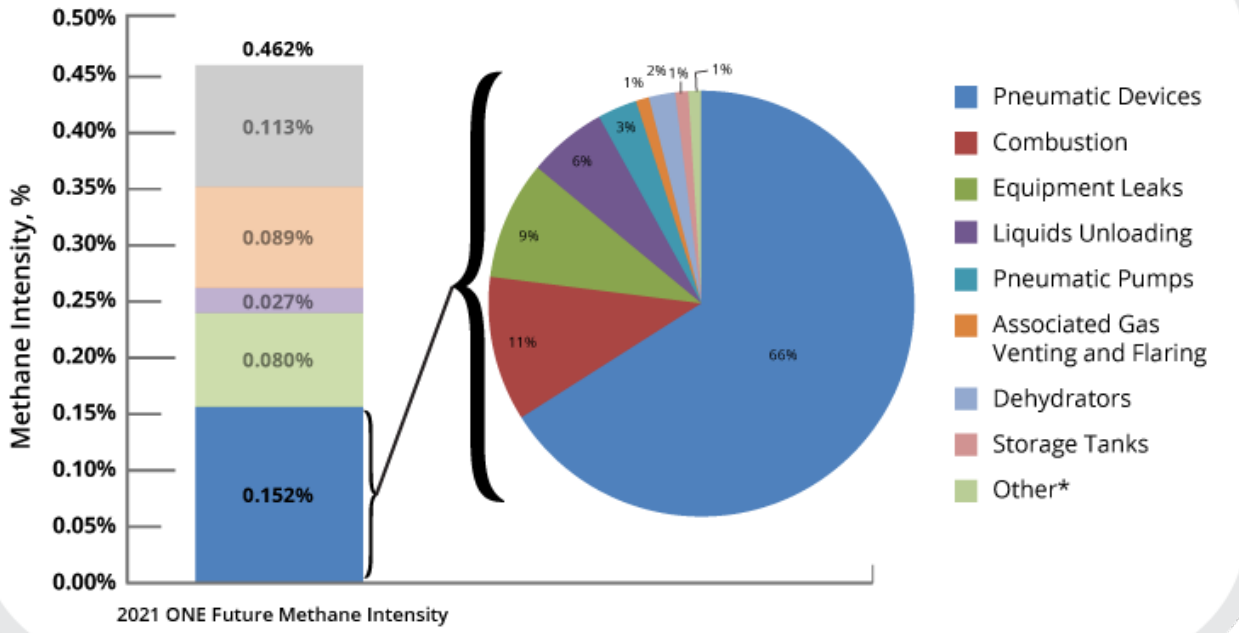
The Production segment consists of the exploration of natural gas, wells producing natural gas (including oil wells producing gas), and equipment located at the well site associated with natural gas production in the U.S.[24] Because wells often co-produce natural gas and crude/condensate, the ONE Future Protocol describes a methane emission allocation approach using the energy content of the various product streams (e.g. gas, oil, condensate) to allocate total methane emissions to those associated with natural gas production only. This allocation is necessary because the ONE Future methane intensity value is based on the gross production of natural gas (co-produced crude or condensate volumes are not included).

2021 PRODUCTION SEGMENT RESULTS

ONE Future member companies represented approximately 25% of the total U.S. natural gas production in 2021. The 2021 ONE Future methane intensity value for the production segment is 0.152%. Figure 4 shows the percent contribution by emission source type for the Production segment.

FIGURE 4. ONE Future's Methane Emissions for Production



*Note, Other includes Completions and Workovers, Reciprocating Compressors, Offshore Emissions, Flare Stacks, Centrifugal Compressors, Pressure Relief Valves (PRVs), Vessel Blowdowns, Well Drilling, and Well Testing

ONE Future's methane intensity value for the Production segment reflects the implementation of some of the following methane reduction activities with production operations[25]:

- Replace or repair high-bleed pneumatic devices with low or no-bleed devices[26].
- Combustion control of gas pneumatic device bleed.

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- Switch natural gas-powered pneumatic devices to devices that use alternative power, where applicable and/or feasible.
- Use heat exchangers to extract well heat from natural gas then utilize the heat to produce electricity via a thermoelectric generator (TEG), which results in the reduction of natural gas-fired fulltime generator engine count and/or utilization.
- Reroute natural gas-powered pneumatic device vent gas into process equipment or for combustion in enclosed combustors and/or process heaters.
- Replacement of natural gas-powered chemical injection pumps with pumps and/or heat trace pumps that use alternate power.
- Voluntary Leak Detection and Repair (LDAR) programs to identify and fix equipment leaks at aboveground sites.
- Use electric-powered fracking equipment.
- Include pneumatic controllers in existing LDAR surveys using Optical Gas Imaging (OGI) cameras, in order to detect and repair malfunctioning devices.
- Addition of continuous emission monitors in some locations.
- Reduce gas pneumatic emissions by optimizing overall equipment counts.
- Reduce gas well liquids unloading emissions by installing physical systems to remove liquids such as using foaming agents, velocity strings, wellhead compression, plunger lifts, and vent-less restoration.
- Use tankless design at new well sites to reduce emissions from tanks, truck loading, and fugitive components.

Addition of new member companies as well as acquisitions and divestitures made by existing member companies help explain some of the year-to-year differences. It is difficult to assess long-term trends since calculation methodologies have been updated and this is only the fifth year of ONE Future reporting. However, some short-term year-to-year observations can be made. For the production segment, methane emissions from pneumatic devices remained the largest contributor to this segment's total reported methane emissions and its contribution to the total methane emissions decreased from CY2020 to CY2021. Methane emissions from combustion sources are now this segment's second highest contributor in CY2021 due to the revision of natural gas-fired compressor engine and turbine calculation methodology to better represent methane emissions from this source. Equipment leaks moved to the third highest contributor in CY2021 whereas it was the second highest in CY2020. Liquids unloading and pneumatic pumps went from the third and fourth largest contributors, respectively, for CY2020 to the fourth and fifth largest contributors in CY2021.

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PRODUCTION YEAR TO YEAR COMPARISON

Production – Methane Intensity of 0.152% vs. goal of 0.283% – beating goal by 46%

The methane intensity for the production segment increased by 45% from 0.105% in 2020 to 0.152% in 2021 with year over year production increasing by 29%.

The updated combustion exhaust methane emission calculation methodology caused a 13% increase in the segment methane intensity vs. the segment intensity when using the GHGRP methane emission factors. This increase in the combustion exhaust methane intensity is in line with expectations for combustion methane emissions which comprised 11% of the total methane emissions for the segment as shown in Figure 4.

Production had an overall methane intensity increase of 45% after the addition of five member companies to the segment and the withdrawal of one member company from the segment.

ONE Future production member companies now represent approximately 25% of the total U.S. natural gas production in 2021.

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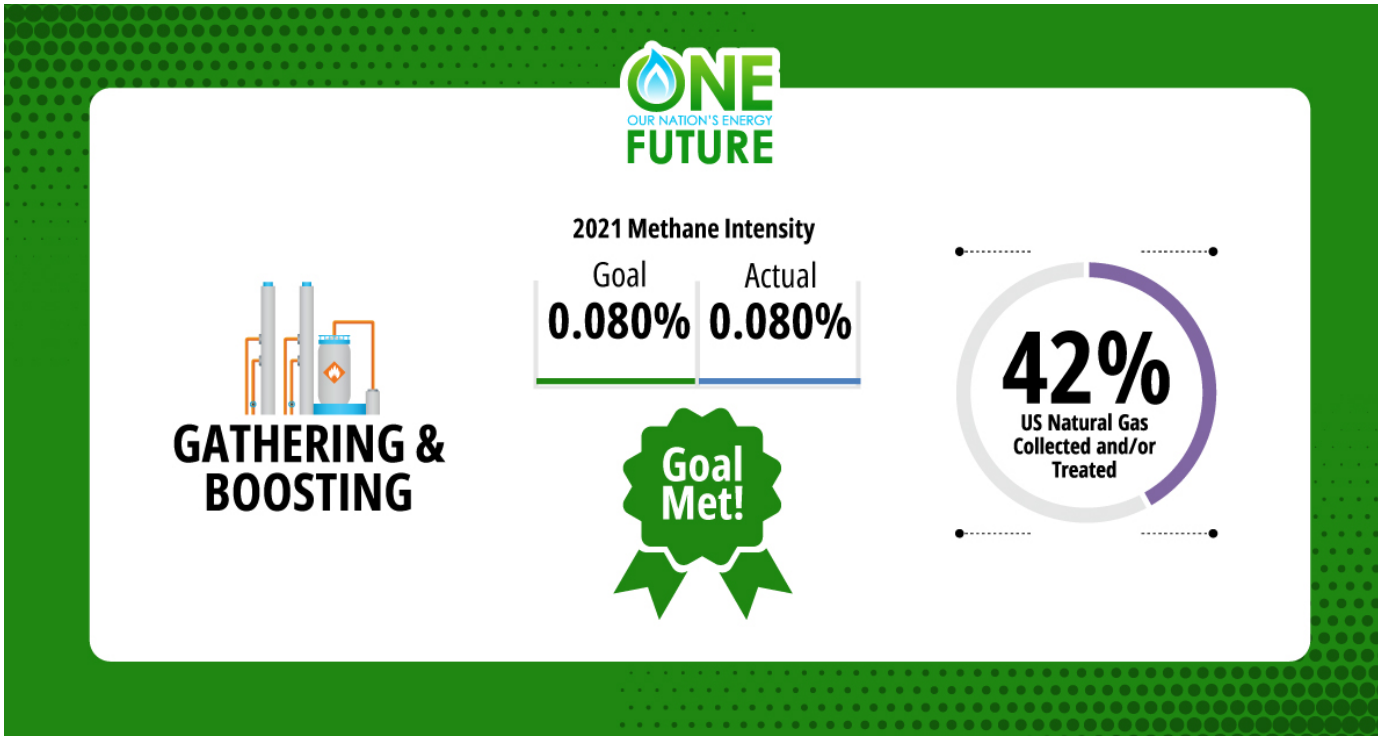
SEGMENT SUMMARY

GATHERING AND BOOSTING



Antero Resources
Apache
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BHE PIPELINE GROUP
BKV
BLUEracer MIDSTREAM
CAERUS OPERATING LLC
Crestwood
Dominion Energy
DT Midstream
EQT
equitrans Midstream
FLYWHEEL ENERGY
HESS
KINETIK
National Fuel
TARGA
TERRA ENERGY PARTNERS
Western Midstream
WTG
Williams

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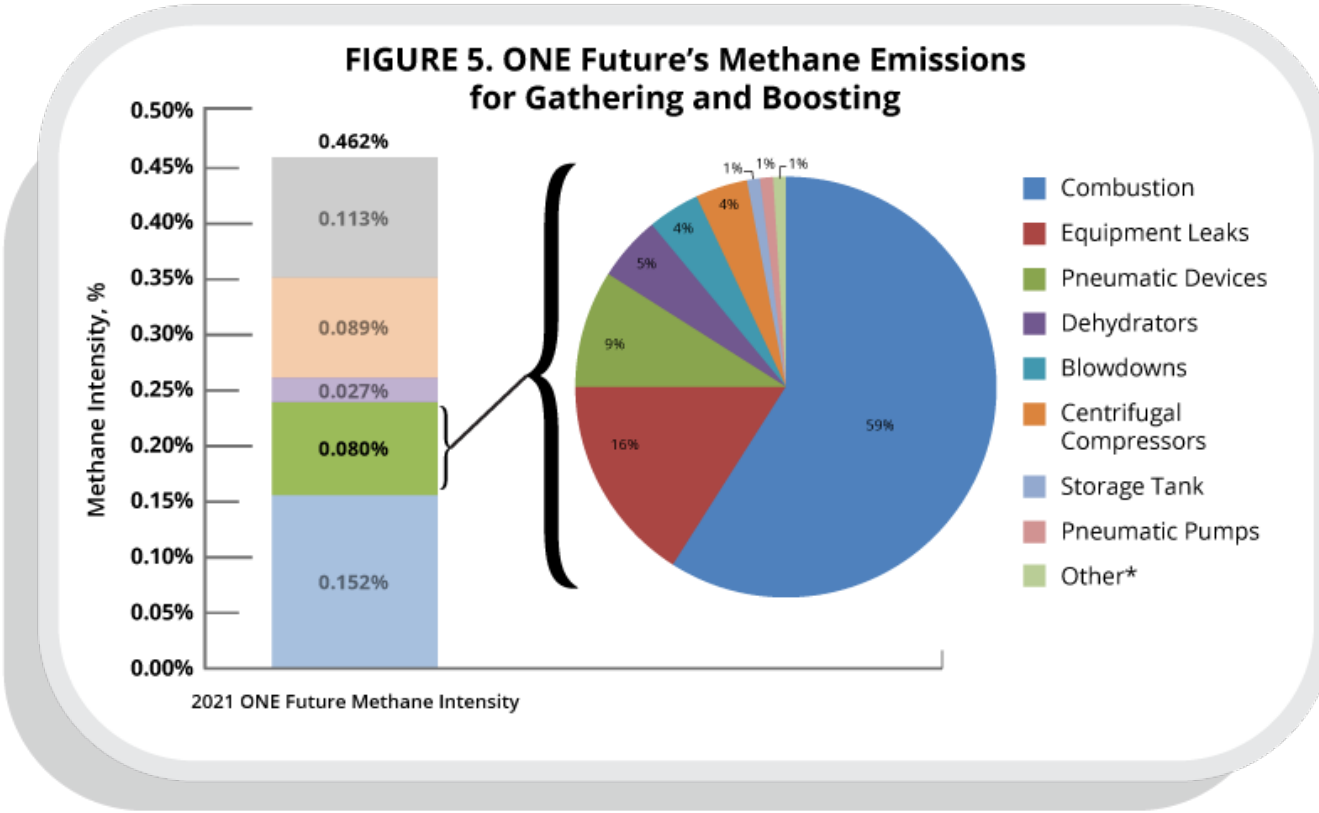
The Gathering and Boosting (G&B) segment includes pipelines and other equipment used to gather natural gas from production facilities, treat the gas as needed through dehydration or acid gas removal, and compress the gas to transport it to a natural gas processing facility, a natural gas transmission pipeline, or to a natural gas distribution pipeline.[27] Methane emissions from combustion, equipment leaks, and natural gas-operated pneumatic controllers are the three largest sources of emissions for this segment.

2021 G&B SEGMENT RESULTS

ONE Future G&B member companies gathered approximately 42% of the total U.S. natural gas produced and handled by the G&B[28] segment in 2021. Based on 2021 methane emissions data from ONE Future member companies, the methane intensity for the G&B segment is 0.080%. Figure 5 shows the percent contribution by emission source type for the Gathering and Boosting segment.

FIGURE 5. ONE Future's Methane Emissions for Gathering and Boosting



*Note, Other includes Flare Stacks and Reciprocating Compressors

ONE Future's methane intensity value for G&B reflects the implementation of some of the following methane reduction activities by ONE Future members with G&B operations[29]:

- Voluntary LDAR programs to identify and fix equipment leaks at aboveground sites.
- Where possible, replace high-bleed natural gas pneumatic devices with low or no-bleed devices.
- Use instrument air for pneumatic devices.
- Use electric controllers and pumps.

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- Include pneumatic controllers in existing LDAR surveys using Optical Gas Imaging (OGI) cameras, in order to detect and repair malfunctioning devices.
- Install electrically operated glycol pumps to replace natural gas operated pumps.
- Program compressor unit controls to reduce pressure prior to venting.
- Maximize the utilization of compressors to optimize combustion performance and fuel efficiency.
- Performance-based maintenance program to determine the need for compressor rod packing replacement. A performance-based program uses the measured leak rate of the rod packing to objectively evaluate whether rod packing needs replacement.
- Continuously monitor operational parameters to quickly notify operators of performance issues and operating conditions.
- Improvement of piping design to eliminate direct venting during compressor blowdowns.
- Full recovery of dehydration still vent low pressure gas stream (post Benzene, Toluene, Ethylbenzene, and Xylene (BTEX) recovery) using vapor recovery units (VRU).
- Use combustion control to reduce dehydrator uncondensed glycol regenerator still vent off gas and flash tank vapor emissions.
- Use a spark igniter or glow stick to combust dehydrator uncondensed glycol regenerator still vent off gas and flash tank vapor emissions when the VRU is down or the reboiler, if used for combustion control, has cycled off.
- Use electric motor-driven compressor units.
- Improve piping and process design to minimize direct venting during pipeline maintenance activities.

National data for the G&B segment are limited as U.S. GHGRP reporting for this segment only began in 2016. The methane intensity value for this segment is scaled nationally by gross gas production, in a similar manner as for the Production segment.

Addition of new member companies as well as acquisitions and divestitures made by existing member companies help explain some of the year-to-year differences. It is difficult to assess long-term trends since calculation methodologies have been updated and this is only the fifth year of ONE Future reporting. However, some short-term year-to-year observations can be made. In 2020 the methane intensity was 0.042%, in 2021 the G&B segment methane intensity increased 90% while throughput increased 16%. This increase is primarily due to the revision in calculating methane emissions from natural gas-fired compressor engines and turbines to better represent emissions from this source. As a result, combustion emissions significantly increased this year and is now the largest contributor in this segment. Emission contributions from equipment leaks and pneumatic devices were the second and third highest for this segment's emissions in CY2021 whereas these two emissions sources were the highest and second highest contributors, respectively in CY2020.

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G&B YEAR TO YEAR COMPARISON

Gathering & Boosting – Methane Intensity of 0.080% vs. goal of 0.080% – meeting goal.

The overall methane intensity for the G&B segment increased by 90% from 0.042% in 2020 to 0.080% in 2021 with year over year throughput increasing by 16%.

By itself, the updated combustion exhaust methane emission calculation methodology increased the G&B segment methane intensity by 116% vs. the segment intensity if the GHGRP methane emission factors had been used. Although this single revision resulted in a 116% increase in the methane emissions for the combustion source category, the resultant cumulative overall increase in intensity for the segment was much lower (90%) on a year over year basis. Therefore, these results imply that this increase in combustion methane emissions solely due to a calculation adjustment were offset by "tangible" methane emission reductions in other G&B source categories.

ONE Future G&B member companies represented approximately 42% of the total U.S. natural gas gathering of production in 2021.

The G&B segment had an overall methane intensity increase of 90% with the addition of six member companies to the segment and the withdrawal of two member companies from the segment.

The above intensity increase for this segment is mostly a result of the revised combustion exhaust methane emission calculation update as shown in Figure 5 where combustion makes up 59% of the overall methane emissions for the G&B segment. It should be noted that this is solely a calculation adjustment to more closely represent methane emissions rather than an actual physical increase in emissions due to equipment changes, equipment leaks, increased venting, etc.

Even with this significant increase in intensity year over year, the G&B segment met the 2025 segment target of 0.080%. It should be noted that the 2025 segment target for G&B is the lowest within the entire value chain (28% lower than next closest segment).

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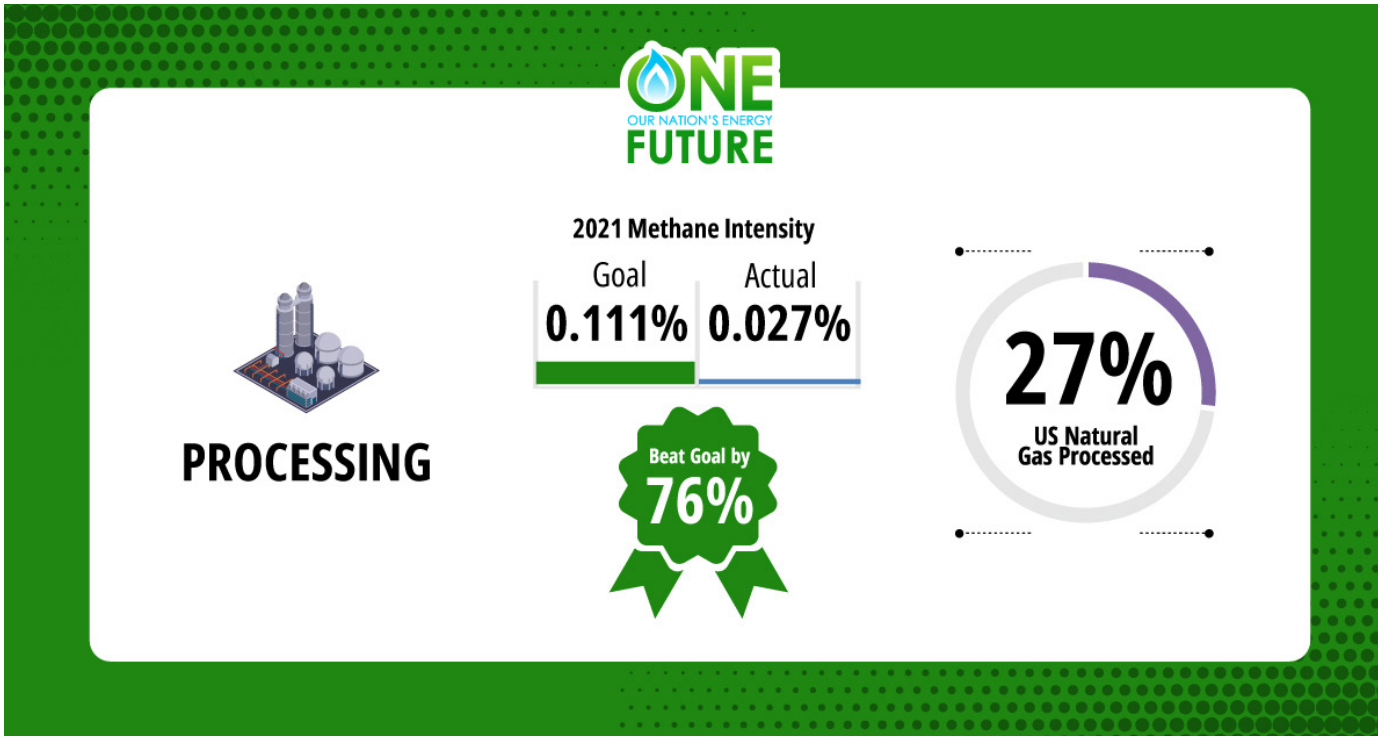
SEGMENT SUMMARY

PROCESSING



BHE PIPELINE GROUP
BLUEracer MIDSTREAM
Crestwood
Dominion Energy
HESS
KINDER MORGAN
KINETIK
National Fuel
TARGA
Western Midstream
WTG
Williams
Xcel Energy

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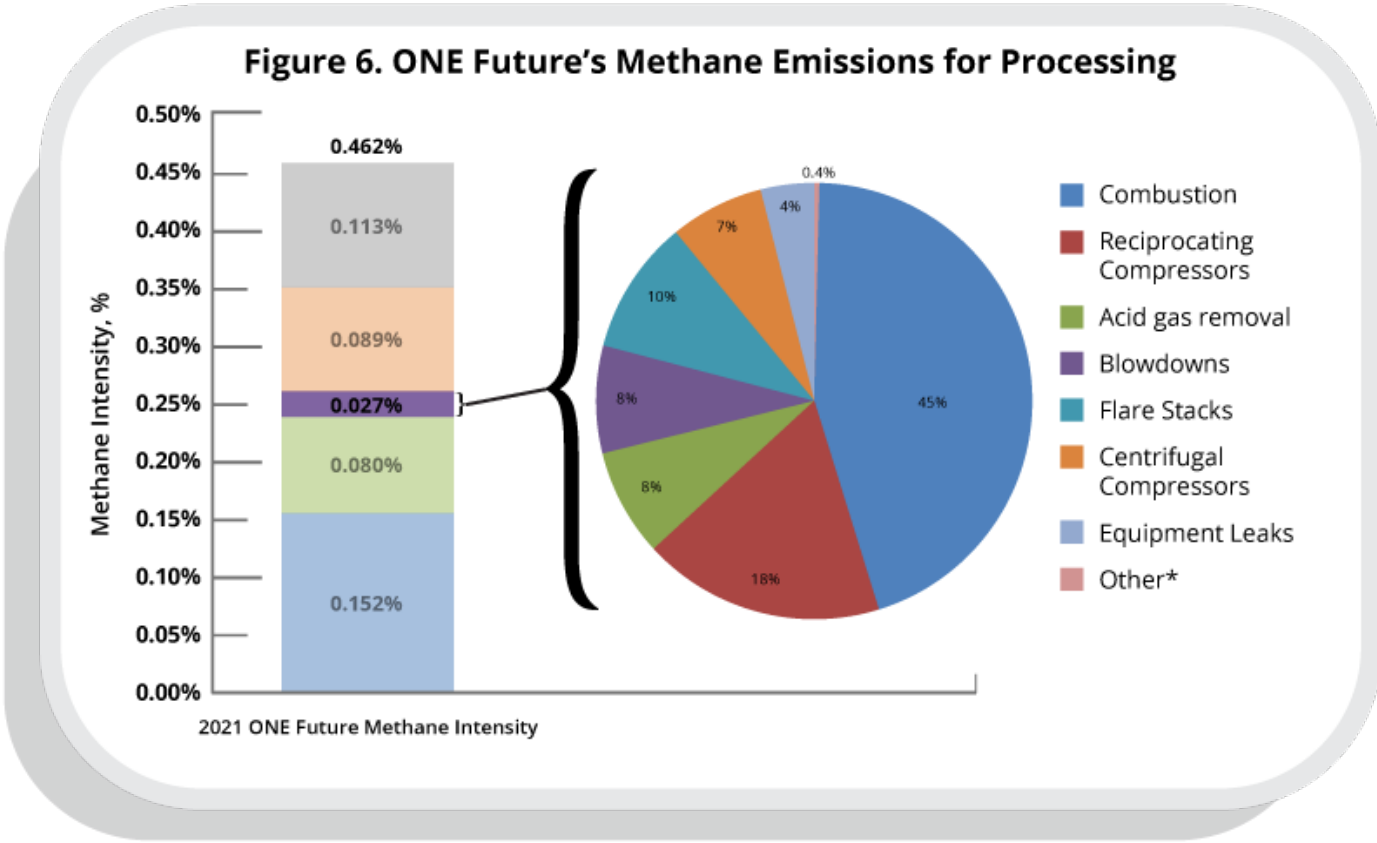
The Processing segment is made up of gas processing plants where hydrocarbons and fluids in produced natural gas are separated to result in natural gas that meets pipeline specifications. Equipment associated with the gas processing segment includes the equipment inside a gas processing plant, such as: absorption units or cryogenic expanders, fractionators, dehydrators, acid gas removal units, and compressors. Based on the EPA's national greenhouse gas inventory (GHGI)[30], equipment leaks and engine exhaust from uncombusted natural gas are the largest sources of methane emissions for the processing segment.

2021 PROCESSING SEGMENT RESULTS

ONE Future members reporting emissions for the natural gas processing segment make up approximately 27% of the total national volume of gas processed. The methane intensity for the processing segment is 0.027% based on amount of gas processed. Figure 6 shows the percent contribution by emission source type for the processing segment.



*Note, Other includes Dehydrators and Pneumatic Devices

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ONE Future's methane intensity value for Processing reflects the implementation of some of the following methane reduction activities by the ONE Future companies with processing operations[31]:

- Where possible, replace or repair high-bleed pneumatic devices with low or no-bleed devices.
- Perform LDAR programs to identify and fix equipment leaks at aboveground sites.
- Add vapor recovery controls on dehydrators.
- Add vapor recovery controls on tanks.
- Use certified control devices to improve destruction efficiencies.
- Replace rod packing more frequently than regulatory requirements.
- Use blowdown headers to reduce direct venting during compressor and equipment blowdowns.

Although, the processing segment also handles both gas and liquid streams, the volume of natural gas liquids (NGL) and the corresponding energy content is small compared to that of natural gas. Allocating methane emissions between natural gas and NGL on an energy basis has a small impact on the processing segment methane emissions and methane intensity. Inclusion of these insignificant emissions changes the methane intensity value from 0.027% to 0.029% which is still far lower than its 0.111% goal.

Addition of new member companies as well as acquisitions and divestitures made by existing member companies help explain some of the year-to-year differences. It is difficult to assess long-term trends since calculation methodologies have been updated and this is only the fifth year of ONE Future reporting. However, some short-term year-to-year observations can be made. The methane intensity for 2020 was 0.017%, and in 2021 the methane intensity increased 59% while throughput increased by 7%. The contribution from combustion emissions is now the highest for CY2021 due to the revised methane emissions calculation methodology. Methane emissions from reciprocating compressors and blowdowns were the second and fourth highest contributors this year for the processing segment. Acid gas removal unit methane emissions contribution continued to remain the third highest in CY2021 which is the same as it was in CY2020.

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PROCESSING YEAR TO YEAR COMPARISON

Processing – Methane Intensity of 0.027% vs. goal of 0.111% - beating goal by 76%.

The overall methane intensity for the processing segment increased by 59% from 0.017% in 2020 to 0.027% in 2021 with year over year throughput increasing by 7%.

By itself, the updated combustion exhaust methane emission calculation methodology increased the processing segment methane intensity by 69% vs. the segment intensity if the GHGRP methane emission factors had been used.

The processing segment had a methane intensity increase of 59% while the number of reporting members in this segment has quadrupled over the last two years of reporting.

ONE Future processing member companies represent approximately 27% of the total U.S. natural gas processed in 2021.

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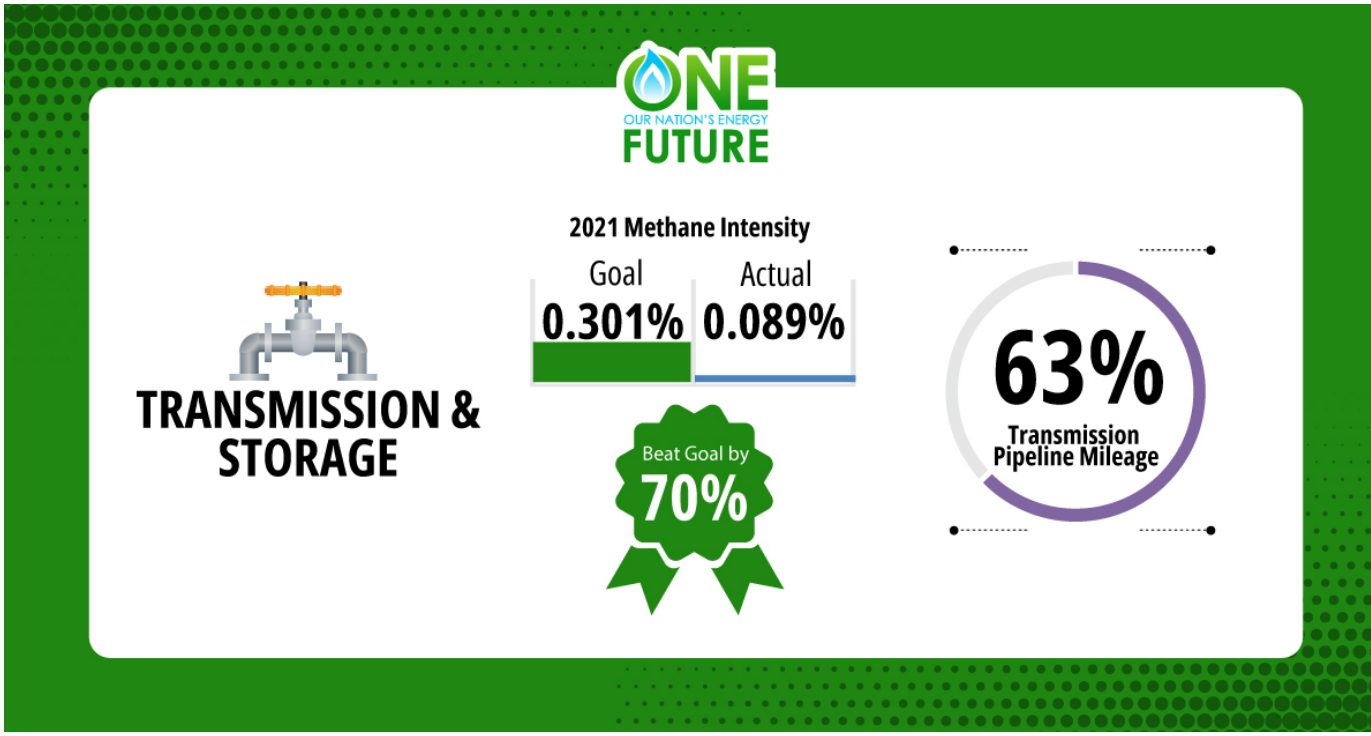
SEGMENT SUMMARY

TRANSMISSION AND STORAGE



ATMOS energy Your natural gas company
BHE PIPELINE GROUP
BLACK BEAR TRANSMISSION
BOARDWALK PIPELINES
Dominion Energy
DTE
DT Midstream
DUKE ENERGY
ENBRIDGE Life Takes Energy
ENSTOR
equitrans Midstream
KINDER MORGAN
National Fuel
NW Natural
ONE Gas
ONEOK
Roanoke Gas
SEMPRA
SOUTHERN STAR CENTRAL GAS PIPELINE
spire
summit UTILITIES
TC Energy
WTG
Williams
Xcel Energy

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The Transmission and Storage (T&S) segment is comprised of high pressure, large diameter pipelines that transport natural gas from gathering & boosting and processing to natural gas distribution systems or large-volume consumers such as power plants or chemical plants. This includes interstate and intrastate facilities. Storage facilities, such as underground storage in expended gas reservoirs and liquified natural gas (LNG) storage, are used by transmission companies to hold gas and LNG to allow for seasonal demand differences. EPA combines T&S into one segment since many of the storage facilities are owned and operated by transmission companies, and in some cases, the surface facilities (compression at underground storage, for example) are similar to other transmission facilities. Compression of natural gas is a significant operation for the T&S segment, and therefore emissions from compressors, including fugitive components, components designed to vent gas, and compressor exhaust play a larger role in methane emissions.

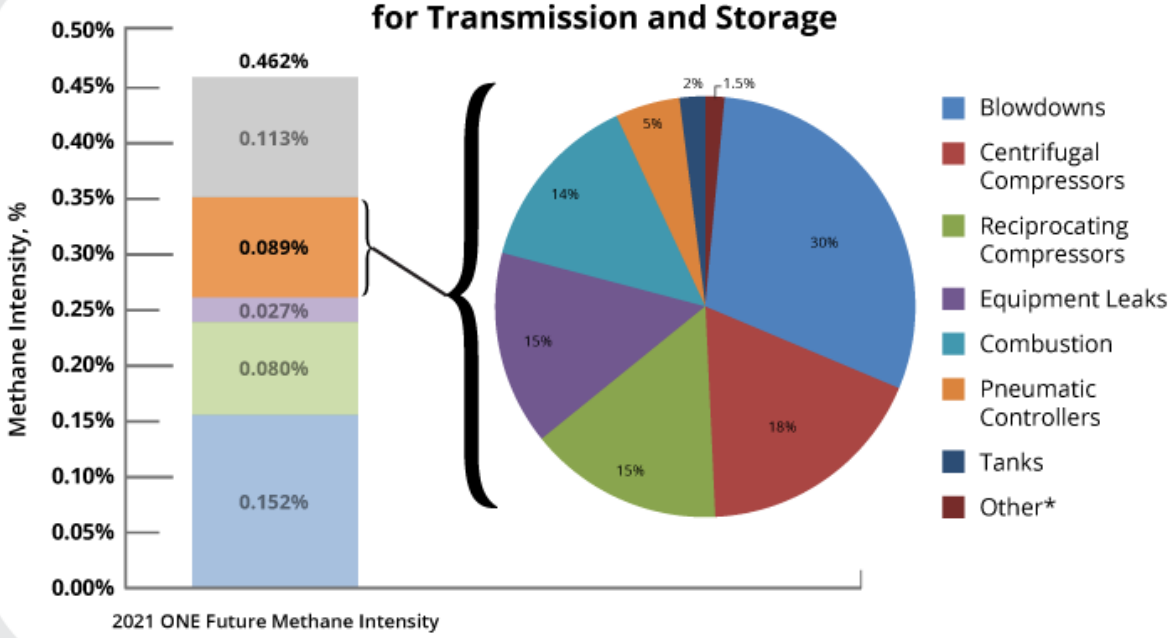
2021 T&S SEGMENT METHODOLOGY UPDATES

In addition to the revised combustion exhaust methane emission calculations as described at the beginning of this report, the emissions from tanks at storage facilities were newly included in the T&S segment emissions this year. Underground natural gas storage facility tank emissions are not captured in GHGRP, so ONE Future made the decision to include these emissions this year in order to more completely represent methane emissions from the T&S segment.

2021 T&S SEGMENT RESULTS

Based on 2021 emissions data from ONE Future T&S companies, the methane intensity for the T&S segment is 0.089%. Figure 7 shows the percent contribution by emission source type for the Transmission and Storage segment.

Figure 7. ONE Future's Methane Emissions for Transmission and Storage



*Note, Other includes Dehydrators and Flare Stacks

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ONE Future's methane intensity value for T&S reflects the implementation of some of the following methane reduction activities by the ONE Future companies with T&S operations[32]:

- Voluntary LDAR programs to identify and fix equipment leaks at aboveground sites.
- Performance-based monitoring and replacement for reciprocating compressor rod packing.
- Replacement of four stroke lean burn engines with more efficient turbines that have lower combustion exhaust methane emissions.
- Use of compressors driven by electric motors as an alternative to gas-fired engines.
- Conversion of reciprocating engine and turbine gas starters to electric or air operated starters.
- Reduction of maintenance blowdown emissions by operating practice changes (such as increasing the length of pressurized hold times on compressors to reduce number of compressor unit blowdowns to atmosphere).
- Use of vent gas recovery (VGR) systems for compressor related venting and re-route for beneficial use. These systems capture gas that would be vented to the atmosphere from sources such as case venting (rod-packing), dry gas seals, and compressor unit blowdowns.
- Reduction of blowdown emissions by implementing pipeline pump-down techniques that lowers the pipeline pressure prior to transmission pipeline blowdowns and conducting regulatory required Emergency Shutdown tests (ESDs) utilizing "vents blocked" tests.
- Use of sleeves and composite wraps to repair pipelines, eliminating the need to blowdown the pipeline. Use of pipeline isolation systems and hot taps to make new connections, eliminating the need to blowdown the pipeline.
- Where possible, replacing or repairing high emitting pneumatic devices with low or no-bleed devices.

ONE Future member companies represent approximately 63% of the total U.S. natural gas transmission pipeline miles. Since the same natural gas can pass through multiple transmission pipelines before being delivered to downstream users, the total overall throughput volume reported to PHMSA and EIA for this segment exceeds the total volume of natural gas produced. Because the same gas can be recorded as throughput multiple times within this segment, ONE Future made an additional adjustment to total throughput in addition to being scaled to gross gas production as outlined in the ONE Future Protocol. This adjustment was intended to more closely represent the throughput solely within the ONE Future T&S companies by scaling nationally based average gas volume per pipeline mile using data collected from PHMSA and the EIA.

Addition of new member companies as well as acquisitions and divestitures made by existing member companies help explain some of the year-to-year differences. It is difficult to assess long-term trends since calculation methodologies have been updated and this is only the fifth year of ONE Future reporting. However, some short-term year-to-year observations

can be made. The methane intensity decreased from 0.117% in 2020[33] to 0.089% in 2021 and throughput increased by 12%. For the transmission and storage segment, blowdowns remained the highest contributor of methane emissions for the fourth year in a row. Reciprocating compressor and centrifugal compressor methane emissions changed places from the second and third highest contributors, respectively in CY2020 to the third and second highest contributors in CY2021.

T&S YEAR TO YEAR COMPARISON

Transmission and Storage – Methane Intensity of 0.089% vs. goal of 0.301% - beating goal by 70%.

T&S had a methane intensity decrease from 0.117% in 2020 to 0.089% in 2021 while gaining nine additional members in this segment with year over year throughput increasing by 12%.

By itself, the updated combustion exhaust methane emission calculation methodology increased the T&S segment methane intensity by 16% vs. the segment intensity if the GHGRP methane emission factors had been used. Although this single revision resulted in a 16% increase in the methane emissions for the combustion source category, the T&S segment had cumulative overall decrease in intensity for the segment of 24% on a year over year basis. Therefore, these results imply that this increase in combustion methane emissions solely due to a calculation adjustment were offset by "tangible" methane emission reductions in other T&S source categories.

ONE Future T&S member companies represent approximately 63% of the total U.S. natural gas transmission pipeline miles in 2021.

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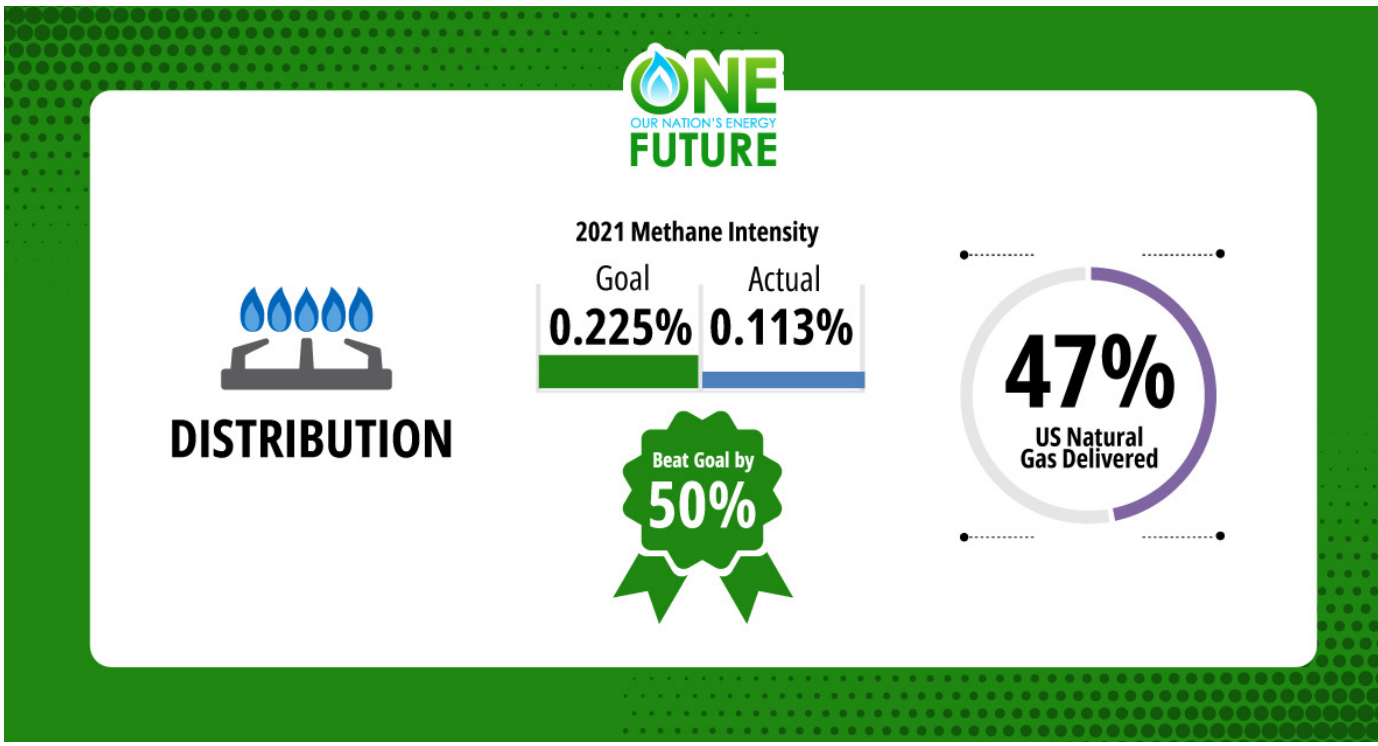
SEGMENT SUMMARY

DISTRIBUTION



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The Distribution segment covers natural gas pipelines that take high-pressure gas from transmission systems and gathering systems, reduce the pressure, and distribute the gas through primarily underground mains and service lines to individual end users. This segment includes natural gas mains and services, metering and pressure regulating stations, and customer meters. The ONE Future member companies represent 47% of the total U.S. natural gas delivered to consumers and 47% of the total national miles of distribution mains.

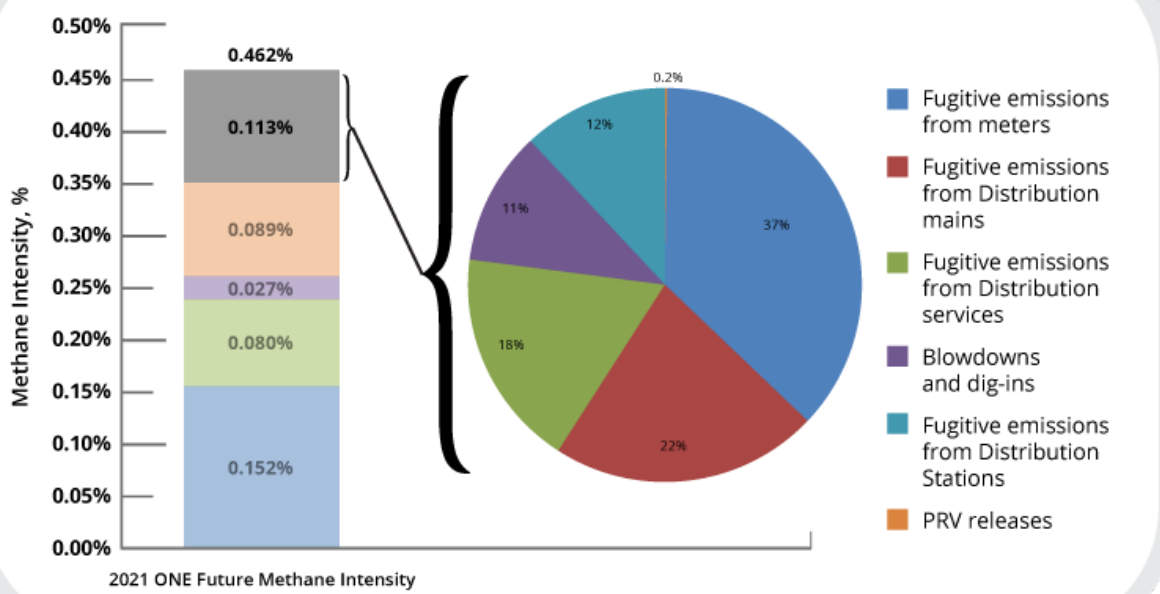
2021 DISTRIBUTION SEGMENT METHODOLOGY UPDATES

For 2021, ONE Future identified one area for improvement in the calculation of methane emissions in the distribution segment. Methane emissions from odorizers were newly included in the distribution segment total[34]. Odorizer emissions are not captured in the GHGRP, so ONE Future made the decision to include these emissions this year in order to have a more complete representation of methane emissions from the distribution segment. The updated combustion exhaust methane emissions calculation methodology covered in the earlier sections of this report for the other segments does not apply to the distribution segment because it is not one of its source categories.

2021 DISTRIBUTION SEGMENT RESULTS

Figure 8 shows the percent contribution by emission source type for the Distribution segment. Fugitive emissions from outdoor residential meters, commercial meters, and industrial meters[35] remain the most significant source of emissions for the distribution segment. Distribution mains and services have continued to be prominent sources of methane emissions and variances are a function of pipeline material. ONE Future members include companies with large inventories of aged infrastructure, including cast iron pipe and unprotected steel pipe, which are higher emitting materials than cathodically protected steel and plastic (polyethylene or PE). This is reflected in the 2021 methane intensity value of 0.113% (based on gross gas production) for the distribution segment.

Figure 8. ONE Future's Methane Emissions for Distribution



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As can be seen in Figure 8, the majority of emissions for the Distribution segment come from distribution meters. Of the different types of meters, commercial meters account for the most emissions of this category. Fugitive emissions from distribution mains also make up a significant amount of emissions for the Distribution segment. Within this category, the highest contributor is fugitive emissions from unprotected steel mains. The second and third highest contributors are fugitive emissions from protected steel mains and plastic (PE) mains, respectively. The lowest contributor is fugitive emissions from cast iron mains, which have the lowest reported mileage as companies are moving away from using cast iron mains. While plastic mains are one of the lowest contributors to emissions, they have the largest mileage reported of the four most common types of distribution mains.

ONE Future's methane intensity value for Distribution reflects the implementation of some of the following methane reduction activities by the ONE Future companies with distribution operations[36]:

- Make significant progress in replacing higher emitting pipe and continue to implement ongoing pipeline replacement initiatives to improve system integrity and reduce methane emissions.
- Voluntary LDAR programs to identify and fix pipeline and equipment leaks at aboveground sites.
- Increase leak survey frequency.
- Use of pipeline pump down procedures to minimize emissions when mains must be repaired or retired.
- Where possible, replacing or repairing high emitting pneumatic devices with low or no-bleed devices.
- Ongoing implementation and improvement of damage prevention programs.
- Efforts to reduce/eliminate any Grade 3 leak backlog.
- Implement practices that identify higher emitting leaks to target for quick repair and help eliminate the largest emitters that can contribute up to 50% of the emissions from the pipeline system.
- Use of innovative aerial or satellite survey detection technology over areas with non-state-of-the-art pipeline materials.
- Improve emergency response time to enhance safety and reduce emissions.

Addition of new member companies as well as acquisitions and divestitures made by existing member companies help explain some of the year-to-year differences. It is difficult to assess long-term trends since calculation methodologies have been updated and this is only the fifth year of ONE Future reporting. However, some short-term year-to-year observations can be made. This segment's intensity decreased from 0.118% in 2020, to 0.113% in 2021, while throughput increased by 15%. In the distribution segment, the fugitives from meters, distribution mains, distribution services, and blowdowns/dig-ins remained in the same order of magnitude from CY2020 to CY2021.

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DISTRIBUTION YEAR TO YEAR COMPARISON

Distribution – Methane Intensity of 0.113% vs. goal of 0.225% - beating goal by 50%.

The methane intensity went from 0.118% in 2020 to 0.113% in 2021, decreasing by 4% while year over year gas delivered volumes to end users increased by 15%.

The distribution segment had a methane intensity decrease of 4% while gaining nine additional members in this segment.

ONE Future distribution member companies represent 47% of the total U.S. natural gas delivered by local distribution companies and 47% of the total national miles of distribution mains.

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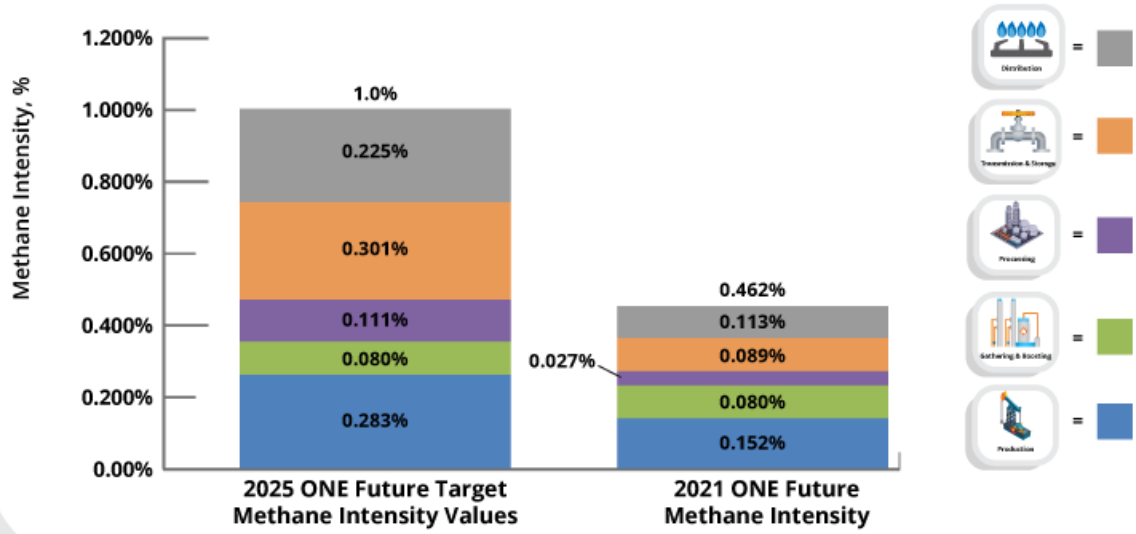
CONCLUSIONS

ONE Future is pleased to present the current consolidated progress of our member companies toward our collective goal of achieving a methane intensity across the entire natural gas value chain of 1.0% or less of the methane portion of gross natural gas produced. ONE Future member companies' collective methane intensity is already better than the 2025 goal, and we encourage other natural gas companies to join us to continue reducing the methane intensity of the entire natural gas value chain.

Figure 9 shows ONE Future's 2021 cumulative methane intensity by segment of 0.462% versus ONE Future's 2025 cumulative target of 1.0%. The ONE Future 2021 intensity of 0.462% is relatively flat year over year, but still 54% below the overall goal of 1.0% even with an increased company membership of 53 in this year's CY2021 report compared to 45 companies in last year's CY2020 report.

FIGURE 9. ONE FUTURE 2021 METHANE INTENSITY RESULTS COMPARED TO 2025 ONE FUTURE TARGET



Although ONE Future's 2021 data resulted in a methane intensity value well below the 1.0% target, ONE Future members are committed to continual improvements and ongoing methane emission reduction activities as well as openly and transparently sharing best practices through technical reports and workshops to enable others across the industry to capture the key learnings from ONE Future's successful results.

This is the fifth year of ONE Future reporting, Figure 10 shows the 2025 segment methane intensity targets as well as the segment methane intensity results comparing 2017, 2018, 2019, 2020, and 2021. There were increases in methane intensities for three segments and decreases in methane intensities for the remaining two segments between 2020 and 2021, while the number of ONE Future member companies that reported more than doubled over the past two years.

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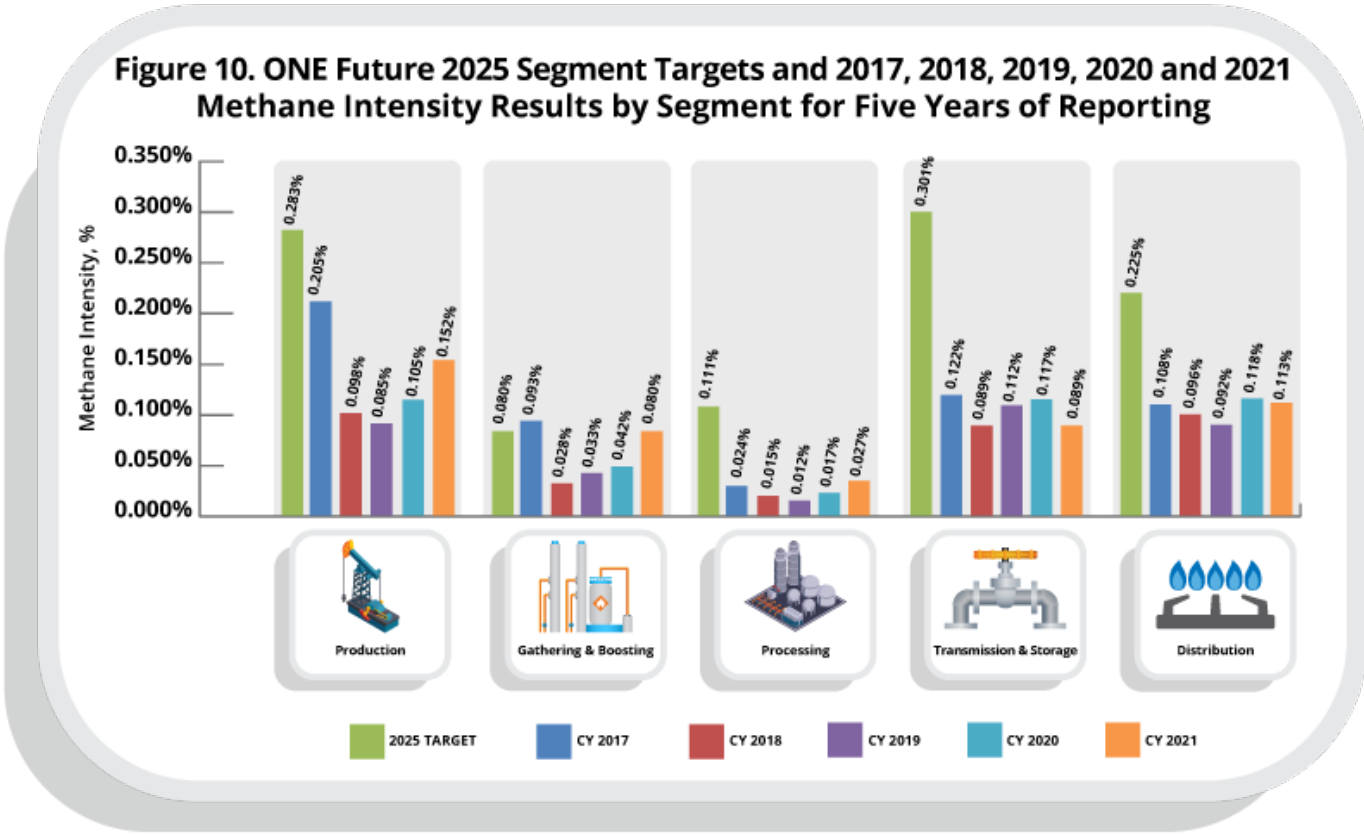

Some explanation of the changes shown in Figure 10 are listed here:

PRODUCTION

There was an overall net increase of four companies reporting in this segment along with acquisition and divestiture of assets that impacted the overall segment methane intensity. Additionally, the revised calculation methodology for combustion exhaust methane emissions had a significant influence in this segment's 45% increase in the segment methane intensity.

GATHERING & BOOSTING

There was an overall net increase of four companies reporting in this segment along with acquisition and divestiture of assets that impacted the overall segment methane intensity. Additionally, the revised calculation methodology for combustion exhaust methane emissions resulted in the largest overall percent increase (90%) in the methane intensity for this segment. However, the increase in the combustion exhaust methane emissions due to the revised calculation methodology was offset by methane reductions in this segment.

PROCESSING

Three more companies reported in this segment for CY2021 along with the acquisition and divestiture of assets that impacted the overall segment methane intensity. Additionally, the revised calculation methodology for combustion exhaust methane emissions resulted in an overall 59% increase in the methane intensity for this segment. Similar to the G&B segment, the increase in the combustion exhaust methane emissions was offset by methane reductions in this segment.

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TRANSMISSION & STORAGE

Nine more companies reported in this segment for CY2021 along with the acquisition and divestiture of assets that impacted the overall segment methane intensity. Although the revised calculation methodology for combustion exhaust methane emissions increased the methane intensity from this segment by 16%, it was more than offset by methane reductions for other source categories in this segment such that the overall cumulative segment intensity decreased by 24% from CY2020 to CY2021.

DISTRIBUTION

ONE Future has nearly tripled the number of distribution companies reporting in this segment over the past two years with three new companies added this year. There are 19 companies reporting in this segment for CY2021. Even with the increase of nine companies over the last two years, there was an overall 4% decrease in the segment methane intensity from CY2020 to CY2021.

OVERALL VALUE CHAIN

Overall methane intensity increased by only 16% year over year while the number of ONE Future members that reported increased by 18% from CY2020 to CY2021.

By itself, the updated combustion exhaust methane emission calculation methodology increases the value chain methane intensity by 22%. Although this single revision results in a 22% increase in the methane emissions for the combustion source category, the overall value chain methane intensity only increased by 16% from CY2020 to CY2021. Therefore, these results imply that this increase in combustion methane emissions for the value chain solely due to a calculation adjustment were offset by methane emission reductions from other source categories in the value chain.

ONE Future's overarching goal is to ensure the future of natural gas as a long-term sustainable fuel and that objective will be assured as additional players in the natural gas value chain continue to step up and embrace the benefits of reducing methane emissions. Our responsibility to safely and reliably provide sustainable natural gas to our customers and communities is our core business and reducing methane losses aligns with those goals. We understand methane emission reduction is not just good for the environment, but is also good for the natural gas industry, its employees, customers, communities, and investors.

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FOOTNOTES AND REFERENCES

1 A DISCREPANCY IN THE CY2020 METHANE EMISSIONS REPORTED WITHIN THE T&S SEGMENT WAS DISCOVERED IN AUGUST 2022. THIS DISCREPANCY RESULTED IN THE OVER-REPORTING OF METHANE INTENSITY FOR THE T&S SEGMENT AND THE OVERALL ONE FUTURE METHANE INTENSITY IN THE CY2020 ANNUAL REPORT ISSUED LAST YEAR (2021). AFTER CORRECTING THIS DISCREPANCY, THE METHANE INTENSITY FOR THE T&S SEGMENT FOR CY2020 DECREASED FROM 0.142% TO 0.117% AND THE OVERALL ONE FUTURE METHANE INTENSITY FOR CY2020 ALSO DECREASED FROM 0.424% TO 0.400%.

2 "SECTOR" AND "SEGMENT" ARE EQUIVALENT TERMS IN REGARD TO ONE FUTURE AND EPA'S METHANE CHALLENGE ONE FUTURE REPORTING OPTION. HOWEVER, FOR THE PURPOSES OF THIS REPORT, THE TERM "SEGMENT" WILL BE USED THROUGHOUT.

3 AP-42 METHANE EMISSION FACTORS FOR ENGINES CAN BE FOUND HERE: HTTPS://WWW.EPA.GOV/SITES/DEFAULT/FILES/2020-10/DOCUMENTS/C03S02.PDF AND AP-42 METHANE EMISSION FACTORS FOR TURBINES CAN BE FOUND HERE: HTTPS://WWW3.EPA.GOV/TTNCHIE1/AP42/CH03/FINAL/ C03S01.PDF

4 TOTAL PRODUCTION BASIN COUNT IS BASED UPON THE NUMBER OF US BASINS WITH PRODUCTION AND EMISSIONS REPORTED TO THE US EPA UNDER THE GHGRP. THE BASINS ARE DEFINED BY THE AMERICAN ASSOCIATION OF PETROLEUM GEOLOGISTS (AAPG).

5 ONE FUTURE CALCULATES INTENSITY ON A MASS OF METHANE BASIS, SPECIFICALLY METRIC TONS OF METHANE. MORE CALCULATION DETAILS CAN BE FOUND IN THE ONE FUTURE PROTOCOL.

6 THE NATURAL GAS VALUE CHAIN DOES NOT ACTUALLY RECEIVE THE "GROSS GAS PRODUCTION", AS SOME OF THE GAS IS RE-INJECTED FOR RE-PRESSURING BEFORE LEAVING THE PRODUCTION SITE. A "NET GAS PRODUCTION" VALUE CAN BE CALCULATED THAT MORE ACCURATELY REFLECTS THE GAS THAT FLOWS INTO THE VALUE CHAIN. THIS NET GAS VALUE SUBTRACTS THE DOE EIA "REPRESSURING" GAS FROM THE GROSS GAS PRODUCTION.

7 HTTPS://WWW.EPA.GOV/GHGEMISSIONS/INVENTORY-US-GREENHOUSE-GAS-EMISSIONS-AND-SINKS-1990-2012

8 HTTPS://IEA.BLOB.CORE.WINDOWS.NET/ASSETS/8422EF9A-9AE8-4637-AB1C-DDB160AB7C59/WEO_2012_SPECIAL_REPORT_GOLDEN_RULES_FOR_A_GOLDEN_AGE_OF_GAS.PDF

9 HTTPS://ONEFUTURE.US/PRESS/METHANE-INTENSITY-REPORTING-METHODOLOGY-VALIDATED-BY-THIRD-PARTY/

10 HTTPS://ONEFUTURE.US/RESOURCES/PROTOCOLS/ ONE FUTURE RESERVES THE RIGHT TO UPDATE THE CONTENTS OF THE ONE FUTURE PROTOCOL AT ANY TIME TO MAINTAIN ALIGNMENT WITH EPA DEFINITIONS AND METHODOLOGIES AND REFLECT EPA'S MOST CURRENT GHG EMISSIONS DATA.

11 FOR THE PURPOSES OF THE ONE FUTURE CALCULATION, NATURAL GAS FROM ALASKAN PRODUCTION IS NOT INCLUDED AS GAS PRODUCTION BECAUSE CURRENTLY IT DOES NOT ENTER THE NATURAL GAS VALUE CHAIN.

12 HTTPS://WWW.EIA.GOV/DNAV/NG/NG_SUM_LSUM_DCU_NUS_A.HTM

13 HTTPS://WWW.EPA.GOV/GHGREPORTING

14 HTTPS://WWW.EPA.GOV/GHGEMISSIONS/INVENTORY-US-GREENHOUSE-GAS-EMISSIONS-AND-SINKS-1990-2020

15 HTTPS://WWW.ECFR.GOV/CURRENT/TITLE-40/CHAPTER-I/SUBCHAPTER-C/PART-98/SUBPART-

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C#TABLE-C-2-TO-SUBPART-C-OF-PART-98

16 HTTPS://WWW.AGA.ORG/ABOUT/FINANCIAL-OUTREACH/NATURAL-GAS-SUSTAINABILITY-INITIATIVE-NGSI/

17 HTTPS://WWW.EPA.GOV/SITES/DEFAULT/FILES/2016-08/DOCUMENTS/METHANECHALLENGE_ONE_FUTURE_SUPP_TECH_INFO.PDF, NATURAL GAS STAR METHANE CHALLENGE PROGRAM ONE FUTURE COMMITMENT OPTION TECHNICAL DOCUMENT, PP. 13 TO 14.

18 VAUGHN, T.L., B. LUCK, L. WILLIAMS, A.J. MARCHESE, AND D. ZIMMERLE. 2021. "METHANE EXHAUST MEASUREMENTS AT GATHERING COMPRESSOR STATIONS IN THE UNITED STATES." ENVIRON. SCI. TECHNOL. 2021, 55(2), 1190–1196. HTTPS://DOI.ORG/10.1021/ACS.EST.0C05492.

19 ZIMMERLE, D., K. BENNETT, T. VAUGHN, B. LUCK, T. LAUDERDALE, K. KEEN, M. HARRISON, A. MARCHESE, L. WILLIAMS, AND D. ALLEN. 2019. CHARACTERIZATION OF METHANE EMISSIONS FROM GATHERING COMPRESSOR STATIONS: FINAL REPORT. PREPARED FOR THE U.S. DEPARTMENT OF ENERGY UNDER CONTRACT NO. DE-FE0029068. OCTOBER 2019 REVISION.

20 SEE DOCKET ID NO. EPA-HQ-OAR-2019-0424, SECTION 10.0: ADDITION OF CALCULATION METHOD FOR COMBUSTION SLIP, PP.70-78

21 AP-42 METHANE EMISSION FACTORS FOR ENGINES CAN BE FOUND HERE: HTTPS://WWW.EPA.GOV/SITES/DEFAULT/FILES/2020-10/DOCUMENTS/C03S02.PDF AND AP-42 METHANE EMISSION FACTORS FOR TURBINES CAN BE FOUND HERE: HTTPS://WWW3.EPA.GOV/TTNCHIE1/AP42/CH03/FINAL/ C03S01.PDF

22 EPA–HQ–OAR–2019–0424; FRL–7230–02–OAR, REVISIONS AND CONFIDENTIALITY DETERMINATIONS FOR DATA ELEMENTS UNDER THE GREENHOUSE GAS REPORTING RULE.

23 PLEASE NOTE, PREVIOUS YEARS' DATA HAVE NOT BEEN UPDATED TO USE THIS NEW CALCULATION METHODOLOGY FOR COMBUSTION EXHAUST METHANE EMISSIONS. THE SEGMENT TARGET HAS ALSO NOT BEEN CHANGED FROM PREVIOUS YEARS TO ACCOMMODATE THIS UPDATED CALCULATION METHODOLOGY.

24 THE METHANE EMISSIONS ASSOCIATED WITH THE CO-PRODUCTION OF CRUDE AND/OR CONDENSATE WITH NATURAL GAS IS NOT CURRENTLY INCLUDED IN THE ONE FUTURE PRODUCTION SEGMENT.

25 THESE LISTED METHANE REDUCTION ACTIVITIES ARE INTENDED TO REPRESENT EXAMPLES OF ACTIVITIES THAT SOME OF THE ONE FUTURE COMPANIES HAVE IMPLEMENTED IN 2021 OR PRIOR YEARS, BUT EACH COMPANY HAS THE FLEXIBILITY TO DECIDE ON THE ACTIVITIES TO IMPLEMENT BASED ON WHAT IS MOST APPROPRIATE AND FEASIBLE FOR THEIR COMPANY.

26 GIVEN THAT PNEUMATIC EMISSIONS REPORTED HERE ARE DRIVEN SOLELY BY EPA GHGRP EMISSION FACTORS AND NOT BY DIRECT FIELD MEASUREMENTS, THIS DEVICE REPLACEMENT APPROACH IS THE ONLY WAY TO AFFECT THE LARGE EMISSIONS REPORTED HERE. IN THE FUTURE, ACTUAL FIELD MEASUREMENTS OF PNEUMATICS MAY BE USED WHICH COULD REFLECT REDUCTIONS FROM VOLUNTARY PNEUMATIC DEVICE MONITORING AND REPAIR PROGRAMS.

27 THE METHANE EMISSIONS ASSOCIATED WITH THE HANDLING OF LIQUID STREAMS SUCH AS CRUDE AND/OR CONDENSATE IS NOT CURRENTLY INCLUDED IN THE ONE FUTURE GATHERING AND BOOSTING SEGMENT.

28 THERE IS NO PUBLISHED NATIONAL GATHERING AND BOOSTING GAS THROUGHPUT VALUE, THEREFORE THE NATIONAL GROSS GAS PRODUCTION VALUE IS USED. THIS SAME NATIONAL PRODUCTION VALUE IS USED WHEN CONVERTING THE G&B SEGMENT INTENSITY TO THE ADDITIVE VERSION OF THE INTENSITY, THE DETAILS OF WHICH CAN BE FOUND IN THE ONE FUTURE PROTOCOL.

29 THESE LISTED METHANE REDUCTION ACTIVITIES ARE INTENDED TO REPRESENT EXAMPLES OF ACTIVITIES THAT SOME OF THE ONE FUTURE COMPANIES MAY HAVE IMPLEMENTED IN 2021 OR PRIOR YEARS, BUT EACH COMPANY HAS THE FLEXIBILITY TO DECIDE ON THE ACTIVITIES TO

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IMPLEMENT BASED ON WHAT IS MOST APPROPRIATE AND FEASIBLE FOR THEIR COMPANY.

30 U.S. EPA, INVENTORY OF U.S. GREENHOUSE GAS EMISSIONS AND SINKS: 1990-2020, EPA 430-R-22-003, APRIL 2022.

31 THESE LISTED METHANE REDUCTION ACTIVITIES ARE INTENDED TO REPRESENT EXAMPLES OF ACTIVITIES THAT SOME OF THE ONE FUTURE COMPANIES MAY HAVE IMPLEMENTED IN 2021 OR PRIOR YEARS, BUT EACH COMPANY HAS THE FLEXIBILITY TO DECIDE ON THE ACTIVITIES TO IMPLEMENT BASED ON WHAT IS MOST APPROPRIATE AND FEASIBLE FOR THEIR COMPANY.

32 THESE LISTED METHANE REDUCTION ACTIVITIES ARE INTENDED TO REPRESENT EXAMPLES OF ACTIVITIES THAT SOME OF THE ONE FUTURE COMPANIES MAY HAVE IMPLEMENTED IN 2021 OR PRIOR YEARS, BUT EACH COMPANY HAS THE FLEXIBILITY TO DECIDE ON THE ACTIVITIES TO IMPLEMENT BASED ON WHAT IS MOST APPROPRIATE AND FEASIBLE FOR THEIR COMPANY.

33 AFTER THE DISCOVERY OF A DISCREPANCY THAT RESULTED IN OVER-REPORTING OF METHANE EMISSIONS FOR THE T&S SEGMENT IN CY2020, THE ONE FUTURE METHANE INTENSITY FOR THE T&S SEGMENT FOR CY2020 DECREASED FROM 0.142% TO 0.117%. THIS UPDATED VALUE FOR CY2020 IS REFLECTED IN THIS YEAR'S ANNUAL REPORT.

34 PLEASE NOTE, PREVIOUS YEARS' DATA HAVE NOT BEEN UPDATED TO INCLUDE METHANE EMISSIONS FROM ODORIZERS. THE ORIGINAL SEGMENT TARGET WAS NOT CHANGED TO ACCOMMODATE THIS ADDITIONAL EMISSION SOURCE WITHIN THE DISTRIBUTION SEGMENT.

35 PRIOR TO THE APRIL 2021 RELEASE OF THE CY2019 GHGI ANNEX TABLE 3.6-2, INDUSTRIAL AND COMMERCIAL METERS BOTH HAD AN EMISSION FACTOR OF 9.7 KG METHANE/METER. FOR CY2020, THE GHGI EMISSION FACTORS FOR INDUSTRIAL AND COMMERCIAL METERS INCREASED TO 105 KG METHANE/METER AND 23.4 KG METHANE/METER, RESPECTIVELY.

36 THESE LISTED METHANE REDUCTION ACTIVITIES ARE INTENDED TO REPRESENT EXAMPLES OF ACTIVITIES THAT SOME OF THE ONE FUTURE COMPANIES MAY HAVE IMPLEMENTED IN 2021 OR PRIOR YEARS, BUT EACH COMPANY HAS THE FLEXIBILITY TO DECIDE ON THE ACTIVITIES TO IMPLEMENT BASED ON WHAT IS MOST APPROPRIATE AND FEASIBLE FOR THEIR COMPANY.

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APPENDIX A

FUTURE CONSIDERATIONS AND IMPROVEMENTS FOR THE PROGRAM

Considerations for ONE Future improvements between now and 2025 are expected to include the following:

- Addition of new member companies, expanding our representation and our flexible emission reduction principles.
- Additional reductions, as companies continue to make improvements in data collection efforts, emission estimates, and reducing methane emissions.
- Updates to the national emissions intensity basis (as EPA makes updates to the methodology) and updates to GHGRP and GHGI emission factors. This includes the most recent June 21, 2022 proposed revisions to EPA's GHGRP rule.
- Evaluating ONE Future's potential future implementation of a measurement, reporting, reconciliation, and verification initiative across all segments of the value chain.
- Implementation of periodic third party independent assurance program to audit the calculation process and company data.

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NATURAL GAS

POWERS AMERICA

There are nearly 186.5 million natural gas customers across the U.S. Natural gas was the largest source of U.S. electricity generation in 2020 – 33.9%.

LOCAL AND PLENTIFUL

The U.S. produces more natural gas than any other nation in the world, enough to meet America's energy needs for more than 110 years.

AFFORDABLE

The affordability of natural gas has led to more than $50 billion in savings for American households since 2015 and $121 billion in savings for American businesses, since 2009.

ONE
OUR NATION'S ENERGY
FUTURE

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