

NORTH AMERICAN MIDSTREAM INFRASTRUCTURE THROUGH 2035

NATURAL GAS
JUNE 18, 2018



SIGNIFICANT DEVELOPMENT CONTINUES

Midstream infrastructure – mainline pipelines, laterals, processing plants, gathering lines, compression, lease equipment and storage – is essential to bringing domestic natural gas to households, businesses, industrial consumers and electric-power generators. Technological innovation has unleashed a production revolution that has transformed the North American natural gas landscape. But the benefits of that new production can only be realized through new and expanded midstream infrastructure.

The INGAA Foundation Inc. has sponsored reports forecasting midstream infrastructure for more than 20 years. This report will inform industry, policymakers and stakeholders about the new dynamics of North America's energy markets and the need for infrastructure development.

\$417 BILLION

TOTAL PROJECTED NATURAL GAS
INFRASTRUCTURE CAPITAL
EXPENDITURES, 2018-2035

ANNUAL AVERAGE OF
\$23 BILLION

CAPITAL EXPENDITURES FOR NATURAL GAS INFRASTRUCTURE, 2018 VS. 2016 ESTIMATES

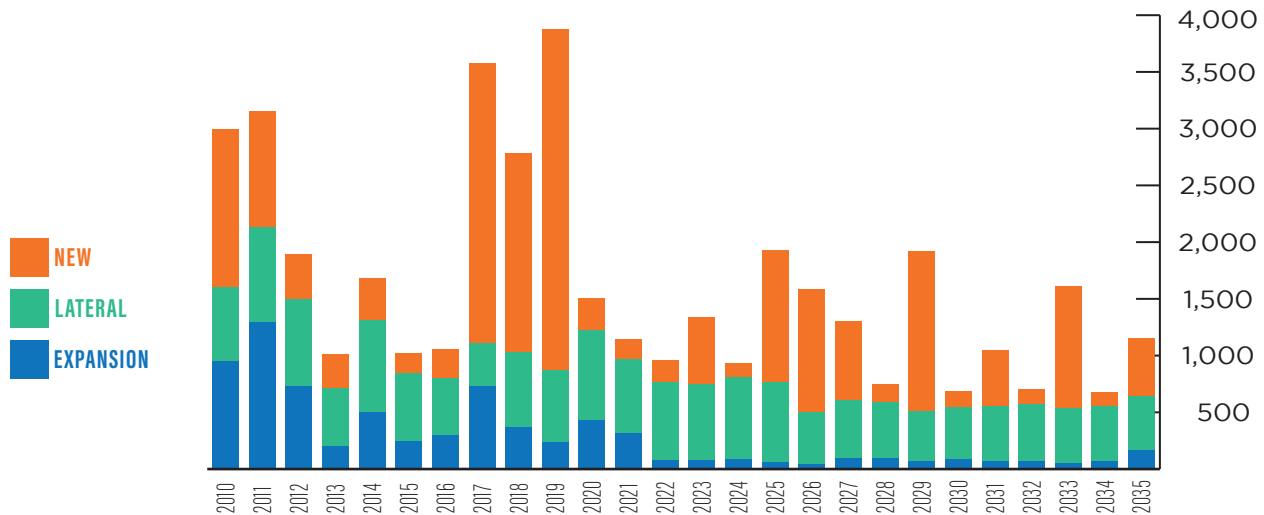
2018-2035 (BILLIONS OF 2016\$)

	CONSTANT COST CASE	ESCALATING COST CASE	2018 REPORT ANNUAL AVERAGE 2018-2035	2016 REPORT ANNUAL AVERAGE 2018-2035	2016-2018 PERCENT INCREASE
Natural Gas Transmission Mainline Pipe	6.0	7.3	6.6	3.0	+122.3%
Power Plant Laterals	2.0	2.5	2.2	1.5	+50.4%
Storage Laterals	0.1	0.1	0.1	0.03	+197.0%
Processing Plant Laterals	0.5	0.6	0.6	0.4	+27.3%
Gathering Line (pipe only)	2.2	3.0	2.6	1.5	+74.5%
Gathering Line (compression)	1.4	2.0	1.7	1.3	+31.3%
Natural Gas Lease Equipment	0.7	0.9	0.8	1.2	-35.0%
Compression for Transmission Mainline	1.4	1.8	1.6	0.8	+109.9%
Natural Gas Storage Fields	0.3	0.3	0.3	0.2	+72.8%
Natural Gas Processing Capacity	2.0	2.6	2.3	1.5	+48.2%
LNG Export Facilities	4.0	4.6	4.3	3.6	+20.3%
TOTAL	\$ 20.5	\$ 25.8	\$ 23.2	\$ 15.1	+53.9%

CAPITAL EXPENDITURES FOR NATURAL GAS
INFRASTRUCTURE ARE UP **54%** VERSUS 2016 ESTIMATES

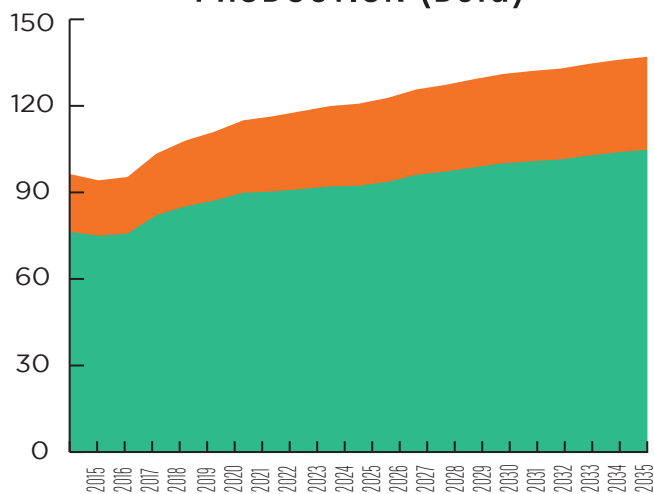
26,000 MILES OF NEW NATURAL GAS TRANSMISSION PIPELINE 2018-2035

MILES OF NATURAL GAS PIPELINE



45% INCREASE IN NATURAL GAS PRODUCTION BETWEEN 2015-2035

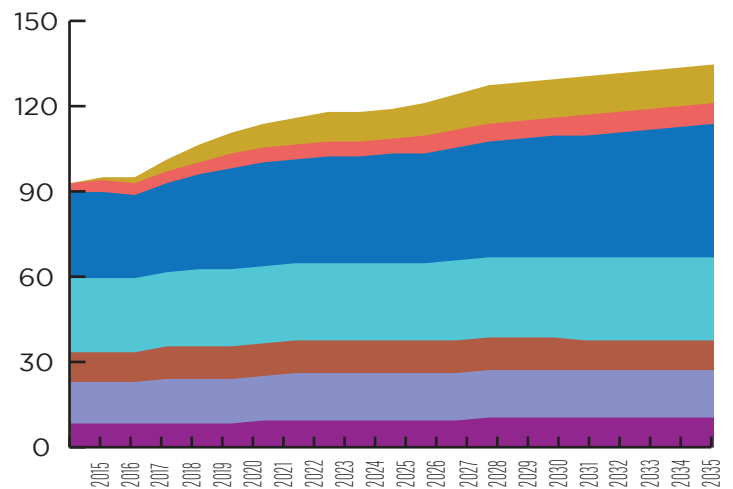
U.S. & CANADIAN NATURAL GAS PRODUCTION (Bcfd)



ASSOCIATED GAS **NON-ASSOCIATED GAS**

NON-ASSOCIATED NATURAL GAS REFERS TO NATURAL GAS PRODUCTION FROM NATURAL GAS WELLS.
ASSOCIATED NATURAL GAS REFERS TO ASSOCIATED DISSOLVED NATURAL GAS FROM OIL WELLS.

U.S. & CANADIAN NATURAL GAS USE (Bcfd)



LNG EXPORTS **MEXICO EXPORTS** **POWER** **INDUSTRIAL**
COMMERCIAL **RESIDENTIAL** **OTHER**

Formed in 1990 by the Interstate Natural Gas Association of America, the INGAA Foundation facilitates the safe, efficient, reliable and environmentally responsible design, construction, operation and maintenance of the North American natural gas transmission system to advance the delivery of natural gas for the benefit of the consuming public, the economy and the environment. For more information, please visit our website at: <http://www.ingaa.org/Foundation.aspx>.



The INGAA Foundation, Inc.